



Vol. 45 No. 9

Published October 15, 2021

September 2021

EXECUTIVE SUMMARY

API's primary data on U.S. petroleum markets for September reinforced a combination of developments that has been recurrent so far in 2021 – that is, demand outpaced supply, inventories fell, and consequently imports and prices rose. Notably, U.S. petroleum demand set a record high for the month of September of 20.6 million barrels per day (mb/d), including the highest refining and petrochemical demand for other oils – intermediate products in refining and petrochemicals – ever for the month. Meanwhile, domestic crude oil production fell to 10.7 mb/d, due in part to the prolonged Gulf Coast impact of Hurricane Ida. Despite some monthly slowing of U.S. refining throughput, crude oil inventories fell to their lowest for any month since September 2018. And U.S. petroleum net imports increased to 1.7 mb/d, led by higher crude oil imports and lower refined product exports.

The economy and therefore oil demand have appeared to remain on track. API's Distillate Economic Indicator™ suggested continued growth of U.S. industrial production and broader economic activity (please see the following [chart](#) for details).

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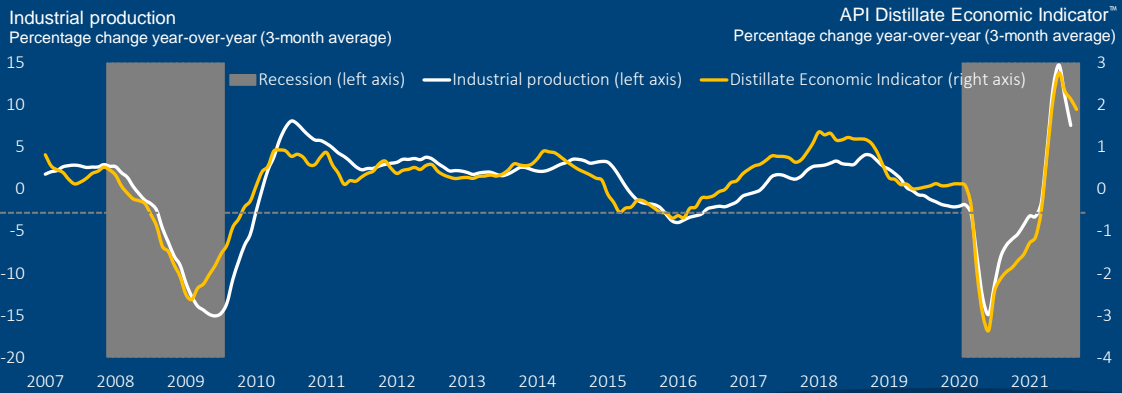
- **Refinery inputs and capacity utilization – monthly changes relatively stronger than in 2017-2020.**

Inventories

- **Lowest crude oil inventories for any month since September 2018.**

API's Distillate Economic Indicator™ - September 2021

The Distillate Economic Indicator™ value of +1.9 for September 2021 and three-month average of +1.9 signaled continued growth of U.S. industrial production and broader economic activity



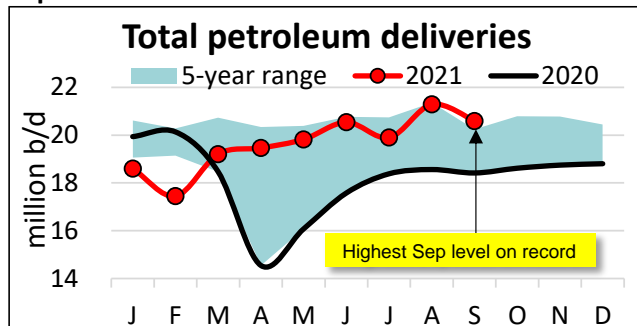
sources: API Monthly Statistical Report; EIA; CME Group; Moody's, Federal Reserve Board; API Team calculations



Details by section

Demand

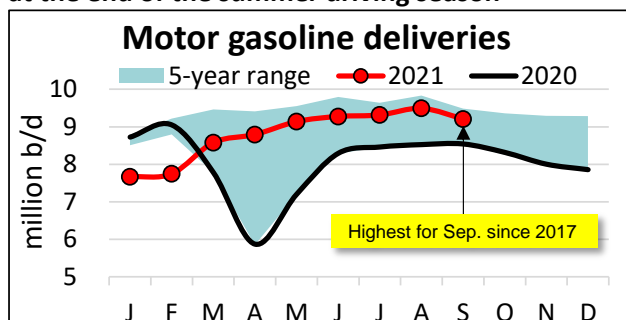
U.S. petroleum demand (20.6 mb/d) a record for September



U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 20.6 mb/d in September – its highest ever for the month of September and especially remarkable in the wake of the 2020 COVID-19 recession. This demand was a seasonal decrease of 3.3% from August, but 0.1% higher than previous record in Sep. 2006.

