

June 5, 2000

MEMORANDUM FOR THE SECRETARY

THROUGH:  Deputy Secretary Glauthier

FROM: Melanie Kenderdine,
Acting Director
Office of Policy

SUBJECT: Reassessment of Milwaukee Reformulated Gasoline Supply

Summary

Based on data from the Energy Information Administration, and other information gathered last week from refiners, terminals and marketers serving the Milwaukee area, the Department of Energy (DOE) concludes that reformulated gasoline (RFG) supplies for Milwaukee are very tight, but that sufficient supply is available to meet overall demand at this time. This does not mean that supply is available to all marketers at all locations. Also, supply is sufficiently tight that any disruption in the distribution system could contribute to Phase II RFG shortages. This is likely to remain the case in the near term (next two weeks) and over the summer.

The Milwaukee RFG situation should be viewed in the context of an overall U.S. gasoline market, in which high consumer demand and low inventories have caused higher prices for all gasoline types, relative to crude oil prices. The Milwaukee (and Chicago area) supply situation is further affected by:

- an RFG formulation specific to the area that is more difficult to produce;
- higher regional demand;
- high regional refinery utilization rates;
- limited alternative supply sources;
- limited transportation links, and;
- lower gasoline inventories relative to the rest of the country.

These supply issues will affect price but the degree to which they contribute to price spikes is unknown. Also, the latter four conditions affect the supply of conventional gasoline as well.

The first opportunity for any relief from this tight market situation will most likely be due to reduced seasonal demand in the fall, when there will be a change-back to less stringent RFG performance specifications. DOE notes that there are no pending waiver requests under consideration by the Environmental Protection Agency (EPA); however, the lack of any significant inventory cushion in the Milwaukee area and the possibility of longer-than-expected pipeline outages are reasons to continue to closely monitor the situation throughout the summer.

The Reformulated Gasoline Program

To promote cleaner motor vehicles and cleaner fuels, the 1990 Clean Air Act Amendments established the RFG program. In 1995, this program introduced to the market new, cleaner fuels that had to meet more stringent emissions performance requirements. The Act required that RFG contain at least 2 percent oxygen by weight. The addition of oxygenates causes gasoline to burn cleaner and more efficiently, thereby reducing toxic air pollutants. The two oxygenates used by the refining industry to produce RFG are methyl tertiary butyl ether (MTBE) and ethanol.

The RFG program has produced substantial environmental benefits. Phase I of the RFG program (1995-1999) reduced overall toxics by an average of 27 percent. Phase II, beginning this year, has more stringent standards that will reduce smog pollutants by 41,000 tons per year in RFG areas, including volatile organic compounds (VOCs) by 27 percent, and oxides of nitrogen emissions (NOX) by seven percent.

The Phase I RFG *price* differential over conventional gasoline was on average two to four cents per gallon, although the final price differential was most likely low because several metropolitan areas opted out just prior to the program going into effect, leaving many refiners with an oversupply of RFG. EPA estimates the *cost of Phase II RFG (RFG II) compared to Phase I RFG* as one cent per gallon; DOE estimates are closer to two to three cents. All things being equal, the difference in cost between conventional gasoline and RFG II gasoline could be expected to be between three to seven cents. Cost, however, is not necessarily an indication of price.

Phase II RFG in Milwaukee and Chicago

The second phase of the RFG program began on January 1, 2000, with implementation of new wintertime specifications. The changeover to more stringent summer RFG II specifications was required at terminals on May 1, 2000 and at retail stations on June 1, 2000.

Phase II RFG requires lower NOx and VOC emissions than Phase I RFG. These lower emissions are achieved mainly by reductions in the volatility (Reid Vapor Pressure (RVP)) and sulfur content of the gasoline.

To reduce RVP for Phase II RFG production and, particularly for RFG II blended with ethanol, refiners must remove a greater quantity of the higher volatility gasoline blendstocks than was removed for Phase I RFG. The amount of ethanol added to make RFG II is the same as the amount added to RFG I (maximum levels under RFG specifications is 10 percent.) Consequently, RFG II gasoline production processes will yield less gasoline overall than RFG I processes. To compensate for lower yields and performance losses, refineries can either increase crude inputs or rely on more sophisticated processing units, both of which may increase cost and are not available at all refineries. In addition, sulfur reductions require either the more selective use of available gasoline blendstocks, or investments in hydrotreating processes.

