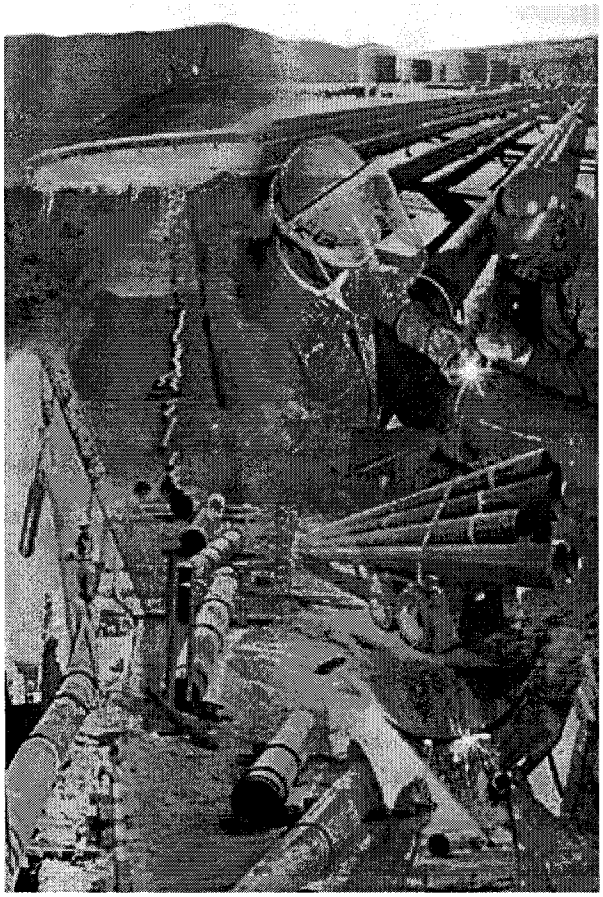
Arizona House of
Representatives

House Gasoline Shortage Working Group

Final Report 1/21/04



Prepared by
House Majority Research Staff

John Halikowski
Majority Research Staff Director
Transportation Committee

Elizabeth Baskett
Health Committee

Joy Hicks
Appropriations Committee

Mike Huckins
Government and Retirement Committee

Courtney Riddle
Assistant Committee Analyst

Todd Sanders
Public Institutions Committee
Utilities & Municipalities Committee

Tami Stowe
Environment Committee

Table of Contents

HOUSE GASOLINE SHORTAGE WORKING GROUP

I. EXECUTIVE SUMMARY....2
II. GASOLINE SHORTAGE ANALYSIS....3
1. GASOLINE CRISIS TIMELINE....4
2. KEY FINDINGS....5
3. CONCLUSIONS....8
4. SOUTHWEST REGIONAL OBSERVATIONS....10
5. GASOLINE SHORTAGE WAIVER....12
III. AIR QUALITY REGULATIONS AFFECTING GASOLINE....14
1. FEDERAL....14
2. ARIZONA....14
3. REGIONAL AIR QUALITY PLANNING....14
4. STATE IMPLEMENTATION PLAN (SIP)....15
5. REFORMULATED GASOLINE (RFG)....15
6. ARIZONA CLEANER BURNING GASOLINE PROGRAM (CBG)....16
7. ARIZONA'S REVISION TO THE SIP PROGRAM....16
8. EPA APPROVAL OF THE CBG PROGRAM....17
IV. GOVERNMENT REGULATORY FUNCTIONS....18
1. FEDERAL....18
2. STATE....20
V. REFINED PETROLEUM PRODUCTS....22
1. REFINERIES....22
2. PIPELINES....23
3. STORAGE & DISTRIBUTION....23
4. RETAIL MARKETING....25
5. TRENDS IN STORAGE & INVENTORIES....26
VI. ARIZONA REFINED PETROLEUM PRODUCTS DISTRIBUTION....28
1. PIPELINES....28
2. TANK FARMS....28
3. TRUCKS....29
4. RETAIL FUELING STATIONS....30
VII. FUTURE TRENDS....31
1. KINDER MORGAN EAST PIPELINE EXPANSION....31
2. PROPOSED RELIEVER PIPELINE (LONGHORN)....31
3. LONGHORN PIPELINE CURRENT STATUS....32
4. REFINERY....33

VIII. APPENDICES....A-L

IX. REPORT RESPONSE ATTACHMENTS....SEE ATTACHED

ARIZONA DEPT. OF LIBRARY
ARCHIVES & PUBLIC RECORDS

NOV 23 2004

STATE DOCUMENTS

EXECUTIVE SUMMARY

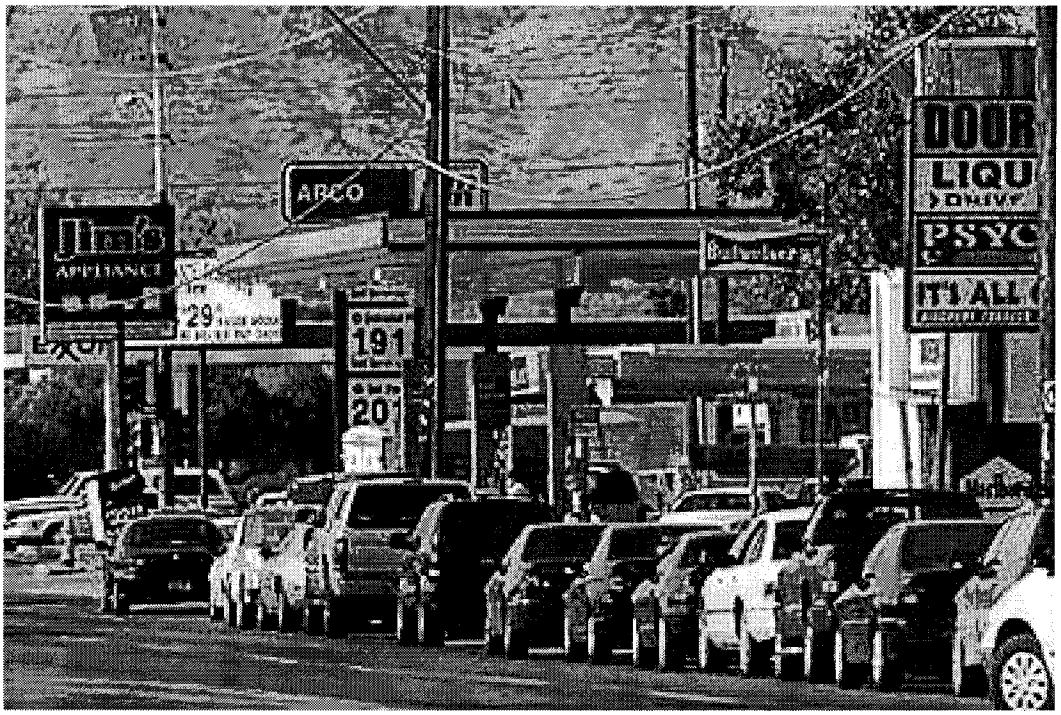
Kinder Morgan Energy Partner's (Kinder Morgan) El Paso-to-Phoenix refined petroleum products pipeline ruptured on July 30, 2003 spilling about 12,000 gallons of gasoline in the Tucson area. Kinder Morgan officials immediately notified the U.S. Department of Transportation Office of Pipeline Safety (OPS), and the Arizona Corporation Commission (ACC). Until lab testing was concluded, OPS could not have detected stress corrosion cracking as the cause of the rupture. Therefore, on August 1, 2003 OPS authorized pipeline operations to resume at 80% of normal operation believing a seam failure caused the rupture. Kinder Morgan chose to operate at 50% of normal operation. On Aug. 8, 2003 Kinder Morgan voluntarily shut down the Tucson-to-Phoenix portion of its El Paso-to-Phoenix pipeline when test results showed that the integrity of a 12-mile section of the eight-inch pipeline was compromised by stress corrosion cracking and further testing, both hydrostatic and spike pressure, was necessary to determine that the pipeline would have to be replaced. It should be noted that testing devices (i.e. "smart pigs) do not exist to detect stress corrosion cracking in eight-inch refined petroleum product pipelines such as the line from Tucson-to-Phoenix.

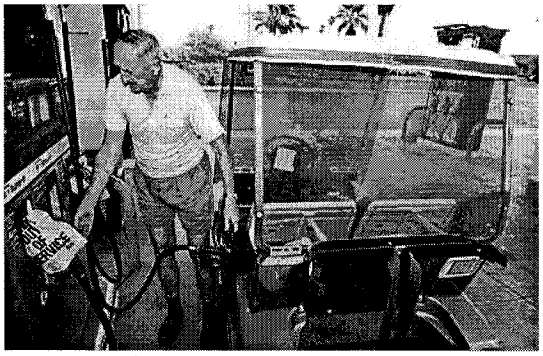
By August 17, the media was reporting many gas stations were closed, and stations that did have fuel were jammed with long lines. Refiners and branded suppliers scrambled to line up supply but were thwarted by distribution bottlenecks and shortages of Maricopa County's summer blend of gasoline, which is unique in the southwest.

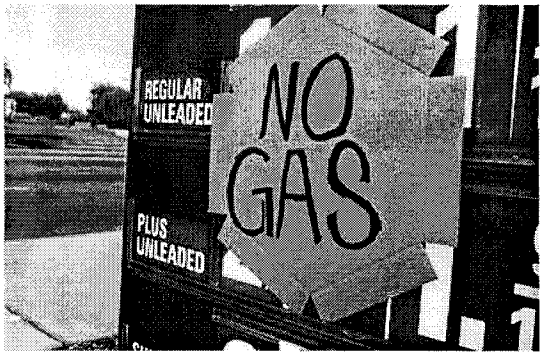
The Tucson-to-Phoenix pipeline resumed operation at 8:20 a.m. Sunday, August 24, and 98 percent of Valley stations had gas again, compared with 44 percent at one point during the shortage. **(See Attachments A-D)**

HOUSE RESEARCH STAFF

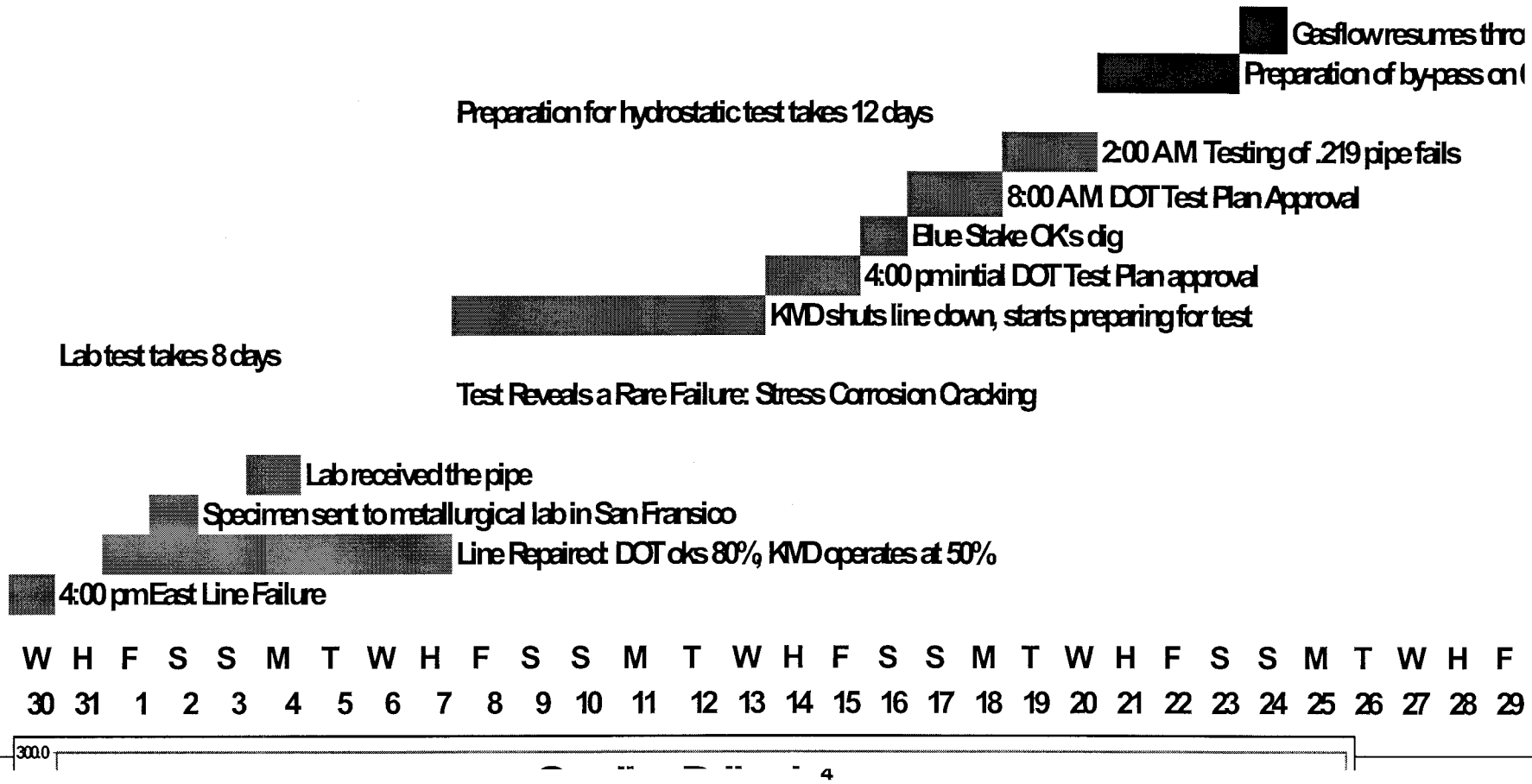
GASOLINE SHORTAGE ANALYSIS





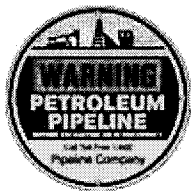


GASOLINE SHORTAGE TIMELINE



KEY FINDINGS

1. Arizona uses Clean Burning Gasoline (CBG) formulas that are not used elsewhere in the Southwest. During the summer months Arizona's fuel blend contains the oxygenate MTBE.



2. Kinder Morgan is a common carrier and does not make decisions on what product is sent to what pipeline and when.

3. There are two pipelines transporting gasoline and other refined petroleum products into the Phoenix area. The West Line transports 70% of the total into Phoenix; the East Line, 30%. The East Line operates at 100% capacity.

4. Although the East Line was completely shut down between August 8, 2003, and August 24, 2003, the West Line continued to deliver refined petroleum products to the Phoenix tank farm.

5. The Kinder Morgan Tucson-to-Phoenix refined petroleum products pipeline ruptured as a result of stress corrosion cracking – not simple corrosion of the pipe or a seam failure.

6. Kinder Morgan had not previously dealt with a stress corrosion cracking problem, due to the rare occurrence of this event, on a refined petroleum products pipeline. Thus, following the rupture on July 30, 2003, Kinder Morgan continued to proceed as if they were dealing with a seam failure.

7. OPS did not initially detect stress corrosion cracking as the cause of the rupture. OPS authorized pipeline operations to resume at 80% of normal operation on August 1, 2003, believing a seam failure caused the rupture. Kinder Morgan chose to operate at 50% of normal operation.

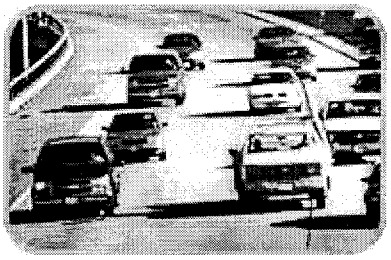
8. Laboratory testing ordered by Kinder Morgan detected stress corrosion cracking as the cause of the rupture. Kinder Morgan made the decision to close the pipeline for further testing on August 8, 2003.

