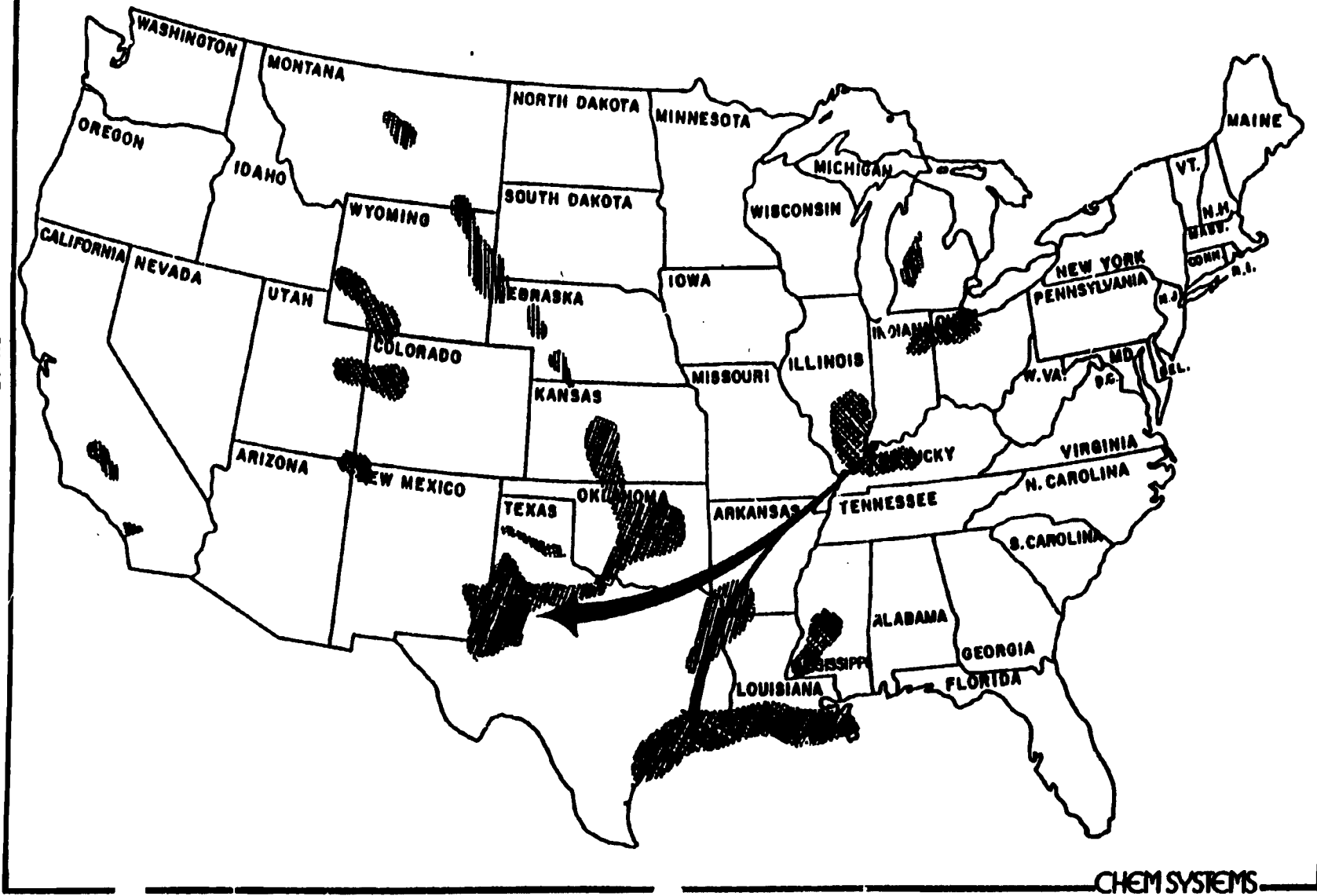


FIGURE IV-E-2
AREAS AMENABLE TO CO2 FLOODING



CHEM SYSTEMS INC

The development of carbon dioxide miscible flooding is in its infant stages and many oil fields potentially amenable have not been investigated due to the non-availability of large quantities of carbon dioxide. The potential growth of carbon dioxide use in enhanced oil recovery therefore appears high. Investigation of amenable oil fields closer to the region of the Tri-State plant should be conducted to reduce transportation costs.

Pipelines and related compression facilities will be required to move material from Henderson, Kentucky to the proven use areas of West Texas, or to areas closer to the plant in the Illinois Basin, Southwestern Arkansas, Southern Mississippi, or Louisiana Gulf Coast. Figure IV-E-2 illustrates these areas.

The magnitude of volume available from the facility and the potential oil recovery resulting from its use in EOR would obviously be attractive to U.S. oil producing entities possessing amenable reserves. Many such firms are currently embarking on extensive development of natural CO₂ resources for EOR in West Texas, and elsewhere. The potential for growing CO₂ sales to these firms is apparent.

No extraordinary problems are perceived for the recommended EOR use of carbon dioxide from a regulatory, environmental or health standpoint. In fact, EOR use of CO₂ is more desirable than emitting it to the atmosphere due to the concern over the "greenhouse effect".

The value of CO₂ will be directly related to the value of crude oil from enhanced oil recovery. Current estimates indicate EOR to average about 1 BBL oil per 8 MSCF of CO₂. Thus, the volume available from the Tri-State facility could result in approximately 50,000 BPD increased U.S. oil production. At current and projected oil prices, the CO₂ stream has substantial revenue potential to the Project.

c. Gas Naphtha

Although gas naphtha is an intermediate stream directed towards further processing into the gasoline pool, it is recommended that facilities be installed to recover specification grade benzene from the stream prior to

FIGURE IV-E-3

PRODUCT PROFILE

BENZENE

- Major End-Uses - Plastics, fibers, polyester resins, rubber chemicals, coatings. Styrene/polystyrene plastic 52%, phenol manufacture 20%, fibers raw materials 13%, others 15%.

- Total United States Demand

MM Gals

1980	2000
1,561	2,589

Average Annual Growth Rate - 2.6%

- 1980 United States Capacity - 2,546 MM gallons (40 Producers)

- Tri-State Regional Demand

MM Gals

1980	2000
135	224

- 1980 Tri-State Regional Capacity - 717 (8 Producers)

- Tri-State Region Major Merchant Consumers

<u>Company</u>	<u>Location (Regional)</u>	<u>Purchase Volume</u> <u>MM Gal/Yr</u>
American Cyanamid	Willow Island, WV	7.5
Clark Oil	Blue Island, IL	12.0
Mobay	New Martinsville, WV	12.0
Monsanto	St. Louis, MO	15.0

- Gulf Coast Major Merchant Consumers

<u>Company</u>	<u>Location (Gulf Coast)</u>	<u>Purchase Volume</u> <u>MM Gal/Yr</u>
American Hoechst	Baton Rouge, LA	107.0
	Bayport, TX	107.0
Cosden	Carville, LA	107.0
Borg-Warner	Carville, LA	47.0
Dow	Freeport, TX	114.0
DuPont	Beaumont, TX	28.0
Marathon	Texas City, TX	15.0
Monsanto	Texas City, TX	175.0

- Major Transportation Mode - Tankcar, Tanktruck, Barge

CHEM SYSTEMS INC.

blending into gasoline. The alternative of blending the contained benzene into the gasoline pool appears less attractive from both a value and environmental basis.

A significant quantity of benzene (Figure IV-E-3) can be recovered at Tri-State. Although benzene is consumed in the region (approximately 135 million gallons per year) most of this demand is satisfied by captive production. It is likely, therefore, that the benzene produced at Tri-State will move out of the region - most probably to the Gulf Coast. The predominant means of transportation to the Gulf Coast is by barge. Should closer markets be found alternatively along the East Coast, large tankcar shipments would be likely.

The benzene would be produced in a commercial specification form for use as one of the primary basic petrochemical raw materials to the plastics and fibers industry. National markets represent over 3 billion gallons per year, with continued growth expected to average 2.0 percent per year. The potential output of benzene for the Tri-State plant would present no problem in marketing to major Gulf Coast merchant consumers.

d. Phenol

It is recommended that phenol (Figure IV-E-4) be recovered as a commercial specification grade product at Tri-State and sold into the regional merchant market.

The United States possessed the capacity to produce about 4 billion pounds per year of phenol in 1980. The Tri-State marketing region possessed 25 percent of this capacity. Despite significant overcapacity in 1980, phenol demands are expected to grow at about 3 percent per year long-term, resulting in the need for new plants after 1985.