◆ RFG Formulation in Milwaukee Area is More Difficult to Produce.

As noted above, the Clean Air Act Amendments require the use of oxygenates in gasoline and the oxygenate of choice for Milwaukee and Chicago is ethanol. The State of Illinois offers significant tax incentives for ethanol use. In Milwaukee, there was public opposition to MTBE use, and a public preference for ethanol as the oxygenate of choice.

Refinery gasoline streams for blending with ethanol must have lower RVP than gasoline streams for blending with MTBE. Because more high volatility components must be removed from blendstocks for ethanol-based RFG, refinery production of Phase II RFG for the Milwaukee/Chicago region is more difficult and more expensive than for those areas which use MTBE as the oxygenate of choice.

Most finished RFG is produced on-site at the terminals, where ethanol and appropriate blending components are concurrently loaded into tank trucks prior to distribution. This is unlike MTBE, which is added at the refinery level and shipped through pipelines.

Milwaukee RFG Demand and Supply

The Milwaukee RFG market is part of the PADD II supply/demand area. PADD II RFG demand in 1999 (for Chicago, Milwaukee, St. Louis, Covington, and Louisville) ranged from 310 to 400 TBD.

About three-quarters of this product is refined or blended with components produced in PADD II. The remainder of PADD II supply is provided by refineries in the Gulf Coast, either as finished RFG or as components for blending in the Midwest.

Supply in the Milwaukee/Chicago area is extremely sensitive to the refinery capability in PADD II. The largest and most capable refineries in the United States are located on the Gulf Coast and West Coast. PADD II refineries on the other hand, generally have higher sulfur crude oil inputs and are not as large or flexible as Gulf and West Coast refineries.

◆ Demand for RFG in the Region is Higher than Last Year

In 1999, Milwaukee area sales of RFG averaged 45-50 TBD (see Figure 1). Sales in the first two months of 2000 were about 2-3 percent higher than in the comparable period in 1999, slightly stronger than the national demand increase of 1.6 percent over last year.

◆ High Regional Refinery Utilization Rates

Gasoline demand normally increases in the summer. Greater utilization of existing refinery capacity is the normal response to this increase in demand. With refineries in the upper Midwest operating at very high utilization rates (99 percent), this possibility is limited. Further, nationwide refinery utilization rates are approaching 95 percent so product might not be available for import from other locations should further problems arise in the Milwaukee/Chicago area.

◆ Chicago/Milwaukee has Limited Alternative Sources of Supply

Nationwide, RFG represents about one-third of annual overall gasoline demand. MTBE is the oxygenate of choice for approximately 87 percent of the nation's RFG; the remainder is ethanol.

The "ethanol-only" oxygenate in the Milwaukee/Chicago area limits alternative sources of RFG supply. Manufacturers of RFG containing MTBE cannot divert supplies to the mid-western market without significant local opposition.

Also, Milwaukee has no local refineries. It receives RFG supply from the Chicago area through the West Shore Pipeline and from the Minneapolis area through the Koch Pipeline. Refinershippers that customarily provide RFG blending components for Milwaukee include British Petroleum (BP), Citgo, Exxon Mobil, Koch, Marathon-Ashland, and Premcor (Clark).

The major Milwaukee terminals are owned by BP, Citgo, Equilon, Koch, Marathon-Ashland, and U.S. Oil. However, smaller companies provide business and trucking links between the terminal owner-operators and branded and unbranded retail outlets. Finished RFG for the Milwaukee area is produced at terminals by blending ethanol and the appropriate gasoline blending components as product is loaded into tank trucks.

◆ Region has Limited Transportation Links

The West Shore Pipeline carries the majority (in normal conditions, over 60%) of Milwaukee's supply from refineries in the Illinois and northern Indiana region, as well as some shipments from the Gulf Coast. Starting June 2, the West Shore Pipeline has shut portions of its line for 8-10 days to conduct tests for possible leaks. This will stop current pipeline deliveries of all West Shore petroleum products for this period, and means that the area will have to rely on inventories in the area and product delivered by the Koch Pipeline. If necessary, RFG can be delivered by truck from terminals in the Chicago area but this option is limited by the availability of trucks and drivers and competition with the Chicago market for RFG II; this mode of product transport would likely increase the incremental costs of RFG II.