9. Stress corrosion cracking in a refined petroleum products pipeline is an extremely unusual event requiring three factors to be in place for the stress corrosion to occur. The three factors are:
   a. Type and age of pipeline material, design and maintenance activities.
   b. Unique soil composition
   c. Stresses

10. Testing devices (i.e. "smart pigs") do not exist to detect stress corrosion cracking in eight-inch pipelines such as the line from Tucson-to-Phoenix.

11. Although the pipeline break was a contributing factor to the fuel shortage, it appears that gasoline demand resulting from panic buying was the major cause of the Phoenix Area gasoline spot shortage between August 17 through August 19, 2003.

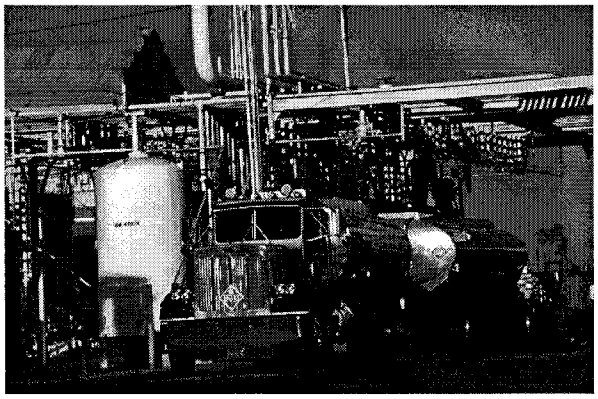
12. There are 2.5 million registered vehicles in Maricopa County and the gasoline tank of the average vehicle is 18 gallons.



13. Maricopa County's average daily gasoline consumption is 4. 3 million gallons per day.

14. Based on discussions with the fuel suppliers, in less than 48 hours from learning about the situation regarding the eastern pipeline, the industry brought in tankers and drivers from as far away as Massachusetts and Iowa to pick up gasoline in El Paso and Tucson for delivery to Phoenix.

15. Although it was not a Kinder Morgan responsibility, Kinder Morgan altered its loading racks in Tucson to accommodate Maricopa County gasoline needs. There was no centralized coordination in scheduling truck loading at Kinder Morgan's tank farm in Tucson, which caused long waits, and in turn, reduced the number of trips that trucks could make between Tucson and Phoenix as well as reducing the number of trucks available for fuel distribution within Maricopa County.



16. Based on information from the industry, the racks at Tucson were full throughout the day and up until midnight. Between midnight and 6:00 am, the racks were often empty. Our research has not shown any evidence that any centralized entity scheduled the trucks at the Tucson rack to maximize rack availability on a 24-hour basis.

17. Although the Arizona Department of Commerce had developed an "Arizona Fuel Emergency Plan" in 1990, to deal with spot gasoline shortages, the Plan was not utilized. The Plan was updated in August 2003 following the conclusion of the shortage.

18. Overall, more gasoline was imported into the Phoenix Area in August of 2003 than in

August of 2002.

19. During the shortage, Arizona petitioned the Environmental Protection Agency (EPA) for an enforcement discretion waiver relaxing the AZCBG requirement in an attempt to increase the supply of fuel for Maricopa County. Our research indicates that due to the ambiguous wording contained in the waiver issued by the EPA on August 19, 2003, it appears the waiver had little or no impact on the amount of available gasoline supply since suppliers reported they chose not to risk costly federal regulatory sanctions by using conventional gasoline.

20. It is less expensive to transport product on the East Line. Like any other business, the oil industry is sensitive to all costs of delivering the product to the retailer. Consequently, the cost of shipping product plays a part in the decision of which pipeline to use.

CONCLUSIONS

1. The demand spike resulted from the following factors:
   a. Reports of a pipeline break in the Tucson area.
   b. Diminished gasoline availability to suppliers shipping the majority of their product on the East Line.
   c. Upward gasoline price signals leading to increased fuel purchases.
   d. Retail gasoline stations that were at the low end of their supply cycles ran out of gasoline, leading to a second wave of fuel purchases.
   e. Reports of shortages began to cause a general panic that resulted in gasoline lines and station closures.
   f. Exponential increase in demand as people engaged in extraordinary behaviors to keep gasoline tanks full.
   g. Inventory and delivery infrastructure to retail outlets were not able to meet extreme demand.

Dangerous Practice, not recommended

2. Based on our understanding of the retail gasoline industry inventory practices, retailers and suppliers do not store sufficient inventory to meet a five hundred percent increase in daily retail gasoline demand.

3. Kinder Morgan's pipeline expansion plans for the East Pipeline will provide adequate gasoline supply for the future.

4. Establishing a "strategic petroleum reserve" is an expensive and perhaps environmentally unsound solution for a problem that is not likely to recur.

5. Based on gasoline supply and demand projections, including the Kinder Morgan pipeline expansion, available evidence suggests that gasoline supply in Arizona will be sufficient to satisfy demand.

6. Building a refinery in Arizona will require adequate crude oil supplies requiring a new pipeline to transport oil to the refinery.

7. A refinery will result in increased refining capacity in the western region and Arizona in particular. However, based on our understanding of this market, refineries do not generally store refined products, and as a result, a gasoline refinery in Arizona does not guarantee an increase in Arizona gasoline inventory.

8. Government officials were hindered in obtaining complete data on gasoline inventories during the shortage due to lack of statutory authority protecting proprietary industry information. The Petroleum Industry Reporting Act (PIRA), enacted by the state of California, has allowed state officials to gain a complete and accurate understanding of the petroleum industry while protecting propriety corporate information. Similar legislation on a smaller scale should be considered by Arizona.

9. Communication systems between government agencies and industry at all levels should be examined for ways to improve information sharing in order to avoid a similar shortage in the future.

10. It is inaccurate to say that the petroleum industry in Arizona is "broken." The Arizona market, like all gasoline markets across the nation, operates a "just-in-time" inventory strategy that includes marginal reserves and tight supply margins. The market is not equipped to handle extreme demand spikes resulting in five times the normal daily gasoline demand.

11. Further analysis should also be conducted to assess the fuel formulations Arizona will utilize in the future.

SOUTHWEST REGIONAL OBSERVATIONS

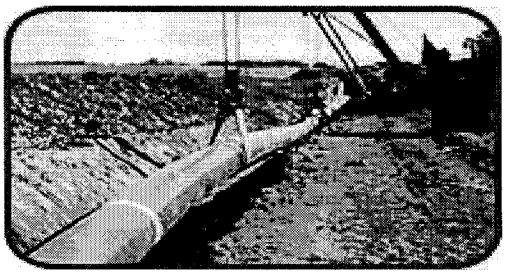
Source: Gulf Coast to California Pipeline Feasibility Study 2003.

1. Construction and operation of a refined petroleum products pipeline between the Gulf Coast and California does not appear to be a viable option to increase gasoline and blending component supplies to California in the near future.

2. There do not appear to be adequate supplies of gasoline or gasoline blending components of sufficient quality available in the Gulf Coast to provide the volumes necessary to merit construction of a pipeline.

3. California's need for diesel fuel imports is also not expected to become large enough to warrant a pipeline. Therefore, pursuit of a Gulf Coast-to-California pipeline by the State of California is not recommended at this time.

4. Expansion of pipeline capacity between Texas and Arizona would increase the ability to supply the Phoenix/Tucson markets from the Gulf Coast. This would provide an opportunity for California refiners to supply less to this market.



5. California should support the proposed capacity expansion of the existing Kinder Morgan pipeline from El Paso-to-Phoenix, although California's financial participation in this project is not recommended or seen as needed.

6. If a new refined petroleum products pipeline was constructed between Phoenix and Las Vegas, a portion of the Las Vegas market could be supplied from refineries located on the Gulf Coast. This assumes that the Longhorn Pipeline is operational and that the pipeline capacity between El Paso and Phoenix has been increased to permit additional petroleum product shipments to Las Vegas. The State of California should, therefore, support the construction of a new product pipeline from Phoenix-to-Las Vegas to enable petroleum product deliveries from Texas. Again, financial participation by California in such a project is not deemed necessary or prudent.

7. Completion of the Longhorn Pipeline will be an important step toward enabling greater reliance on Gulf Coast refineries for increased (direct or indirect) supply of motor fuels to California. The State of California should encourage the completion and operation of this pipeline.

8. Further analysis should be conducted to quantify better the potential loss of refinery production capacity in Western Texas and New Mexico and the implications for the potential to indirectly increase gasoline supplies for California.

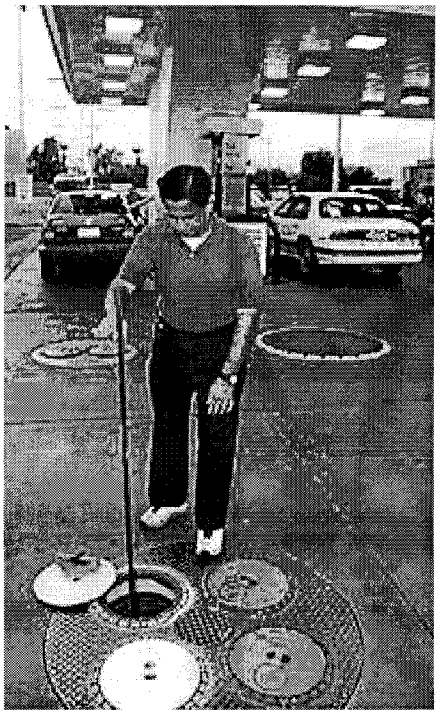
9. Further analysis should also be conducted to assess the impacts of Arizona adopting California Phase 3 RFG as an additional fuel option and the implications for the potential to indirectly increase gasoline supplies for California.

10. Federal government agencies with lead permit authority for interstate refined petroleum products pipeline projects (such as the Department of Transportation and the Environmental Protection Agency) should examine the feasibility of streamlining their review and approval processes to reduce the time required to issue the necessary permits. Lengthy permit processes are one of the main factors that discourage successful initiation of needed pipeline projects.

11. Gasoline demand in Western Texas, New Mexico and Arizona is expected to continue growing at a rate equivalent to population growth, at least 2.5 percent per year. This continued growth equates to between 10 and 20 BPD of additional gasoline demand per year. The majority of this incremental demand is located in the Phoenix/Tucson markets. Thus, more supply capacity will be needed; in any case, to serve the growing demand of this region.

CLEANER BURNING GASOLINE (CBG) SHORTAGE WAIVER – ENFORCEMENT DISCRETION - AUGUST 19, 2003

DEQ requested on August 19, 2003, that the EPA exercise its enforcement discretion to ***not*** take action against any refiner, importer, or seller of conventional gasoline sold or intended for sale in the ozone nonattainment area for a 30-day period. On August 20, 2003, the EPA granted the enforcement discretion with the condition that regulated parties take all reasonable steps to produce and supply CBG or the cleanest gasoline possible to the ozone nonattainment area. The enforcement discretion was effective immediately and was set to continue through September 19, 2003 or at a shorter timeframe, if appropriate.



The Department of Weights and Measures (ADWM) immediately notified the regulatory industry with the following statement:
In order to proactively address the recent gas supply issues facing Maricopa County, Governor Janet Napolitano petitioned the U.S. Environmental Protection Agency (EPA) for a waiver allowing the transport, delivery, and sale of gasoline other than Arizona Cleaner Burning Gasoline (AZCBG) to the retail outlets in the ozone non-attainment area. EPA granted the waiver today.

The notification continued to describe that the EPA would exercise enforcement discretion regarding violations of the SIP and that ADWM would also exercise enforcement discretion regarding state statutes and administrative rules governing CBG. The Department also reminded the regulated industry that the EPA asked all parties to take reasonable steps to produce and supply CBG or the cleanest gasoline possible in Maricopa County.

On August 22, 2003, ADWM posted a Conventional Fuel – Enforcement Discretion Plan. The plan described that the fuel quality standard would be the same standard as the remainder of the state (ASTM D-4814). Additionally, the plan set forth reporting requirements, set a compliance date and allowed for co-mingling of CBG and conventional gasoline at the terminal and retail storage tanks, if the retail storage tanks are returned to CBG standards by the compliance date. According to the Department of Weights and Measures, there was no co-mingling of CBG and conventional fuel at the terminals.

Additionally, due to the general nature of the EPA's enforcement discretion wording, the majority of suppliers to the Phoenix market chose not to offer conventional gasoline for fear of legal liability. As a result, it appears that the enforcement discretion granted by the EPA had very little or no impact on the supply of fuel in the Phoenix metro area during the pipeline disruption.

AIR QUALITY REGULATIONS AFFECTING GASOLINE

FEDERAL

Federal regulation of air pollution dates as far back as 1955. The U. S. Environmental Protection Agency (EPA) has the responsibility for regulating certain *major sources* and *area sources* under the Clean Air Act, 42, U.S.C. § 7401 et seq (CAA) and the Clean Air Act Amendments of 1990. The 1990 CAA Amendments direct the EPA to impose the use of Reformulated Gasoline (RFG or Phase I RFG) in areas with high levels of smog-forming pollutants (volatile organic compounds and nitrogen oxides) and toxics (such as benzene) and is instrumental in reducing smog-forming pollutants and toxics annually. These areas are referred to as "Nonattainment Areas." Currently, Arizona's nonattainment area is referred to as Area A and includes all of Maricopa County as well as parts of Pinal and Yavapai Counties. The area has approximately 3 million residents.

ARIZONA

Arizona's control of air pollution began in 1962, with legislation authorizing the Arizona Department of Health Services (DHS) to conduct air pollution studies in order to qualify for federal grants. However, once the Arizona Department of Environmental Quality (ADEQ) was established in 1986, all environmental management responsibilities were transferred from DHS to ADEQ. Air pollution control jurisdiction in Arizona is shared between ADEQ and counties with pollution control programs. The authority for air pollution control regulation at the county level is vested in the County Boards of Supervisors (BOS) and in the control officers who are designated officials in each county.

REGIONAL AIR QUALITY PLANNING

The Maricopa Association of Governments (MAG) was established in 1978 and codified by the Legislature in 1992 to serve as the Regional Air Quality Planning Agency for the nonattainment area, which at that time only consisted of Maricopa County. The urbanized area of Maricopa County was designated nonattainment status due to failure to comply with the federal health-based air quality standards by the CAA deadlines. The CAA Amendments

of 1990 required each area designated nonattainment for the CO, ozone or PM10 standards prior to the Amendments (enacted November 15, 1990) to be designated nonattainment for such standards. Therefore, at the time of the CAA 1990 Amendments, the Maricopa County area was classified as moderate for CO, ozone, and PM-10. The Maricopa nonattainment area became reclassified, however, as serious for CO and PM-10 in 1996, and serious for ozone in 1997 due to the failure to meet attainment standard deadlines.

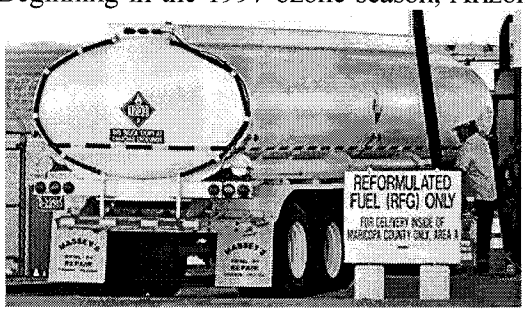
To date, ADEQ, MAG and local jurisdictions in the Maricopa County area have adopted and implemented a broad range of CO, ozone and PM-10 control measures to combat air pollution, including a CBG program, summertime Reid vapor pressure (RVP) limit of 7.0 pounds per square inch (psi), an enhanced vehicle inspection and maintenance (I/M) program, Stage II vapor recovery, an employer trip reduction program, transportation control measures and stationary and area source controls.