FIGURE IV-E-4

PRODUCT PROFILE

PHENOL

- Major End-Uses - Construction materials, electronics, appliance, automotive, coatings, synthetic fibers, surfactants and pharmaceuticals. 65% consumed in plastics and resins, 13% in Nylon 6 synthetic fibers.

- Total United States Demand

MM Lbs

<u>1980</u>	<u>2000</u>
2,248	5,642

Average Annual Growth Rate - 4.7%

- 1980 United States Capacity - 4,075 MM Lbs. (15 Producers)

- Tri-State Region Demand

MM Lbs

<u>1980</u>	<u>2000</u>
650	1,631

- 1980 Tri-State Region Capacity - 1,000 MM Lbs. (5 Producers)

- Major Tri-State Region Merchant Consumers

<u>Company</u>	<u>Location</u>	<u>Volume At Capacity MM Lbs/Yr</u>
American Cyanamid	Evandale, OH	10
Ashland Chemical	Calumet City, IL	25
Borden Chemical	Louisville, KY	70
Hooker Chemical	Kenton, OH	60
Owens-Corning	Newark, OH	40
	Kansas City, KS	40
Pacific Resins	Newark, OH	60
Union Carbide	Marietta, OH	25

- Transportation Modes - Tankcar, Tanktruck

CHEM SYSTEMS INC.

The phenol produced by Tri-State can be disposed of easily in the region and represents less than 10 percent of the available merchant market. There are a number of major merchant consumers that currently must incur high shipping costs to bring their phenol supplies from the Gulf Coast.

The quality of the phenol produced by Tri-State will find easy acceptance in U.S. markets. No regulatory or environmental problem differing from conventional U.S. production are apparent.

The predominant transportation mode that will be used for distribution within the region are tankcars and tanktrucks.

Future phenol prices will continue to reflect the economics of intentional production from propylene and benzene. With a majority of end-uses closely tied to elements of the general economy (i.e., construction) profitability associated with intentional production will be cyclic. However, no price decreases are projected in the long term and any alternative disposition of the Tri-State production of phenol would be of significant lesser value.

e. Cresols

It is recommended that investigations be made into the available technologies for hydrocracking cresols to aromatics (and to phenol). Should such technologies be commercially and economically viable, they should be considered integral to the Tri-State plant. A process capable of such a conversion has been licensed by Union Oil and Ashland Oil. The output from the process (primarily aromatics) would be predominantly blended into the gasoline pool, with any benzene available recovered for sale.

The cresols stream consists of a large number of products of which are ortho, meta and para cresol. There is a limited market for mixed streams and a very narrow market for isomers for which limited growth is projected (about 1 percent per year). The projected availability of cresols at Tri-State represents well over 20 percent of the total U.S. consumption of all isomers and mixtures of cresols and cresylic acids. Additionally, there is the prospect of at least 2-3 coal gasification facilities coming into production

CHEM SYSTEMS INC.

in the region by 1995. All such facilities will have the potential to recover the cresol fraction from the coal tar. Values, therefore will trend towards fuel value since this use will reflect highest alternative value.

f. Creosotes

It is recommended that creosote be upgraded to a material compatible with the plant's transportation fuel output and which will enhance the production of gasoline and diesel fuel, primarily the latter.

The situation identifiable with the future market for creosotes is similar to that of mixed cresols but is exacerbated by:

- The overall market is declining long-term as more aesthetically and environmentally acceptable wood-preserving chemicals displace creosote
- Creosote has been subjected to close scrutiny from the EPA and is a known carcinogen whose use is governed under the laws covering pesticides. Registration with the EPA and the attendant legal and commercial implications of distributing and selling the product has resulted
- The market is dominated by a few large integrated suppliers (possessing a large share of the wood preserving business)
- The output from Tri-State is about 150 percent of the regional consumption and over 20 percent of the total national consumption.

With the prospect of increased availability from other coal gasification plants in the region as well as in the Western and Gulf Coast states, the likelihood of secure markets is remote.

FIGURE IV-E-5

PRODUCT PROFILE

SULFUR

- Major End-Uses - Sulfuric acid 85%, rubber processing, medicinals, paints and explosives 15%. Major use of sulfuric acid (64%) is in the production of phosphoric acid, a fertilizer raw material.

- Total United States Demand

	<u>M Metric Tons</u>	
	1980	2000
	15,558	36,835

Average Annual Growth Rate - 4.4%

- 1980 United States Capacity (72 Producers)

	<u>M Metric Tons</u>
Frasch Mines	6,098
By-product	5,567
Other Sources	535
Total	12,200

- Tri-State Regional Demand

	<u>M Metric Tons</u>	
	1980	2000
	1,220	2,424

- 1980 Tri-State Region Capacity (19 Producers)

	<u>M Metric Tons</u>
Frasch Mines	-0-
By-product	1,056
Other	-0-
Total	1,056

- Major Tri-State Regional Consumers

REGIONAL CONSUMERS OF SULFUR
(Thousand Metric Tons per Year)

<u>Company</u>	<u>Location</u>	<u>Metric Tons/Yr</u>
Olin Corporation E.I. DuPont	N. LITTLE Rock, AR	24
	Cleveland, OH	64
	E. Chicago, IL	112
	Murland, KY	59
	North Bend, IN	53
Stauffer Allied Corporation	Hammond, IN	42
	Nitro, WV	42
	Chicago, IL	38
Baker Industries Mobil Chemical	Newell, PA	32
	Marseilles, IL	63
	Dupue, IL	125
Monsanto National Distillers	Sauget, IL	66
	Tuscola, IL	51

- Major Transportation Modes - Molten Tankcar, Barge

CHEM SYSTEMS INC.

Depending upon the availability of suitable technology and overall economic viability, the creosote fraction can be hydrocracked to material compatible with a conventional diesel oil fraction. Once the economics of such an upgrading route are established, comparisons should be conducted of the potential value achievable as an internal fuel and/or an external fuel.

An additional possibility for the disposal of all tar and pitch streams of questionable marketability lies in the installation of small scale conventional partial oxidation facilities. Such facilities can be designed to generate synthesis gas from heavy liquid hydrocarbons. The synthesis gas stream thus generated would complement the main syngas stream generated by the Lurgi gasifiers and feeding the Synthol unit.

g. Sulfur

It is recommended that the sulfur (Figure IV-E-5) produced by the plant be recovered and sold. No real alternative exists, other than unacceptable emission to the atmosphere.

The Tri-State region will continue to be in a net deficit position on sulfur supply through the end of the century. The output from Tri-State represents about 17 percent of the total regional market. Growth in demand is expected to average about 4.6 percent per year long-term.

The specification quality sulfur will be transported in its molten form primarily by tankcar. Depending upon ultimate selling arrangements, barge shipments may also be made.

The market for by-product sulfur is dominated by large resellers and marketers possessing special transportation, distribution and terminalling systems. Despite values to resellers of only 70-75 percent of direct customer sales, the cost of establishing an infrastructure appears significant. The volume of sulfur available at Tri-State would indicate the use of resellers to be more economical.

FIGURE IV-E-6
PRODUCT PROFILE

AMMONIA

- Major End-Uses - Fertilizers consume 78%, resins and fibers 8%, explosives 4%, other miscellaneous 10%.

- United States Demand

	<u>M Metric Tons</u>	
<u>1979/1980</u>		<u>1999/2000</u>
18,353		23,447

Average Annual Growth Rate - 1.2%

- 1980 United States Capacity - 18,462 M Metric Tons (51 Producers)

- Tri-State Region Demand

	<u>M Metric Tons</u>	
<u>1979/1980</u>		<u>1999/2000</u>
3,945		4,837

- 1980 Tri-State Region Capacity - 4,145 M Metric Tons (12 Producers)

- Major Tri-State Potential Consumers

<u>Company</u>	<u>Location</u>	<u>End-Use</u>	<u>Volume at Capacity M Metric Tons</u>
N-Ren (Mapren)	East Dubuque, IL	Urea/Amn. Nitrate	63
Vistron	Lima, OH	Urea/Amn. Nitrate	121
Tennessee Valley Authority	Muscle Shoals, AL	Urea/Amn. Nitrate	34
Agrico	Blythville, AR	Urea/Amn. Nitrate	177
Hercules	Louisiana, MO	Urea/Amn. Nitrate	193
American Cyanamid	Willow Island, WV	Nitrobenzene	49
Mobay	New Martinsville, WV	Nitrobenzene	103
USS Chemicals	Haverhill, OH	Nitrobenzene	110
Vistron	Lima, OH	Acrylonitrile	230

- Transportation Modes - Tankcar, tanktruck, barge

CHEM SYSTEMS INC.

