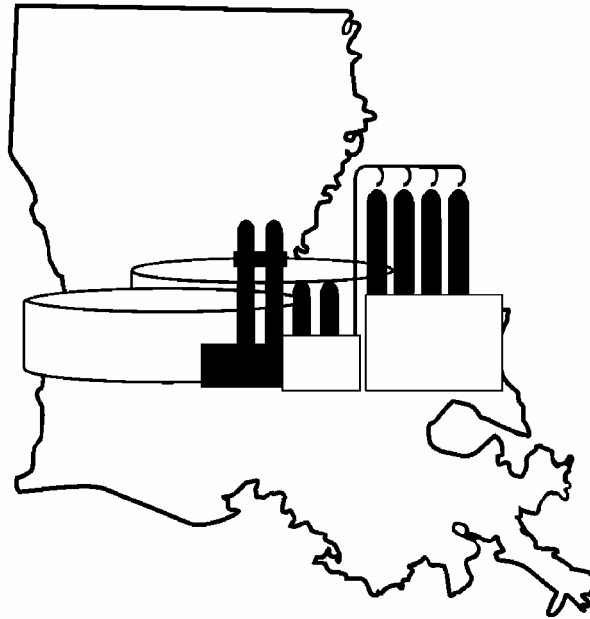


LOUISIANA CRUDE OIL REFINERY SURVEY REPORT

Thirteenth Edition
2003 Survey

By Bryan Crouch, P.E.

Refining, Alternative Energy & Power Systems Program



LOUISIANA DEPARTMENT OF NATURAL RESOURCES

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Catalytic-cracking technology, invented at Exxon Baton Rouge in 1942, helped win World War II. It remains an industry standard.
Photo courtesy of Exxon Public Affairs

Foreword

Since 1989, the Technology Assessment Division of the Louisiana Department of Natural Resources (DNR), has periodically conducted surveys of Louisiana crude oil refineries. The results of the survey are compiled into a report focusing on developments that have occurred since the previous survey. These include an overview of the general direction of the industry and updated information on the current status of refinery ownership, mailing addresses, operating status and key personnel. Tabulated statistical data, charts, and graphs relating to oil production, refinery crude oil sources, refinery margins, capacities, operating rates, and product slate are also presented. Information on both operating and non-operating refineries that are still intact is included. The previous survey was accomplished in December 2001, and published in October 2002.

The information contained in this report is designed to complement the information presented in the refinery section of the Department of Energy/Energy Information Administration (DOE/EIA) Petroleum Supply Annual. DNR gratefully acknowledges permission to use the latest *Oil and Gas Journal* Worldwide Refining Survey results for Louisiana refineries to provide another independent dataset for comparison.

The operating refining capacities, operating rates, and product slate statistics presented in this report are prepared from data supplied by survey respondents. The information on the non-operating refineries is obtained from their owners, trustees, or management personnel and is current within a few weeks of publication. The data used to construct the charts and graphs on oil production, refinery margins, and crude oil sources is obtained from DNR's database.

The principal terms and phrases used in this report are the same as those used in DOE/EIA publications. The definitions of these terms can be found in the Definitions section of this report. The slight difference in meaning between *operable* and *operating*, when used to specify capacity or utilization rate, has caused some confusion. "Operable" refers to the maximum amount of crude oil that a refinery can process in its atmospheric stills; "operating" refers to the amount of crude oil actually processed.

The Department of Natural Resources uses the information in this report to enhance the economic development efforts of the State by:

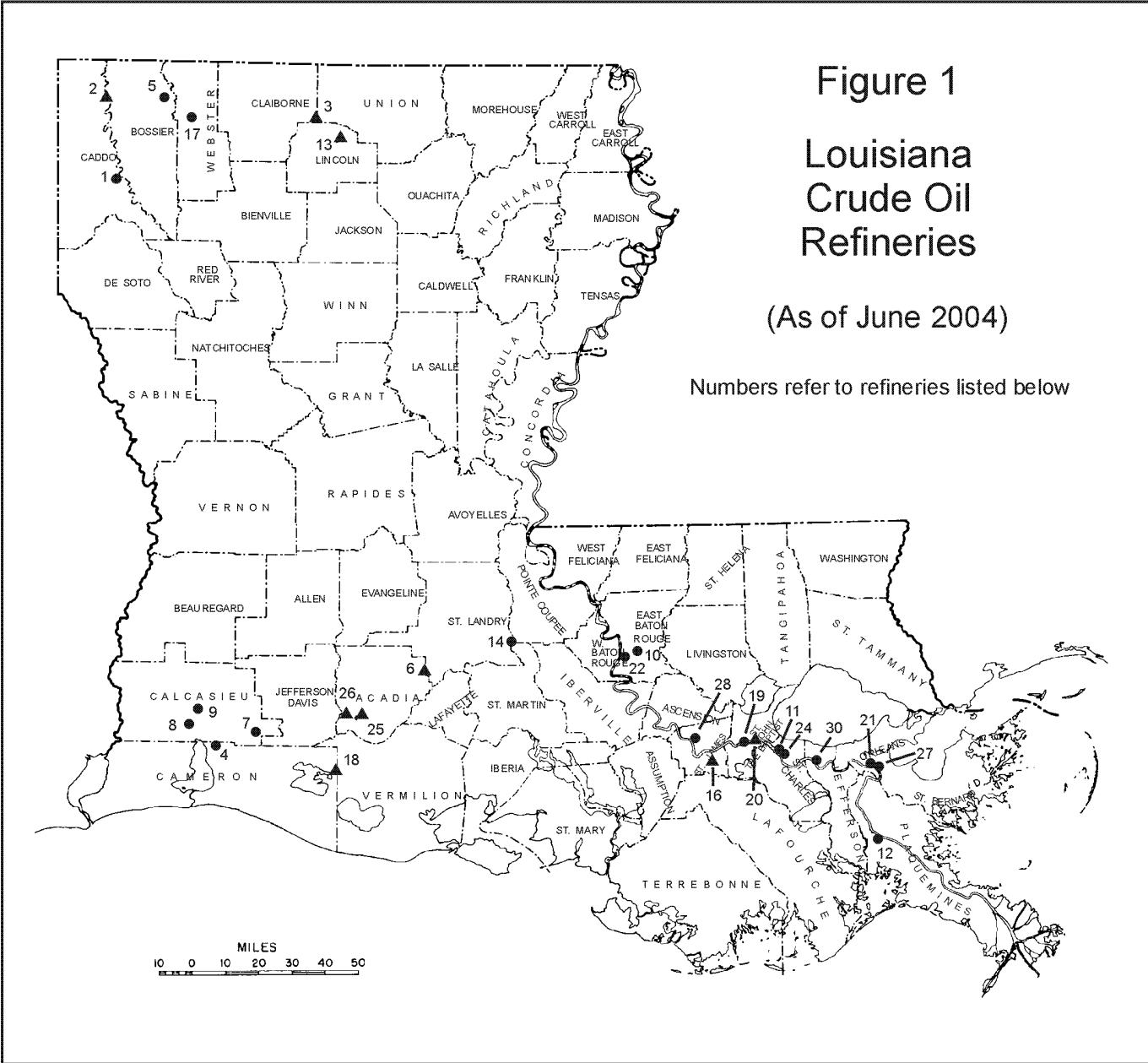
- Developing information on State and Federal energy policies that affect the oil and gas production and refining industries located in the State;
- Helping crude suppliers locate refining sources and refined petroleum product buyers locate sources of supply;
- Assisting new industries desiring to site facilities near refineries; and,
- Providing information to parties evaluating refineries for possible purchase.

Figure 1

Louisiana
Crude Oil
Refineries

(As of June 2004)

Numbers refer to refineries listed below



Technology Assessment Division

OPERATING REFINERIES ●

- 1 Calumet Lubricants - Shreveport
- 4 Calcasieu Refining - Lake Charles
- 5 Calumet Lubricants - Princeton
- 8 CITGO Petroleum - Lake Charles
- 9 ConocoPhillips - Lake Charles
- 10 ExxonMobil - Baton Rouge
- 11 Valero Refining - Norco
- 12 ConocoPhillips - Belle Chasse
- 14 Valero Refining - Krotz Springs
- 17 Calumet Lubricants - Cotton Valley
- 19 MarathonAshland Petroleum - Garyville
- 21 Murphy Oil U.S.A. - Meraux
- 22 Placid Refining - Port Allen
- 24 Motiva Enterprises - Norco
- 27 Chalmette Refining - Chalmette
- 28 Motiva Enterprises - Convent
- 30 Shell Chemical - St. Rose

NON-OPERATING REFINERIES ▲

- 2 Bayou State Oil - Hosston
- 3 Lisbon Refinery - Lisbon
- 6 Canal Refining - Church Point
- 7 American International Refinery - Lake Charles
- 13 El Paso Field Services - Dubach
- 16 Ergon St. James - St. James
- 18 Tina Resources - Talen's Landing
- 20 Petroleum Fuel & Terminal - Mt. Airy
- 25 Quantum Fuel & Refining - Egan
- 26 Gold Line Refining - Jennings

Note: Refineries 15, 23, and 29 have been intentionally removed from this listing because they no longer produce finished refinery products (#15) or have been dismantled (#23 & #29).

Discussion

Overview

Louisiana is a primary energy producing state with 501 million barrels in crude reserves (2002), ranking it 6th among the states (3rd if the Louisiana portion of the federal outer continental shelf (OCS) is included). Louisiana ranks 4th among the states in crude oil production (1st if Louisiana OCS is included), with 93.8 million barrels produced in 2002. The Louisiana OCS territory is the most extensively developed and matured OCS territory in the United States. The Louisiana OCS territory has produced approximately 90% of the 13.4 billion barrels of crude oil and condensate consumed in the U.S. from the beginning of time through the end of 2001.

The discovery of these large quantities of crude oil led to the development of the refining and petrochemical industry in Louisiana. Louisiana's refining capacity grew with oil production until about 1970 when Louisiana's oil production peaked and began to decline. Refinery capacity continued to grow by processing more oil from other states as well as overseas. In 2002, almost 55% of refinery input was foreign crude. See table 6 and figures 5 and 6.

All refineries and refining companies are not created equal. There are small refineries and large ones. Some are quite complex, while others are relatively simple. A number are part of major, integrated oil companies, and some are independent.

Integrated oil companies are engaged in all aspects of the petroleum industry--exploring for and producing crude oil, as well as refining, transporting and marketing petroleum products.

An independent refiner, on the other hand, purchases most of its crude oil on the open market rather than producing it. Refiners such as Placid Refining Co. and Calcasieu Refining Co. are examples of independent refiners.