STATE IMPLEMENTATION PLAN (SIP)

The SIP is a cumulative record of all air pollution strategies, control measures, statutes, rules and ordinances implemented under the CAA by government agencies within Arizona. The first Arizona SIP was submitted in 1972. Due to so many changes to federal, state and local air quality programs in recent years, there is no single definitive document that contains all of the SIP requirements. Revisions to Arizona's SIP must be submitted to the EPA by the Director of DEQ on behalf of the governor. Once approved by the EPA and published in the Federal Register, the provisions contained in the SIP revision become enforceable by the federal government as well as appropriate governmental entities within Arizona.

REFORMULATED GASOLINE (RFG) PROGRAM-Federal/State Options

Beginning in the 1997 ozone season, Arizona opted into the Federal Reformulated Gasoline (RFG) program. Opting into the Federal RFG program (RFG or Phase I RFG) enabled the implementation of a control measure that had immediate air quality benefits for the 1997-ozone season. The request by Governor Symington to opt into the Federal RFG program was contingent, however, on the EPA's assurance that Arizona would be able to exit the program in 1998 and implement its own State-enforced program. The CAA allows nonattainment areas to substitute state RFG programs for the Federal RFG program, contingent upon the EPA's approval. Therefore, the State worked on developing its own reformulated gasoline program for the summer of 1999 and beyond, because of the mounting evidence that a State program would offer greater environmental benefits at an earlier time period than would be achieved if Arizona remained in the Federal RFG program.



ARIZONA CLEANER BURNING GASOLINE (CBG) PROGRAM

In 1997, many issues played a key role in the decision surrounding what type of gasoline to require, such as cost of production, cost to consumer, supply and transport issues and environmental benefits. Based upon these considerations and heavy debate, the Legislature passed Laws 1997, Chapter 117 (HB 2307). The CBG program was implemented in 2-stages. In other words, gasoline for use in motor vehicles within Area A had short-term and long-term fuel options. The short-term fuel provision (from June to September 1998) had to meet standards similar to Federal Phase I RFG or California's Phase 2 RFG. The long-term choice, beginning May 1, 1999, was to meet similar standards to either the Federal Phase II RFG or the California Phase 2 RFG. By this time, gasoline-control requirements for Area A included all areas within Maricopa County.

Arizona Cleaner Burning Gasoline (CBG) is the name chosen for the Arizona version of reformulated gasoline also referred to as Arizona's boutique blend. The DEQ requested that the Arizona CBG program interim rule be adopted on September 12, 1997, and was submitted to the EPA as a SIP revision. The EPA approved the interim CBG program on February 10, 1998. Upon approval, Arizona began the rulemaking process for a permanent rule. The Governors Regulatory Review Council (GRRC) adopted the permanent rule (Arizona Administrative Register, (AAR)) on September 9, 1998. Arizona's CBG program is now an integral part of Maricopa County's control strategies for CO, ozone and PM-10 and part of a larger strategy to reduce emissions in Area A.

CBG contains the same ingredients as gasoline sold elsewhere, but it has been oxygenated and reformulated in order to improve air quality within the nonattainment area on a year-round basis. While oxygenating means adding an oxygenate, such as Ethanol or Methyl Tertiary Butyl Ether (MTBE), to the gasoline, reformulating means the CBG has been chemically altered, by reducing the volumes of certain ingredients, such as sulfur and by modifying distillation curves for performance.

ARIZONA'S REVISION TO THE SIP- APPROVED CBG PROGRAM

Arizona has adopted four bills amending the State's statutory fuel requirements since the adoption of the original CBG program in HB 2307. In accordance with these legislative changes, DEQ and the Department of Weights and Measures has made revisions to the fuel regulations contained in the Arizona Administrative Register (AAR), Title 20, Chapter 2, Article 7. Additionally, DEQ has provided and submitted these revisions to the EPA for SIP approval. With this action, DEQ requested that the EPA approve the cumulative changes of all these legislative and administrative revisions (Arizona's SIP Revisions to the CBG program).

The following bills and administrative fuel regulations outline the cumulative changes to the SIP-approved CBG program since 1998:

- **HB 2347, fuel reformulation requirements, (1998),** required wintertime gasoline to have an oxygen content not less than 10% by volume of ethanol.
- **SB 1427, air quality measures, (1998),** modified the definition of Area A to include additional areas of Maricopa County, as well as portions of Yavapai and Pinal Counties.
- **AAR 2672, September 25, 1998,** amended permanent CBG program.
- **HB 2189, environment corrections, (1999),** returned the area of applicability of the CBG program to include all of Maricopa County, as well as portions of Yavapai and Pinal Counties beginning January 1, 2001.
- **AAR 4214, November 5, 1999,** incorporated the regulatory changes made by the EPA (62 FR 68196) and changed wintertime CBG.
- **SB 1504, 2000 clean air act, (2000),** removed the minimum oxygen content requirement for summertime gasoline (MTBE).
- **AAR 1025, March 2, 2001,** phase out MTBE.

It should be noted that all of the SIP revisions were implemented at the time of their enactments, with the exception of the MTBE phase out. This provision could not be implemented until the EPA permanently waived the 2% minimum oxygenate in Area A, due to the federal requirement that all nonattainment areas, within the United States, add at a minimum 2% oxygenate to gasoline. This is referred to as a federal trump. In other words, in the United States, state nonattainment areas can exceed federal regulations, but they cannot implement less stringent regulations that correspond with federal regulations.

EPA PROPOSES TO APPROVE THE CBG PROGRAM SIP REVISION

DEQ has submitted four separate SIP submittals, from February 1999 to September 2001, to Arizona's CBG program for EPA approval. Under the revised SIP, the wintertime oxygenated fuels program will change to comply with standards for California Phase 2 reformulated gasoline. Ten percent by volume Ethanol will also be required in all wintertime fuel. The SIP revision also includes a summertime program, which gives refiners the choice between two types of fuel (gasoline that meets the standards for RFG Phase II or California RFG Phase 2) and the removal of the 2% oxygen requirement (MTBE) in summertime fuel.

On September 5, 2003, the EPA proposed to approve the revisions to the Arizona CBG program in the SIP. The approval was subject to a 30-day comment period . After the 30-day comment period, EPA must address the comments they have received and publish the final rule.

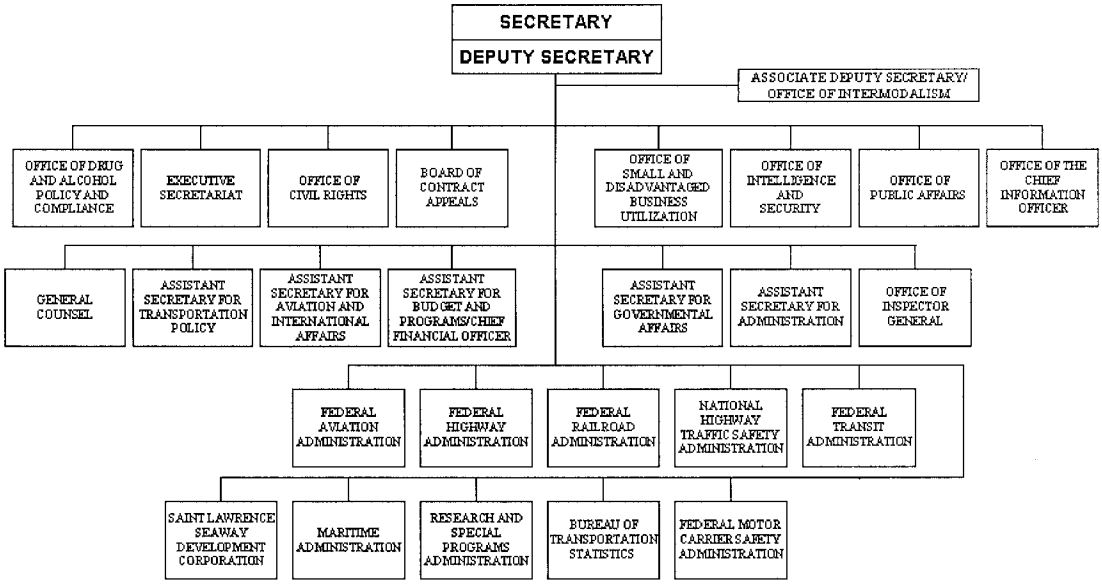
GOVERNMENT REGULATORY FUNCTIONS

FEDERAL

UNITED STATES DEPARTMENT OF TRANSPORTATION

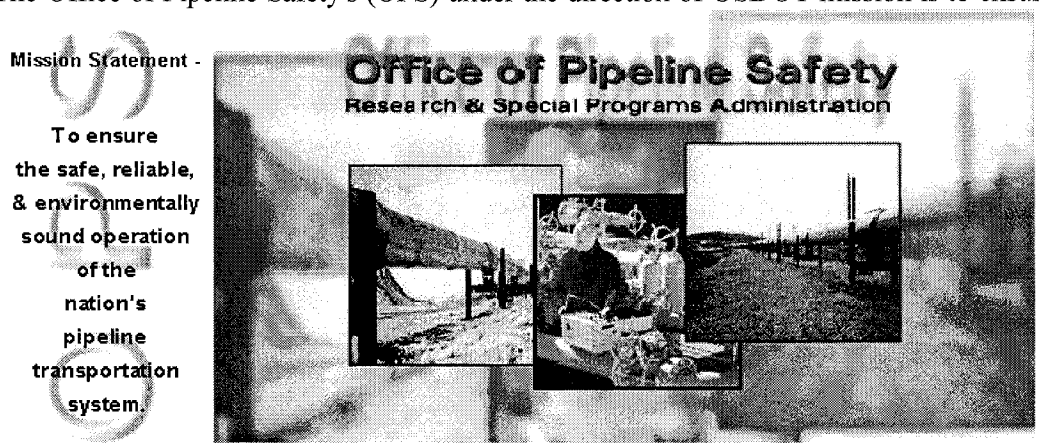
The U.S. Department of Transportation (USDOT) establishes the Nation's overall transportation policy. Under its umbrella there are 11 administrations whose jurisdictions include highway planning, development, and construction; motor carrier safety; urban mass transit; railroads; aviation; and the safety of waterways, ports, highways, and oil and gas pipelines.

U.S. Department of Transportation



OFFICE OF PIPELINE SAFETY

The Office of Pipeline Safety's (OPS) under the direction of USDOT mission is to ensure the



safety, security, and environmental protection of the Nation's pipeline transportation system. The Office establishes and enforces safety and environmental standards for transportation of gas and hazardous liquids by pipeline. Through OPS administered grants-in-aid, OPS cannot pay more than 50 percent of the costs for OPS certified intrastate pipeline safety programs within states that voluntarily assume regulatory jurisdiction of intrastate pipelines. Additionally, ACC acts as an agent of OPS on interstate pipeline safety programs. **(See Attachment E)**

ENVIRONMENTAL PROTECTION AGENCY

The mission of the Environmental Protection Agency (EPA) is to protect human health and to safeguard the natural environment--air, water, and land-- upon which life depends.

Air and Radiation

The activities of the Office of Air and Radiation, under EPA include the following: developing national programs, policies, regulations, and standards for air quality, emission standards for stationary and mobile sources, and emission standards for hazardous air pollutants; conducting research and providing information on indoor air pollutants to the public; providing technical direction, support, and evaluation of regional air activities; providing training in the field of air pollution control; providing technical assistance to States and agencies having radiation protection programs, including radon mitigation programs and a national surveillance and inspection program for measuring radiation levels in the environment; and providing technical support and policy direction to international efforts to reduce global and transboundary air pollution and its effects.

FEDERAL ENERGY REGULATORY COMMISSION

What are the Federal Energy Regulatory Commission's (FERC) responsibilities for regulating oil?

- Regulate the transportation (from one state to another and from any other place in the U.S. to and from a foreign country, but only for the pipeline transported in the U.S.) of crude petroleum, refined petroleum products (gasoline, fuel oil, diesel fuel, kerosene, jet fuel, etc.) and liquefied petroleum products (butane, isobutene, ethane, propane, etc.) by common carrier pipelines.
- Oil pipeline carriers under FERC jurisdiction are required to file documents called tariffs, which contain the rates, charges, and rules for transporting the oil by pipeline. The requirements for filing oil tariffs are found in 18 Code of Federal Regulations (CFR) Part 341.

FERC has no jurisdiction over construction or maintenance of production wells, oil pipelines, refineries, or storage facilities. The Environmental Protection Agency has jurisdiction over oil spills.

ARIZONA

DEPARTMENT OF COMMERCE

The Department of Commerce Energy Office administers various federal funds including those from the Department of Energy and the Department of Health and Human Services. The office has three program operating components: energy conservation and engineering, education and community outreach and energy policy. In 1990, the Department of Commerce Energy Office also developed an Arizona Fuel Emergency Plan followed by the Arizona Motor Fuel Emergency Response Plan of 2003 to develop strategies designed to mitigate the effects of spot fuel shortages.

CORPORATION COMMISSION

The Arizona Corporation Commission (ACC) was established by Article 15 of the Arizona Constitution and consists of five statewide elected commissioners, serving 4-year terms. The commission has three primary responsibilities. The Corporations Division provides public access to corporate annual reports, articles of incorporation, and corporate status change documents. The Securities Division regulates securities dealers and investment advisors. The Utilities Division monitors approximately 500 public service corporations operating in Arizona and establishes public utility rates. Other functions of the Commission include inspecting gas pipelines and railroad tracks. The Pipeline Safety Program enforces state pipeline safety regulations applicable to intrastate pipelines, and provides guidance to intrastate pipeline operators to ensure safe operation of pipeline facilities. Acting as agent for OPS, the Pipeline Safety Program also inspects and reports on interstate pipelines as authorized by OPS. The ACC has no independent regulatory authority over interstate pipelines.

DEPARTMENT OF ENVIRONMENTAL QUALITY

The Department of Environmental Quality's (ADEQ) purpose is to protect human health and the environment by enforcing standards of quality for Arizona's air, water and land. The Air Quality Program controls present and future sources of air pollution as well as ensures compliance with Federal and State environmental laws. Activities include planning and program development, monitoring and research, industrial emissions permitting, compliance enforcement and vehicle emissions inspections. During the recent gas crisis, ADEQ worked with the EPA to obtain a waiver to produce conventional gasoline in the valley. The Department has also been heavily involved in the proposal to build a refinery in the Phoenix-Metro area.

DEPARTMENT OF WEIGHTS AND MEASURES

The Department of Weights and Measures (Department) regulates the determination and representation of weight and measurement in the marketplace, maintains two environmentally related gasoline inspection programs - the Stage II Vapor Recovery program and the Cleaner Burning Gasoline (CBI) program. The Department has administered the fuel quality program

since 1989 when oxygenated fuel was mandated. The Department opened its own fuel-testing laboratory capable of testing for all perimeters listed under ASTM D4814. The Department now employs a contracted laboratory to analyze 2000 samples per year obtained from the terminals and retail sites by Department staff. Additionally, in cooperation with ADEQ, the Department has had to develop regulations governing fuel and fuel quality.

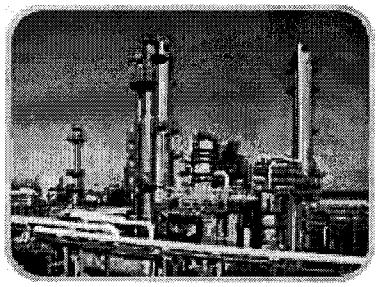
According to Department records, there are 994 gas pump locations in Area A and 1,023 gas pump locations throughout the rest of the State. The Department is responsible for regulating the proper measurement (fuel volume) of motor fuels (gasoline, diesel, propane, etc). Inspectors examine fueling dispensers at each service station in Arizona approximately once every three years, unless there is a complaint, and then an Inspector is sent to the site within seven days. Last fiscal year the Department inspected over 21,900 dispensing devices.