Gasoline

Motor gasoline demand (9.2 mb/d) fell minimally at the end of the summer driving season

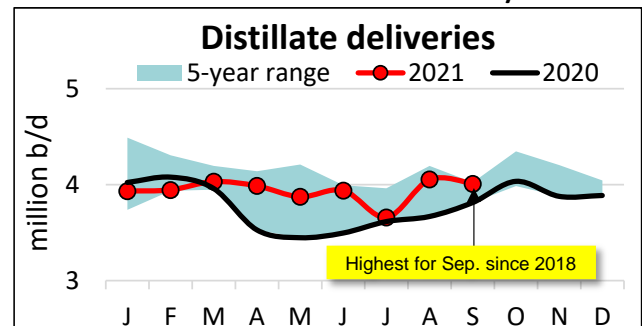


Consumer gasoline demand, measured by motor gasoline deliveries, of 9.2 mb/d in September decreased by 3.0% from August with the end of the summer driving season. This was less than half of the seasonal drop seen between Aug. and Sep. in both 2018 and 2019.

Deliveries of reformulated-type gasoline (consumed primarily in urban areas) fell by 7.2% m/m to 2.9 mb/d, while those of conventional gasoline (mainly in rural areas) decreased by 1.0% m/m to 6.3 mb/d.

Distillate Fuel Oil

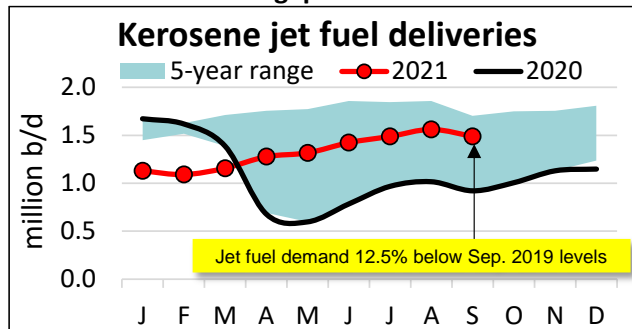
Solid distillate demand exceeded 4.0 mb/d



Distillate deliveries of 4.0 mb/d decreased by 1.1% from August but were 2.3% higher than those of September 2019. [DAT iQ industry trendlines](#) showed 1.2% m/m less monthly spot freight truck posts in September.

Kerosene Jet Fuel

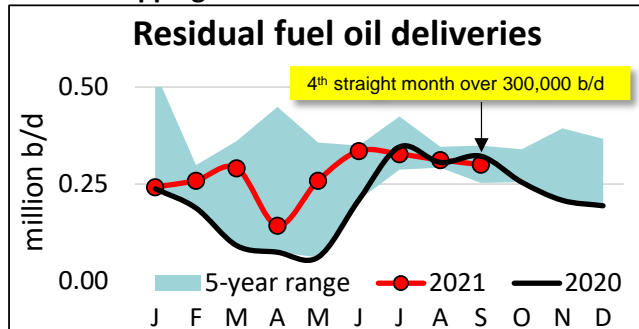
Jet fuel demand decreased seasonally but continued to close its gap versus 2019



'K-jet' deliveries fell seasonally by 4.7% m/m to 1.5 mb/d in September, which was weaker than the 8.2% average drop-off seen between Aug. and Sep. between 2017 and 2020. Moreover, the gap between demand in 2021 and 2019 continued to close from 20.9% below in June to 15.1% in August and 12.5% in September. [Flightradar24](#) high-frequency data showed that tracked flights decreased by 2.8% m/m in September.