◆ Lower Gasoline Inventories in Area

Specific inventory data for the Milwaukee area terminals are business confidential information. However, it is useful to look at inventory data for PADD II. Assessments of available inventories for PADD II should consider blending component data as well as finished RFG data. When finished RFG and blending component data are combined, PADD II inventories were approximately 15 percent below year-ago levels, compared to a 7-8 percent reduction at the national level. PADD II inventories may have fallen more than national inventories because of special difficulties in making RFG for Phase II, higher consumption rates, or the impact of the Explorer Pipeline difficulties.

Assessments

Current Situation: Based on contacts with all the refiners and major terminals serving the Milwaukee area, RFG supplies appear to be tight but adequate to serve immediate supply needs (Figure 2). Terminals have received significant shipments of RFG off the West Shore Pipeline in the past few days, prior to the pipeline's closure. Larger than usual volumes of RFG are arriving from the Koch (Pine Bend, Minn.) refinery via a different pipeline at regular intervals.

This does not mean that all marketers will be able to get all grades of product, in the desired amounts, at all times. Regular customers -- branded or unbranded -- may be put on allocation but are still first in the queue. Spot market buyers, including many independent marketers and convenience store operators, may not find product available at their regular terminals before new product arrives. Spot market buyers, on the hand, are the most vulnerable in these situations because they have no long-term contract commitments and could be forced to incur -- and forced to pass on -- higher costs, as they move from terminal to terminal looking for product.

Near-term Situation: Significant uncertainty exists in the supply situation for the next two weeks and supply will likely remain very tight. If no problems arise, supplies could improve slightly if the West Shore pipeline comes back up as expected, or possibly, as the short-term market dislocation from the introduction of the new RFG II product diminishes. Any problems could cause shortages however -- there is little margin for error.

All major terminals indicate that they either now have, or will negotiate for, enough RFG to cover the expected West Shore pipeline closure for the anticipated closure period. What remains unclear is what will happen to Phase II RFG supply if the West Shore pipeline closure extends beyond that period. While Koch has indicated it will be able to continue to supply RFG, its volume would be inadequate, by itself, to meet Milwaukee's RFG II needs. RFG could be trucked from the Chicago area terminals (an uncommon, but feasible alternative) at some additional incremental cost, for a limited period of time and in limited volumes (Figure 3).