REFINED PETROLEUM PRODUCTS

Refiner, Supplier & Retailer

(See Attachment F)

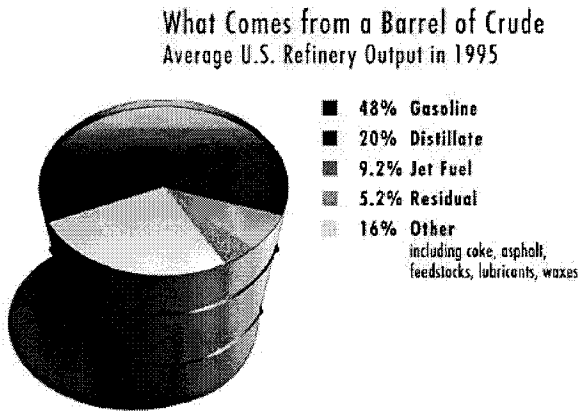
REFINERIES

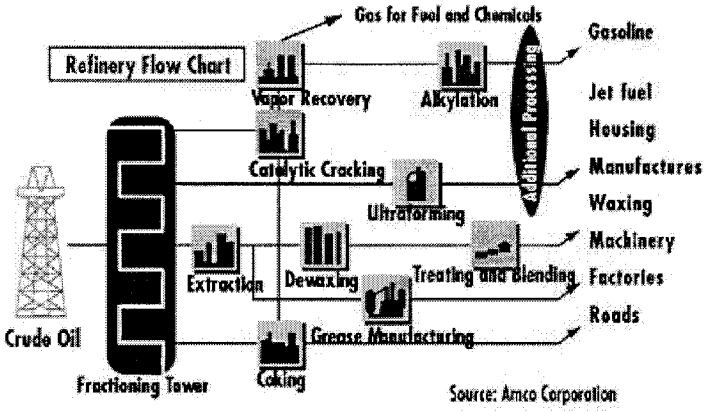


Gasoline destined for delivery in Arizona may come from fifteen different refineries. Most of these refineries are located in Southern California. Others are located in the San Francisco Bay Area, Washington State, New Mexico and West Texas.

Every refinery has unique characteristics and capabilities for processing crude oil and for making refined products. Most refineries were initially built to process a specific slate of crude oils, usually from the company's upstream division or from a nearby oil field.

The economics of refinery operation is largely dependent on three variables: the cost of crude oil, the cost of operating the refinery, and the market price the seller can obtain for the product. In addition to the refinery's capabilities for processing crude oil, the "crack spread" – the difference between the price a refiner can obtain for a refined product and the cost of crude oil – will determine the types of crude oil a refiner will purchase and the products that the refiner will produce.





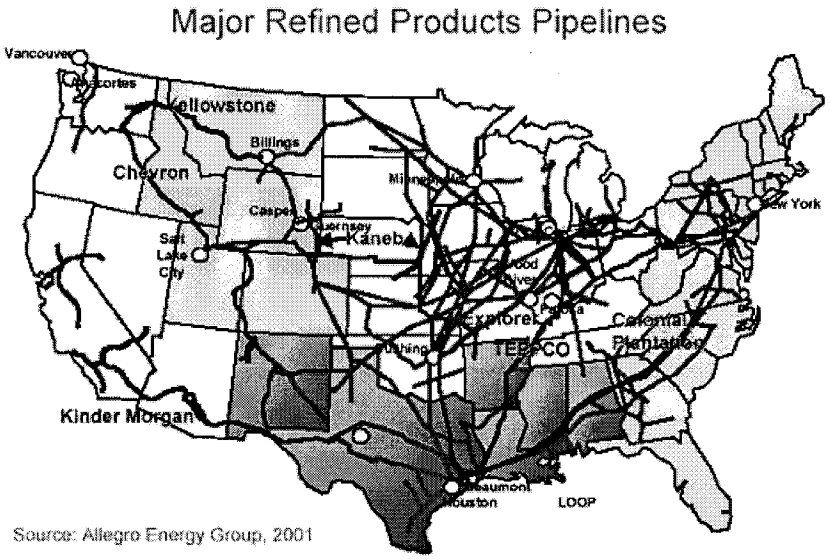
The United States has the largest refining capacity of any nation in the world–approximately 20 percent of the total global refining capacity. Almost all of the gasoline consumed in the United States – approximately 96 percent – is produced in domestic refineries; the remainder is imported from locations such as the Caribbean and Europe.

PIPELINES

The United States has a 200,000-mile petroleum pipeline network that delivers the products that are integral parts of America's economy.

The United States has the largest network of energy pipelines, both oil and natural gas, of any nation in the world. The oil pipeline network alone in the U.S. is more than 10 times larger than that in Europe.

There are approximately 95,000 miles nationwide of refined product pipelines. Refined products pipelines are found in almost every state in the U.S., with the exception of some New England states. These refined products pipelines vary in size from relatively small 8 to 12 inch diameter lines up to 42 inches in diameter. The network of oil and natural gas pipelines that serve the U.S. is not a single entity. Some large oil companies like Shell, British Petroleum (BP) and Exxon Mobil operate pipeline systems that serve large regions of the country or move petroleum from one region to another.

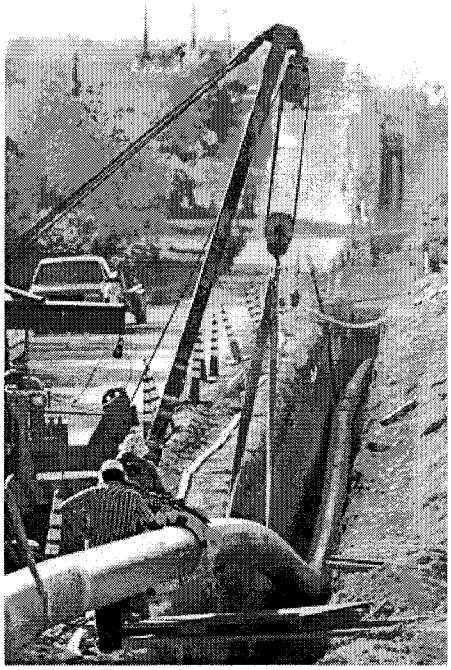


Another large group of pipeline systems is owned and operated by companies that are only pipeline operators - such as Kinder Morgan, and that are not involved in other aspects of the oil industry.

STORAGE AND DISTRIBUTION

Once crude oil is refined, the products are stored in tanks at the refinery or shipped to other distribution facilities, called wholesale terminals. It is estimated there are more than 1,300 wholesale terminals in service. A terminal may have as much as 2 million gallons of storage capacity. Although major oil companies own several of these terminals, about 75 percent are owned by independent petroleum companies, distributors (jobbers), and terminal/supply service companies.

Most of the volume of petroleum products is transported from refineries to wholesale terminals through pipelines. Most oil pipelines are operated as "common carriers," which means that the pipeline owner does not take title to the oil being shipped but simply provides the transportation service. As common carriers, pipelines must be accessible to all oil that meets the pipeline's shipping specifications, regardless of the ownership. Further, they are subject to government regulation concerning rates and operating practices. Less than six % of petroleum products is moved from refineries by truck, and only half that amount, just over three percent, is moved by rail.



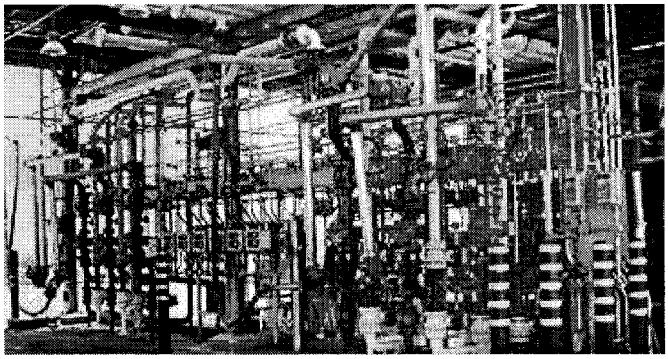
Some 184 companies operate pipelines that are regulated by the Federal Energy Regulatory Commission (FERC) for the purpose of rates. A small percentage of pipelines are operated as proprietary pipelines.

Proprietary pipelines transport crude oil or products for their owners or their affiliates. The owners of these pipelines can set their own rates; however, if they begin shipping substantial quantities of product for the use of third parties, the FERC can require that they become common carriers and be subject to the FERC's rate making authority.

Although different refineries have different operating characteristics, with limited exception, the basic gasoline produced at any particular refinery will be chemically identical to the gasoline produced at any other refinery. A brand of gasoline is created when the refined gasoline is mixed with a company's proprietary blend of chemical additives at the terminal, which usually occurs as the tanker trucks are being filled for their deliveries to service stations.

Because all gasoline must meet the applicable minimum federal standards, most gasoline is identical even after the proprietary chemical additives are mixed. "Branded gasoline" is sold by the refiner with the understanding that it may be resold under the trademark or trade name owned by the refiner.

"Unbranded gasoline" cannot be resold under the trade name. Branded gasoline is distributed from refineries and terminals to retail outlets, either directly to the service station or through bulk plants. Bulk plants are like terminals, but they are used by jobbers to store product for distribution to retailers.



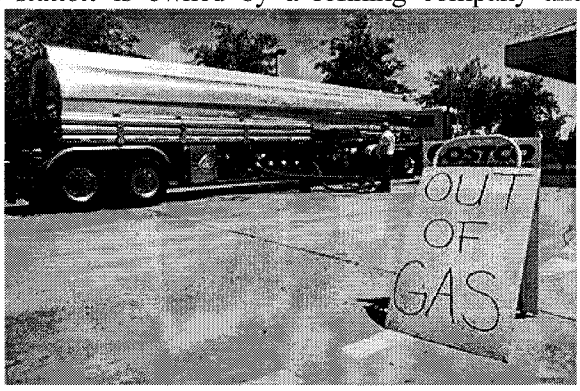
Jobbers purchase and transport gasoline from refiners and sell or distribute it to gasoline retailers or, in some cases, directly to a number of small dealers with one or two trucks as distributors. A jobber may distribute several brands of gasoline, and may own or lease several retail outlets selling different brands, including unbranded gasoline. Jobbers who contract with a company to distribute a particular brand of gasoline are often required to obtain that gasoline from a particular terminal. Refiners and jobbers distribute the gasoline to retail outlets by trucks that generally carry about 7,700 gallons of fuel each.

RETAIL MARKETING

Service stations, which first appeared around 1910, remain the predominant retail establishments for marketing gasoline. Currently there are over 175,000 retail gasoline outlets in the United States. Today, there is an increasing variety of service station formats and ownership. **(See Attachments G & H)**

Station Formats & Ownership:

- *A **company-owned, company-operated station*** is owned by a refining company and operated by salaried or commissioned personnel of the refining company. Although there are some company-operated stations that are supplied by a jobber on contract with a refining company, they are few-in-number and almost all of these stations are supplied by the refining companies directly.



- *A **lessee-dealer*** is a person who leases the station and land, including tanks, pumps, signs, and other equipment, from a refiner and is supplied directly by the refiner or an affiliate or subsidiary company of the refiner. The lessee-dealer is required by contract to buy gasoline from the refiner at the price set by the refiner, the "dealer tank wagon" (DTW) price. This price will generally be higher than the rack price charged to jobbers (see below), as it will include a charge for promotional support provided by the refiner. The refiner also sets the lease rate and other operating standards and may also offer certain discounts, all of which affect operating costs and ultimately the retail price charged by the lessee dealer.

- *An **open dealer*** is a person who owns (or leases from a third party who is not a refiner) the station or land of a retail outlet and has use of tanks, pumps, signs, and other equipment. An open dealer sells gasoline under the brand of a refiner. An open dealer may have a supply agreement with a refiner or may be supplied by a jobber under contract with a refiner. The open dealer may, upon expiration of a contract, switch to another source of supply, including a different brand.

- *A **jobber*** purchases branded or unbranded gasoline at a terminal owned or supplied by a refinery, commonly called the "rack," and distributes it to either his or her own service stations or to service stations owned by others or both. Many jobbers have term contracts with refiners for purchases of specific amounts of branded gasoline.

- *An **independent dealer*** purchases unbranded gasoline, either on the spot market or at a refiner's rack. Independent dealers generally do not have long-term contracts with any particular brand; they generally shop around for the lowest unbranded rack price. They may also use a jobber to execute delivery of the gasoline purchased at the rack.

TRENDS IN STORAGE AND INVENTORIES

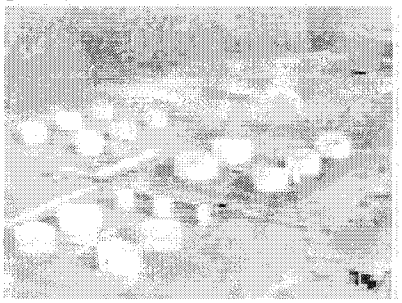
As the number of refineries has decreased, gasoline storage capacity and gasoline stockpiles at refineries also have decreased. In 1981, the aggregate storage capacity at the 324 refineries in the country was approximately 167 million barrels. By 2001, as the number of refineries was reduced by half, storage capacity for gasoline at refineries declined by 14 percent, to 143 million barrels.

In the past several years, most refiners have aggressively reduced amounts of gasoline held in inventory. During the 1990s, a number of industries adopted "just-in-time" inventory practices to reduce operational costs and become more efficient. As the Wall Street Journal recently reported, "New software in use at most major energy companies allows employees to keep closer watch over how much oil or gas is sitting in tank farms, vast pipelines and neighborhood gas stations. By squeezing inventories to the minimum, the companies reduce storage costs and improve cash flow." Exxon Mobil, the largest oil company, has established a goal of reducing its crude oil and refined products in inventory by 15 percent. BP claims it has reduced its inventories by 7 percent since 1997. Prior to its merger with Texaco, Chevron had reduced its inventories of mid- and premium-grade gasoline by nearly two-thirds over the previous decade.

Total gasoline stocks – meaning the total amount of gasoline and blending components in storage at refineries and terminals and in pipelines – have similarly fallen over the past two decades by about 20 percent, from approximately 250 million barrels in 1981 to around 200 million barrels at present. In 1981 the amount of gasoline in storage equated to approximately 40 days of consumption; by 2001, the amount in storage had declined to around 25 days of consumption. Nationally, current stock levels represent only about 3 days worth of supply at the nation's current consumption rate of 8.5 million barrels of gasoline per day over the

minimum amount of stocks considered necessary to effectively and efficiently distribute gasoline, which the EIA terms the "Lower Operational Inventory Level."

As previously discussed most of the terminal storage capacity is not located at refineries. Independents, jobbers, and terminal/supply service companies operate almost three times as many facilities as do the refiners. Of current stocks, approximately 40 percent is stored in bulk terminals, about one-third is stored at refineries, and the remainder, just over one-quarter (28 percent) is found in pipelines. The Census Bureau reports that total storage capacity for refined petroleum products, including gasoline, declined almost 27 percent between 1987 and 1997, while demand during the period increased almost 12 percent. In the Gulf Coast region, which has the most refining capacity, gasoline storage is concentrated at the refineries. This is true as well for the Rocky Mountain and West Coast regions, neither of which are significant importers of gasoline. In the East Coast and Midwest regions, gasoline is stored primarily in bulk terminals closer to the market areas. In these regions, gasoline imports from other regions or nations are necessary to meet demand.