Residual Fuel Oil

Marine shipping sustained residual fuel oil demand



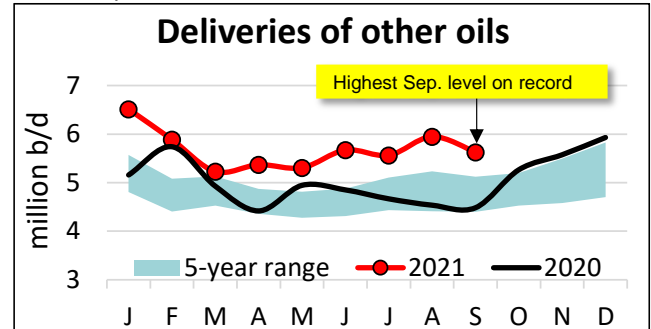
Deliveries of residual fuel oil, which is used in electric power production, space heating, industrial applications and as a marine bunker fuel, were 0.3 mb/d in September. This is remarkable since the implementation of [IMO 2020](#) in Jan. 2020 was generally expected to lower the use of residual fuel oil. Solid residual fuel oil demand suggests that many ships have installed scrubbers, and the need for marine shipping has been [strong](#) in the current environment.

Naphtha, Gasoil, Propane, Propylene "Other Oils"

Other oils' demand of 5.6 mb/d a record for September

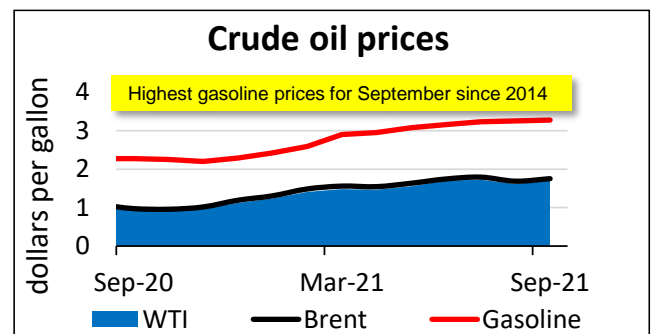
Deliveries of liquid feedstocks, such as naphtha, gasoil, and propane/propylene ("other oils") used

primarily in refining and petrochemical manufacturing, were 5.6 mb/d in September – the highest on record for the month of September and 9.8% over their Sep. 2019 level. This reflected strong continued refining activity and petrochemical demand for films/packaging and medical plastics.



Prices

Highest gasoline prices for September since 2014



In September, West Texas Intermediate (WTI) crude oil prices increased by 5.8% m/m to \$71.65 per barrel (\$1.71 per gallon). Brent crude oil spot prices averaged \$70.75 per barrel (\$1.68 per gallon), and the Brent-WTI crude oil price differential narrowed by 2.8% m/m to \$2.84 per barrel, generally reflecting transportation costs.

As crude oil remained the top input cost in making gasoline per [EIA](#), relatively strong crude oil prices corresponded with increased gasoline prices in September. The U.S. average conventional gasoline price was \$3.27 per gallon in September, up by 0.5% (\$0.02 per gallon) from August, according to [AAA](#). This was the highest gasoline price for the month since September 2014.

Macroeconomy

Leading indicators suggest industrial and economic growth, but heightened consumer concerns

API's Distillate Economic Indicator™, which is based primarily on diesel/distillate supply, demand, and inventories, had a reading of 1.9 in September and a three-month average of 1.9, suggesting that U.S. industrial production and broader economic activity have continued to grow.

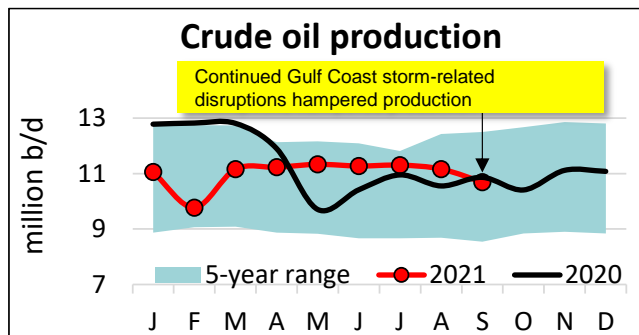
The Institute for Supply Management's manufacturing Purchasing Managers Index (PMI) had a reading of 61.1 in September, a 1.2 percentage point increase from August. Index values above 50.0 suggest an expansion in the overall economy, and the manufacturing PMI exceeded that threshold for a 16th consecutive month. Within the index, measures of prices, employment, supplier deliveries, inventories and imports increased from August. However, the measures of production, the backlog of orders, and new export orders each slowed. Seventeen of the 18 manufacturing industries surveyed reported growth in September.

The University of Michigan's consumer sentiment index rebounded by 3.6% m/m to a reading of 72.8 in September following a drop from 9.5% m/m drop in August. Consumer price inflation that outpaced income growth remained a notable concern and has spurred a postponement of purchases "so significant that it could not be quickly reversed" along with complaints about the higher prices for homes, vehicles and other durables.

