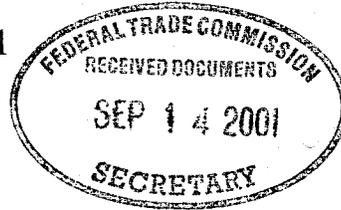


# American Petroleum Institute Association of Oil Pipe Lines

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September 14, 2001



Donald S. Clark  
Secretary  
Federal Trade Commission  
600 Pennsylvania Avenue, N.W.  
Washington, D.C. 20580

Dear Mr. Clark:

Attached are the comments of the Association of Oil Pipelines and the Committee on Pipelines of the American Petroleum Institute for the record of the Federal Trade Commission's inquiry concerning prices of refined petroleum products.

The Association of Oil Pipe Lines (AOPL) is an unincorporated trade association representing 51 common carrier oil pipeline companies. AOPL members carry nearly 80% of the crude oil and refined petroleum products moved by pipeline in the United States. The American Petroleum Institute (API) represents over 400 companies involved in all aspects of the oil and natural gas industry, including exploration, production, transportation, refining and marketing. Together, these two organizations represent the vast majority of the U.S. pipeline transporters of petroleum products.

Our comments seek to provide the Commission with an overview of the U.S. liquid pipeline industry generally and to alert the Commission to an important trend that is affecting the industry's ability to deliver the fuel consumers need. This trend is the proliferation of distinct products the industry is being asked to transport and the impact this proliferation is having on pipeline capacity and the complexity of operating petroleum products pipelines. The availability of ample pipeline capacity serving the important consuming regions of the United States plays an important role in

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ensuring consumers access to reasonably priced petroleum products. Accordingly, we believe your inquiry needs to incorporate the information we are providing.

We appreciate the opportunity to present this information to the Commission. We will be happy to try to answer any additional questions you may have about these or other matters. You can reach me at (202) 408-7970, and you can reach Marty Matheson at (202) 682-8192.

Yours truly,



Benjamin S. Cooper

Executive Director

Association of Oil Pipelines

# Maintaining Flexibility in Refined Products Pipelines

## The Questions

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In recent years, and more markedly in the last year, questions have arisen related to strains on petroleum supply and the distribution of petroleum products by pipeline. The questions include: Why are there so many more refined petroleum products today than there were 30 years ago? What impact does this proliferation of products have on the nation's network of petroleum pipelines? What actions do operators take to maximize pipeline capacity? Are some regions of the country more likely to be affected by disruptions in the pipeline distribution system? What is the impact of "boutique" fuels on pipelines and pipeline operations?

This paper provides information on the broad array of products transported by pipeline, how pipeline operators maximize system capacity, and the current impacts of the tremendous growth in the total number of products that pipelines deliver to meet the demand for gasoline, diesel fuel, jet fuel, and home heating oil around the country.

## The Liquid Pipeline Industry

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There are approximately 200,000 miles of crude oil and petroleum product pipelines in all 50 states of this country. The liquid pipeline infrastructure constitutes a fundamental part of our national economy. Pipelines carry about 68% of the petroleum and petroleum products moved domestically. About 27% of the remainder is moved by water and about 5% by truck or rail.

Pipelines are an extremely efficient transportation system. To replace a 150,000-barrel per day pipeline, which is merely an average sized pipeline, you would need 750 trucks per day requiring a truck to arrive and load or unload every two minutes. Replacing the same truck with a unit train of 2000-barrel tank cars would require a 75-car train to arrive and be unloaded every day. Pipelines can carry a number of products in sequence and travel at about 3 to 8 miles per hour so a trip from the Gulf Coast to Chicago takes about 12 days.

As an industry, pipelines depend on a relatively small national workforce of approximately 13,000 skilled men and women. That modest workforce, however, and the 200,000 miles of pipelines for which they are responsible, transport over 600 billion ton-miles of freight each year. This mammoth job is accomplished so efficiently that America's oil pipelines transport 17% of all U.S. freight, but represent only 2% of the nation's entire freight bill. Gasoline may cost \$1.50 a gallon, but the pipeline transportation cost of moving a gallon of gasoline from the Gulf Coast to Chicago is about 2 cents. Oil pipeline rates are regulated by the Federal Energy Regulatory Commission under the Interstate Commerce Act and do not fluctuate with the gasoline market.

## **Our Vision**

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As an industry, we are guided by a vision of the oil pipeline industry that

- Conducts operations safely and with respect for the environment
- Respects the privilege to operate granted to it by the public; and
- Provides reliable transportation of the crude oil and refined products upon which America and Americans rely.

The oil pipeline industry must not only provide reliable services, but also must provide those services safely while protecting our environment. Pipeline transportation is by far and away the safest form of transportation. For example, on a per gallon basis, deaths are 87% more likely to occur when transportation is by truck rather than pipeline. And the year 2000 was the best year on record for the oil pipeline industry for total number of incidents and total volume released.

But this record is still not good enough. We are committed to working toward spill-free and error-free operations.