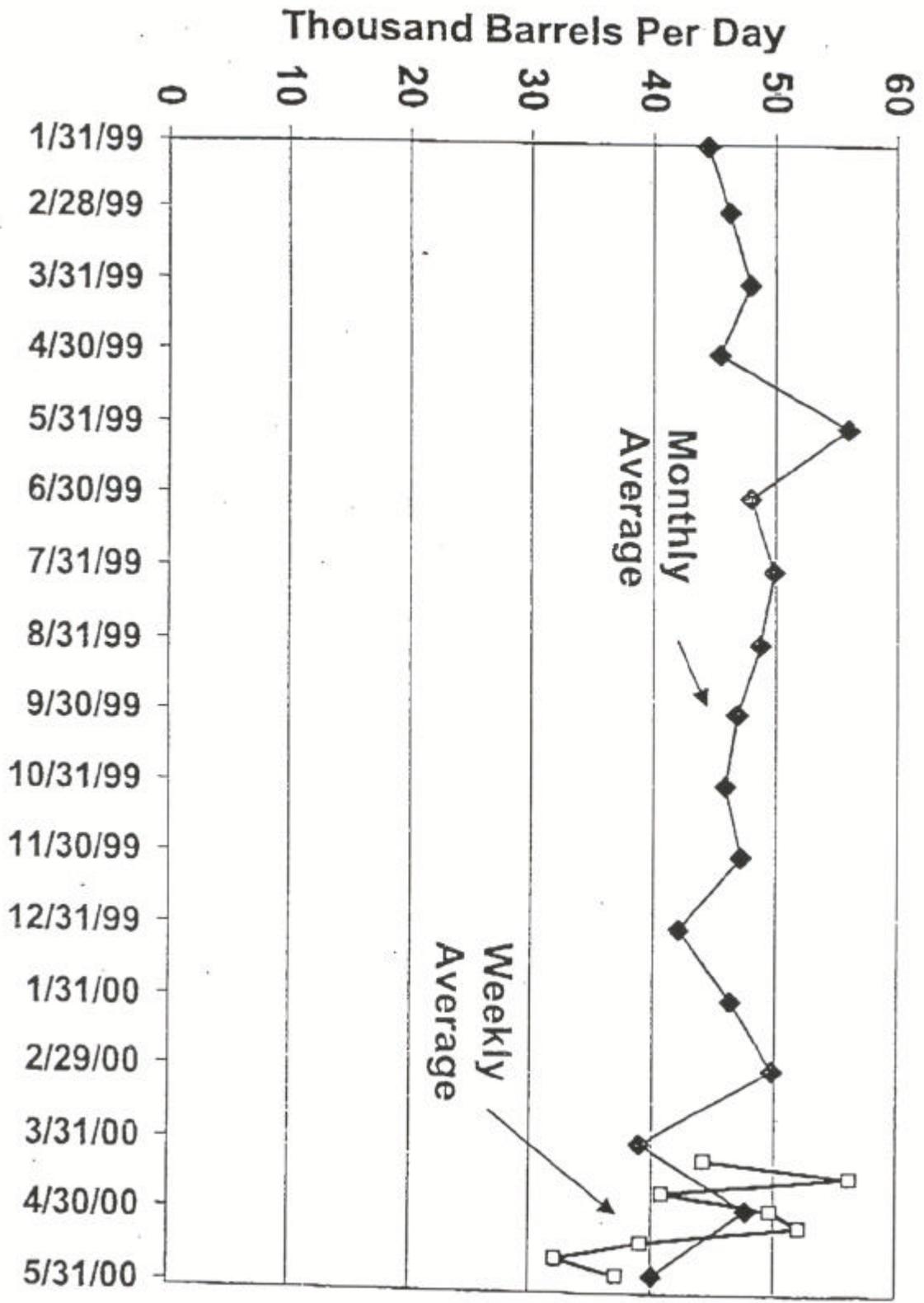
If problems occur in the resumption of pipeline shipments, conventional gasoline and other petroleum product supplies would be affected as well. However, conventional gasoline is a more widespread, fungible product which can be drawn from more sources. A review of RFG supply alternatives would have to consider the broader situation.

Longer Term Situation: Aside from possible problems in the pipeline links to Milwaukee, the key longer-term consideration is refinery capability for producing summer ethanol-blended Phase II RFG and significant uncertainties remain. For example, while there has been considerable discussion of the impact of the pending Unocal patent negotiations, it is unclear whether this issue will be resolved this summer or what the effect of its resolution would be on supply, both nationwide and in the Chicago/Milwaukee area.

Some refineries serving the Chicago/Milwaukee area may increase their output by a small amount through increasing crude runs, shifting production from conventional gasoline to RFG, or making limited equipment modifications. All of these opportunities are very limited and depend on crude oil and gasoline market conditions. The higher returns now available with RFG provide a strong incentive to increase refinery production and are, to a significant degree, responsible for the current re-balancing of the Milwaukee RFG market. The switch to winter RFG specifications in September and the typical reduction in driving and gasoline demand that occurs after Labor Day offer the prospect of relief.

There is also the potential for a deterioration of the supply situation in Milwaukee. As noted earlier, refinery utilization rates are at 99 percent and average rates nationwide are at 95 percent. There is little margin for error, given these utilization rates. Unexpected refinery outages, which occur more often at high utilization rates, are the greatest risk to maintaining supply/demand balance. However, such an event, would affect the availability of all petroleum products. Given the nature of the RFG specification in the Milwaukee/Chicago area, the limited number of alternative sources of supply, and the tightness in national, PADD II, and Milwaukee inventories, it is appropriate to closely monitor this situation throughout the summer.