According to the Bureau of Labor Statistics (BLS), the unemployment rate fell by 0.4% to 4.8% in September, and non-farm payrolls increased by a preliminary estimate of 194,000.

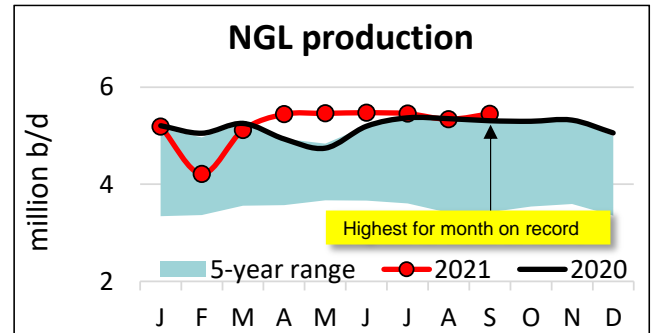
Supply

U.S. crude oil production (10.7 mb/d) in September hampered by Gulf Coast storms



In September, U.S. crude oil production fell to 10.7 mb/d, a 4.3% m/m (0.5 mb/d) decrease with prolonged Gulf Coast shut-ins in the wake of Hurricane Ida, which affected more than 16% of GOM oil production as of Sep. 23, nearly a month after its landfall on Aug. 29.

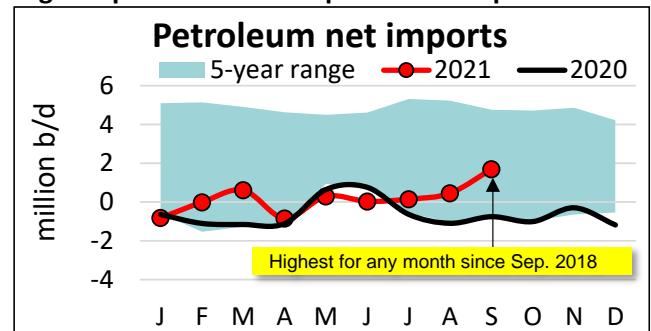
Baker Hughes reported 413 active oil-directed rigs in September, a 3.3% m/m increase but 43% less than the 724 rigs that ran in September 2019.



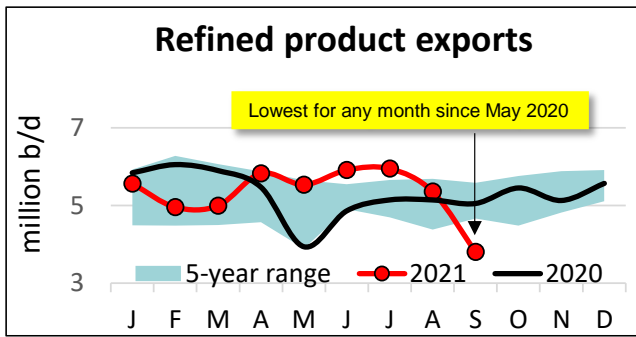
By contrast, natural gas-directed drilling was flat in September at 100 active rigs despite spot prices that averaged \$5.16 per million Btu, their highest for the month since 2008. U.S. natural gas natural gas liquids production (NGLs) of 5.5 mb/d in September rose by 2.1% m/m and 2.7% y/y.

International trade

Highest petroleum net imports since Sep. 2018



The U.S. returned to being a petroleum net importer for six of the past seven months, including net imports of 1.7 mb/d in September – the highest for any month since Sep. 2018.

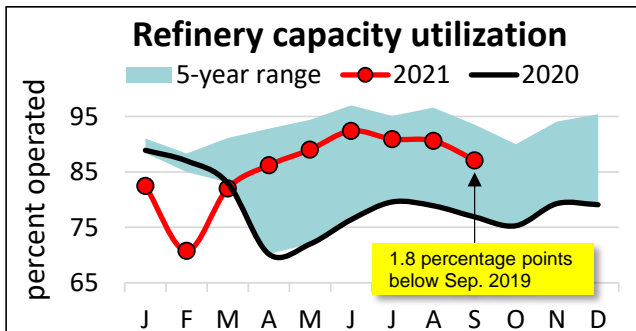
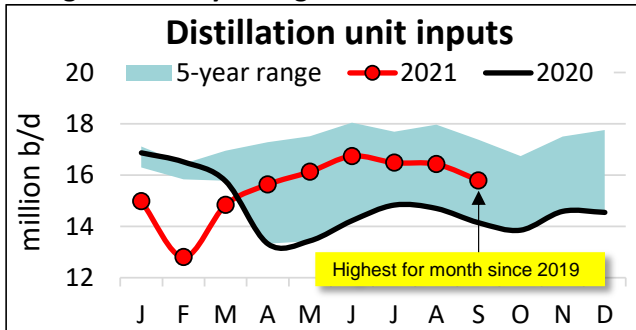