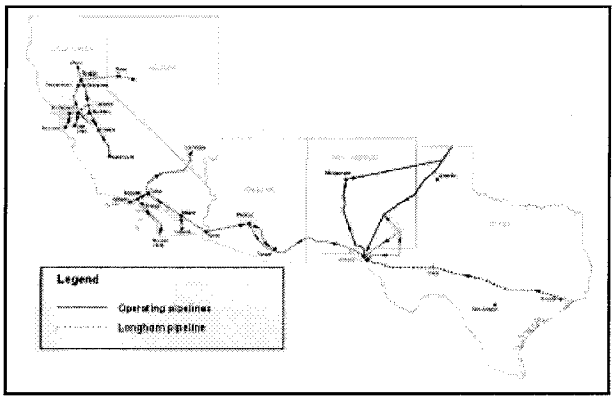
The costs of storing gasoline in inventory will vary, depending on market conditions, such as the type of storage required, the type of product being stored, and overall supply and demand considerations. Generally, long-term storage costs can become significant. On an average basis, it costs approximately $2 per barrel to hold gasoline in inventory at a refinery storage facility for a year and approximately $6 per barrel for a company to rent a storage facility for the same length of time. Thus, storing gasoline in rented tank space costs roughly 1 cent per gallon per month.

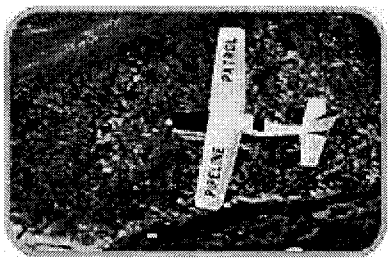
ARIZONA REFINED PETROLEUM PRODUCTS DISTRIBUTION

ARIZONA PIPELINES

There is approximately 1.5 billion gallons of Arizona CBG piped or transported into Maricopa County each year. It is a complex system of piping that interconnects all of the facilities in the Tank Farm Complex, allowing products to be delivered or transported. The majority of Arizona's gasoline supplies are transported into the state by two pipelines owned by Kinder Morgan. The Western Pipeline runs from California to Phoenix and supplies 70% of Arizona's REFINED petroleum product needs. The Eastern Pipeline runs from El Paso-to-Tucson, and then from Tucson-to- Phoenix. The Eastern Pipeline supplies about 30% of Arizona's refined petroleum product needs. Combined, the pipelines supply approximately 7.3 million gallons of petroleum products to the valley per day. It takes seven days to transport gasoline via pipeline from Watson, California to Phoenix. It takes six days for gasoline to arrive in Phoenix by the pipeline from El Paso.

Existing Pipeline Systems





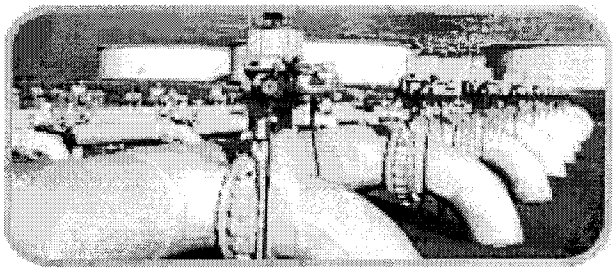
There are four major storage points in the system: the pipeline, the tank farms, the service stations and all of our individual vehicles combined. The largest of those four is our vehicles. The other three work from a "just-in-time" inventory system. While there are a few days of inventory in the combined system, fuel is delivered from the tank farm to the stations by tanker trucks at the same time that fuel from the pipeline flows into the tank farm.

TANK FARM – PHOENIX

The pipeline system delivers products to the Tank Farm at a high rate of flow. (The incoming flow rate may be up to 5000 gpm.) A number of different companies and agencies store and distribute products from adjoining facilities. A piping manifold system provides for the distribution of products among the individual facilities. The central manifold is located in the Kinder Morgan Pipelines yard in

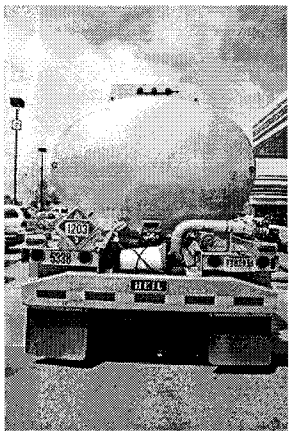
the middle of the Tank Farm area. There are truck loading racks at each facility in the complex. Product is transferred at high flow rates to/from tank trucks at these racks.

The Kinder Morgan Phoenix Tank Farm is located southwest of the intersection of 51st Avenue and Van Buren Street. There are approximately 80 storage tanks at this facility. The tank farm serves as the primary distribution point for refined petroleum products in the Phoenix area.

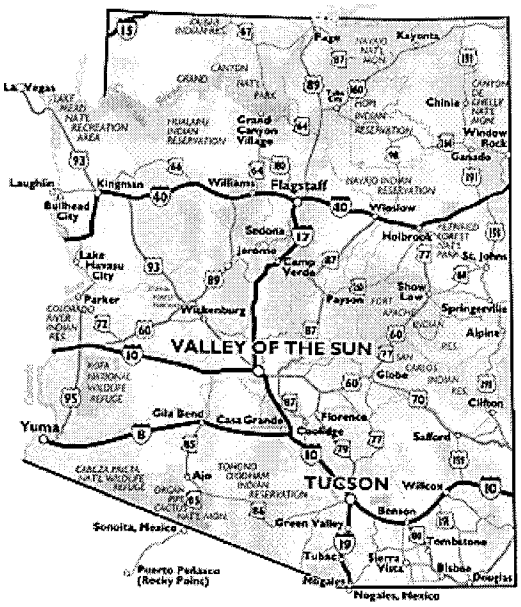


To ensure that the fuel contains the right amount of oxygenate (MTBE or Ethanol), the Department of Weights and Measures requires the tank farm to have a Quality Assurance Program not unlike that of the pipeline. The terminal is required to take random samples from trucks at the loading rack to help insure that the level of oxygenate at the rack will meet State requirements.

TRUCKS



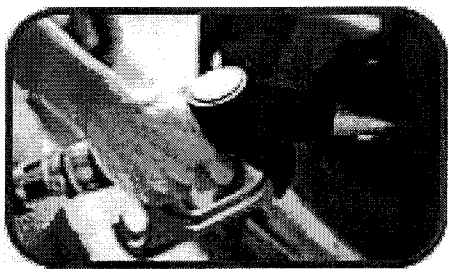
A limited amount of product arrives by rail or by tank truck. Large quantities of products, primarily flammable and combustible liquids, are stored at this location and distributed to service stations and other users by tank truck or through additional underground pipelines. In addition to owning and operating the incoming pipelines, Kinder Morgan is also one of five terminal owners within the facility. The four other owners are: BP, Caljet, Chevron and Unical.



Tanker trucks typically carry gasoline only the last few miles of the trip to individual service stations. Carrying a full load, a typical tanker truck would be able to carry about 8,000 gallons of gasoline. The average size of one underground tank at a retail outlet is about 8,000 gallons. Under normal conditions, a local truck can deliver five or six loads in a 12-hour shift. But when scores of trucks had to go to Tucson, where there are fewer than 10 loading positions instead of the more than 30 in Phoenix, the result was that each truck could get only one load per shift.

RETAIL FUELING STATIONS

(See Attachments I & J)



There are over 150 marketers, distributors and jobbers in Arizona. According to the Department of Weights and Measures (DWM), there are approximately 1,000 gas pump locations in Area A and 1,023 gas pump locations throughout the rest of the state. The Department is responsible for regulating the proper measurement (fuel volume) of motor fuels (gasoline, diesel, propane, etc). Inspectors examine fueling dispensers at each service station in Arizona approximately once every three years, unless there is a complaint, and then an Inspector is sent to the site within seven days. Last fiscal year the Department inspected over 21,900 dispensing devices. Depending on the type of retail outlet, sales volume and delivery schedules, the retail outlet may carry from two to five days worth of inventory in its underground tanks given normal usage patterns.

FUTURE TRENDS

Supply & Demand

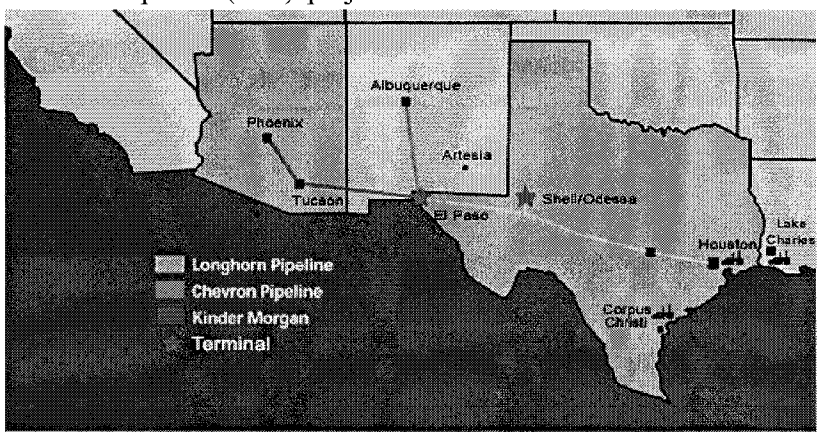
(See Attachments K & L)

UPGRADE/EXPANSION OF KINDER MORGAN EAST PIPELINE

The East Pipeline is scheduled to be upgraded from the existing 8-inch pipe to 12-inch. The proposed expansion will be completed in phases. Phase I will replace 84 miles of existing 8-inch Tucson to Phoenix pipeline with 12-inch line and will upgrade 160 miles of the El Paso to Tucson pipeline from 12-inch to 16-inch line. According to Kinder Morgan, Phase I will increase the current East Line capacity into Phoenix by 83 percent or from 54,000 BPD to 99,000 BPD of total petroleum products. Phase II will eventually replace the remaining 144 mile 12-inch El Paso to Phoenix line with 16-inch line, thus increase the valley's supply by about 123 percent (99,000 BPD to 120,600 BPD). The last phase will be an upgrade with the Toltec Booster, resulting in an extra 35,000 BPD into the Phoenix area (120,600 BPD to 155,600 BPD). Should all three expansion phases take place, the East Pipeline capacity coming into Phoenix will increase by 188 percent. *Source: Kinder-Morgan Energy Partners*

PROPOSED EASTERN RELIEVER PIPELINE (LONGHORN)

The proposed Longhorn Partners Pipeline (LPP) project would convert the former Exxon Pipeline Company pipeline, transporting crude oil from Crane to Baytown, Texas, to a refined products pipeline transporting primarily gasoline and diesel fuel from Houston to the El Paso Gateway Market. The purpose of the Longhorn system is to provide refined petroleum products to third party common party carrier pipelines accessing markets in west Texas, New Mexico, and Arizona. *Source: Office of Pipeline Safety*



Gulf Coast refiners have been unable to get their products to markets with high demand - not just West Texas but also New Mexico, Arizona, and towns along the U.S./Mexico border.
One section of the Longhorn Pipeline - stretching 450 miles from Houston to Crane - has existed for years, carrying crude oil from West Texas to the Gulf Coast. Two new sections have been added, including a nine-mile section in Houston and a 250-mile section in West Texas.

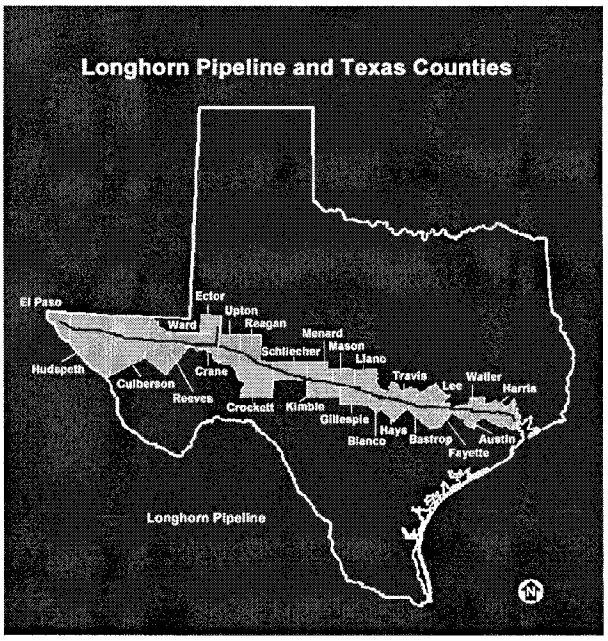
In El Paso, The terminal will be the point of origin for the three lateral pipelines: an 8½ inch-diameter pipeline to the Chevron Pipeline and 8½ inch-diameter and 12½ inch-diameter pipelines to the Kinder Morgan Pipeline. These interconnections with other pipelines will take much of the gasoline and diesel fuel into Arizona and New Mexico.

This will even benefit consumers and businesses in California by reducing the amount of fuel that State must export to Arizona. *Source: Gulf Coast to California Pipeline Feasibility Study CA Energy Commission Final Report 2003*

LONGHORN PIPELINE- CURRENT STATUS

August 21, 2003 - *Source: Business Journal*

The California Energy Commission recommends against building a pipeline to bring gasoline and other petroleum products to California from refineries in Texas and the Gulf Coast. The Commission determined that the Gulf Coast area would not have enough supplies of the type of gasoline used in California to merit construction of the pipeline.

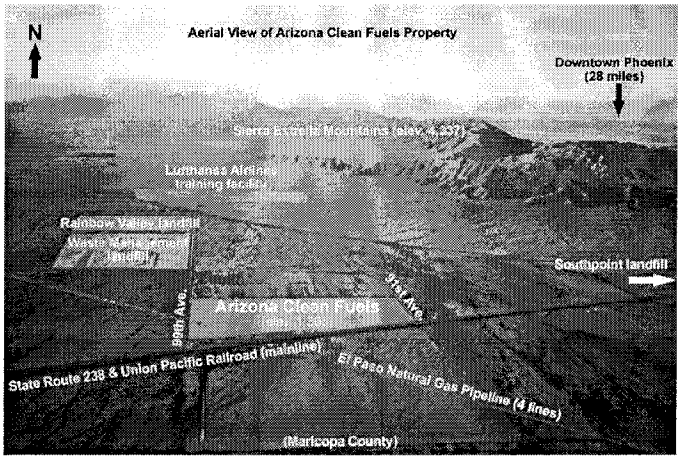


The Commission does recommend that the Longhorn pipeline -- now proposed for construction between Houston and El Paso, Texas -- be completed. Once the Longhorn project is in place, the study encourages increasing the capacity of the pipeline from El Paso to Phoenix. *Source: Gulf Coast to California Pipeline Feasibility Study CA Energy Commission Final Report 2003*

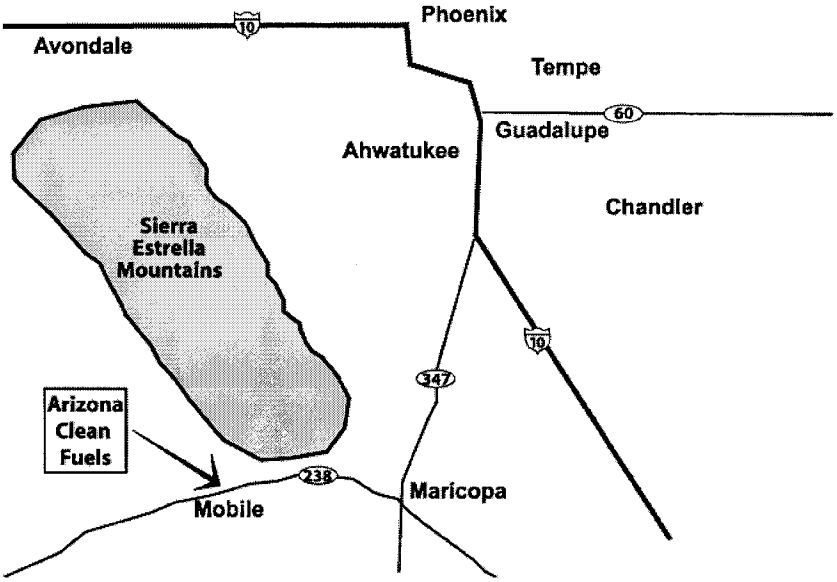
The Longhorn Pipeline Project has been delayed until adequate financing can be secured to complete the final portion of the construction and purchase sufficient quantities of refined petroleum products to provide the initial fill of the pipeline prior to the commencement of operations. No firm completion date has been announced by the company, Longhorn Partners Pipeline, LP, as of this writing.