## **Sequencing Product Flow**

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Pipeline companies ship petroleum products of the same quality in sequence through a pipeline, with each product or "batch" distinct from the preceding or following. Batching is a method for dealing with the different products and product specifications moving through the pipeline. One refined product or crude oil grade is injected and begins its journey, then another, and another.

Each pipeline establishes its own requirements for minimum batch size, based on a number of operating factors, such as pipe size, flow rate, tankage availability, etc. For a pipeline operating in fungible mode, products that meet common specifications can be commingled and sent through the pipeline together. For example, a products pipeline will establish the acceptable specifications for regular grade gasoline. Shippers whose gasoline meets a pipeline's specifications can obtain transport services for smaller volumes because their gasoline will be added to gasoline of the same quality and grade from other shippers.

## **How Many Different Products are Moved Today?**

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Prior to the 1970s pipelines typically moved from 10 – 20 products. In the mid-1970s pipelines began to transport low lead and unleaded gasolines that had to be segregated from leaded fuels to avoid contamination. Pipeline operators were required to test the product as it moved through the pipeline system and records had to be maintained to document that no contamination had occurred. Leaded gasolines were largely eliminated in the 1980s, but by this time the vapor pressure of gasolines began to be regulated

requiring segregation of pipeline batches based on regional or local, as well as summer and winter, vapor pressure requirements. The Clean Air Act of 1990, as implemented by EPA and various states, ultimately led to the numerous variations on gasoline that exist today.

Gasoline is only part of the story. Fuels oils must also be segregated today based on sulfur content (an EPA requirement) and dyed for specific markets (IRS and EPA requirements). Again pipeline operators must conduct testing to ensure that specifications are maintained over the course of the movement and quality must be documented. Jet fuel also requires segregated batches to meet different military and domestic aviation specifications.

Regulatory requirements are not the only reason that batches on pipeline systems must be segregated. Shippers have also imposed their own product quality specifications and have been willing to pay for additional services, such as testing and documentation, to maintain those specifications over the course of the pipeline delivery. Pipeline operators are common carriers and cannot refuse to deliver products that meet the conditions of service of publicly posted tariffs. Such conditions of service cannot be unduly discriminatory.

Typical large refined petroleum pipelines today have from 30 – 50 products regularly moving on each system over a cycle (a cycle is the period of time from pumping of a certain grade until all other grades are pumped and the initial grade is pumped again beginning the new cycle). However, those same pipelines also have as many as a total of 100 – 120 product grades for which they may occasionally provide transportation services. Overall the federal government requirements drive the majority of segregated batches, followed by customer specifications, and individual state or city requirements.

The number and mix of products and specifications shifts by the region of the country serviced by the pipeline operator. One pipeline operator in the Midwest reports 43 grades of product on a typical 10-day cycle (34 grades of gasoline, 5 grades of fuel oil, and 4 grades of jet fuel). Although the pipeline usually has 43 grades of product in the pipeline at one time, it actually carries a total of 85 fungible and segregated products for 60 different shippers.

This pipeline is not unique, although the mix and number of products changes by region of the country. Another Midwest operator reports 54 grades of finished product (16 summer grades of gasoline, 8 winter grades of gasoline, 8 aviation fuels, 5 diesel fuels and 17 grades of LPG, blendstocks, and refinery intermediates). An East Coast pipeline reports 20 grades of product moved in routine service (9 grades of summer gasoline, 6 grades of winter gasoline, 2 grades of aviation fuel, and 3 grades of diesel fuel). Another large petroleum products pipeline located on the East Coast reports 40 grades (22 gasoline, 5 aviation fuels, 5 diesel fuels, and 8 transmix grades).

The situation will become more complex in the future. New federal fuel specification requirements for low sulfur diesel fuel and gasoline are on the immediate horizon. These

low sulfur requirements are currently projected to be phased in, adding to the number and complexity of products to be transported. Among the new challenges that pipelines will face are: (1) dealing with contamination of these very low sulfur products by sulfur from other petroleum products that can be trapped in various portions of a pipeline system and (2) maintaining the very tight fuel sulfur specifications during pipeline transportation since field instrumentation at such low detection limits is not yet available.

No significant volumes of ethanol are currently moved by pipeline in the United States. The ethanol and other oxygenate additives currently used in gasoline are transported to terminal locations by truck and blended into gasoline at truck racks prior to delivery to service stations. Ethanol and other oxygenates are very effective solvents, cleaning the pipeline as they move through the system. As solvents, such products are not currently suitable for batch operations (even segregated batch operations) on refined products pipelines since they adversely affect product integrity.

## **What are the Operational Effects of Having So Many Products?**

The changes in products affect pipeline operations. The total demand for petroleum products has grown at a slow but steady rate over the years (typically 1½ - 2% per year), but the total number of products (those that require segregation) has ballooned since 1990. This increase in products does not translate into an increase in revenue for pipeline operators. Generally speaking the annual volume delivered by the pipeline 10 years ago as 10-12 products is delivered today as 30-45 products and regulated rates have not increased with inflation. Pipelines are paid on a per barrel basis. Since total volumes moved do not increase just because there are more product types, operators have had little financial incentive to expand system capacity (pipelines or tanks) in response to the increased number of products.