Major oil companies dominate the refining industry. The top 10 U.S. refiners, all of them major, integrated oil companies, account for about 75% of the total domestic refinery charge capacity. Most of these have operations in Louisiana, either as wholly owned facilities such as the Baton Rouge ExxonMobil refinery or as part owners or joint ventures such as Motiva Refineries in Norco and Convent.

Many refineries are only fuels refineries, some are lube stock refineries, and others are petrochemical refineries. The Shell oil refinery in St. Rose is a good example of a petrochemical refinery. All of its products are raw feed for a chemical plant. Table 2 clearly shows the focus of the refiners in Louisiana.

Besides the level of vertical integration of a refiner and the product mix of a refinery, industry analysts also look at capacity and complexity.

A "complexity factor" is assigned to each process unit of a refinery based on its relative construction cost. The atmospheric crude distillation unit is assigned a value of one. For example, the cost of a fluidized catalytic cracker is six times greater than an atmospheric crude distillation unit of the same capacity, so its unit complexity factor is six.

Greater complexity does not necessarily go hand in hand with larger capacity. Some of the

smaller facilities in Louisiana are the most complex. For example, the lube and wax producing refineries of North Louisiana are very complex compared to the huge refinery in Baton Rouge.

EIA statistics show that after declining in 2001, overall petroleum product demand increased by 0.6% in 2002 and 1.4% in 2003 to slightly over 20 million barrels per day. Finished motor gasoline supply rose 1% in 2003 to 8.94 million barrels per day, and jet fuel continued its two year decline by 2.5% to 1.57 million barrels per day.

The Louisiana refinery operating rate was 91.3% for this survey period as compared to the total U.S. refinery operating rate of 93.11% for the same time period. Figure 2 compares Louisiana, Texas gulf coast, and total U.S. refinery operating rates since 1989.

ExxonMobil maintains its rank as the world’s largest refiner. The ConocoPhillips merger resulted in the sixth largest refiner in the world.

World Rank	Company	Crude Capacity (mb/cd*)
1	ExxonMobil	5,295
2	Royal Dutch/Shell	4,815
3	BP PLC	3,285
4	Petroleos de Venezuela	2,671
5	Sinopec	2,665
6	ConocoPhillips	2,596
7	Total SA	2,596
8	ChevronTexaco	2,183
9	Saudi Aramco	2,146
10	PetroleoBrasileiro SA	1,930

*Thousand Barrels per Calendar Day
 Source: *Oil & Gas Journal*, Dec 22, 2003

As reported in the *Oil & Gas Journal's* 2003 worldwide refinery report, world wide refining capacity grew slightly to a little over 82 million barrels per calendar day (b/cd). In the United States, refining capacity from its 132 refineries grew by 75,000 b/cd to almost 16.7 million b/cd. Louisiana capacity shrank by 58,000 b/cd to 2.66 million b/cd. Louisiana ranks second among the states with 15.9% of the U.S. refining capacity. Texas ranks first with 27.8% and California ranks third with 11.6%.

Refinery Products

Louisiana’s 17 operating refineries process over 2.5 million barrels per day of crude into refined products. Gasoline accounts for the largest percentage of refinery production, at approximately forty percent. The following table lists the top ten refinery products based on percent of total refinery production. Table 2 contains a detailed list of refinery products.

Product	Percent of Refinery Products
Regular gasoline	27.0
Diesel	17.8
Jet fuel/Kerosene	10.3
Premium gasoline	8.0
Residual/Coke	6.3
Fuel oil	6.1
Reformed gasoline	4.6
LPG	4.2
Petrochemical feed	4.1

From DNR Survey

Most of Louisiana's refinery products are exported to other states. Take gasoline for example, Louisiana itself consumes about 6.3 million gallons of gasoline per day (mmg/d), but produces almost 60 mmg/d.

The Clean Air Act Amendments of 1990 mandate the use of oxygenated gasoline in areas of high pollution. Refiners can use oxygenates such as ethanol or MTBE (methyl tertiary-butyl ether) to meet this requirement. There are two programs that carry out the oxygenated gasoline requirement. The Winter Oxyfuel Program is used during cold months in cities that have high levels of carbon monoxide. Ethanol is primarily used in this program. The other program is a Year-round Reformulated Gasoline (RFG) Program for cities with the worst ground level ozone problem. MTBE is used in most of the gasoline produced for these areas. MTBE is the preferred oxygenate outside the Midwest region because it blends more easily, has a high octane rating, has lower volatility, and can be shipped through existing pipelines. Yearly, about 168,000 barrels (2003) of MTBE is produced per day, most of it for blending with gasoline.

Five refineries in Louisiana produced reformulated gasoline during this survey period. Approximately 12% of the gasoline produced was RFG. In the U.S., about 33% of gasoline produced is RFG. A chart showing the areas of the country that are required to use RFG can be seen on the EPA's website at: <http://www.epa.gov/otaq/rfgmap.jpg>. Currently, no RFG is used in Louisiana, but that may be about to change. The EPA has recently downgraded the five parish area surrounding Baton Rouge from "serious" to "severe" for ground-level ozone. The Clean Air Act of 1990 requires the use of RFG in any area classified as "severe". This requirement is set to take effect on June 23, 2004, but lawsuits and/or federal energy legislation may delay or negate the requirement. Ozone or smog is produced when oxides of nitrogen (NOx) and volatile organic compounds (VOCs) react with sunlight. It has been reported that only 16.8% of NOx and 14% of VOCs comes from mobile sources, so requiring the use of RFG in the Baton Rouge area would do little to alleviate the high ozone levels.

The future of MTBE as an oxygenate is uncertain. Leaks and spills of gasoline containing MTBE have resulted in drinking water contamination. MTBE is extremely water soluble, a very small amount can contaminate a large quantity of water. At a level of 5 parts per billion, MTBE imparts an unpleasant odor and taste to water. California has banned MTBE and other states are expected to follow. The U.S. Congress is also considering a phase out of MTBE, as well as a repeal of the oxygenate requirement, and a renewable fuel standard. Any of these pieces of legislation could affect the use of MTBE. Other oxygenates, such as tertiary amyl methyl ether and ethyl tertiary butyl ether, will likely suffer from the same concerns as MTBE. Ethanol is

widely seen as the most likely replacement for MTBE in reformulated gasoline if the oxygenate requirement stays in effect. Ethanol is not without its problems. Ethanol, when blended with gasoline has a higher vapor pressure than gasoline blended with MTBE. This causes an increase in evaporative which leads to ground-level ozone formation. In order to lower the vapor pressure of ethanol blended gasoline, pentane must be removed from the gasoline base stock which causes a significant volume loss to the base stock which can cause supply problems and price spikes. This is precisely what happened in the mid-west during the summer of 2004. Another problem is that ethanol is soluble in water, and gasoline blended with ethanol will separate if contaminated with water. Pipelines usually contain some moisture, and for this reason ethanol must be shipped by train or truck and blended into gasoline near distribution points. This is generally less efficient than blending at the refinery and transporting by pipeline.

Figure 7 shows the Wright Killen Gulf Coast Refinery Margins taken from the Oil & Gas Journal over time. However in 1999 the *Oil & Gas Journal* switched to using the refinery margin data from Muse, Stancil & Co. We have plotted both sources, and although they trend similarly, the absolute values are different because of different assumptions about refinery operations.

Wright Killen refining margins are gross cash margins before depreciation, taxes, and financial charges, based on actual refinery yields and crude oil and wholesale products prices. Wright Killen estimates fixed costs-excluding most corporate expenses for such activities as research and development-and variable costs based on regional refinery configurations.

Details about the methodology used by Muse Stancil are explained in the January 15, 2001 edition of the *Oil & Gas Journal*.

Recent Changes

Valero Refining Co. acquired the Orion refinery in Norco and has recently begun construction of a gasoline desulphurization unit at that facility. The ConocoPhillips merger was granted final approval in early 2003.

Operating Refineries

Operating capacity for Louisiana refineries is down slightly from our last survey. There were several gainers, but the shutdown of the American International refinery in Lake Charles overshadowed the gains. Table 2 shows the details of operating capacity and 12 month throughput. Figure 2 shows the change in Louisiana operating capacity over the last 50 years as compared with the U.S. as a whole.

Non-Operating Refineries

The American International refinery in Lake Charles was shutdown in January 2002. Attempts to contact the refinery or anyone associated with the refinery were unsuccessful.

There was no change in the status of Bayou State Oil's Hosston facility. The refinery remains shutdown with no plans to reopen. Some of the process equipment has been sold, but what remains is operable.

The Canal Refining Co. facility at Church Point was scheduled to restart in 2004, but had not yet done so as of the publication date of this survey. The refinery was shutdown for extensive maintenance and process projects that are expected to result in a capacity increase.

There is no update on the status of the Gold Line facility in Jennings. The refinery was last operated in February of 1998. Our last survey indicated that the facility was for sale or lease.

The Quantum Fuel and Refining refinery at Egan was scheduled to restart in early 2002, but plans were sidelined in the wake of 9/11. The owner's are still pursuing a restart.

No response was received from the Tina Resources facility in Cameron Parish. The latest information DNR received indicated the facility was for sale.

The identity and location of each of the non-operating refineries is shown on the map in Figure 1. Mailing addresses and contacts are listed in Table 10. Physical locations, last known crude capacity, date last operated, and present status are described in Table 11.

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Definitions

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 oil and product slate conditions with no allowance for downtime.

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

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.

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. *Note: This survey uses the capacity at the **end** of the period.*

Operating capacity - The component of operable capacity that is in operation at the beginning of the period. *Note: This survey uses the capacity at the **end** 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.

Throughput – Is the actual barrels of crude oil processed by the atmospheric stills for the survey time period.

Operating Rate % - Throughput divided by 365 divided by operating capacity expressed as a percentage.

Operable Rate % - Throughput divided by 365 divided by operable capacity expressed as a percentage.