REFINERY - SHOULD ARIZONA HAVE A REFINERY?

Another option for Arizona to consider is the construction of our own refinery. As of recently, Arizona Clean Fuels has proposed building a freestanding refinery on the far side of the Estrella Mountains about 20 miles southwest of Phoenix. The Mobile refinery is projected to cost around $2 Billion and if completed, would employ over 400 people. Based on estimates provided by Arizona Clean Fuels, the refinery is projected to produce approximately one-half of the gasoline, diesel and jet fuel demand for the state. In addition to the Mobile refinery debate, a Yuma site is now being considered.

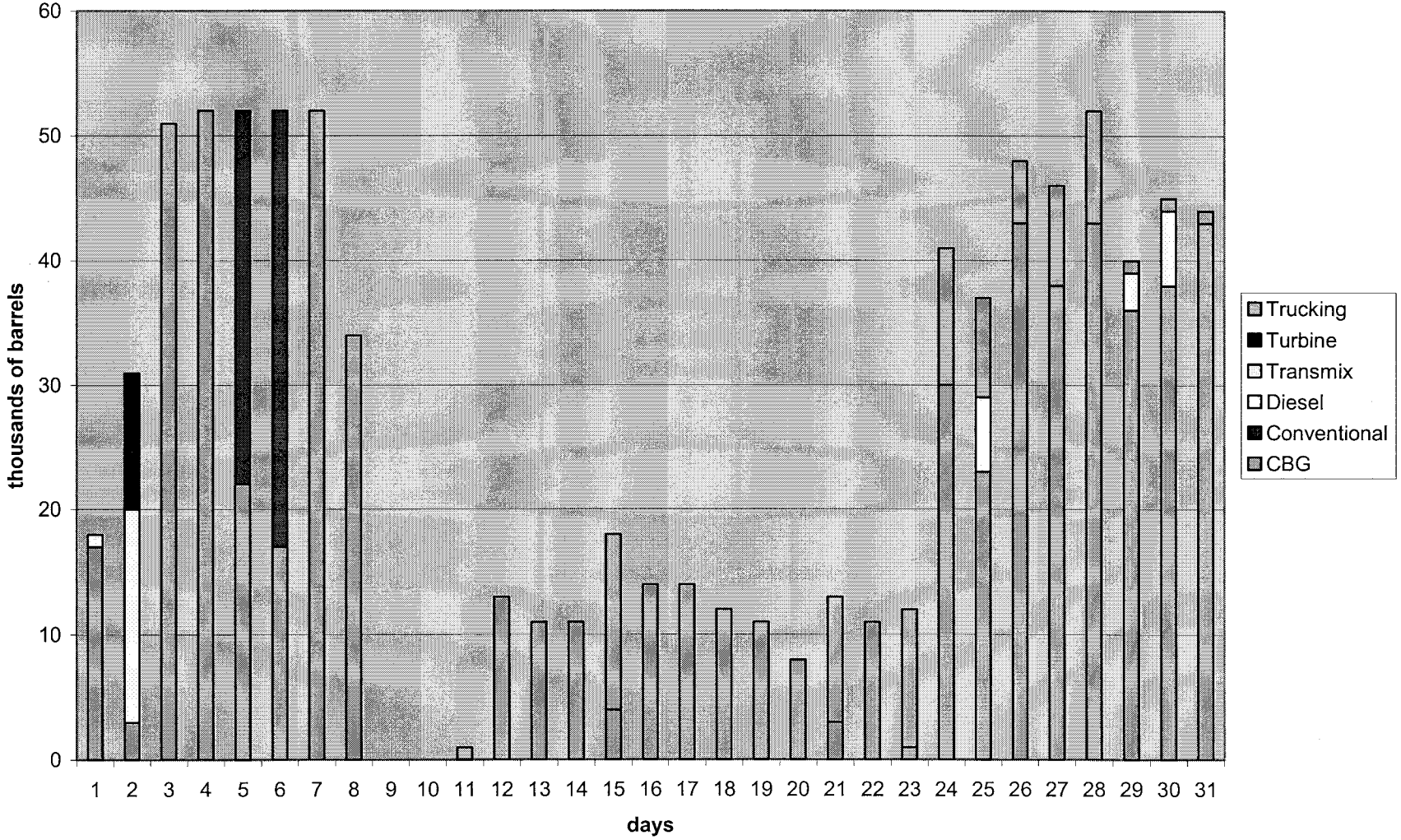


In order for the refinery to become a reality, there are numerous environmental, state and federal regulations to overcome. There will likely be other obstacles to face, including building a pipeline to transport the crude oil to the refinery and overcoming public opposition to such a concept. *Source: Arizona Clean Fuels*