The majority of the U.S. use for sulfur, as well as in the region of the Tri-State plant is primarily for manufacture of phosphoric acid used in phosphate fertilizer.

No regulatory or environmental impediments are envisioned in marketing the Tri-State sulfur.

Values for the sulfur are projected to rise moderately reflecting increased requirements for intentionally produced material (i.e., Frasch mines). Tri-State sulfur values are enhanced because of transportation costs associated with supplies imported from outside the region.

h. Ammonia

The production of specification grade ammonia (Figure IV-E-6) by the proposed Tri-State plant is recommended. The Tri-State project appears to offer a unique opportunity for those entities in the fertilizer business desiring to incrementally expand in the region, but are unable to do so based on natural gas. The project would have ammonia available as well as supplies of carbon dioxide. Thus, the production of urea by a second party at an adjacent site is possible. The production of ammonium nitrate and subsequent use as fertilizer solutions is similarly possible.

The output of Tri-State represents less than 5 percent of the total regional production capability, with about 92 percent of production going into fertilizer trade. Whereas direct application of fertilizer ammonia is declining, the market for solutions and/or solids mixtures of nitrogenous fertilizers (i.e., urea, ammonium nitrate) is growing at over 4 percent per year. Although no quality problems exist, regulatory pressures due to the relative health hazards in transporting anhydrous ammonia tend to suggest further processing to urea or nitrogen solutions.

Although it is recognized that all regional urea and ammonium nitrate capacity is integrated with on-site ammonia capacity, opportunity could still exist for future expansions. Almost all U.S. ammonia capacity (98+ percent) is based on natural gas and Chem Systems does not expect over one or two new world-scale

CHEM SYSTEMS INC.

plants based on natural gas to be built (if any) in the U.S. to the end of the decade. Therefore, where the U.S.'s new urea and nitrogen solution supply is concerned, it must either be imported as product or produced from U.S. ammonia. The ammonia must be accompanied with carbon dioxide for the production of urea, and with nitrogen for the production of nitrogen solutions. Both carbon dioxide and nitrogen are abundantly available for these purposes from the Tri-State plant.

Transportation of anhydrous ammonia will require more specialized double walled tanks and other safety devices, all the way from manufacturer to the ultimate end-use. Conversely, no specialized handling is required of solid urea or liquid nitrogen solutions.

The value of ammonia is expected to rise relative to its conventional feedstock, natural gas. The value projections are, thus, for relatively high rates of increase.

FIGURE IV-E-7

PRODUCT PROFILE

ETHYLENE

- Major End-Uses - Used as a raw material in the manufacture of plastics and resins ultimately used in packaging film, bottles, appliances, toys, automotive parts, insulation, antifreeze, synthetic rubber, coatings and other products.

- Total United States Demand

<u>MM Lbs</u>	
<u>1980</u>	<u>2000</u>
27,825	61,430

Average Annual Growth Rate - 4.0%

- 1980 United States Capacity - 40,595 MM Lbs (25 Producers)

- Tri-State Regional Demand

(All ethylene produced in the region is consumed captively. No demand for ethylene exists in the open market outside of existing producers.)

- 1980 Tri-State Region Capacity - 2,110 MM Lbs (5 Producers)

- Major Tri-State Region Merchant Consumers

<u>Company</u>	<u>Location</u>	<u>Volume</u> <u>MM Lbs</u>	
USI	Tuscola, IL	400	
Northern Petrochemical	Morris, IL	900	
Chemplex	Clinton, IA	700	Captively
Olin Chemical	Brandenburg, KY	110	consumed
B.F. Goodrich	Calvert City, KY	350	
	Total	2,460	

- Major Transportation Mode - Pipeline

3. Petrochemical and Solvent Products

a. Ethylene

It is recommended that detailed economics based on Tri-State capital requirements be conducted to determine the optimum disposition for the ethane/ethylene stream. It is Chem Systems' opinion, however, that the optimum use lies in the conversion of ethane to ethylene (Figure IV-E-7) and the sale/transfer of the entire stream to adjacent conversion facilities operated by a second party.

There are currently no merchant market consumers of ethylene within the Tri-State region. However, incremental expansion of existing captive ethylene producers could provide an outlet for the mixed ethane/ethylene stream. Likewise, incremental expansion of ethylene derivative manufacturing facilities could provide an outlet for the resulting ethylene. In both cases, new pipelines from the plant site to these consumers must be considered. Markets for ethylene derivatives (e.g., high and/or low density polyethylene) do exist and are forecast to grow at over 4 percent per year.

Fractionation facilities can be installed at Tri-State to separate ethane and ethylene. Cracking furnaces can subsequently convert the ethane portion to ethylene. The ethylene can then either be utilized at an adjacent site, or, pipelined to an existing area consumer. In either case, a new world scale conversion facility would be required to consume this quantity of ethylene. In Chem Systems' opinion, however, should this quantity of ethylene be available at the Henderson site, it should be converted to derivatives at the site. There would be little or no incentive to pipeline it to another location.

Prospective interested parties include virtually all producers and/or large consumers of polyethylene and other derivatives. It is felt however, that due to the volume involved, and the nature of the derivative market growth, only polyethylene should be considered. Other potential derivatives either need additional raw materials and/or utilize only a portion of the available ethylene.

FIGURE IV-E-8

PRODUCT PROFILE

METHYL ETHYL KETONE (MEK)

- Major End-Uses - Solvent for inks, adhesives, lacquers, coatings and resins. Coatings solvents 70%, other solvent applications 25%, miscellaneous 5%.

- Total United States Demand

	<u>MM Lbs</u>	
	<u>1980</u>	<u>2000</u>
	530	1,070

Average Annual Growth Rate - 3.6%

- 1980 United States Capacity - 870 MM Lbs (5 Producers)

- Tri-State Regional Demand

	<u>MM Lbs</u>	
	<u>1980</u>	<u>2000</u>
	150	298

- 1980 Tri-State Regional Capacity - (None)

- Major Tri-State Region Merchant Consumers

<u>Company</u>	<u>Location</u>	<u>Potential Annual Volume</u> <u>MM Lbs</u>
Sherwin-Williams	Cleveland, OH	14
E.I. DuPont	Flint, MI	15
PPG Industries	Cleveland, OH	
	Circleville, OH	17
	Delaware, OH	
Mobil Corporation	Louisville, KY	
	Kankakee, IL	10
	Cleveland, OH	
Inmont Corporation	Troy, MI	
	Belvedere, MI	25
Ford Motor Co.	Mt. Clemens, MI	3
Reliance Universal	Louisville, KY	2
Amoco	Whiting, IN	2
Ashland Oil	Columbus, OH	2

- Major Transportation Modes - Tankcar, Tanktruck

CHEM SYSTEMS INC.

The potential on-site consumers of ethylene include the following companies:

Existing Tri-State Region

Polyethylene Producers

Chemplex, Inc.
U.S.I.
Northern Petrochemical Co.
B.F. Goodrich, Inc.
Olin Corporation

Current Gulf Coast

Polyethylene Producers

Amoco
Cities Service
Gulf
El Paso
Union Carbide
Phillips
Allied Chemical

No regulatory or environmental constraints are envisioned for any alternative for the ethane/ethylene stream.

Ethylene prices will continue to reflect cost of production from crude oil derived fractions and thus, will exhibit increases at least reflective of the increasing value of these hydrocarbons.

b. Methyl Ethyl Ketone (MEK)

It is recommended that methyl ethyl ketone (MEK) produced by Tri-State be recovered as a commercially acceptable quality product and marketed within the region.

MEK (Figure IV-E-8) use is primarily oriented towards solvents applications for paints, coating and various polymers. As the petrochemical industry developed in the 1970s, MEK assumed an importance as a petrochemical intermediate for the production of catalysts, antioxidants, perfumes, lube oil dewaxing and as a component in the azeotropic distillation of refinery streams. Representing a market of about 600 million pounds in 1980, MEK growth in the future is expected to average about 2.3 percent per year.