Table 1
Louisiana Operating Refineries
Capacity and Throughput Changes

REFINERY NAME	Previous Operating Capacity ¹ (BCD)	Capacity Change (BCD)	Previous 12-Month Throughput ¹ (Barrels)	Throughput Change (Barrels)	Capacity Change (Percent)
American International Refinery, Inc. - Lake Charles	35,000	-35,000	1,149,656	-1,149,656	-100.00
Calcasieu Refining Co. - Lake Charles	22,000	9,000	7,329,324	3,782,914	40.91
Calumet Lubricants - Cotton Valley	8,500	5,116	2,515,657	907,451	60.19
Calumet Lubricants - Princeton	6,548	1,656	2,192,117	-2,128,442	25.29
Calumet Lubricants - Shreveport	8,000	134	6,314	2,962,704	1.68
Chalmette Refining, LLC - Chalmette	190,200	0	69,423,000	-9,515,117	0.00
Citgo Petroleum Corp. - Lake Charles	338,000	14,000	116,589,804	-2,647,267	4.14
ConocoPhillips - Belle Chasse	250,000	10,000	82,504,000	10,098,489	4.00
ConocoPhillips - West Lake	236,000	14,000	75,155,647	7,667,695	5.93
ExxonMobil Refining & Supply Co. - Baton Rouge	485,000	8,000	174,792,900	5,517,100	1.65
Marathon Ashland Petroleum, LLC - Garyville	255,000	0	88,363,675	-1,712,252	0.00
Motiva Enterprises, LLC - Convent	225,000	0	82,658,486	-533,486	0.00
Motiva Enterprises, LLC - Norco	230,000	10,000	82,922,765	-8,025,368	4.35
Murphy Oil USA, Inc. - Meraux	110,000	-5,000	38,179,000	-16,767,366	-4.55
Placid Refining Co. - Port Allen	49,500	0	17,979,319	-1,272,017	0.00
Shell Chemical Co. - St. Rose	54,000	0	17,373,002	-677,002	0.00
Valero Refining Co. - Krotz Spings	78,000	0	20,646,826	4,347,490	0.00
Valero Refining Co. - Norco ²	155,000	-33,584	45,729,941	n/a	-21.67
Totals	2,735,748	-1,678	925,511,433	-9,144,130	-0.06

See notes on page 14

Table 2
Louisiana Operating Refineries
Crude Capacity (bcd) and Percent Product Slate
December 2003 DNR Survey

Data in this table may differ from data reported elsewhere for a different time period.

REFINERY NAME	DNR FAC. CODE	Operating capacity as of 10/31/03	Operating rate %	Idle capacity (bcd)	Operable rate %	Throughput 11/1/02 - 10/31/03 (barrels)
Calcasieu Refining Co. - Lake Charles	CLC	31,000	98.2	0	98.2	11,112,238
Calumet Lubricants - Cotton Valley	CTT	13,616	68.9	0	68.9	3,423,108
Calumet Lubricants - Princeton	CLM	8,204	2.1	1,296	1.8	63,675
Calumet Lubricants - Shreveport	ATL	8,134	100.0	6,866	54.2	2,969,018
Chalmette Refining, LLC - Chalmette	TNN	190,200	86.3	0	86.3	59,907,883
Citgo Petroleum Corp. - Lake Charles	CTS	352,000	88.7	0	88.7	113,942,537
ConocoPhillips - Belle Chasse	STN	260,000	97.6	6,300	95.3	92,602,489
ConocoPhillips - West Lake	CNB	250,000	90.8	0	90.8	82,823,342
ExxonMobil Refining & Supply Co. - Baton Rouge	EXX	493,000	100.2	0	100.2	180,310,000
Marathon Ashland Petroleum, LLC - Garyville	MRT	255,000	93.1	0	93.1	86,651,423
Motiva Enterprises, LLC - Convent	TXC	225,000	100.0	0	100.0	82,125,000
Motiva Enterprises, LLC - Norco	SHL	240,000	85.5	0	85.5	74,897,397
Murphy Oil USA, Inc. - Meraux	MRP	105,000	55.9	65,000	34.5	21,411,634
Placid Refining Co. - Port Allen	PLC	49,500	92.5	0	92.5	16,707,302
Shell Chemical Co. - St. Rose	INT	54,000	84.7	0	84.7	16,696,000
Valero Refining Co. - Krotz Spings	HLL	78,000	87.8	0	87.8	24,994,316
Valero Refining Co. - Norco ²	GDH	121,416	100.0	33,784	78.2	14,934,100
Weighted State Average (%)			91.3		88.6	
Total La. Operating Capacity		2,734,070		113,246		885,571,462

Table 2 (Cont.)
Louisiana Operating Refineries
Crude Capacity (bcd) and Percent Product Slate
December 2003 DNR Survey

Data in this table may differ from data reported elsewhere for a different time period.

DNR FAC. CODE	% of Total Product Slate												
	Gasoline			Other Fuels			Miscellaneous			Other Products			
	Reg.	Prem.	RFG	Diesel	Jet/ Kero.	Fuel Oil	LPGs	Naph.	Resid./ Coke	Product 1	Product 2	Product 3	All Other
CLC				21.2	18.8	23.8	10.0	25.7		0.5 vent gas			
CTT				2.8				50.6		30.3 gas oil	16.2 light straight run	0.1 butane/ pentane	
CLM				8.0				2.0		72.0 lube oil	18.0 asphalt		
ATL				34.0				0.1		36.0 lubes	0.1 waxes	0.1 asphalt	29.8 intermediate dist., other ³
TNN	6.8	31.5		27.9		4.6	6.5	1.1	6.3	3.6 aromatics	2.0 gas oil	1.7 sulfur	8.0 reform., alkyl., other ⁴
CTS	27.9	12.0	3.8	13.5	16.5	1.5	5.7	1.5	14.5	3.1 petro- chemicals			
STN	28.8	9.1		29.2	13.0	1.2	5.2		3.8	5.2 gasoline blendstock	4.2 aromatics	0.1 sulfur	
CNB	31.4			29.5	15.1		1.2		7.3	13.8 lube oil feed- stock	1.7 ref. grade propylene		
EXX	16.0	5.0	15.0	14.0	10.0	3.0	2.0	1.0	4.0	20.0 petrochem. feedstock	2.0 lubes, waxes	6.0 sulfur, fuel gas	2.0 LCO, gas oil (1% each)
MRT	41.0	6.4	0.7		1.1	23.6	6.6	0.2	10.3	6.5 asphalt	3.1 dry gas	0.6 sulfur	
TXC	37.0	3.0	6.0	23.0	14.0	13.0	1.5	1.0		1.0 propylene	0.5 dimate		
SHL	33.6	15.0	4.6	12.3	9.9	1.1	11.1	1.5	5.7	1.6 cat feed	0.3 MTBE	1.4 fuel gas	1.9 other ⁵
MRP	41.3	5.8		29.5	5.5	14.1	0.8	0.0	0.4	2.1 propylene mix	0.4 sulfur	0.2 normal butane	0.1 butylene mix
PLC	46.0	0.4		25.7	10.9		0.4		7.0	3.7 propylene	3.3 fuel gas	2.6 subgrade gasoline	
INT					7.0				13.0	80.0 olefins plant feed			
HLL	30.9	1.4		12.5	13.6	18.6	1.9	11.6	2.8	4.6 LCO	2.1 LSR	0.1 fuel gas	
GDH	44.0			23.4	1.9	2.5		-2.1	8.9	8.5 gas oil	5.3 other LPG's	3.6 LCO	4.0 sulf., gasoline blendstock, ⁶
Wtd %	27.0	8.0	4.6	17.8	10.3	6.1	4.2	1.5	6.3				

See notes on page 14

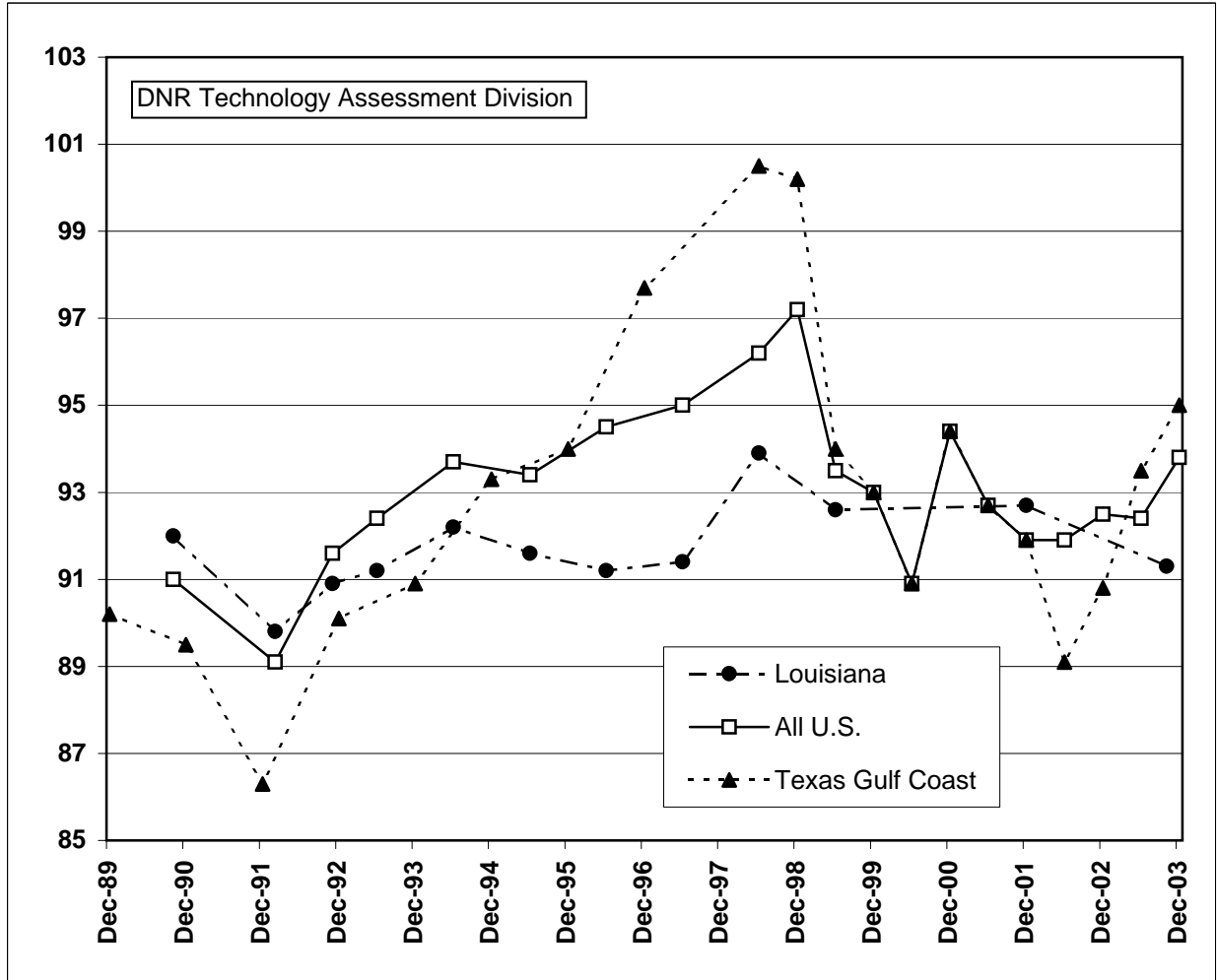
Selected Details of Other Products from Table 2

Product	Percent of Total
Petrochemical feedstock	4.07
Olefins plant feedstock	1.51
Lube oil feedstock	1.29
Aromatics	0.68
Gasoline blendstock	0.67
Asphalt	0.63
Gas oil	0.60
Lubes & Wax	0.53
Petrochemicals	0.40
LCO	0.39
MTBE	0.03
Other	3.47
<hr/>	
Total	14.29

Notes for Table 2

1. Data from last DNR survey published in October, 2002.
2. Valero purchased refinery 7/1/03. Survey results are from 7/1/03 – 10/31/03, and are not included in calculations for weighted state average operating rate % and weighted state average operable rate %.
3. Intermediate distribution – 29.68%, slop oil/cat feed – 0.07%.
4. Sales of reformat & alkylate – 2.07%, FCC carbon, own use refinery fuel, and misc. – 5.96%.
5. Normal butane – 0.60%, natural gasoline – 0.16%, reformat – 0.23%, gasoline blendstock – 0.82%, sulfur – 0.1%.
6. Gasoline blendstock – 3.40%, sulfur – 0.60%.