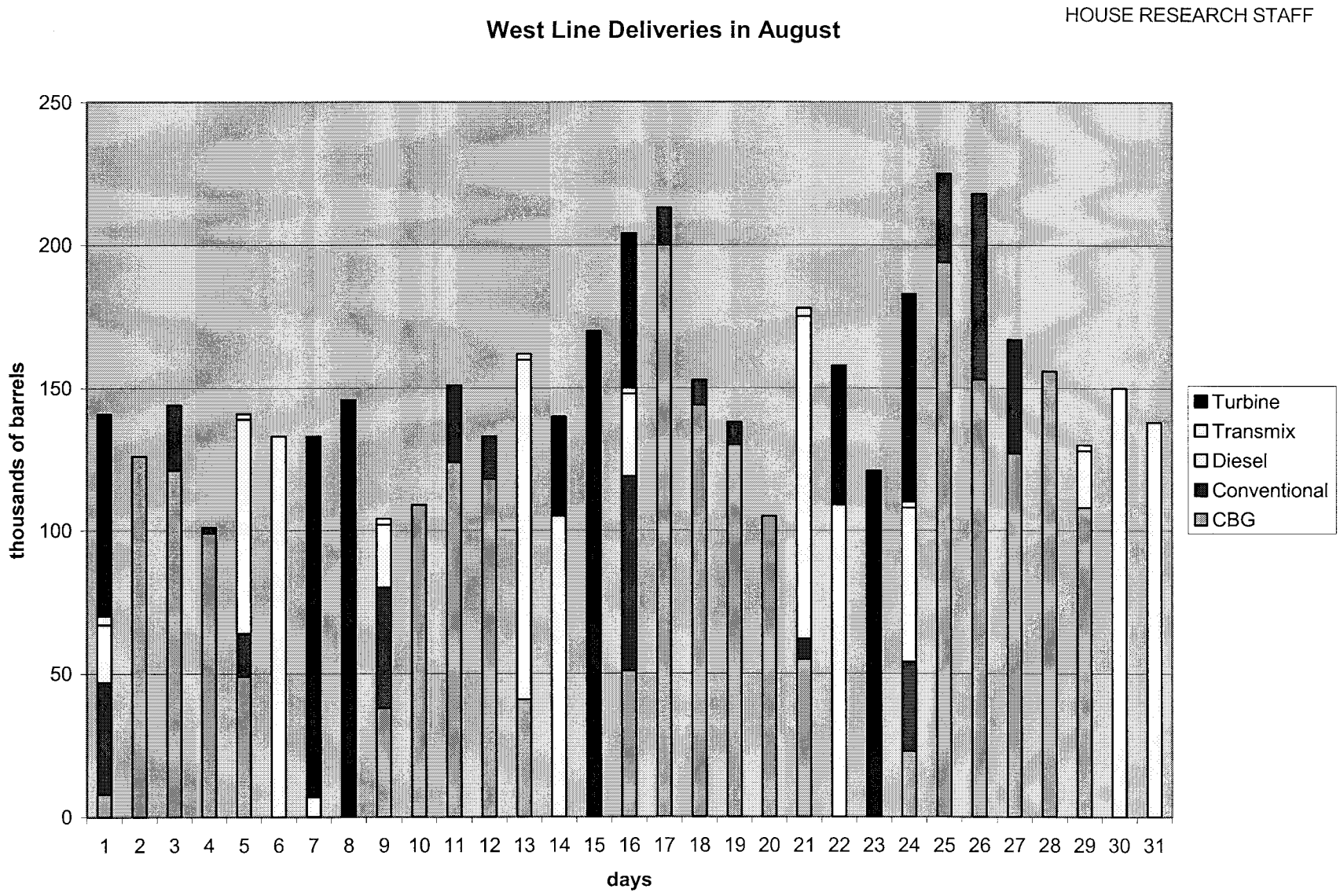
East Line Deliveries

HOUSE RESEARCH STAFF



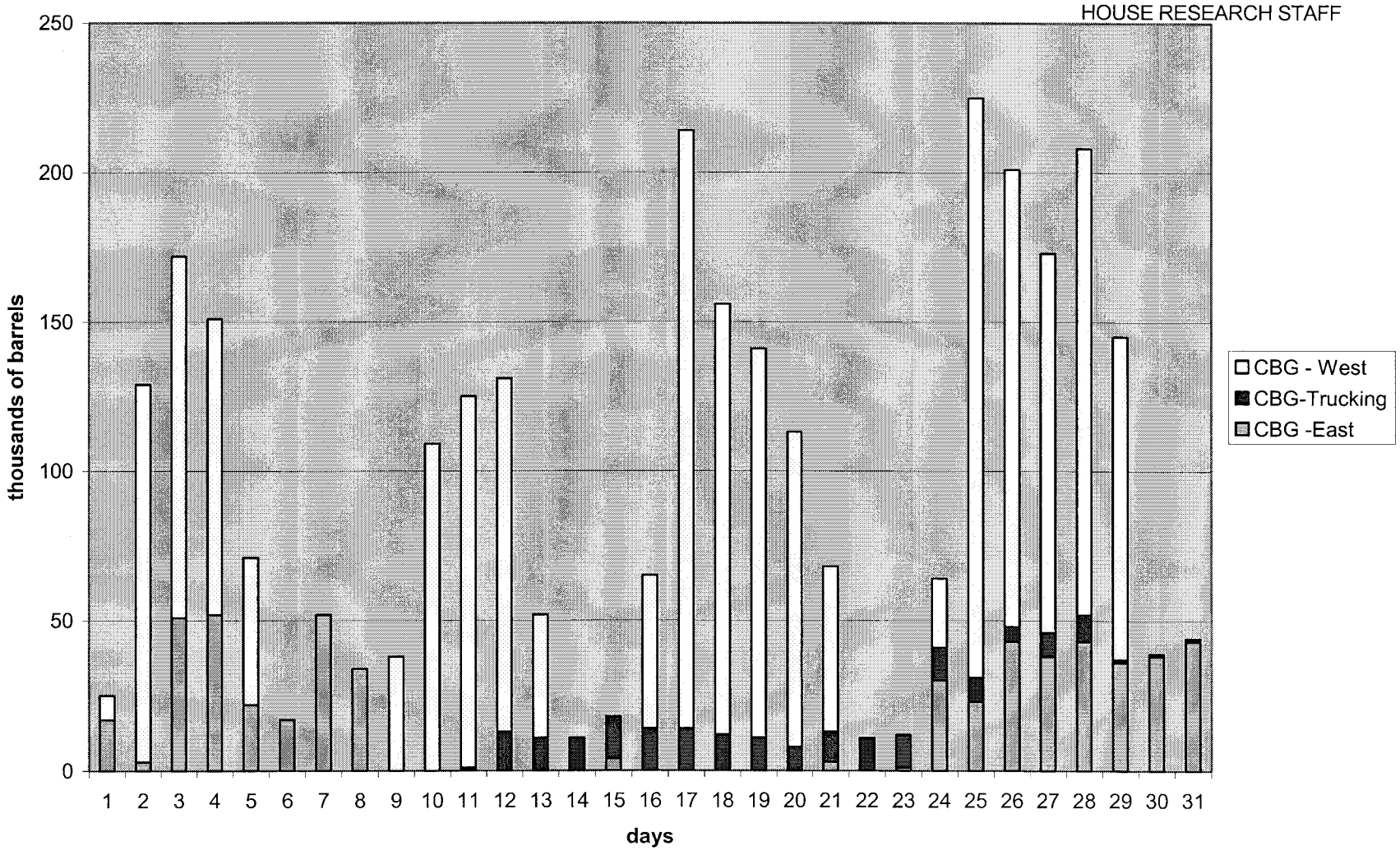
ATTACHMENT A

HOUSE RESEARCH STAFF



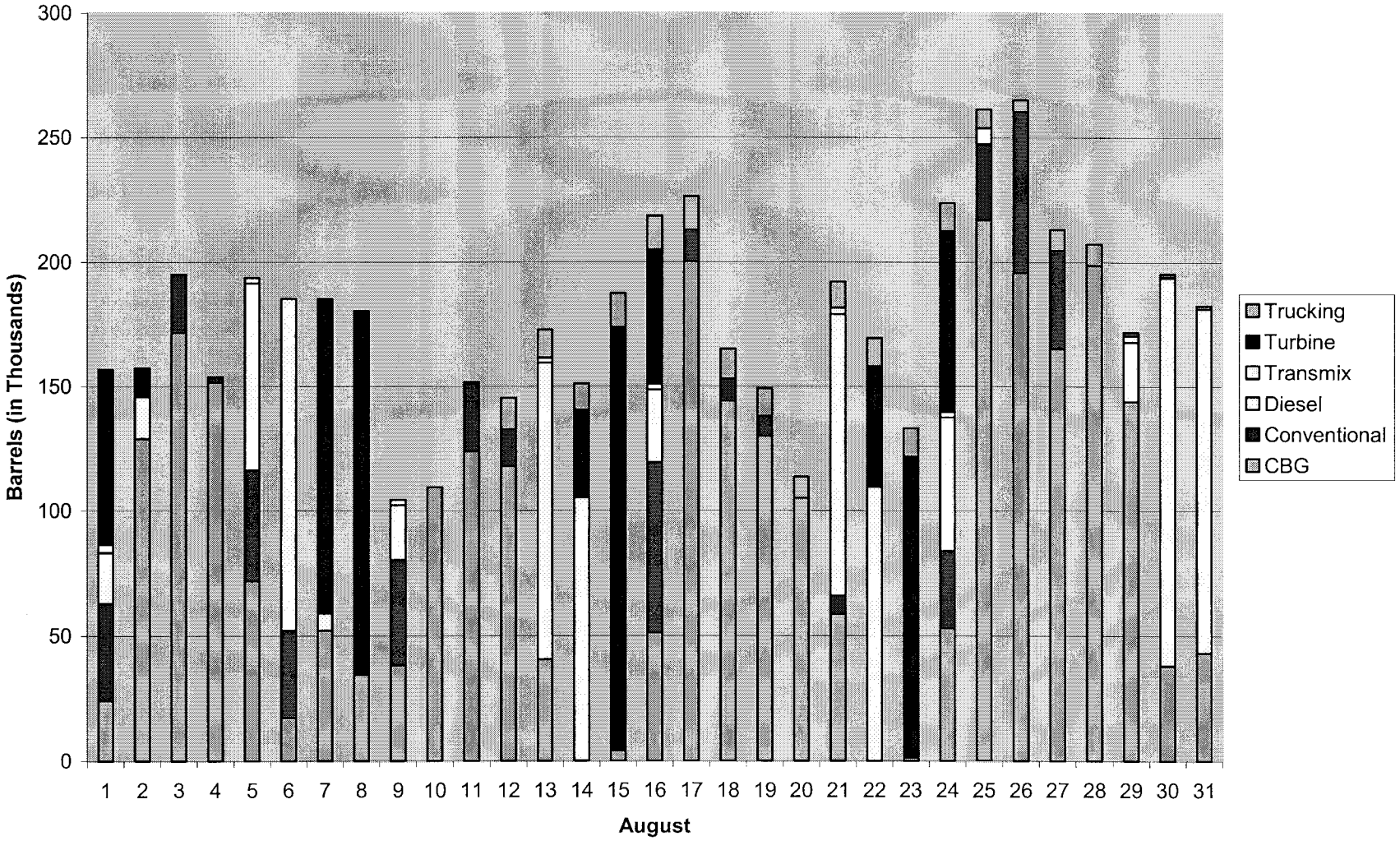
ATTACHMENT B

CBG Delieveries from KM in August



ATTACHMENT C

August Total Deliveries to Phoenix



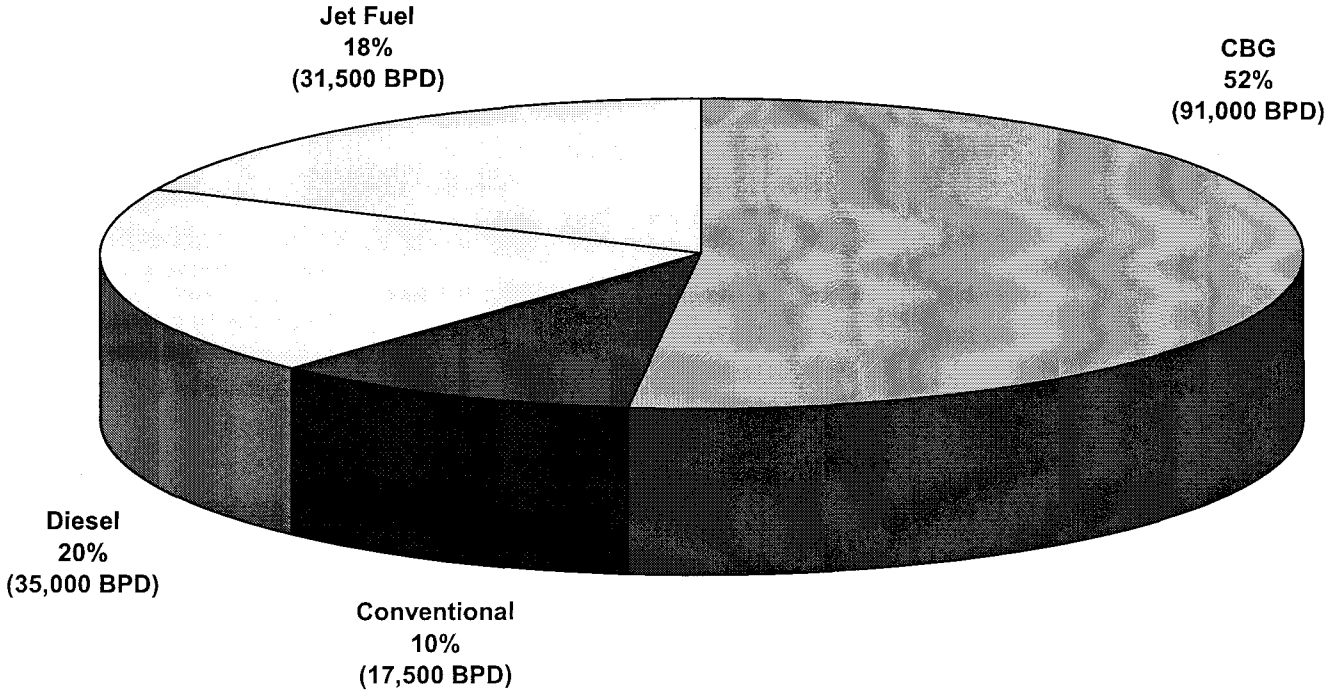
ATTACHMENT D

(SEE EMAIL ATTACHMENT)

ATTACHMENT E

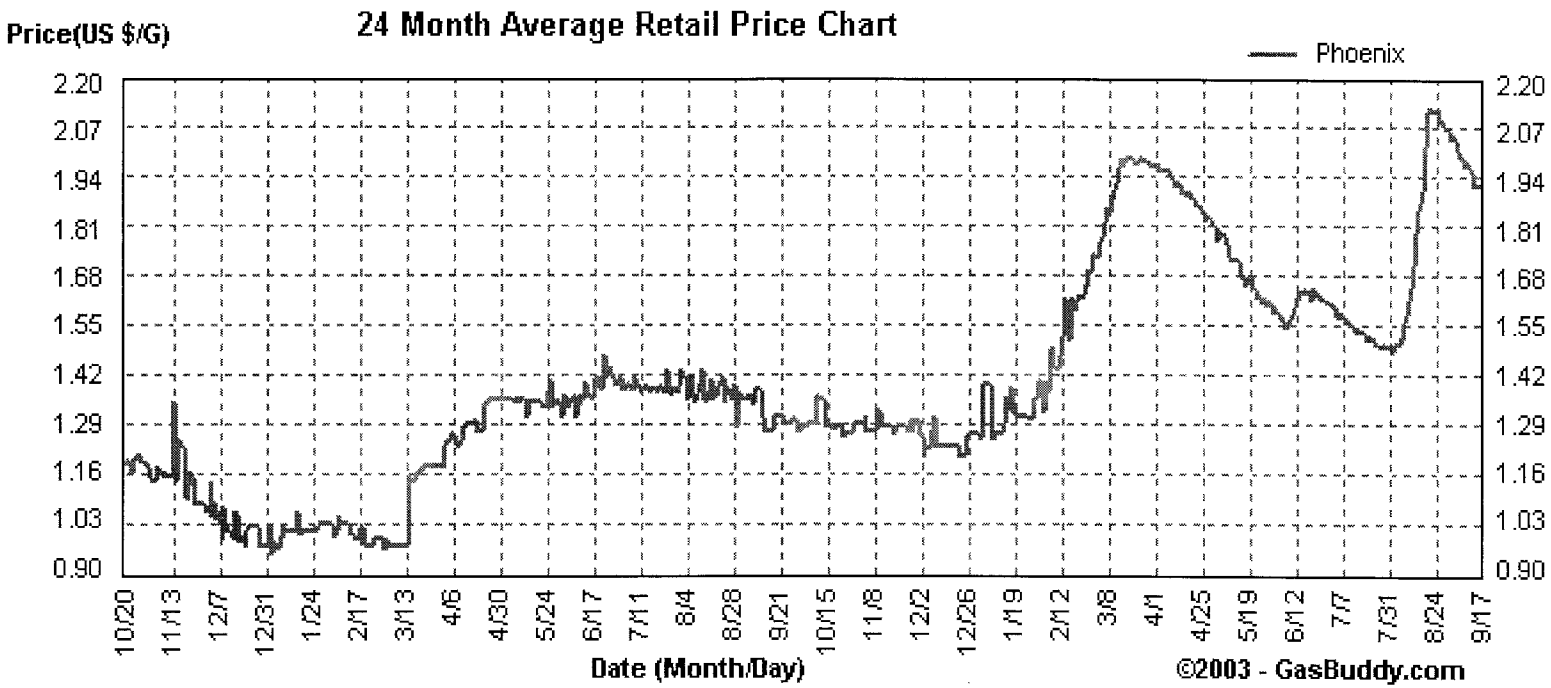
KINDER MORGAN REFINED PRODUCTS PIPELINES

Product Types Delivered to Phoenix through Kinder-Morgan Pipelines
Total Barrels per day = 175,000