The volume of MEK produced by Tri-State represents less than 5 percent of the national demand. Of the estimated 150 million pound per year regional merchant market, the output of Tri-State represents less than 10 percent.

FIGURE IV-E-9

PRODUCT PROFILE

ACETONE

- Major End-Uses - Coatings solvents, epoxy and carbonate resins for automotive and appliance, polishes, adhesives. Resins 35%, solvents 55%, other miscellaneous, 15%.

- Total United States Demand

<u>MM Lbs</u>	
<u>1980</u>	<u>2000</u>
1,878	4,085

Average Annual Growth Rate - 3.9%

- 1980 United States Capacity - 3,700 MM Lbs

- Tri-State Regional Demand

<u>MM Lbs</u>	
<u>1980</u>	<u>2000</u>
570	1,095

- 1980 Tri-State Regional Capacity - 1,533 MM Lbs

- Major Tri-State Region Potential Consumers

<u>Company</u>	<u>Location (Gulf Coast)</u>	<u>Annual Volume MM Lbs/Yr</u>
E.I. DuPont	Belle, WV	65
Sherwin-Williams	Memphis, TN	150
	Chicago, IL	20
PPG Industries	Cleveland, OH	20
	Circleville, OH	
Mobil Chemical	Kankakee, IL	7
	Louisville, KY	
	Cleveland, OH	
	Pittsburgh, PA	

- Major Transportation Modes - Tankcar, Tanktruck, Barge

CHEM SYSTEMS INC.

A comparison of Tri-State material and commercial quality specifications indicates that Tri-State MEK is borderline quality in the areas of gravity, purity and distillation range. This is primarily the result of the presence of about 0.2 percent alcohols and acetone. It is felt that judicious design of the fractionation system can result in the production of purity product by Tri-State.

End-uses for MEK will be primarily oriented towards solvent coatings, two-thirds for the automotive industry. Both large volume direct users and national distributors have been identified. MEK is presently exempt under existing air pollution rules. Restrictions on future use are not contemplated.

The bulk of the MEK is expected to be moved by tanktruck as consuming companies have limited storage capacity and therefore, require frequent, relatively small shipments.

The values will reflect "East Coast" operation of existing plants intentionally producing MEK.

c. Acetone

It is recommended that the acetone produced by Tri-State be recovered as specification grade commercial grade material and sold directly into regional markets.

The market for acetone (Figure IV-E-9) is dominated by its use as a raw material for the production of methylmethacrylate and Bisphenol-A, themselves raw materials for the production of engineering plastics and acrylics sheeting, molded parts and coatings. These uses account for 37 percent of total demand with the remainder represented by many varied applications generally related to solvent applications. Future growth prospects will be dominated by acetone's use as a raw material and will average about 3.2 percent per year 1985-2000.

CHEM SYSTEMS INC.

Demand in the Tri-State marketing region was about 625 million pounds in 1979, or 26 percent of the total United States. However, only 325 million pounds was produced and consumed captively in the region. The output from the Tri-State project represents less than 5 percent of the regional capacity to produce acetone and less than 15 percent of the available merchant market.

In addition to the consumers who represent direct purchases, about 50-70 million pounds per year of additional acetone are sold through various chemical distributors in the Tri-State region. It would be preferable, however, in the interest of minimizing the level of sales effort, for Tri-State to move product into these large volume direct markets.

As with other solvents, the bulk of the acetone is expected to be moved within the Tri-State region via tanktruck.

No regulatory or environmental impediments to marketing acetone are expected.

Prices of acetone will reflect the economics of intentional production, with existing supply insufficient to satisfy future demand.

d. Oxygenated Solvents

It is recommended the oxygenated chemicals stream be blended into the unleaded gasoline pool increasing the volume and octane quality.

Table IV-E-2 lists the major solvent types produced as a result of Fischer-Tropsch synthesis (i.e., in the Synthol unit).

TABLE IV-E-2SYNTHOL CHEMICAL PRODUCTSProduct

*Acetone

*Methyl ethyl ketone

Other ketones

Methanol

Ethanol

n-Propanol

Butanols

Pentanol plus

* Recoverable as specification quality.

This table is a gross oversimplification of the actual composition of the material produced. In fact, the Synthol unit's water phase contains an extremely wide variety of straight chain and branched alcohols, hydrocarbons and carbonyl compounds. At the South African SASOL plant, these alcohols are fractionated into "rough" cuts which are sold into markets created to use an impure material. Notable is the fact that these streams are impure and contain mixtures of various alcohols and other hydrocarbons. As a result of Chem Systems' examination of regional and national solvents markets, it was determined that:

- No market presently exists for mixed solvent streams
- Former producers and sellers of mixed solvent streams (e.g., Celanese, Carbide and Eastman) have phased these streams out of their business
- Greater emphasis is being placed on higher quality purchased streams. This is a result of a more competitive environment for end-products and the importance of end-product quality.

CHEM SYSTEMS INC.

- There is great reluctance to consider a raw material stream which may vary considerably in absolute composition. The potential product liability of the formulator using such a stream is also of concern.

In consideration of these facts, therefore, we feel that these solvents, in their present form, cannot be considered articles of trade without developing new markets around the solvents specifications, and in fact, there are no existing consumers.

Should further study indicate economic separation and purification can be made, consumers do exist within the region for virtually all major products.

The recommended alternative disposition of the mixed alcohols stream lies in blending into the available unleaded gasoline pool. The mixed stream exhibits a blending octane of about $112 (R+M)/2$ which is about 24 octane numbers higher than the average regular unleaded pool octane. Based on projections of the future value of octane, mixed alcohols will have a value of about 20 cents per gallon (constant 1980 dollars) more than regular unleaded gasoline. In addition, the blending of these alcohols will increase the octane of the gasoline pool from 88.5 to $90.5 (R+M)/2$ thus classifying it as "premium" unleaded commanding a higher market price. The volume of the pool will also be increased by about 9 percent.

4. Transportation Fuel Products

It is recommended that the "oil-phase" of the Fischer-Tropsch synthesis be processed into transportation and heating fuels for distribution and sale into regional markets.

Transportation and heating fuels at Tri-State are listed in Table IV-E-3.

TABLE IV-E-3TRANSPORTATION FUEL OUTPUTProduct

Unleaded Gasoline
Jet Fuel
Diesel fuel (1-D)
Diesel fuel (2-D)
Propane
Fuel Oil

The products listed in Table IV-E-3 are indistinguishable from those produced from crude oil. Despite increases in efficiency and conservation in the use of petroleum in the United States, declining domestic production will necessitate the continued importation of foreign crude oil to satisfy domestic demands. In the year 2000, the U.S. will import 37 percent of its petroleum.