Figure 2
Operating Rates (%)
Louisiana, Texas Gulf Coast, and U.S. Refineries



Note: Data points generally represent 6-month or 12-month averages

Source: LA Refineries: DNR Survey

TX & U.S. Refineries: EIA, "Petroleum Supply Annual, Vol. 1 & 2"

Table 3
U.S. Department of Energy
Capacity of Louisiana Operable Petroleum Refineries as of January 1, 2003

(Barrels per Stream Day, Except Where Noted)

REFINERY NAME	DNR FAC. CODE	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
		Barrels per Calendar Day		Barrels per Stream Day		Vacuum Distillation	Thermal Cracking			
		Operating	Idle	Operating	Idle		Delayed Coking	Fluid Coking	Vis-Breaking	Other Gas/Oil
Calcasieu Refining Co. - Lake Charles	CLC	29,400	0	30,000	0	0	0	0	0	0
Calumet Lubricants - Cotton Valley	CTT	13,020	0	14,000	0	0	0	0	0	0
Calumet Lubricants - Princeton	CLM	8,300	0	8,655	0	7,000	0	0	0	0
Calumet Lubricants - Shreveport	ATL	46,200	0	50,000	0	24,300	0	0	0	0
Chalmette Refining LLC - Chalmette	TNN	182,500	0	190,200	0	106,000	34,500	0	0	0
Citgo Petroleum Corp. - Lake Charles	CTS	324,300	0	338,000	0	88,000	107,000	0	0	0
Conoco, Inc. - Westlake ¹	CNB	252,000	0	260,000	0	132,000	52,000	0	0	10,600
ExxonMobil Refining & Supply Co. - Baton Rouge	EXX	491,500	0	512,000	0	229,500	113,500	0	0	0
Marathon Ashland Petroleum, LLC - Garyville	MRT	232,000	0	254,000	0	125,000	34,500	0	0	0
Motiva Enterprises LLC - Convent	TXC	235,000	0	255,000	0	119,400	0	0	0	0
Motiva Enterprises LLC - Norco	SHL	219,700	0	242,000	0	86,000	25,000	0	0	0
Murphy Oil USA Inc. - Meraux	MRP	95,000	0	110,000	0	50,000	0	0	0	0
Orion Refining Corp. - Norco ²	GDH	155,000	0	161,000	0	95,000	88,000	0	0	0
Phillips Petroleum Co. - Belle Chasse ¹	STN	253,500	0	257,000	0	92,000	25,400	0	0	0
Placid Refining Co. - Port Allen	PLC	48,500	0	49,500	0	20,000	0	0	0	0
Shell Chemical Co. - St. Rose	INT	55,000	0	56,000	0	28,000	0	0	0	0
Valero Refining Co. - Krotz Springs	HLL	78,000	0	80,000	0	31,800	0	0	0	0
LOUISIANA TOTALS		2,718,920	0	2,867,355	0	1,234,000	479,900	0	0	10,600

Table 3 (Cont.)
U.S. Department of Energy
Capacity of Louisiana Operable Petroleum Refineries as of January 1, 2003
(Barrels per Stream Day, Except Where Noted)

DNR FAC. CODE	Downstream Charge Capacity (Continued)									
	Catalytic Cracking		Catalytic Hydro- cracking	Catalytic Reforming		Catalytic Hydrotreating				Fuel Solvents Deasphalting
	Fresh	Recycled		Low Pressure	High Pressure	Heavy Gas Oil	Naphtha Reformer Feed	Distillate	Other/ Residual	
CLC	0	0	0	0	0	0	0	0	0	0
CTT	0	0	0	0	0	0	4,750	0	0	0
CLM	0	0	0	0	0	0	0	0	8,500	0
ATL	3,500	7,000	0	8,000	0	8,000	8,000	8,000	1,200	0
TNN	71,600	0	20,000	18,900	29,400	58,000	40,000	29,800	0	0
CTS	147,000	0	44,000	64,000	52,800	75,000	123,000	37,500	45,500	0
CNB	49,000	0	28,000	48,000	0	50,000	51,500	85,500	12,500	0
EXX	239,000	0	25,000	74,000	0	0	158,000	90,000	69,800	0
MRT	121,000	0	0	49,000	0	106,000	50,000	71,000	0	36,000
TXC	92,000	0	52,000	0	40,000	36,000	41,000	100,800	0	0
SHL	120,000	0	38,100	40,000	22,000	0	38,500	47,000	0	0
MRP	38,000	0	0	18,000	0	27,500	22,000	15,000	0	0
GDH	91,000	0	0	25,000	0	35,000	35,000	40,000	16,000	0
STN	97,500	2,000	0	0	44,400	0	48,300	70,100	0	0
PLC	19,000	2,000	0	10,000	0	0	10,000	13,500	0	5,000
INT	0	0	0	0	0	0	0	0	0	0
HLL	34,000	0	0	0	13,000	0	14,000	0	0	0
Totals	1,122,600	11,000	207,100	354,900	201,600	395,500	644,050	608,200	153,500	41,000

1. Now CononcoPhillips

2. Now Valero Refining Co.

Source: Energy Information Administration, "Petroleum Supply Annual 2002 Vol. 1", Table 38

Table 4
U.S. Department of Energy
Production Capacity of Louisiana Operable Petroleum Refineries as of January 1, 2003
(Barrels per Stream Day)

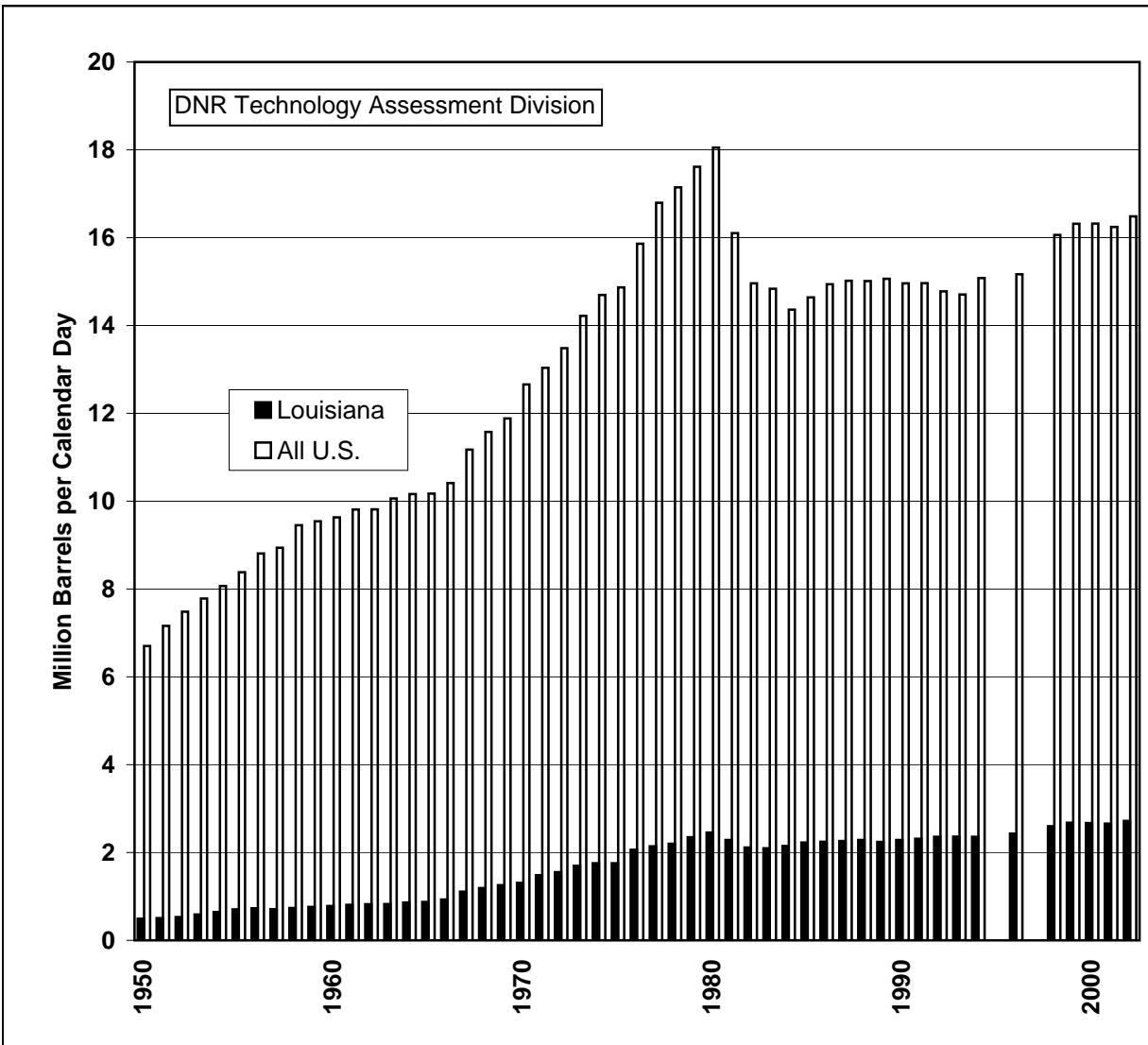
REFINERY NAME	DNR FAC. CODE	Production Capacity								
		Alkylates	Aromatics	Asphalt and Road Oil	Isomers		Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons per day)
					Isobutane	Isopentane and Isohexane				
Calcasieu Refining Co. - Lake Charles	CLC	0	0	0	2,800	0	0	0	0	0
Calumet Lubricants - Cotton Valley	CTT	0	0	0	0	500	0	0	0	0
Calumet Lubricants - Princeton	CLM	0	0	2,000	0	0	7,000	0	5	3
Calumet Lubricants - Shreveport	ATL	4,500	0	575	4,000	0	9,000	0	6	10
Chalmette Refining LLC - Chalmette	TNN	13,100	10,200	0	10,000	10,000	0	11,000	0	1,075
Citgo Petroleum Corp. - Lake Charles	CTS	22,000	4,000	0	0	28,000	11,000	26,500	0	640
Conoco, Inc. - Westlake ¹	CNB	6,000	0	0	0	0	20,000	22,500	0	440
ExxonMobil Refining & Supply Co. - Baton Rouge	EXX	35,900	0	0	0	0	15,800	27,042	24	744
Marathon Ashland Petroleum LLC - Garyville	MRT	31,000	0	42,000	24,000	20,000	0	12,800	0	1,176
Motiva Enterprises LLC - Convent	TXC	16,500	0	0	0	12,500	0	0	63	728
Motiva Enterprises LLC - Norco	SHL	16,400	0	0	0	0	0	5,600	60	165
Murphy Oil USA Inc. - Meraux	MRP	8,500	0	18,000	0	0	0	0	0	69
Orion Refining Corp. - Norco ²	GDH	13,000	0	0	0	0	0	18,500	33	410
Phillips Petroleum Co. - Belle Chasse ¹	STN	38,000	12,300	0	0	0	0	5,289	1	125
Placid Refining Co. - Port Allen	PLC	4,000	0	0	0	0	0	0	0	28
Shell Chemical Co. - St. Rose	INT	0	0	0	0	0	0	0	0	0
Valero Refining Co. - Krotz Springs	HLL	0	0	0	2,970	6,220	0	0	0	22
LOUISIANA TOTALS		208,900	26,500	62,575	43,770	77,220	62,800	129,231	192	5,635