Figure 1. Milwaukee Terminal RFG Production



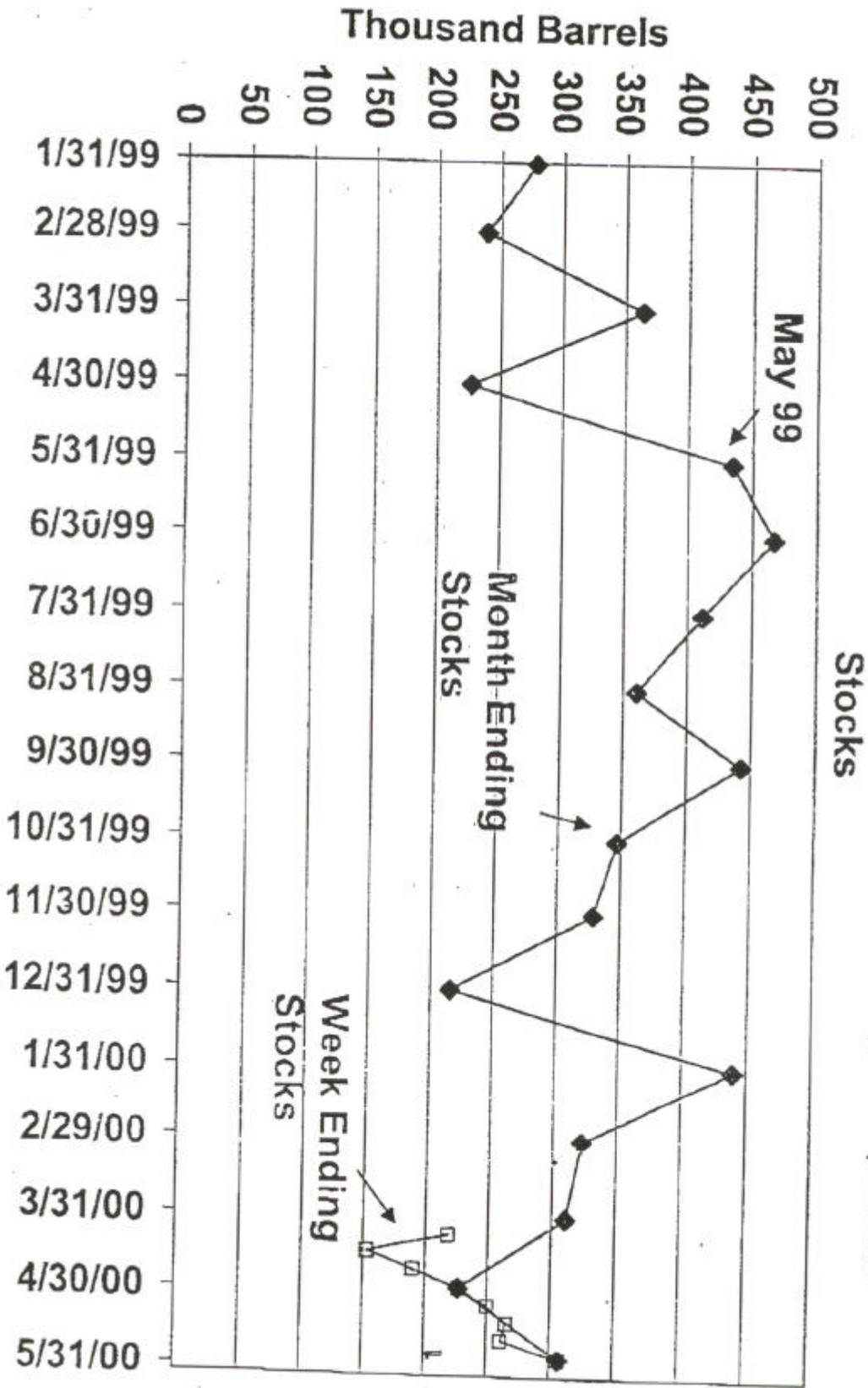
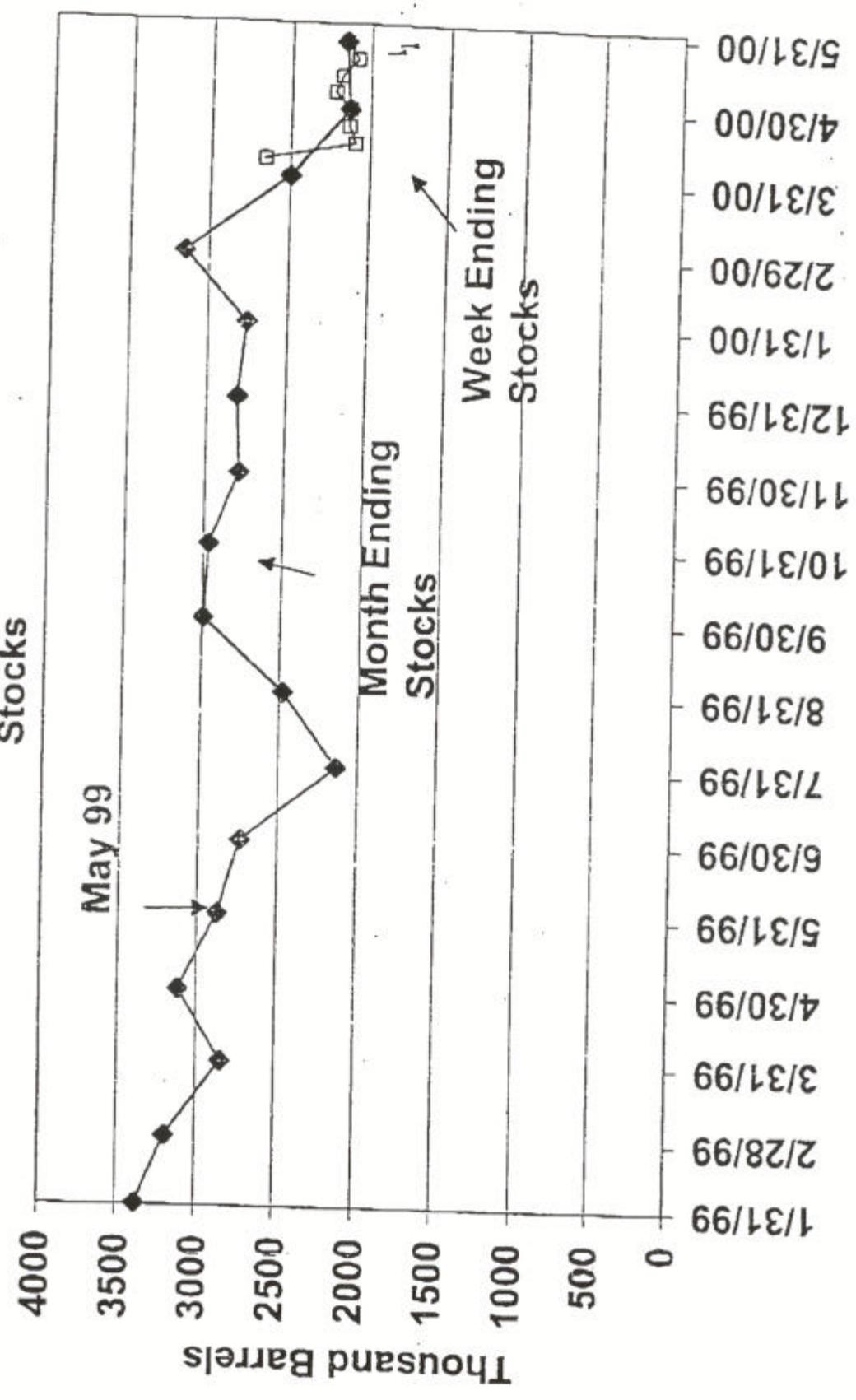