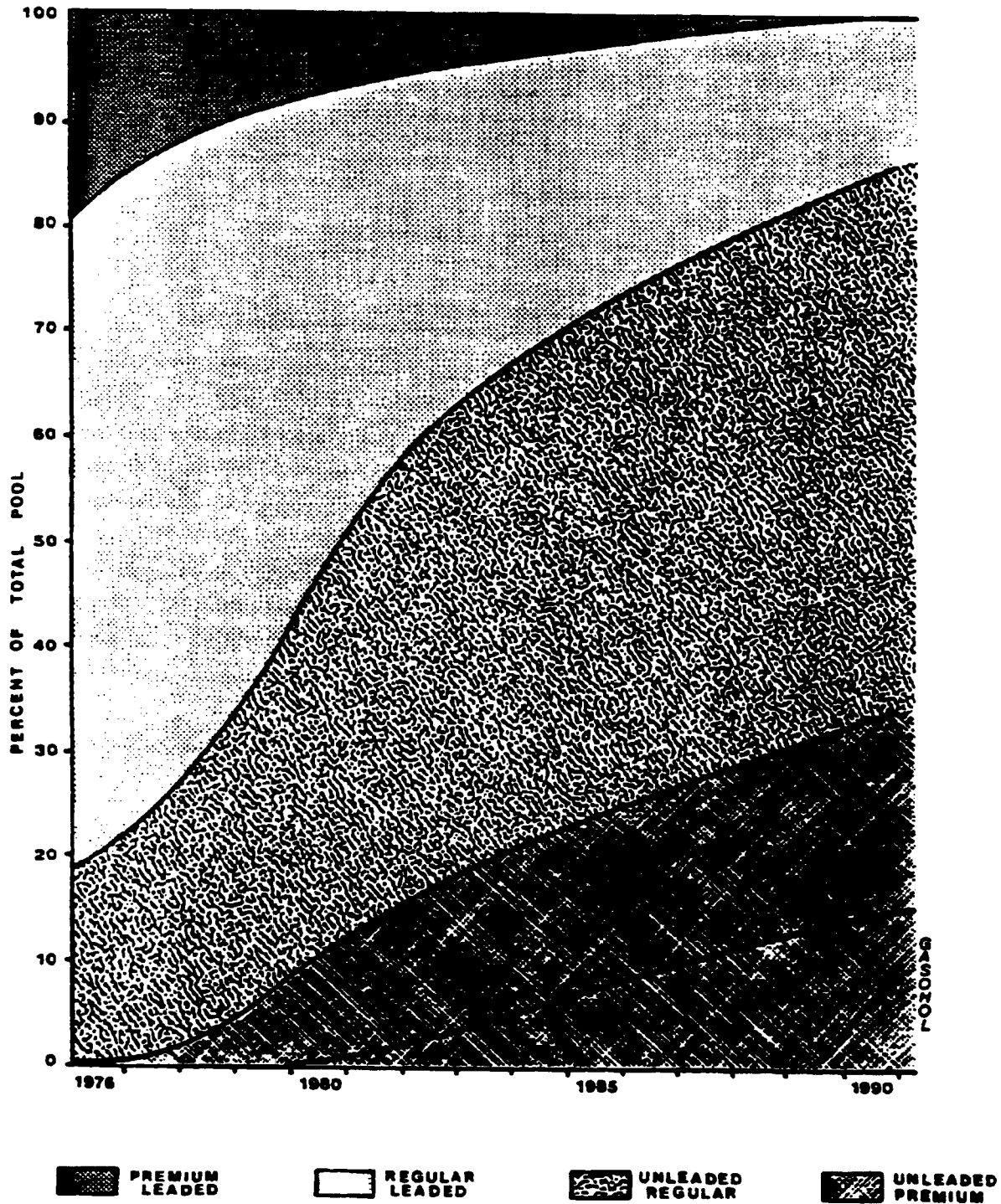
Although petroleum will continue to satisfy the dominant percentage of U.S. energy demand, it's future relative contribution will decline steadily, primarily as a result of declining availability of U.S. supplies and regulation to limit imports. The principal reasons for this decline include:

- Increasing use of alternative energy sources such as coal, nuclear power, synthetic fuels and bioenergy.

Over the next decade, other fuels will be increasingly substituted for oil - first coal and nuclear energy. By the early 1990s, synthetic fuels and solar energy will become viable economic alternatives.

- Substitution by electricity and natural gas in the residential and commercial sectors will reduce sector growth in oil consumption.

FIGURE IV-E-10
**U.S. GASOLINE
 GRADE COMPOSITION**



Demand for petroleum products in the United States is shown in Table IV-E-4. Overall demand which "peaked" in 1978 is expected to rebound slightly after a low of 17.5 MMBPCD in 1980. A modest growth is projected through the mid 1980s and to remain essentially static thereafter.

	<u>1978</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
Gasoline	7.45	6.68	6.47	5.90	5.02	5.00
Jet Fuels	1.06	1.03	1.16	1.27	1.42	1.58
Distillate Fuels	3.34	3.10	3.48	3.91	4.70	5.39
Residual Fuels	3.02	2.51	2.22	1.96	1.65	1.43
Others	<u>4.18</u>	<u>4.21</u>	<u>4.78</u>	<u>5.04</u>	<u>5.33</u>	<u>5.63</u>
Total	19.05	17.53	18.11	18.08	18.12	19.03

Although gasoline will remain the largest volume single product derived from petroleum through 1995, its consumption has already peaked and is declining. The consumption of gasoline in 1980 averaged 6.7 MMBPCD, the lowest since in the same period in 1974.

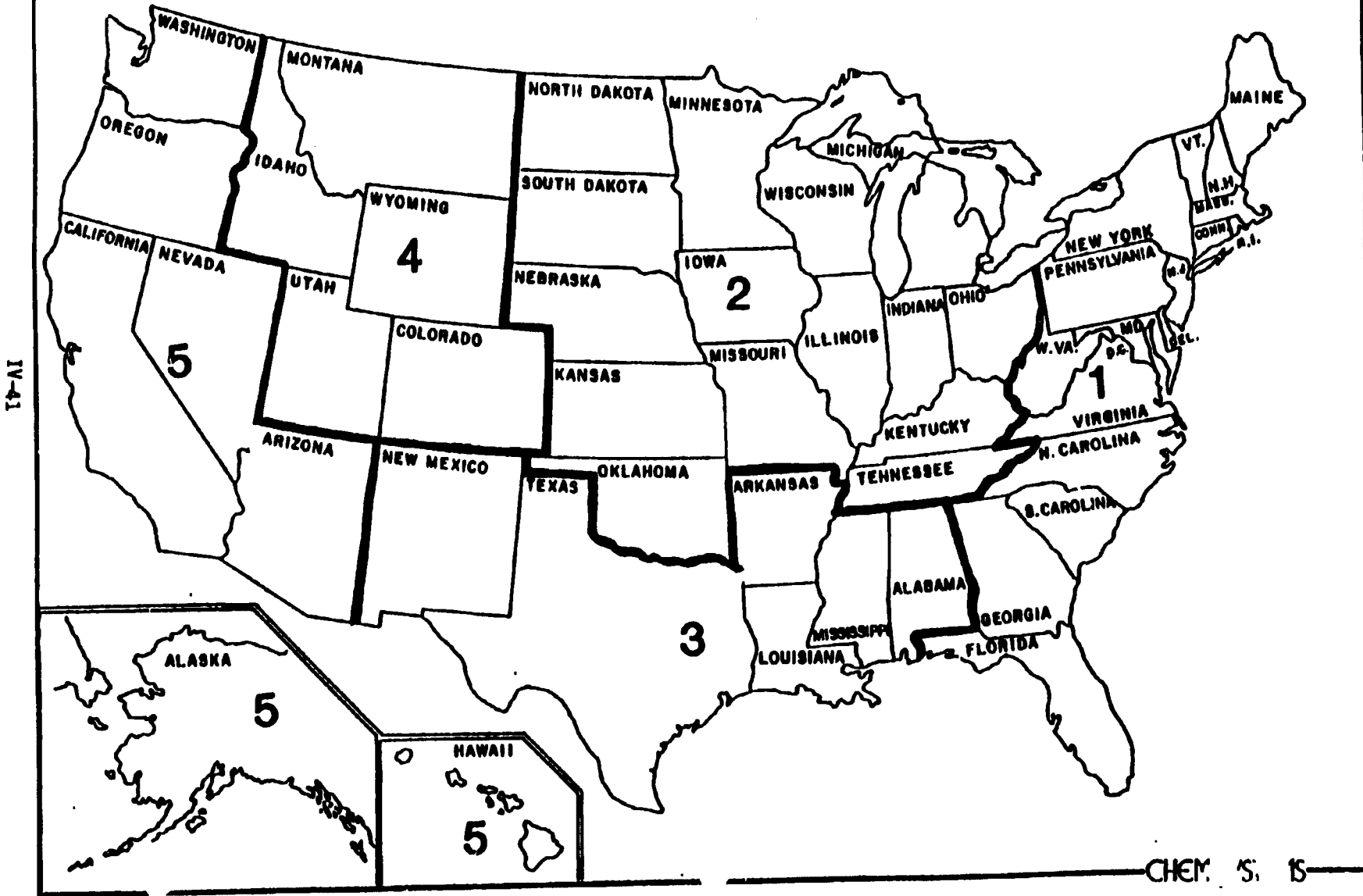
The trend to lower gasoline use is now firmly established and is expected to continue under the impetus of the following demand factors:

- Increased prices and resultant reduction in travel
- Smaller and more efficient engines
- Greater acceptance of diesel engines for passenger and truck vehicles
- Increased conservation through different driving habits

Accompanying the declining demand for gasoline will be increased demand for higher octane grades as consumer dissatisfaction with low octane grades persists (Figure IV-E-10). Overall clear pool octane is expected to increase from 85.8 (R+M)/2 in 1980 to 87.5 by 1990.

PETROLEUM ADMINISTRATION FOR DEFENSE DISTRICTS (PADD)

FIGURE IV-E-11



IV-A1

CHEM SYSTEMS INC.