MMcfd = Million cubic feet per day

1. Now CononcoPhillips
2. Now Valero Refining Co.

Source: Energy Information Administration, "Petroleum Supply Annual 2002 Vol. 1", Table 39

**Figure 3
Operating Capacity of LA and U.S. Refineries**



Data not available for 1995 & 1997

Source: LA Refineries: 1947 - 1975: U.S. Bureau of Mines, "Petroleum Refineries in the United States and Puerto Rico" Annual
 1976 - 1981: EIA, "Petroleum Refineries in the United States and U.S. Territories" Annual
 1982 - 2003: EIA, "Petroleum Supply Annual, Vol. 1"
 U.S. Refineries: API, "Basic Petroleum Data Book" Annual

**Table 5: Oil & Gas Journal 2003 Worldwide Refinery Survey
Capacities of Louisiana Refineries as of January 1, 2004**

Reprinted with permission. *Oil and Gas Journal*, Vol 101.49, December 22, 2003

REFINERY NAME	DNR FAC. CODE	Charge Capacity, Barrels per Calendar Day							
		Crude	Vacuum Distillation	Coking	Thermal Operations	Catalytic Cracking	Catalytic Reforming	Cat Hydro-cracking	Cat Hydro-treating
Calcasieu Refining Co. - Lake Charles	CLC	15,680							
Calumet Lubricants Co. - Cotton Valley	CTT	8,500							¹³ 4,000
Calumet Lubricants Co. - Princeton	CLM	9,500	8,500					⁴ 8,000	
Calumet Lubricants Co. - Shreveport	ATL	15,000	10,000					^{C4} 7,200	¹³ 1,100
Chalmette Refining LLC - Chalmette	TNN	182,500	102,000	² 31,500		¹ 68,000	¹ 28,000 ³ 18,000	^{C1} 18,500	¹ 39,500 29,000 55,500
Cit-Con Oil Corp. - Lake Charles			36,100						
Citgo Petroleum Corp. - Lake Charles	CTS	336,801	79,800	² 88,200		¹ 126,000	¹ 45,900 ³ 57,600	^{C1} 37,200	¹ 103,500 ² 6,300 ⁴ 22,950 ⁵ 32,400 ⁸ 64,800
ConocoPhillips - Belle Chasse	STN	250,000	92,000	² 25,200		¹ 104,000	¹ 42,000		¹ 47,000 ⁷ 65,000 ¹³ 29,160
ConocoPhillips - Westlake	CNB	227,600	106,200	² 57,800		¹ 44,800	³ 33,000	^{C3} 29,000	¹ 35,600 ⁴ 21,800 ⁵ 49,100 ⁶ 4,000 ⁷ 39,500
ExxonMobil Refining & Supply Co. - Baton Rouge	EXX	493,500	223,000	² 112,500		¹ 229,000	² 72,000	^{C1} 24,000	¹ 72,000 ² 104,000 ⁷ 95,000 ¹¹ 23,500 ¹² 9,400 ¹³ 46,000
Marathon Ashland Petroleum LLC - Garyville	MRT	232,000	118,800	² 32,800		¹ 109,300	³ 46,600		¹ 47,500 ⁵ 62,700 ⁸ 98,800
Motiva Enterprises LLC - Convent	TXC	235,000	100,000			¹ 85,000	¹ 36,000	^{C2} 45,000	¹ 40,000 ⁴ 25,000 ⁵ 63,000 ⁸ 34,000
Motiva Enterprises LLC - Norco	SHL	220,000	78,000	² 21,300		¹ 105,000	¹ 19,100 ² 38,200	^{C1} 31,500	¹ 38,000 ⁵ 35,300
Murphy Oil USA Inc. - Meraux	MRP	95,000	47,500			¹ 34,200			¹ 19,800 13,500 ¹³ 24,750
Placid Refining Co. - Port Allen	PLC	48,000	20,000			¹ 19,000	¹ 9,700		² 9,700 ⁷ 12,000
Shell Chemical Co. - St. Rose	INT	55,000	28,000						
Valero Refining Co. - Krotz Springs	HLL	82,000	34,600			¹ 32,500	¹ 11,500		¹ 13,000 ² 3,900
Valero Refining Co. - Norco ^o	GDH	155,160	88,088	² 56,000		¹ 87,813	¹ 25,000		¹ 34,136 ⁴ 11,378 ⁵ 39,333 ⁸ 29,882
Louisiana Totals		2,661,241	1,177,088	426,800	0	1,044,613	482,600	201,000	1,705,689

**Table 5 (Cont.): Oil & Gas Journal 2003 Worldwide Refinery Survey
Capacities of Louisiana Refineries as of January 1, 2004**

Reprinted with permission. Oil and Gas Journal, Vol 101.49, December 22, 2003

DNR FAC. CODE	Production Capacity, Barrels per Calendar Day									
	Alkylation	Pol./Dim.	Aromatics	Isomerization	Lubes	Oxygenates	Hydrogen (MMcfd)	Coke (t/d)	Sulfur (t/d)	Asphalt
CLC										
CTT							^{a1} 2.5 ⁴ 2.5			
CLM					7,000		^{a1} 4.5 ⁴ 4.5		3	
ATL					7,000		^{a1} 6.1 ⁴ 6.1		15	
TNN	² 12,500		¹ 10,000	³ 9,500			⁴ 5.0	2,050	695	
CTS	¹ 20,700		¹ 6,480	³ 28,800	8,550	¹ 3,150 ³ 4,140	^{a1} 47.7 ⁶ 10.8	3,870	567	
STN	² 38,000		¹ 12,400 ² 7,200				⁷ 10.4	800	70	
CNB					8,500		⁴ 110.0	3,800	363	
EXX	¹ 36,000	¹ 9,500			16,000	¹ 7,000	⁴ 12.0 ⁶ 12.0	5,000	675	
MRT	² 29,500			¹ 22,800 ³ 19,000				2,322	870	39,900
TXC	¹ 13,050	² 3,600		³ 11,250		¹ 2,250 ³ 2,500	^{a1} 58.0		700	
SHL	¹ 14,800					¹ 7,500	¹ 49.4	900	140	
MRP	² 7,650								120	
PLC	² 3,800								28	
INT										
HLL		¹ 2,100		³ 3,900		¹ 1,600				
GDH	¹ 10,641							3,596	368	
Totals	194,141	16,200	45,820	95,250	38,550	28,140	317	22,138	4,825	39,900

See page 22 for legend and notes

Legend & Notes for Table 5

LEGEND

Coking

1. Fluid coking
2. Delayed coking
3. Other

Thermal Processes

1. Thermal cracking
2. Visbreaking

Catalytic Cracking

1. Fluid
2. Other

Catalytic Reforming

1. Semiregenerative
2. Cyclic
3. Continuous regen.
4. Other

Catalytic Hydrocracking

1. Distillate upgrading
2. Residual upgrading
3. Lube oil manufacturing
4. Other
- c. Conventional (high-pressure) hydrocracking:
(>100 barg or 1,450 psig)
- m. Mild to moderate hydrocracking:
(<100 barg or 1,450 psig)

Catalytic Hydrotreating

1. Pretreating cat reformer feeds
2. Naphtha desulfurization
3. Naphtha aromatics saturation
4. Kerosine/jet fuel desulfurization
5. Diesel desulfurization
6. Distillate aromatics saturation
7. Other distillates
8. Pretreatment of cat cracker feeds
9. Other heavy gas oil hydrotreating
10. Resid hydrotreating
11. Lube oil polishing
12. Post hydrotreating of FCC naphtha
13. Other

Alkylation

1. Sulfuric acid
2. Hydrofluoric acid

Polymerization/Dimerization

1. Polymerization
2. Dimerization

Aromatics

1. BTX
2. Hydrodealkylation
3. Cyclohexane
4. Cumene

Isomerization

1. C₄ feed
2. C₅ feed
3. C₅ and C₆ feed

Oxygenates

1. MTBE
2. ETBE
3. TAME
4. Other

Hydrogen

Production:

1. Steam methane reforming
2. Steam naphtha reforming
3. Partial oxidation
 - a. Third-party plant

Recovery:

4. Pressure swing adsorption
5. Cryogenic
6. Membrane
7. Other

NOTES

Q. Formerly listed as Orion Refining Corp.

Capacity definitions:

Capacity expressed in barrels per calendar day (b/cd) is the maximum number of barrels of input that can be processed during a 24-hr period, after making allowances for the following:

(a) Types and grades of inputs to be processed.

(b) Types and grades of products to be manufactured.

(c) Environmental constraints associated with refinery operations.

(d) Scheduled downtime such as mechanical problems, repairs, and slowdowns.