The largest change between August and September was a 0.7 mb/d m/m drop in refined product exports, while refined product imports edged up by 0.1 mb/d m/m. At the same time, U.S. crude oil exports dropped by 0.3 mb/d, and imports rose by 0.2 mb/d m/m.

U.S. petroleum imports totaled 9.0 mb/d in September, compared with total exports of 7.3 mb/d.

Industry operations

Refinery inputs and capacity utilization – monthly changes relatively stronger than in 2017-2020

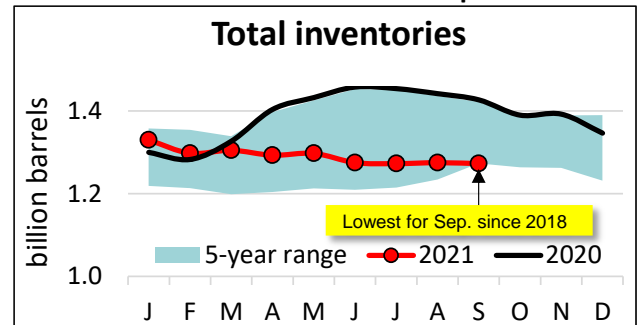


U.S. refinery throughput was 15.8 mb/d in September, which was a decrease of 3.9% from August and implied a capacity utilization rate of 87.1%, down from 90.6% in August. This throughput was within 1.8 percentage points of the activity level in Sep. 2019. The monthly decrease was due in part to typical seasonal changes for

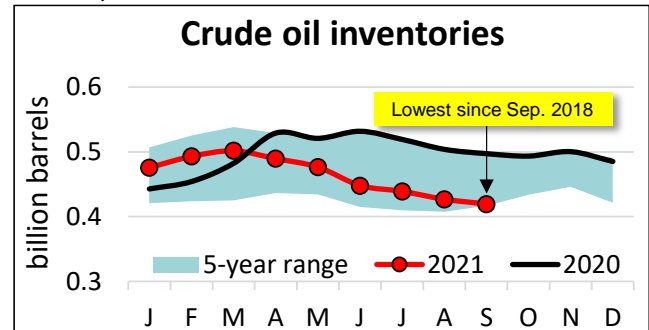
September – and was smaller than the 5.4% m/m average decrease seen in 2017 to 2020.

Inventories

Lowest crude oil inventories since Sep. 2018



U.S. total petroleum inventories, including crude oil and refined products (but excluding the Strategic Petroleum Reserve) increased in September by 0.1% m/m to 1.278 billion barrels.



Within the total, crude oil inventories fell by 1.7% m/m to 419.4 million barrels, their lowest for any month since Sep. 2018. This represented a 15.7% y/y decrease and was 0.6% above the bottom of the 5-year range.

ESTIMATED UNITED STATES PETROLEUM BALANCE¹
(Daily average in thousands of 42 gallon barrels)