Contrasting the demand pattern of gasoline will be increasing demand growth for diesel fuels and Jet A fuels. The rise in diesel use will be in the highway use market which will constitute over 77 percent of all distillate fuel oil demand by 1995. Diesel accounted for only 52 percent of demand in 1980. This increase will be attributable primarily to the rise in diesel powered light vehicles.

Jet fuel is forecast to grow at a 2.2 percent per year average reflective of a 5 percent per year growth in airline revenue passenger miles and continued improvement in overall aircraft fuel economy.

Refined product demand trends for various regions of the country vary due to differences in population density, climate, transportation modes, principal means of heating and industrial concentration. Historical consumption patterns combined with projections of population growth and demographic shifts form the basis of regional projections.

In general, the Tri-State project will be supplying material into the PADD 2 region (see Figure IV-E-11). The capacity in this region is insufficient to supply regional demand. Therefore, the region has been and will continue to be dependent upon supply from other regions of the country. Table IV-E-5 indicates the percent of total demand supplied from other regions.

<u>PADD 2 PRODUCT SUPPLY FROM IMPORTERS AND INTER-PADD TRANSFERS</u>	
<u>1979-1980</u>	
	<u>Percent</u>
Gasoline	13.2
Kero-Jet Fuel	23.2
Distillate Fuels	13.8
Residual Fuel	23.0

CHEM SYSTEMS INC.

The volumes of products marketed from the Tri-State Synfuels Project at Henderson, Kentucky will be quite small in relation to total demand and capacity in the area. Table IV-E-6 compares the facility's production with PADD 2 demands in 1990 as well as the estimated current production capacities. The total of the four major products from the synfuels project amount to less than one percent of the demand.

TABLE IV-E-6

MARKET FOR REFINED PRODUCTS FROM
TRI-STATE SYNFUELS PROJECT
(Thousand Barrels Per Day)

<u>Product</u>	<u>Tri-State Synfuels Project Capacity</u>	<u>1990 PADD 2 Demand</u>	<u>Tri-State Production as % of Demand</u>	<u>1980 PADD 2 Estimated Production Capacity</u>	<u>Tri-State Production as % of Estimated Capacity</u>
Motor Gasoline					
Kero-Jet Fuel					
Distillate Fuel					
Residual Fuel					
Total	24.2	3,430	0.71	3,785	0.64

Movement of such small relative volumes into the marketplace can be readily achieved without upsetting the supply/demand balance. Since over 14 percent of PADD 2 demand is satisfied from outside the area, this incremental production from within will displace imported and transferred material rather than reducing the volumes processed in the regional refineries. Further, increasing the local supply by less than one percent will have no diluting effects on the market place and thus will not exert any downward pressure on refined product prices.

F. Prices

The future price of all products recommended for production at Tri-State will continue to be set by the economics of intentional production from crude oil and/or natural gas. Petrochemical/chemical prices will reflect, not only cost of feedstock and production costs, but future profitability consistent with requirements for new facilities (the capital costs of which are increasing at 3 percent per year in real terms). Transportation fuels prices will be directly related to the future value of crude oil and processing costs in existing refineries. The existing industry will undergo change however, as adaptation to changing fuel demands will require investment. Through the forecast period, synfuels development is not forecast to influence national or world petroleum pricing.

The following table summarizes the prices forecast by Chem Systems for the Tri-State products. The prices reflect the recommended disposition of the products, and have been adjusted for transportation to obtain a net-back to the Tri-State Project. However, they have not been adjusted to reflect distribution or brokerage costs should Tri-State decide not to market products directly themselves. Prices have been presented in constant 1980 dollars (Table IV-F-1) and inflation adjusted current dollars (Table IV-F-2).

TABLE IV-F-1

TRI-STATE NET-BACK VALUES - HENDERSON, KENTUCKY

(Constant 1980 Dollars)

		<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
<u>NG</u>						
New Gas Wellhead	¢/MMBTU	255.0	500.0	700.0	750.0	800.0
<u>Gasoline</u>						
Regular Unleaded	¢/gal	92.2	121.2	130.5	138.4	146.0
Premium Unleaded	¢/gal	95.0	124.2	133.5	141.4	149.0
<u>Jet A</u>	¢/gal	81.3	116.7	127.0	136.9	145.5
<u>Diesel</u>	¢/gal	80.9	115.0	126.5	136.4	145.0
<u>Fuel Oil (Low Sulfur)</u>	¢/gal	70.1	94.2	112.1	120.2	127.6
<u>Natural Gas</u>						
Average Gas	¢/MMBTU	184.0	287.5	717.5	785.0	847.5
"New" Gas	¢/MMBTU	290.0	537.5	747.5	800.0	852.5
<u>Propane</u>	¢/gal	44.3	69.4	80.0	82.6	92.7
<u>Chemicals</u>						
Benzene	¢/gal	160.0	195.0	206.1	218.3	230.0
Ethylene	¢/lb	22.3	31.1	36.7	43.3	46.1
Phenol	¢/lb	32.8	41.7	48.2	53.0	57.7
Mixed Alcohols	¢/gal	110.5	144.3	151.2	159.1	166.7
Acetone	¢/lb	23.0	33.1	35.7	38.1	40.7
Methyl Ethyl Ketone	¢/lb	31.7	40.5	53.4	58.4	63.2
Sulfur	\$/st	93.0	107.2	125.4	142.2	160.0
Ammonia	\$/st	180.0	221.6	350.3	365.8	385.0
* Cresols	¢/lb	53.0	54.0	43.7	48.3	51.9
** Creosote	¢/gal	77.0	89.3	117.6	125.1	130.2
Carbon Dioxide	¢/MSCF	160.0	154.1	170.0	182.0	201.0

* Value for 1990-2000 reflects aromatics conversion.

** Suggested market value as fuel as blendstock for No. 2 fuel oil.

TABLE IV-F-2

TRI-STATE NET-BACK VALUES - HENDERSON, KENTUCKY
(Current Dollars)

		<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
<u>SNG</u>						
New Gas Wellhead	¢/MMBTU	255.0	769.0	1,544.9	2,265.8	3,239.2
<u>Gasoline</u>						
Regular Unleaded	¢/gal	92.2	186.4	288.0	418.1	591.1
Premium Unleaded	¢/gal	95.0	191.0	294.7	427.2	603.3
<u>Jet A</u>	¢/gal	81.3	179.5	280.3	413.6	589.1
<u>Diesel</u>	¢/gal	80.9	176.9	279.2	412.1	587.1
<u>Fuel Oil (Low Sulfur)</u>	¢/gal	70.1	144.9	247.4	363.1	516.6
<u>Natural Gas</u>						
Average Gas	¢/MMBTU	184.0	442.2	1,583.7	2,371.5	3,431.4
"New" Gas	¢/MMBTU	290.0	826.7	1,649.9	2,416.8	3,451.6
<u>Propane</u>	¢/gal	44.3	106.7	176.6	249.5	375.3
<u>Chemicals</u>						
Benzene	¢/gal	160.0	300.0	454.9	659.5	931.2
Ethylene	¢/lb	22.3	47.8	81.0	130.8	186.6
Phenol	¢/lb	32.8	64.1	106.4	160.1	233.6
Mixed Alcohols	¢/gal	110.5	220.0	333.7	480.6	674.9
Acetone	¢/lb	23.0	50.9	78.8	115.1	164.8
Methyl Ethyl Ketone	¢/lb	31.7	62.3	117.0	176.4	255.9
Sulfur	¢/st	93.0	164.9	276.9	429.6	647.8
Ammonia	¢/st	180.0	340.8	773.2	1,105.1	1,558.8
* Cresols	¢/lb	53.0	83.1	96.5	145.9	210.1
** Creosote	¢/gal	77.0	137.4	259.6	377.9	527.2
Carbon Dioxide	¢/MSCF	160.0	237.0	375.2	549.8	813.8

* Value for 1990-2000 reflects aromatics conversion.

** Suggested market value as fuel as blendstock for No. 2 fuel oil.

■

XVII
COMMUNITY RELATIONS

1.0 INTRODUCTION

While in the planning stages it was recognized that the Tri-State project, because of its magnitude and uniqueness would have a major challenge in gaining acceptance in the community where it would be located. It was agreed that a major community relations effort in the early stages of the Tri-State project would be required to hold back any emotional, premature opposition to the project. To accomplish this a full-time community relations manager was assigned to develop and implement a community relations program.