Capacity expressed in barrels per stream day (b/sd) is the amount a unit can process when running at full capacity under optimal feedstock and product slate conditions. An asterisk (*) beside a refinery location indicates that the number has been converted from b/sd to b/cd using the conversion factor 0.95 for crude and vacuum distillation units and 0.9 for all downstream cracking and conversion units.

Hydrogen

Hydrogen volumes presented here represent either generation or upgrading to 90+% purity.

Catalytic reforming:

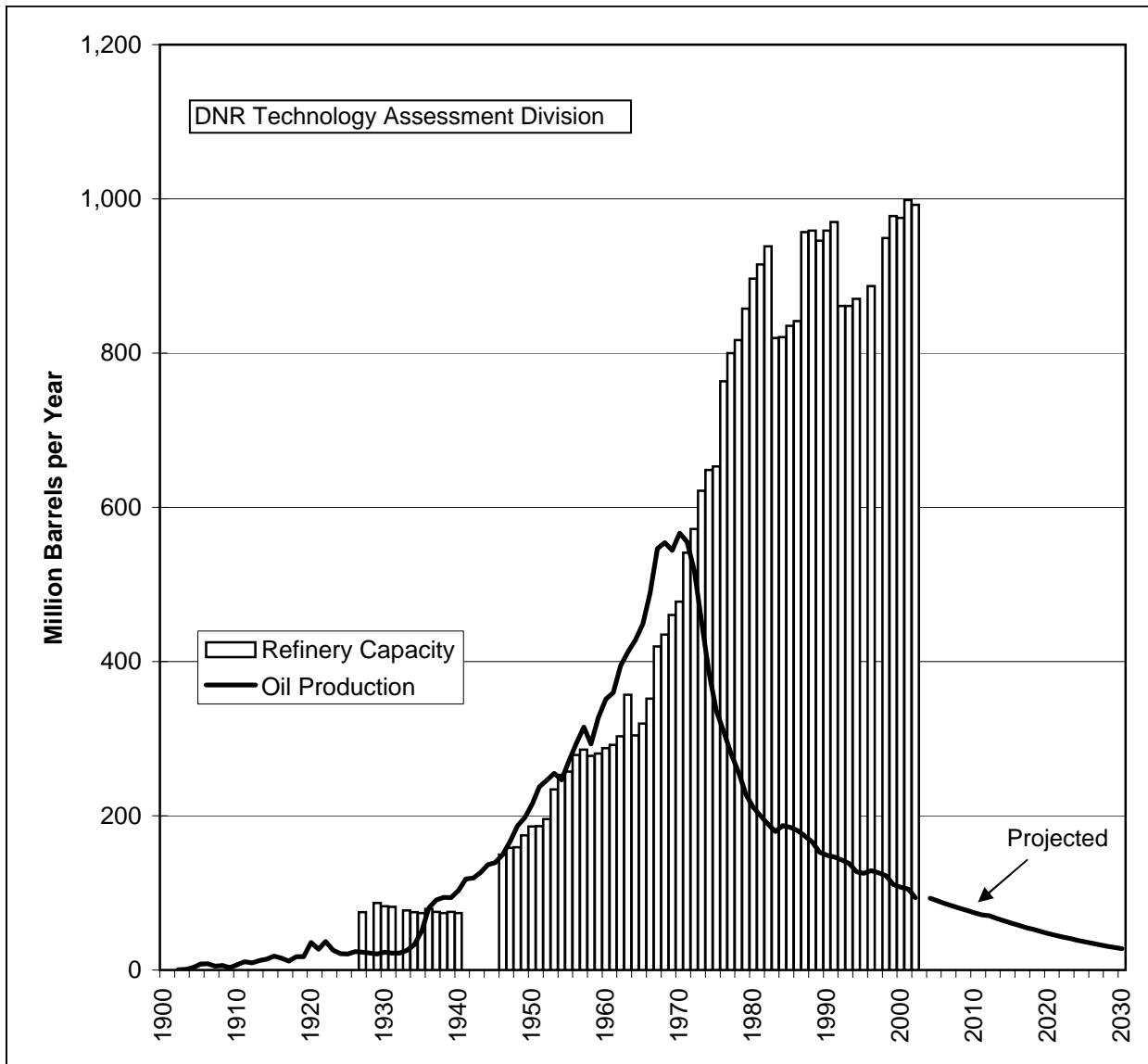
1. Semiregenerative reforming is characterized by shutdown of the reforming unit at specified intervals, or at the operator's convenience, for in situ catalyst regeneration.

2. Cyclic regeneration reforming is characterized by continuous or continual regeneration of catalyst in situ in any one of several reactors that can be isolated from and returned to the reforming operation. This is accomplished without changing feed rate or octane.

3. Continuous regeneration reforming is characterized by the continuous regeneration of part of the catalyst in a special regenerator, followed by continuous addition of this regenerated catalyst to the reactor.

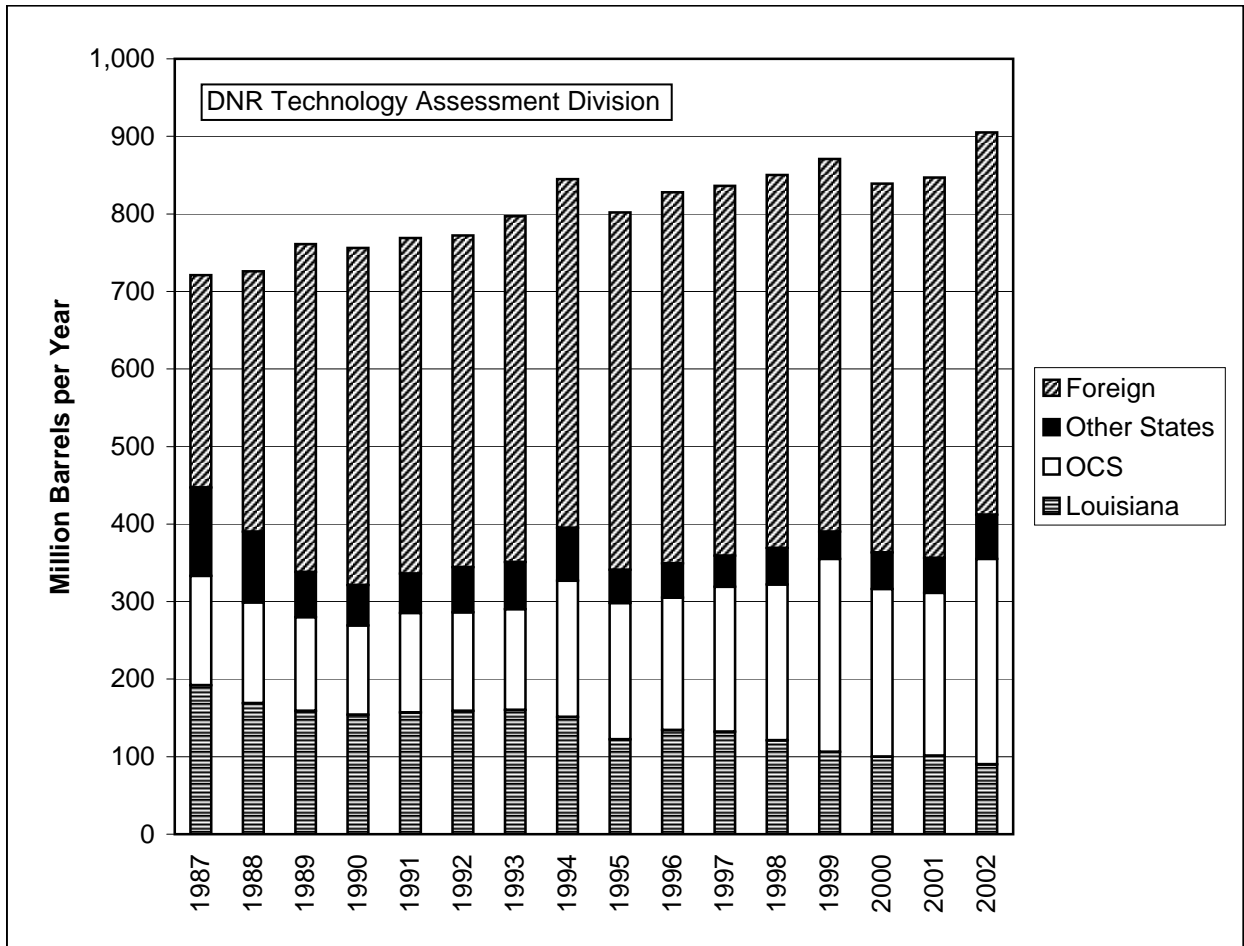
4. Other includes nonregenerative reforming (catalyst is replaced by fresh catalyst) and moving-bed catalyst systems.

Figure 4
Louisiana Oil Production and Refinery Operable Capacity



Source: Oil production data from DNR database
 Refinery capacity data from DNR database and EIA, "Petroleum Supply Annual, Vol. 1"