Of course the annual increase of 1½ - 2% does provide some incentive over time for increased capacity. This slow rate of growth has pushed pipeline capacity close to its upper limits in some regions of the country. Selected expansion projects have been undertaken and completed. Operators continue to face barriers to providing increased capacity, including difficulty in obtaining construction permits and the administrative steps required to recoup construction costs through tariffs regulated by the Federal Energy Regulatory Commission.

### **Capacity Impacts**

Capacity in long-haul fungible pipelines, as well as many regional pipelines, actually declines as the number of products handled increases. The unique products need more system "space" in both the pipeline and in tanks, so a combination of increased total volume moved and the operational effects of grade proliferation have used up what was excess capacity for product in the early 1990s. For example, some tanks must be completely emptied of one seasonal product before the next seasonal product can be stored, or specialized products may only use a portion of a tank taking that tank out of

Operators have added pumps and motors to raise operating pressures. There is, of course, a limit based upon the safe pressure rating of the pipe. Many operators have also added additional booster stations along pipeline systems.

Operators have in a few instances added pipelines or installed larger diameter pipelines to handle additional volume. Construction of new lines has become increasingly difficult because of a variety of factors including congestion of some existing rights of way or the difficulty of obtaining necessary permits. Operators have selectively added tanks at specific locations, but constraints similar to new line construction exist when adding tanks to existing terminal operations or building new terminals.

Most operators use chemical compounds that can be injected in small quantities into products flowing through the pipeline to increase pipeline capacity. These chemical compounds, called drag reducing agents (DRA), increase overall flow at the same pressure. DRA is a chemical that is injected in very low concentrations, typically less than 20 ppm. It changes the fluid flow properties, reducing friction and thereby increasing the capacity of the pipeline. Smoother flow results in less energy lost to friction and thus more energy available to transport product. Depending on the specific application, increases of 30% or more have been obtained. DRA is currently not approved for use in aviation fuels.

Operators can minimize the amount of transmix that is produced and better maintain product specifications by putting products on the pipeline in specific order. This also increases the volume of useable product reaching its destination. For example, batches of gasoline with different octane specifications can be sequenced, allowing the interface between the two products to be combined into the lower octane product with no effect on product quality.

### **What Can be Done to Improve Pipeline Infrastructure?**

Pipeline operators face a much more complex operating environment resulting from the growth in total products moved and much tighter product specifications. Over the same time period that the total number of products has increased, operators have found it increasingly difficult to expand capacity. In combination, the overall impact has been to reduce the flexibility of our national pipeline network. This reduced flexibility can contribute to volatility (both of supply and of price) in petroleum markets. The most readily available means of addressing this loss of flexibility would be to reduce the number of government mandated products. Such reductions can be accomplished without compromising the environmental progress that has been achieved through cleaner burning fuels. But other actions across the federal government can also increase overall pipeline system flexibility.

Federal agencies need to recognize that reliability, safety and environmental protection are complementary goals and that the American people expect all three to be accomplished. Multiple federal agencies are involved in almost every pipeline

construction job whether for a new pipeline system or for rehabilitation project. Federal agencies – and there are many from the Forest Service, to the Corps of Engineers to the Environmental Protection Agency, to name just a few -- that permit the various aspects of pipeline construction projects do not now make any effort to coordinate or accelerate permit review. This needs to change.

The federal government can also provide leadership in reducing pipeline accidents and supply disruptions by promoting strong damage prevention best practices that protect pipeline systems from damage by unauthorized or careless excavation activities. Damage to pipelines by such excavation activities remains the single largest cause of pipeline accidents. And accidents are the most likely cause of supply disruptions.

Pipeline operators also face local opposition from communities and landowners. Opposition can range from reasonable concerns that can be addressed to extreme positions opposing any fossil fuels use or transportation. Opposition to construction in one part of the county often stems from a major accident elsewhere. Although rare, accidents receive a great deal of publicity. Many pipelines that were once in rural areas are now surrounded by residential or commercial development. Pipeline operators can provide advice on good land use aimed at protecting pipelines, but their advice is often not heeded when it might impact development along the right-of-way. And development leads to activity, including excavation activity. The federal government needs to get more involved in providing guidance and leadership in appropriate land use practices in association with pipelines to reduce encroachment along pipeline rights-of-way.

The federal government is the primary regulator of the safety of pipeline systems. As an industry we have an excellent safety record but one we are committed to improving. The industry is engaged in a number of initiatives aimed at improving our safety performance and our communications with the public. We also believe in the need for a strong federal pipeline safety program under the US Department of Transportation Office of Pipeline Safety to ensure that the safety of pipeline systems and the reliability of petroleum supply are mutually achievable goals.