The principle objectives of the program were to:

- o Generate local support sources (officials, organizations and press) for the project
- o Encourage uncommitted members of the community not to take an immediate stand against the project
- o Initiate and develop a positive company image in the Henderson/Evansville area
- o Create an understanding of the aims and activities of the project as it progressed
- o Generate community support for and acceptance of the project over its entire life

The objectives of the community relations program were achieved by using the following strategies:

- o Developed personal contacts through frequent visits to community
- o Closely monitored and evaluated effects of program in local press and by frequent telephone contact with community leaders
- o Established and maintained project credibility through regular, timely communications about project activities
- o Encouraged community to set up a local, representative citizens committee to input local considerations and data into project environmental studies

- o Answered request for information about the project from all sources local and national
- o Established a local office as a sign of the project's commitment to the location and offer the community a local address to which they could communicate directly.

This program, approved by Tri-State management committee and with full support from the technical staff was put into motion.

2.0 SUMMARY

2.1 HISTORY

A decision in March of 1980 to proceed with negotiations between Texas Gas Transmission Corporation and Texas Eastern Corporation to form a partnership to jointly develop a coal gasification synthetic fuels plant in western Kentucky was the signal to implement the community and public relations program. Over the next year and a half a number of actions were taken to assist the project towards its goals.

The first public announcement of the proposed partnership was made in a press release dated April 3, 1980 (see Exhibit XVII-A). The release was the first of several which were made as timely and as quickly as possible to prevent the formation and spread of rumors about the project.

In late April it was decided to announce, by press release, that Tri-State was working with the Kentucky Department of Energy (KDOE) to secure a site near Henderson, Kentucky. Since the press release would identify the closest city to the project, arrangements were made to meet with local officials and for our project officers to personally discuss project plans with them. The press release (see Exhibit XVII-B) was issued on May 5, 1980 by the KDOE in which Secretary of Energy, William B. Sturgill announced that the KDOE was negotiating with the American Electric Power Company and other land owners for options to buy a site in Henderson County on which the Tri-State Synfuels plant would be located. Concurrently with this press release small luncheons were held in Owensboro, Henderson and several other small towns in western Kentucky. Local elected officials, civic and business leaders were appraised of Tri-State's plants.

Although the community relations program was divided into a number of activities, none were one time events but rather a continuous effort in which communications with area residents and the media was of primary importance.

It was vital to identify legitimate community concerns and answer them to the fullest extent possible. Tri-State Synfuels Company's communications effort was varied, using all techniques available. For example, we:

- o Prepared a project fact sheet for general distribution (see Exhibit XVII-C)
- o Published a project brochure that discussed in some detail the various component parts of the project including a question and answer section (see Exhibit XVII-D)

- o Developed a slide show for presentation to groups such as professional and civic clubs--it was our policy to furnish speakers wherever requested
- o Produced a video tape update on the Tri-State project; it was used for briefings, and distributed to local T.V. stations (copies were furnished to the DOE)
- o Made available professional personnel to answer questions on technical or environmental matters

All of the above activities were continuous and carried on throughout the life of the project.

Another important activity was to contact and develop normal, friendly channels of communications with local elected officials, leaders of the business community and local media representatives.

Every effort was made to keep these groups involved and informed with timely and accurate information about the project. A measure of accomplishment is indicated by local newspaper articles (see Exhibit XVII-E).

The initial success of our efforts to secure local support from influential groups is reflected in the positive response from several of these organizations (see Exhibit XVII-F).

A major milestone example in our communication efforts was reached in April 1981. At this point in the project work program we decided that a major project update, a summary of what had been done and near future plans and activities should be presented to state officials of Kentucky and local citizens in the plant area. The following meetings were held:

- o In Lexington, Kentucky a meeting was hosted by Kentucky Secretary of Energy, William B. Sturgel at which Tri-State presented its status report. Attending the meeting were Governor J. Y. Brown, a number of state department heads, state representatives, state senators, federal officials, Kentucky Department of Energy officials, mayors and elected officials of several cities in Kentucky as well as other attendees. The briefing was conducted by officials of the Tri-State project and all questions were answered by company representatives.
- o On the morning following the meeting in Lexington, Kentucky the Chamber of Commerce sponsored a breakfast. The program at this breakfast was the same presentation the project sponsor made at the state meeting on the previous day. Local officials from Henderson, Kentucky

and Evansville, Indiana along with some 200 other local citizens attended the breakfast and listened to the briefing presented by Tri-State. A question/answer period was also conducted at this meeting.

In April of 1982 it was decided to conduct a public opinion survey in the Henderson, Kentucky and Evansville, Indiana area. The firm of Tarrance and Associates, specialists in public opinion surveys, was retained to develop, conduct and analyze the results of the survey. The survey was intended to:

- o Evaluate the ongoing public relations effort
- o Identify major public concerns and possible misconceptions
- o Determine the effectiveness of the community relations program to date

The survey indicated that the community would accept the Tri-State Synfuels Project, in addition the credibility and integrity of the Tri-State Synfuels Company was reflected positively. The area's concern was also evident, and that community welfare and possible public service impacts would be felt. The community also recognized and were bothered by the possibility of detrimental environmental impacts. A complete report of this survey is included in the Appendix of this report, Section XIX-E.

In line with Tri-State policy of keeping the public informed of its activities a news release outlining the results of the public opinion survey was issued (see Exhibit XVII-G).

It became more apparent that as activities increased in the community, principally by the appearance of subcontractors conducting environmental studies, survey work on property and land agents it would be desirable to establish a small Tri-State office in Henderson, Kentucky. We felt that an office would:

- o Reinforce the Project's identity and image as a "member of the community"
- o Provide an official address, telephone number and liaison point between Henderson, Owensboro and Houston
- o Serve as base for Project team members and consultants

- o Serve as distribution point for information generated by Public Relations personnel about the project and about the sponsoring companies.

The Henderson office was opened in July of 1981 and staffed by a person employed locally. The office was closed on April 30, 1982.

Another communications and community involvement program was initiated in the fall of 1981. Tri-State suggested to local community leaders and elected officials that one of the city or county departments sponsor a citizens synfuels committee that would work with representatives from Tri-State project to review and comment on work, primarily environmental, being conducted by the company. After a number of discussions, city/county leaders authorized the formation of a committee to function under the direction and guidance of the city/county planning commission. The membership of this committee represented a cross section of community interests and organizations (see Exhibit XVII-H).

Over a period of several months the Synthetic Fuels Citizen's Advisory Committee met with the environmental contractor, Radian Corporation and Tri-State representatives. At these meetings baseline data on socioeconomic assessment programs was reviewed and changes suggested. At a later date the committee held review sessions on other environmental baseline data relating to land usage, water and air quality control and other studies that were underway. The decision to terminate the Cooperative Agreement brought this program to an end.

Our assessment of this community participation program value was extremely high. We believe that if the Cooperative Agreement work program would have continued, the environmental impact statement (EIS) would have been prepared in a shorter time period than is normally required and that the quality of work would not only be better but more acceptable to the community.

It is difficult to objectively measure the effectiveness and community acceptance of a public relations program, perhaps the attached letter (Exhibit XVII-I) sent to Texas Eastern's chief Executive Officer reflects a measure of our effort, we believe it does.

TEXAS ☺
EASTERN

EXHIBIT XVII-A

**News
Release**

FOR RELEASE: IMMEDIATELY

**TEXAS EASTERN AND TEXAS GAS TRANSMISSION
PLANNING SYNFUEL PLANT IN KENTUCKY**

Houston, Texas, April 3, 1980--Texas Eastern Corporation of Houston and Texas Gas Transmission Corporation of Owensboro, Kentucky announced today that they are negotiating an agreement whereby Texas Gas would join Texas Eastern's previously announced study to determine the feasibility of constructing and operating a coal-based synthetic fuel plant in western Kentucky.

The plant will utilize a commercially proven combination of Lurgi gasification and Sasol Fischer-Tropsch processes adapted to fit U.S. coal quality, environmental requirements and product specifications and would produce liquid transportation fuels, pipeline-quality gas and chemicals.

As part of the study, Sasol, Ltd., in cooperation with Fluor Corporation, is providing technical assistance to develop a realistic plant cost. Sasol's latest plant, which went into operation early this year in South Africa, employs Lurgi and Sasol Fischer-Tropsch processes, but includes many improvements developed since the first Sasol plant became operational twenty-five years ago. The Sasol study will be completed by the end of this month.