**Figure 5
Crude Oil Sources for Louisiana Refineries**



Source: DNR Database, from Refiner's Monthly Report, Form R-3

Figure 6
Crude Oil Input Percentages by Source and Refinery
2003 DNR Survey

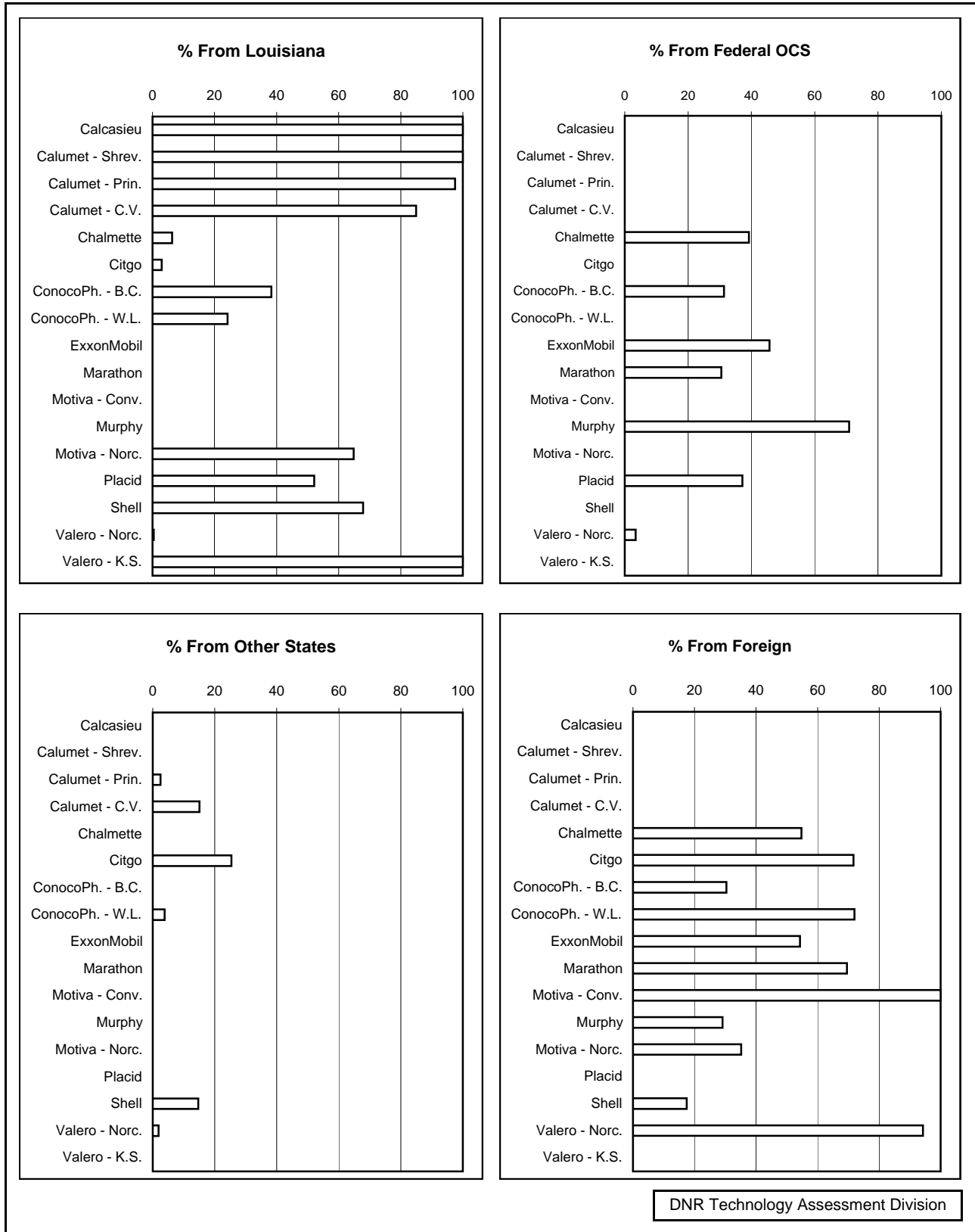
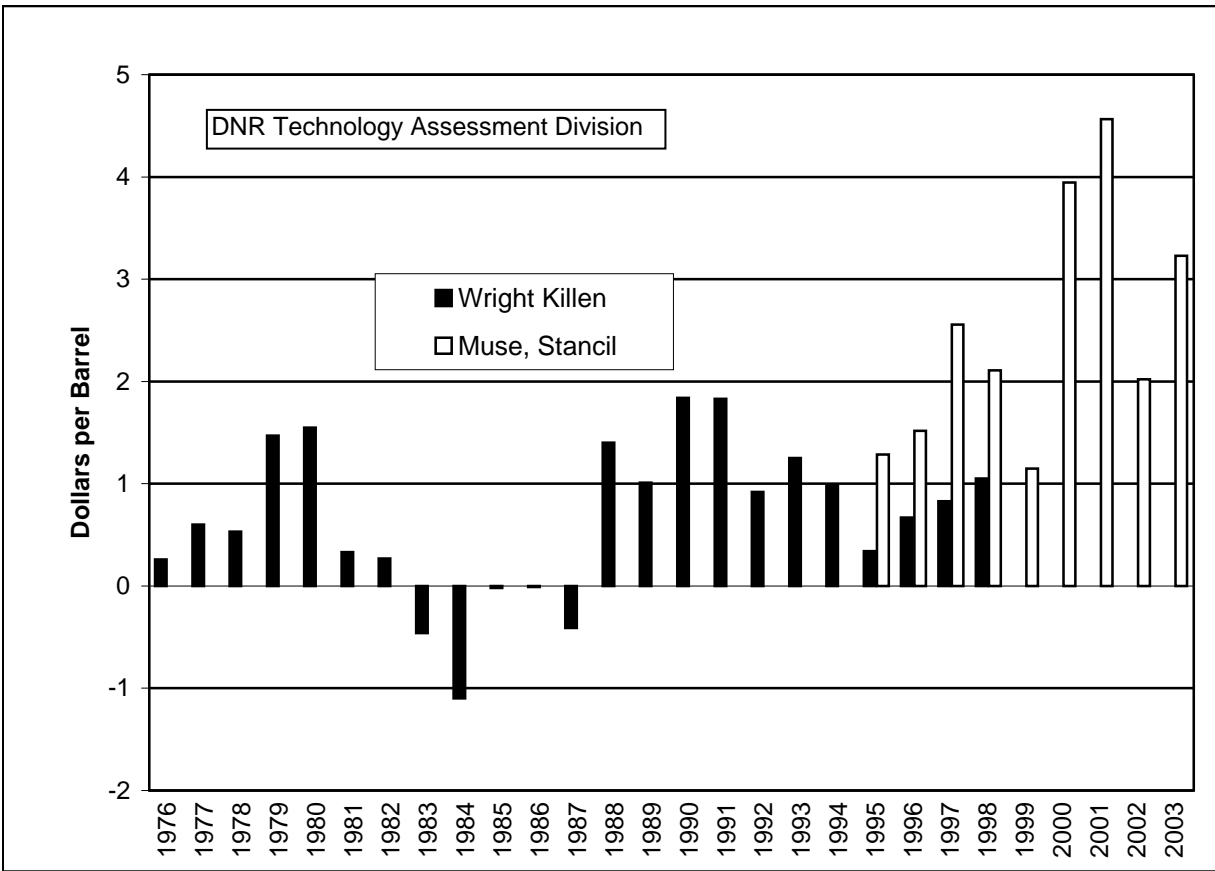


Table 6 (Data for Figure 6)
Crude Oil Input Percentages by Source and Refinery
2003 DNR Survey

	Louisiana	Federal OCS	Other States	Foreign
Calcasieu Refining	100.0	0.0	0.0	0.0
Calumet Lubricants - Shreveport	100.0	0.0	0.0	0.0
Calumet Lubricants - Princeton	97.5	0.0	2.5	0.0
Calumet Lubricants - Cotton Valley	84.9	0.0	15.1	0.0
Chalmette Refining	6.3	39.2	0.0	54.8
Citgo Petroleum	3.0	0.0	25.4	71.7
ConocoPhillips - Belle Chase	38.3	31.3	0.0	30.3
ConocoPhillips - West Lake	24.2	0.0	3.8	72.0
ExxonMobil	0.0	45.7	0.0	54.3
Marathon Ashland Petroleum	0.0	30.5	0.0	69.5
Motiva - Convent	0.0	0.0	0.0	100.0
Murphy Oil USA	0.0	70.9	0.0	29.1
Motiva - Norco	64.8	0.0	0.0	35.2
Placid Refining	52.1	37.1	0.0	0.0
Shell Chemical	67.8	0.0	14.7	17.5
Valero Refining - Norco	0.4	3.5	1.9	94.3
Valero Refining - Krotz Springs	100.0	0.0	0.0	0.0

Source: DNR Database, from Refiner's Monthly Report, Form R-3

Figure 7
Gulf Coast Refinery Cash Operating Margins



Source: *Oil & Gas Journal*

Table 7
Louisiana Operating Refineries

Company Name	Mailing Address	Contacts *	Telephone
Calcasieu Refining Co.	4359 W. Tank Farm Rd. Lake Charles, LA 70605	Mr. Dennis Lawson Mr. Rod Nelson Ms. Toni Bennett	(337) 478 2130
Calumet Lubricants Co.	PO Box 97 Cotton Valley, LA 71018	Mr. Rodney Butts Mr. Jeff Lang Mr. Rodney Butts	(318) 832 4236
Calumet Lubricants Co.	10234 La Hwy. 157 Princeton, LA 71067-9172	Mr. Jerry Arnold =Contacts!\$P\$5 Mr. Jerry Tollefsen	(318) 949 2421
Calumet Lubricants Co.	PO Box 3099 Shreveport, LA 71133	Ms. Torii Wehling Mr. Kevin Farley Mr. Dan McKibben	(318) 632 4323
Chalmette Refining, LLC	PO Box 1007 Chalmette, LA 70044	Mr. Toby Coy Mr. Dan Zivney	(504) 281 1624
Citgo Petroleum Corp.	PO Box 1562 Lake Charles, LA 70602	Mr. J. Ryan Vining Mr. Al Prebula Mr. Randy Carbo	(337) 708 6843
ConocoPhillips	PO Box 176 Bell Chasse, LA 70037-0176	Mr. Bill Crawford Mr. John Ponticello	(504) 656 3641
ConocoPhillips	PO Box 37 Westlake, LA 70669	Ms. Dawn Cox Mr. Fred Stiers	(918) 661 4821
ExxonMobil Refining and Supply Co.	PO Box 551 Baton Rouge, LA 70821	Ms. Barbara Beckman Mr. Bruce March Mr. Mark Northcutt	(225) 977 8888
Marathon Ashland Petroleum, LLC	PO Box AC Garyville, LA 70051-0842	Mr. Junius McCants Mr. Rich Bedell Mr. Bill Kepner	(985) 535 2241
Motiva Enterprises, LLC	PO Box 37 Convent, LA 70723	Mr. Gary Miller Mr. Doug Quinn Mr. Brian Meck	(225) 562 6820
Motiva Enterprises, LLC	PO Box 10 Norco, LA 70079	Mr. Gary Bono Mr. Armand Abay Mr. Jack Williams	(504) 465 7476
Murphy Oil USA, Inc.	PO Box 100 Meraux, LA 70075-0100	Mr. Dennis Bennett Mr. Greg Neve Mr. David Mendrek	(504) 278 5299
Placid Refining Co.	1940 La Hwy 1 North Port Allen, LA 70767	Mr. Gary Fuller Mr. Gary Fuller	(225) 346 7464
Shell Chemical Co.	PO Box 10 Norco, LA 70079	Mr. David Billings Mr. Jay Kinberger Mr. C. David Billings	(504) 465 7732
Valero Refining Co.	PO Box 453 Krotz Springs, LA 70750 0453	Mr. Kevin Roy Mr. Ralph Youngblood Mr. Gregg Byers	(337) 566 0114
Valero Refining Co.	PO Box 537 Norco, LA 70079	Mr. William Buhler Mr. Robert Zamarripa Mr. Lewis Chandler	(985) 764 4717