Disposition and Supply	September			Year-to-Date		
	2021 ²	2020	% Change	2021 ³	2020	% Change
Disposition:						
Total motor gasoline.....	9,205	8,541	7.8	8,808	8,046	9.5
Finished reformulated.....	2,876	2,560	12.3	2,785	2,466	13.0
Finished conventional.....	6,329	5,981	5.8	6,023	5,581	7.9
Kerosene-jet.....	1,489	921	61.7	1,329	1,070	24.1
Distillate fuel oil.....	4,010	3,814	5.1	3,937	3,736	5.4
≤ 500 ppm sulfur.....	3,977	3,813	4.3	3,918	3,702	5.8
≤ 15 ppm sulfur.....	3,944	3,813	3.4	3,878	3,690	5.1
> 500 ppm sulfur.....	33	1	3,200.0	19	34	(44.1)
Residual fuel oil.....	300	322	(6.8)	275	204	34.8
All other oils (including crude losses).....	5,626	4,862	15.7	5,256	4,842	8.6
Reclassified ⁴	(46)	(46)	na	92	109	na
Total domestic product supplied.....	20,584	18,415	11.8	19,697	18,007	9.4
Exports.....	7,269	8,315	(12.6)	8,327	8,526	(2.3)
Total disposition.....	27,853	26,729	4.2	28,024	26,533	5.6
Supply:						
Domestic liquids production						
Crude oil (including condensate).....	10,689	10,868	(1.6)	11,012	11,422	(3.6)
Natural gas liquids.....	5,453	5,308	2.7	5,247	5,158	1.7
Other supply ⁵	1,022	1,052	(2.9)	1,099	1,001	9.8
Total domestic supply.....	17,164	17,228	(0.4)	17,358	17,581	(1.3)
Imports:						
Crude oil (excluding SPR imports).....	6,252	5,398	15.8	6,018	5,993	0.4
From Canada.....	3,493	3,440	1.5	3,653	3,577	2.1
All other.....	2,759	1,957	41.0	2,365	2,416	(2.1)
Products.....	2,711	2,161	25.5	2,484	1,967	26.3
Total motor gasoline (incl. blend.comp).....	968	716	35.2	905	589	53.7
All other.....	1,743	1,444	20.7	1,579	1,378	14.6
Total imports.....	8,963	7,558	18.6	8,502	7,959	6.8
Total supply.....	26,127	24,786	5.4	25,860	25,540	1.3
Stock change, all oils.....	(1,726)	(1,943)	na	(2,164)	(993)	na
Refinery Operations:						
Input to crude distillation units.....	15,792	14,138	11.7	15,560	14,858	4.7
Gasoline production.....	9,716	9,090	6.9	9,470	8,661	9.4
Kerosene-jet production.....	1,338	799	67.5	1,268	1,023	24.0
Distillate fuel production.....	4,540	4,493	1.0	4,600	4,833	(4.8)
Residual fuel production.....	208	168	23.8	208	202	3.0
Operable capacity.....	18,128	18,386	(1.4)	18,122	18,755	(3.4)
Refinery utilization ⁶	87.1%	76.9%	na	85.9%	79.2%	na
Crude oil runs.....	15,189	13,573	11.9	15,030	14,317	5.0

1. Total supply, i.e., production plus imports adjusted for net stock change is equal to total disposition from primary storage. Total disposition from primary storage less exports equals total domestic products supplied. Information contained in this report is derived from information published in the API *Weekly Statistical Bulletin* and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2. Based on API estimated data converted to a monthly basis.

3. Data for most current two months are API estimates. Other data come from U.S. Energy Information Administration (including any adjustments).

4. An adjustment to avoid double counting resulting from differences in product classifications among different refineries and blenders.

5. Includes unaccounted-for crude oil, withdrawals from the SPR when they occur, processing gain, field production of other hydrocarbons and alcohol, and downstream blending of ethanol.

6. Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

R: Revised. na: Not available.

ESTIMATED UNITED STATES PETROLEUM BALANCE¹
(Daily average in thousands of 42 gallon barrels)

	September 2021	August 2021	September 2020	% Change From	
				Month Ago	Year Ago
Stocks (at month-end, in millions of barrels):					
Crude oil (excluding lease & SPR stocks).....	419.4	426.7	497.7	(1.7)	(15.7)
Unfinished oils.....	88.5	86.9	81.4	1.8	8.7
Total motor gasoline.....	226.4	224.3	227.6	0.9	(0.5)
Finished reformulated.....	0.0	0.0	0.0	(0.1)	(62.2)
Finished conventional.....	18.6	19.0	22.5	(2.1)	(17.3)
Blending components.....	207.8	205.3	205.0	1.2	1.3
Kerosene-jet.....	42.9	42.8	40.1	0.2	6.9
Distillate fuel oil.....	131.6	135.4	172.5	(2.8)	(23.7)
≤ 500 ppm sulfur.....	123.5	126.9	163.3	(2.7)	(24.4)
≤ 15 ppm sulfur.....	120.2	123.7	159.9	(2.8)	(24.8)
> 500 ppm sulfur.....	8.1	8.5	9.2	(4.7)	(12.3)
Residual fuel oil.....	28.8	29.6	32.1	(2.7)	(10.3)
All other oils.....	340.1	330.3	375.3	3.0	(9.4)
Total all oils.....	1,277.7	1,276.0	1,426.8	0.1	(10.4)