Figure 2. Milwaukee Terminal RFG and Blending Component Stocks

Figure 3. Milwaukee/Chicago RFG and Blending Component Stocks



**TOMMY G. THOMPSON****Governor
State of Wisconsin**

June 10, 2000

Carol Browner, Administrator
U.S. Environmental Protection Agency
401 M Street, SW Room 1200 West Tower
Washington, D.C. 20460

Dear Administrator Browner:

I respectfully request the Environmental Protection Agency use its discretion under Section 211 (k) of the Clean Air Act and the regulations promulgated thereunder (40 CFR Part 80 Subpart D) to waive enforcement of reformulated gasoline (RFG) requirements for Southeastern Wisconsin. Specifically, I request that EPA allow for the sale and use of conventional gasoline in Southeastern Wisconsin.

As you are aware, very tight supplies of RFG have led to severe cost and price disparities in the Milwaukee Metropolitan area. This situation presents a significant burden to Wisconsin consumers and small businesses. I believe waiving RFG requirements is a prudent course of action until such disparities are brought under control and product supplies can be guaranteed. I understand EPA has recently granted a waiver to the St. Louis, Missouri area which has been experiencing similar problems.

I have also asked the Wisconsin State Energy Office, the Wisconsin Department of Natural Resources and the Wisconsin Department of Transportation to investigate this matter.

Thank you for your consideration of this matter. I look forward to your favorable response.

Sincerely,

A handwritten signature in cursive script that reads "Tommy G. Thompson".

TOMMY G. THOMPSON
Governor

TGT/jts