* Contacts are listed in order as: Contact person, Plant Manager, Plant Engineer

**Table 8
Louisiana Operating Refinery Locations**

Company Name	Physical Location
Calcasieu Refining Co.	4359 W. Tank Farm Rd. Lake Charles 70605
Calumet Lubricants Co.	1756 Old Hwy. 7 Cotton Valley 71018
Calumet Lubricants Co.	10234 Hwy. 157 Princeton 71067
Calumet Lubricants Co.	3333 Midway St. Shreveport 71109
Chalmette Refining, LLC	500 W. St. Bernard Hwy. Chalmette 70044
Citgo Petroleum Corp.	4401 Hwy. 108 Sulphur 70665
ConocoPhillips	15551 Hwy. 23 South Belle Chase 70037
ConocoPhillips	2200 Old Spanish Trail Rd. Westlake 70669
ExxonMobil Refining and Supply Co.	4045 Scenic Hwy. Baton Rouge 70805
Marathon Ashland Petroleum, LLC	U.S. 61 @ Marathon Ave. Garyville 70051
Motiva Enterprises, LLC	La. 44 Convent 70723
Motiva Enterprises, LLC	15536 River Rd. Norco 70079
Murphy Oil USA, Inc.	2500 St. Bernard Hwy. Meraux
Placid Refining Co.	1940 La. 1 North. Port Allen
Shell Chemical Co.	11842 River Rd. St. Rose 70087
Valero Refining Co.	La. 105 Krotz Springs
Valero Refining Co.	14902 River Rd. Norco 70079

**Table 9
Operating Refinery Name History (1980-2004)**

Refinery Name	Date	DNR Code & Location	Refinery Name	Date	DNR Code & Location
ExxonMobil Refinery and Supply Co. Exxon Co. U.S.A.	1999- 1980-99	EXX - Baton Rouge	Calcasieu Refining Co. CPI Oil & Refining, Inc. Calcasieu Refining Ltd.	1985- 1982-84 1980-81	CLC - Lake Charles
ConocoPhillips Philips Petroleum Co. B.P. Amoco PLC B.P. Oil Corp. Standard Oil Co. Gulf Refining & Marketing Co. Gulf Oil Corp. Gulf Oil Co. U.S.	2003- 2000-02 1999-00 1989-98 1986-88 1985-85 1981-84 1979-80	STN - Belle Chasse	Citgo Petroleum Corp. Cities Service Co. ConocoPhillips Conoco, Inc. Conoco Continental Oil Co.	1984- 1980-83 2003- 1982-02 1980-81 1979	CTS - Lake Charles CNB - Lake Charles
Chalmette Refining, LLC Mobil Oil Corp. Tenneco Oil Co.	1998 - 1989-98 1980-88	TNN - Chalmette	Murphy Oil U.S.A., Inc. Murphy Oil Corp. Motiva Enterprises, LLC Shell Oil Co.	1984- 1980-83 1998- 1980-98	MRP - Meraux SHL - Norco
Motiva Enterprises, LLC Star Enterprise Texaco Refining & Marketing Texaco, Inc.	1998- 1989-98 1985-88 1980-84	TXC - Convent	Calumet Lubricants Co., L.P. Calumet Refining Co. Placid Refining Co.	1991- 1980-90 1980- 2000- 1999-00 1992-98 1986-91 1985-85 1980-84	CLM - Princeton PLC - Port Allen ATL - Shreveport
Calumet Lubricants Co., L.P. Kerr-McGee Refining Corp. Kerr-McGee Corp. Cotton Valley Solvents Co.	1996- 1985-95 1983-84 1980-82	CTT - Cotton Valley	Calumet Lubricants Co., L.P. Pennzoil-Quaker State Corp. Pennzoil Producing Co. Pennzoil Products Co. Pennzoil Co. Atlas Processing Co.	1996- 1994-95 1993-93 1992-92 1987-91 1981-86	INT - St. Rose
Marathon Ashland Petroleum, LLC Marathon Oil Co. Marathon Petroleum Co. Marathon Oil Co.	1998- 1992-98 1985-91 1980-84	MRT - Garyville	Shell Chemical Co. St. Rose Refinery, Inc. Phibro Energy U.S.A., Inc. Phibro Refining, Inc. Hill Petroleum Co. International Processors		
Valero Refining Co. Orion Refining Corp. TransAmerican Refining Co. TransAmerica Refining Co. GHR Energy Corp. Good Hope Refineries, Inc. Good Hope Industries, Inc.	2004- 1999-03 1992-98 1988-91 1982-87 1981-81 1980-80	GDH - Good Hope			
Valero Refining Co. Basis Petroleum, Inc. Phibro Energy U.S.A., Inc. Phibro Refining Inc. Hill Petroleum Co.	1997- 1996-96 1993-95 1992-92 1980-91	HLL - Krotz Springs			

Table 10
Louisiana Non-Operating Refineries Mailing and Contact Information

Company Name	Mailing Address	Contacts	Telephone
American International Refinery, Inc.	PO Drawer 16866 Lake Charles, LA 70616	Mr. Allen Lyons	(337) 439 4066
Bayou State Oil Corp.	PO Box 7886 Shreveport, LA 71137	Mr. Ellis E. Brown, Sr.	(318) 222 0737
Canal Refining Co.	PO Box 8 Church Point, LA 70525	Mr. Bob McKee	(337) 824 2500
Gold Line Refining, Ltd.	11 Greenway Plaza Ste 2602 Houston TX 77046	Mr. Earl Thomas	(713) 271 3550
Quantum Fuel & Refining	Po Box 136 Newton, TX 75966	Mr. James Hughes	(409) 397 9093
Tina Resources, Inc.	207 Firestone Dr. Marble Falls, TX 78654	Mr. Leslie Vance	(512) 463 2123
Non-Operable Refineries			
El Paso Field Services	400 Travis Street Ste 1100 Shreveport, LA 71101	Mr. Martin Anthony	(318) 677 5551
Ergon St. James Co.	PO Box 318 St. James, LA 70086	Mr. Ronald Ardoine	(225) 265 8020
Lisbon Refinery J.V., LLC	8613 East Wilderness Way Shreveport, LA 71106	Mr. James Ballengee	(318) 469 3084
Petroleum Fuel and Terminal	PO Box T Garyville, LA 70051	Mr. Claude Phelps	(985) 535 6256

**Table 11
Louisiana Non-Operating Refineries**

Name	Physical Location	Last Known Operating Capacity	Date Last Operated	Status
American International Refinery, Inc.	La. 3059 Lake Charles	35,000	2003	Shutdown. Unable to contact.
Bayou State Oil Corp.	U.S. 71 N. @ La. 2 West Hosston	3,000	Feb. 1987	No plans to reopen. Some equipment sold, but process equipment remains operable.
Canal Refining Co.	1901 E. Ebey Church Point	30,000	2003	Planning to start up in March 2004.
El Paso Field Services	U.S. 167 Dubach	10,000	Jun. 1993	Gas plant still operating. Refinery not able to be restarted without substantial investment.
Gold Line Refining Co., Ltd.	U.S. 90 E. Jennings	14,800	Feb. 1998	Not able to contact.
Lisbon Refinery J.V., LLC	La. 2 Lisbon	12,500	Jan. 1996	150,000 barrels storage useable. Refinery to be dismantled.
Petroleum Fuel & Terminal Co.	La. 44 Mt. Airy	23,000	Dec. 1986	Process equipment dismantled and disposed of.
Ergon St. James Co., LLC	La.18 St. James	20,000	Aug. 1983	Mostly dismantled and taken possession of by land owners.
Tina Resources, Inc.	La. 14 Lake Arthur	7,400	Feb. 1986	No response to last three surveys. Last status received was that the refinery was for sale.
Quantum Fuel & Refining	101 Old Ferry Rd. Egan	10,000	Sep. 1987	500,000 barrel storage capacity. Currently seeking to restart.

**Table 12
Non-Operating Refinery Name History (1980-2004)**

Refinery Name	Dates	DNR Code & Location	Refinery Name	Dates	DNR Code & Location	
American International Refinery, Inc.	1997-	LKC - Lake Charles	Gold Line Refining Co., Ltd.	1994-98	SLP - Mermanteau	
Gold Line Refining Ltd.	1992-97		CAS Refining	1991-93		
American Int'l Refining, Inc.	1989-91		Celeron Oil and Gas Co.	1983-90		
Lake Charles Refining Co.	1980-88		Slapco	1980-82		
Aweco	1979-79		South Louisiana Production Co.	1979		
Sooner Refining Co.	1980-82	SNR - Darrow	Petroleum Fuel & Terminal Co.	1992-	MTR- Mt. Airy	
Conoco, Inc.	1982-89	CNA - Egan	Clark Oil and Refining Corp.	1983-91		
Conoco	1980-81		Mt. Airy Refining	1980-82		
Continental Oil Co.	1979		St. James Co., LLC	1998-	TXS - St. James	
Quantum Fuel & Refining	1998-	LOR - Egan	Texas NAPCO, Inc.	1983-98		
U.S. Refining, Inc.	1994-98		La. Jet, Inc.	1980-82		
Britt Processing & Refining Co.	1992-93		McTan Refining Corp.	1983-96	BRN - St. James	
Crystal Refining, Inc.	1989-91		McTan Corp.	1982-82		
OGC Corp.	1988-88		Bruin Refining Co.	1980-81		
Louisiana Oil Refining Co. of Egan	1987-87	KRR - Dubach	Sabine Resources Group	1990-92	PRT - Stonewall	
El Paso Field Services	1997-		Port Petroleum, Inc.	1980-89		
Arcadia Refining	1995-96		Schulze Processing, Inc.	Schulze Processing, Inc.	1980-82	SCH - Tallulah
Endevco, Inc.	1989-94					
Kerr-McGee Refining Corp.	1985-88					
Kerr-McGee Corp.	1980-84	MLL - Gueydon	Gulf Oil Co. U.S.A.	1981-81	GLF - Venice	
Tina Resources, Inc.	1993-96		Gulf Oil Corp.	1980-80		
Cameron Oil Refining Co., Inc.	1992-92		Lisbon Refinery J.V., LLC	1998-	CLB - Lisbon	
Cameron Resources	1990-91		Padre Refining Co.	1997-98		
Mallard Resources, Inc.	1980-89		Arcadia Refining & Mktg. Co.	1995-96		
Bayou State Oil Corp.	1980-	Dubach Gas Co.	1992-94			
Evangeline Refining Co.	1980-92	BYS - Hosston	Claiborne Gasoline Co.	1980-91	CNL - Church Pt.	
Shepard Oil Co.	1980-82	EVN - Jennings	Canal Refining Co.	1980-		
Laidlaw Environmental Systems	1992-92	SHP - Jennings				
GSX Recovery Systems	1983-91	TSR - Jennings				
T & S Refining Co.	1980-82					