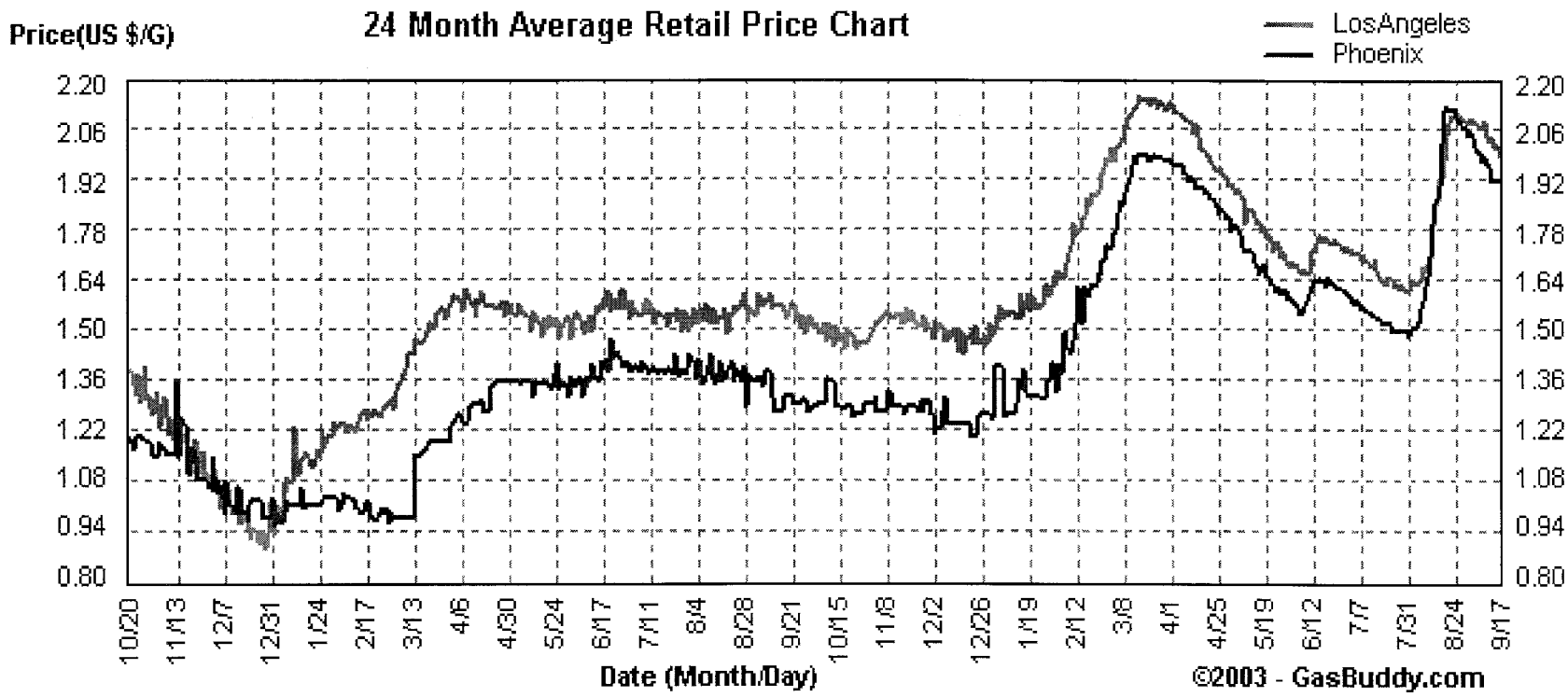
ATTACHMENT F

PHOENIX GASOLINE PRICES



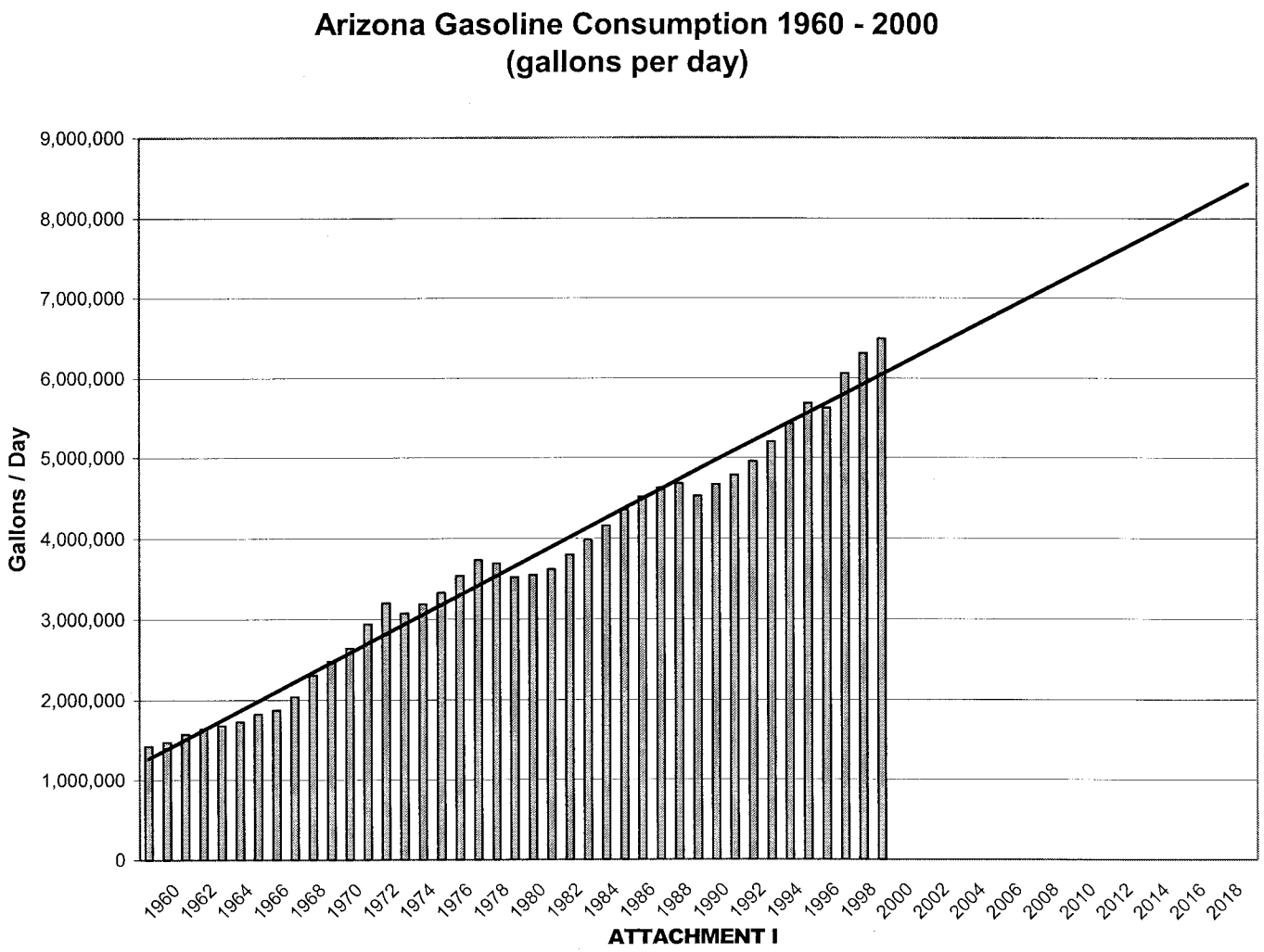
ATTACHMENT G

COMPARISON GASOLINE PRICES

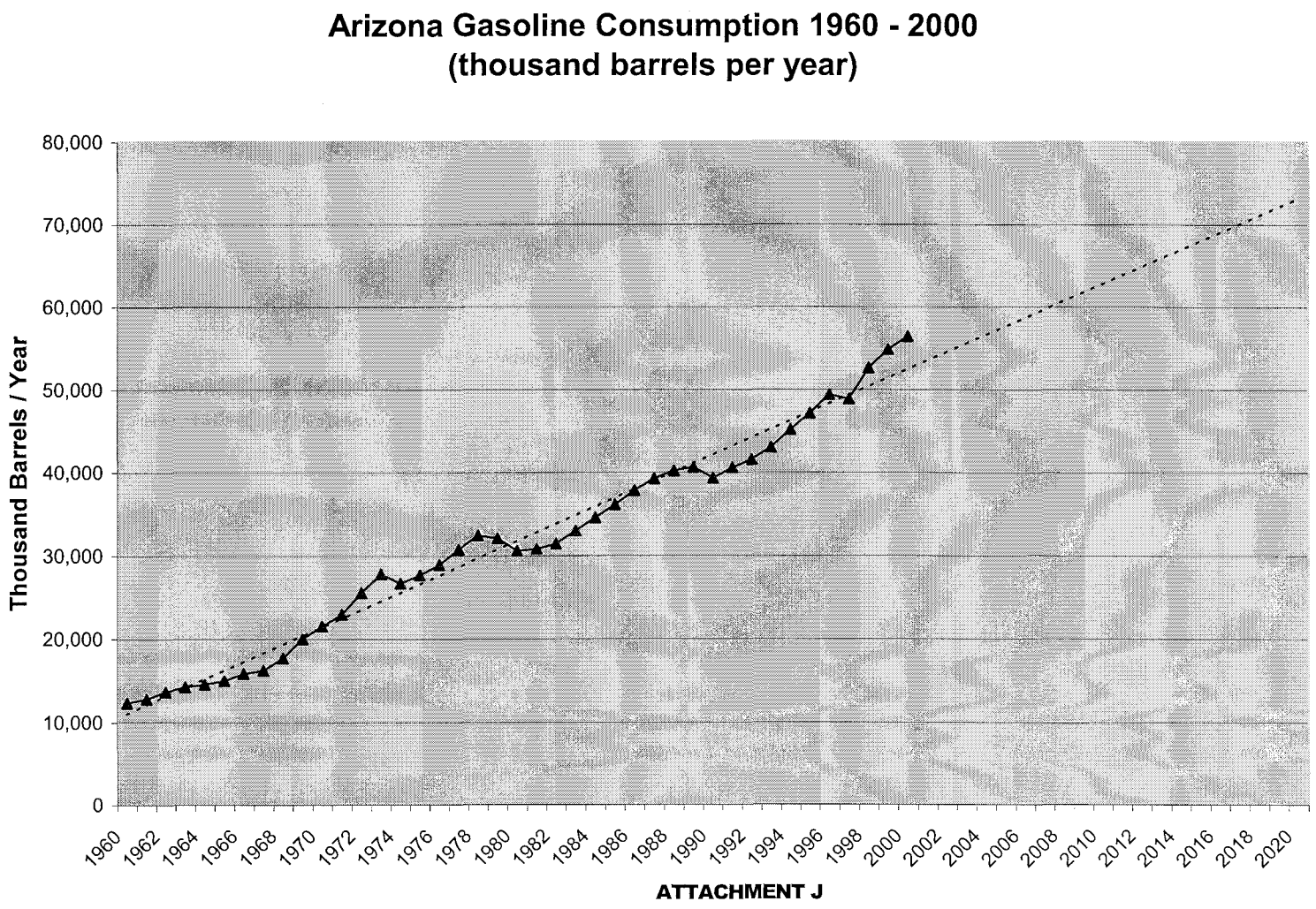


ATTACHMENT H

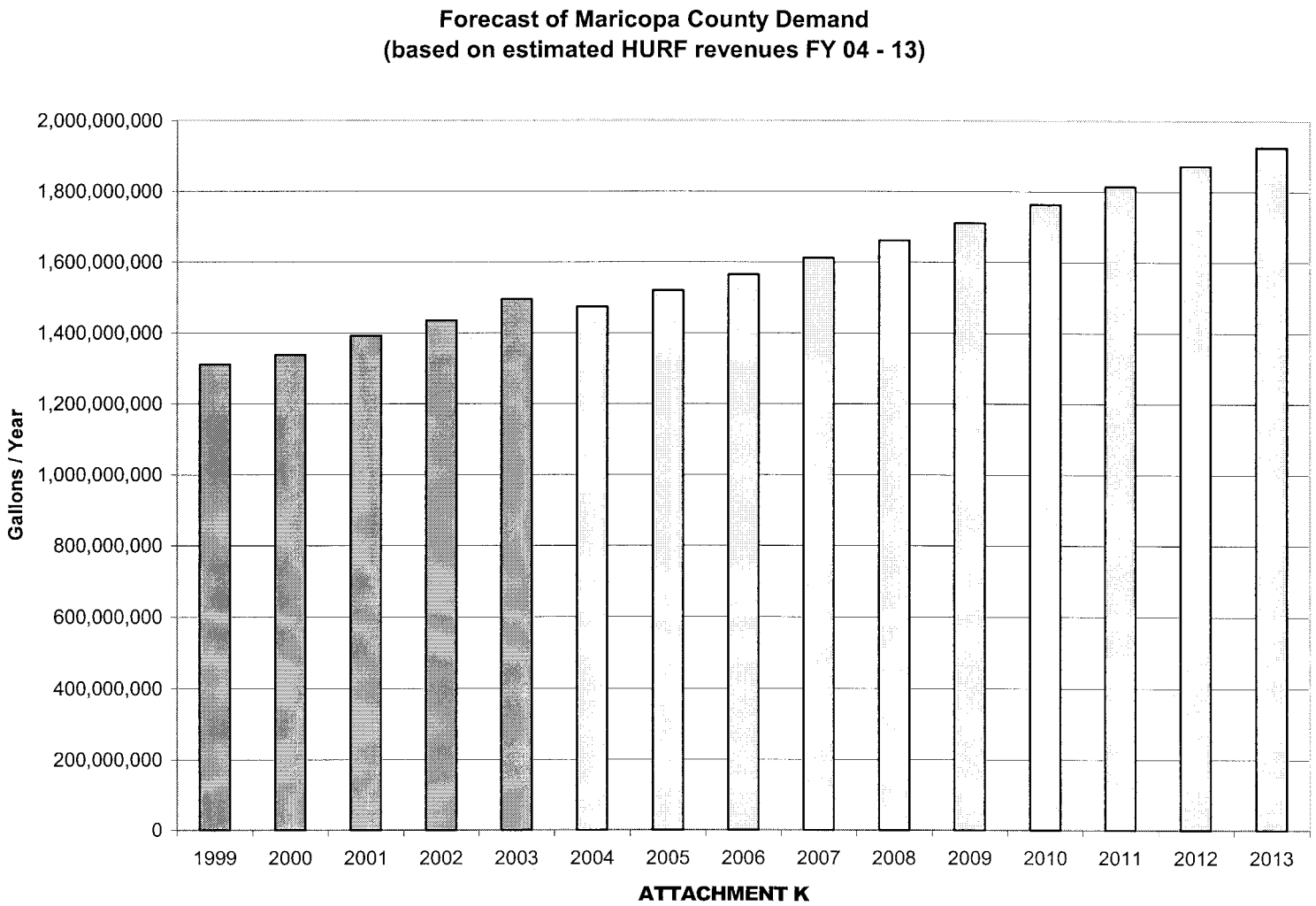
ARIZONA GASOLINE



ARIZONA GASOLINE

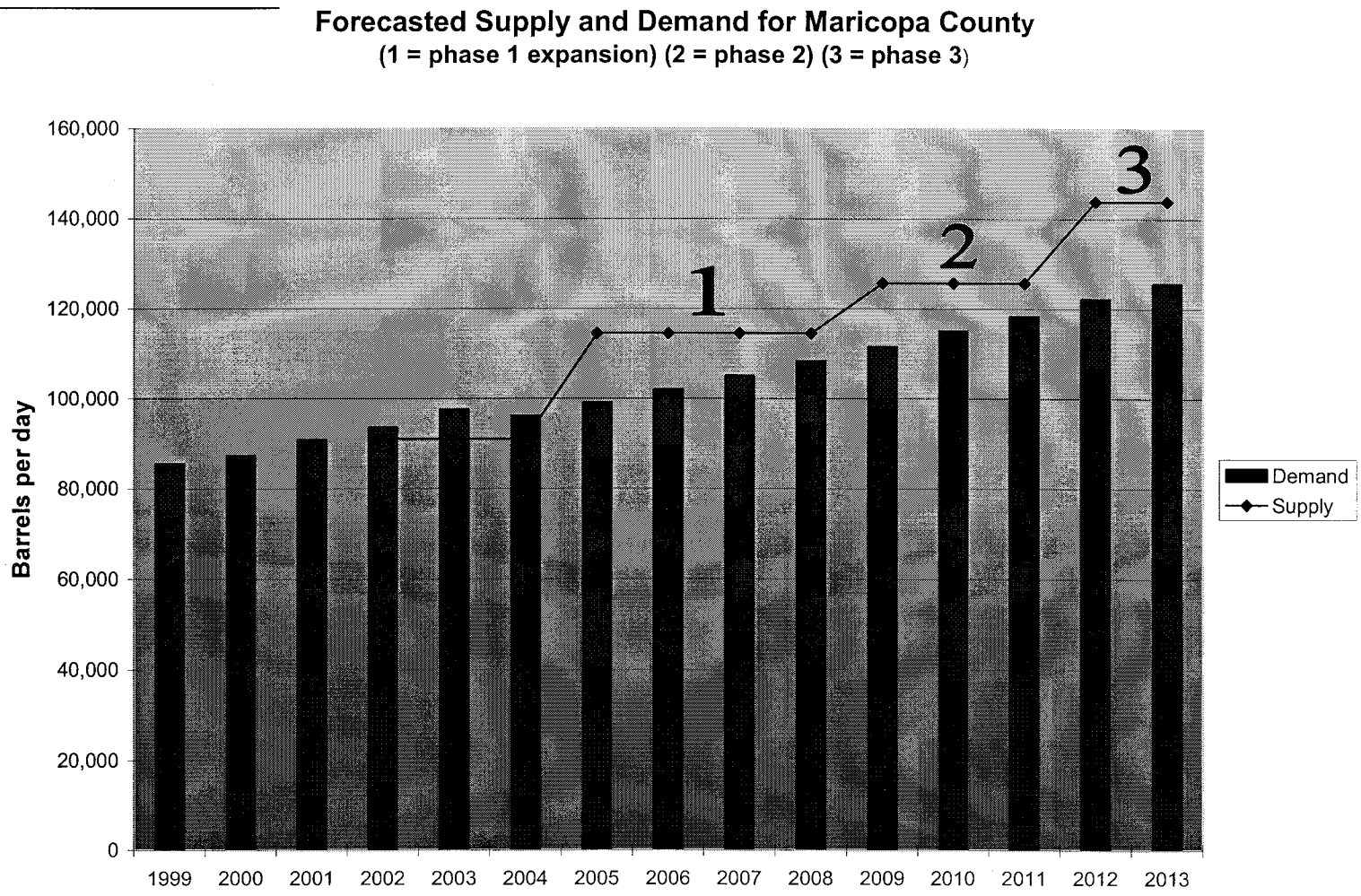


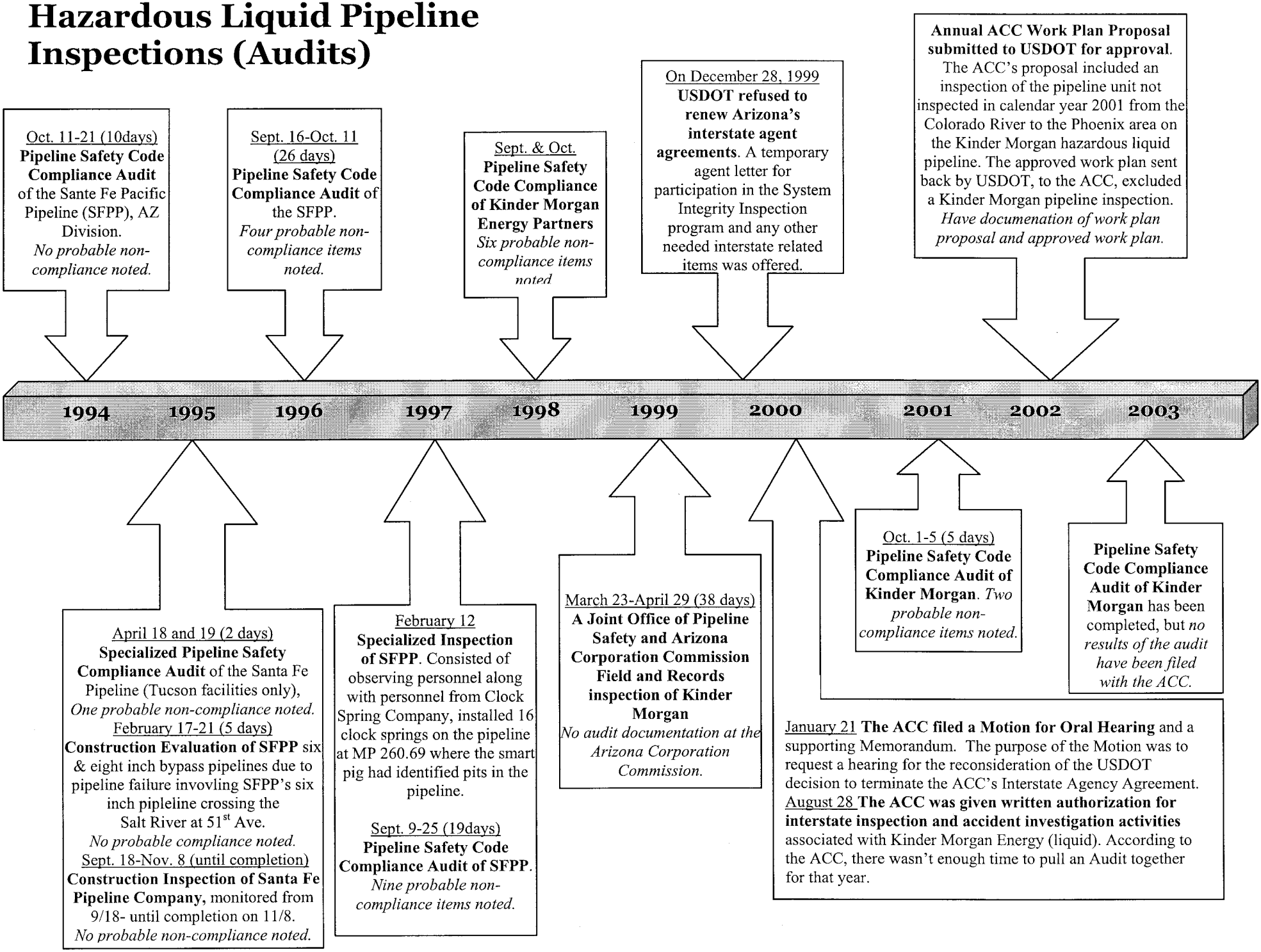
MARICOPA COUNTY GASOLINE DEMAND



ATTACHMENT K

MARICOPA COUNTY GASOLINE SUPPLY & DEMAND



ATTACHMENT L

Hazardous Liquid Pipeline Inspections (Audits)