To initiate the next stage of project development, which includes engineering design and detailed environmental studies, application probably will be made for Department of Energy funds now available for such work under cooperative agreements for the development of commercial synthetic fuels projects.

- more -

USE OR REPRODUCTION OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

add one-

Texas Eastern is a diversified energy company. For many years, Texas Eastern has had a broad and continuing interest in the ownership and operation of synthetic fuel plants. Investigations have considered the use of coal, shale and hydrocarbon resources, as well as the entire range of first- and second-generation technologies to convert these materials into synthetic gas, methanol, other liquid fuels and chemical feedstocks.

Texas Eastern's pipelines transport natural gas and liquid petroleum products. The Company also explores for and produces hydrocarbons, with major interests in the North Sea. It markets petroleum products at wholesale and propane at retail.

Texas Gas Transmission Corporation is a diversified energy company with major interests in natural gas transmission, oil and gas exploration and production, inland waterway services and truck transportation.

EXHIBIT XVII-B

TEXAS
EASTERN

THE FOLLOWING WAS RELEASED BY THE
KENTUCKY DOE TODAY.

*News
Release*

FOR RELEASE: IMMEDIATELY

NEGOTIATIONS FOR SYNFUELS PLANT SITE
UNDER WAY IN HENDERSON COUNTY, KY

Frankfort, Kentucky, May 5, 1980--Kentucky Secretary of Energy William B. Sturgill today announced that the Kentucky Department of Energy is negotiating with American Electric Power Company and other land owners for an option to buy a site near Geneva, in Henderson County, Kentucky, for a coal liquefaction project that was announced by Governor John Y. Brown on April 3. This site is one of several alternative locations available to the project in western Kentucky.

Sturgill said that it is planned that the site would be used by Texas Eastern Corporation, Houston, Texas, and Texas Gas Transmission Corporation, Owensboro, Kentucky, for the Tri-State project which would produce liquid transportation fuels, pipeline-quality synthetic gas and chemicals from high-sulfur coal. Texas Eastern and Texas Gas Transmission have filed a Cooperative Agreement proposal on the project under the U.S. Department of Energy funding program for synfuel project development. If project development proceeds as planned, the Commonwealth would convey the land to Tri-State when plant construction begins, probably in 1983.

Sturgill said the Commonwealth has studied in detail the technology and overall environmental impacts of locating the proposed plant in Kentucky. "Our evaluations have led us to conclude that the proposed Tri-State project can be built in an environmentally acceptable manner utilizing Kentucky resources and provide substantial benefits to the Commonwealth. Our conclusions

-more-

USE OR ENCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

add one-

are based on the fact that a very similar plant at Sasolburg, South Africa, has over 25 years of successful operating experience. Careful and extensive monitoring has been performed on the environmental, health and safety aspects of the plant," Sturgill said.

The proposed plant will provide jobs, utilize a substantial amount of Kentucky high-sulfur coal and generate significant tax revenues. The plant will:

- consume approximately 10 million tons/year of high-sulfur coal
- employ 2,300-3,000 operating personnel
- produce an energy equivalent of 50,000 bbl/day of crude oil

"Synfuel production, using our coal resources, must be an essential part of our nation's future energy strategy," Sturgill said. "This plant and the Commonwealth of Kentucky can play an important part in putting our nation on the road to energy self-sufficiency."

February 9, 1982

EXHIBIT XVII-C

TRI-STATE SYNFUELS PROJECT
FACT SHEET

USE OR DISCLOSURE OF REPORTS BACK
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

GENERAL

1. **Participants:** Texas Eastern Corporation and Texas Gas Transmission Corporation.
2. **Type of Project:** Commercial application of conversion of coal to SNG, gasoline, LPGas and chemicals¹ using Lurgi coal gasification and methanol to gasoline processes.
3. **Location:** Geneva, Henderson County, Kentucky. The site is adjacent to the Ohio River in Western Kentucky approximately fifteen miles from Evansville, Indiana.

PROJECT TECHNOLOGY AND RESOURCE REQUIREMENTS

1. **Process History:** The Lurgi technology was developed in Germany prior to World War II. South Africa built a first generation gasification plant 25 years ago. An improved and enlarged plant using Lurgi Mark IV gasification was completed in 1980.
2. **Conversion Technology:** In the Lurgi process, coal is gasified with oxygen and steam under controlled temperatures and pressures. The resulting medium Btu syngas is then fed to the methanol synthesis unit, a portion of the syngas stream is purified and recovered as SNG. The remaining methanol is converted into gasoline and LPGas.
3. **Plant Thermal Efficiency:** Approximately 47%
4. **Plant Capacity:** Approximately 26,500 barrels/day energy equivalent of crude oil.²
5. **Product Slate**
 - Gasoline
 - LPG
 - Chemicals
 - High Btu Gas
6. **Resources Required**
 - Coal: Approximately 15,700 tons/day or 5.7 million tons/year.²
 - Water: 17,000 acre feet/year.²
 - Labor: 7-8,000 during peak construction 1,200 plant operation
7. **Location of**
 - Coal: Approximately 60% from Henderson County, Kentucky, remainder from Western Kentucky, Illinois, and Indiana areas.
 - Water: Ohio River

² Currently the maximum planned. Smaller configurations utilizing less coal, water and labor force construction are under consideration.

8. Transportation System

- River Barges
- Product Pipeline (40 miles)
- Gas Pipeline (20 miles)
- Rail

9. Land: Approximately 3,500 acres including process and ash disposal area.

CURRENT STATUS

- 1. Feasibility Study was complete in April 1980.**
- 2. A Cooperative Agreement Proposal was submitted to the U.S. Department of Energy (DOE) in late April 1980.**
- 3. In July 1980 the project was selected for Cooperative Agreement funding from DOE. DOE will provide around \$24 million of an estimated \$44.1 million work program to include:**
 - Site-specific environmental, health, safety and socioeconomic impact studies
 - Engineering design
 - Capital and operating cost estimates
 - Studies to determine the optimum product slate
 - Negotiation of contracts for coal and other resource requirements
 - Financing package
- 4. Signed contract with DOE February 1981 to proceed with Cooperative Agreement work program. Funding from DOE was \$22.4 million of a total work program to cost approximately \$45 million.**
- 5. Large scale gasification test, financed by the State of Kentucky, of Western Kentucky coal was conducted at a SASOL plant in South Africa in the summer and fall of 1981.**
- 6. In January of 1982 the decision was made to change the plant configuration. Process and product slate were altered.**
- 7. Final decision to go or not to go will be made after completion of work program.**
- 8. Time Schedule - Estimated**
 - Process design 2/81 - 2/84
 - Construction 9/84 - 2/88
 - Operation 1988

EXHIBIT XVII-D

THE TRI-STATE SYNFUELS PLANT

A Project of Texas Eastern Corporation
and
Texas Gas Transmission Corporation

July, 1980

USE OF ENCLOSURE OR REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

THE TRI-STATE SYNFUELS PLANT
A Project of Texas Eastern Corporation
and
Texas Gas Transmission Corporation

Table of Contents

- I. INTRODUCTION
 - A. Project Objective
 - B. Description of Sponsoring Companies
 - C. Tri-State Project Management Team
- II. THE TRI-STATE SYNFUELS PROJECT
 - A. Project Technology
 - 1. The Lurgi/Sasol Processes
 - 2. Fuels and Feedstocks
 - 3. Product Slate
 - 4. Conversion Technology
 - B. Project Construction
 - 1. Siting
 - 2. Construction Workforce
 - 3. Proposed Timetable
 - C. Project Operation
 - 1. Production/Material Resources
 - 2. Employment/Human Resources
 - 3. Environmental Impact
 - D. Project Status
 - 1. Initial Feasibility Studies
 - 2. Current Status of Project
- III. ANSWERS TO HENDERSON CITIZENS' QUESTIONS (CITIZENS' MEETING, MAY 20, 1980)

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

INTRODUCTION

Project Objective

Description of Sponsoring Companies

**The Tri-State Project
Management Team**

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS OF THE
ADVICE PAGE AT THE FRONT OF THIS REPORT

INTRODUCTION

PROJECT OBJECTIVE

Texas Eastern Corporation, Houston, TX, and Texas Gas Transmission Corporation, Owensboro, KY, have proposed to design, construct and operate a commercial-scale, coal-based synthetic fuels plant on a site near Henderson, KY. The plant, projected to cost approximately \$3.5 billion (1980 dollars), would utilize the commercially proven combination of Lurgi gasification and Sasol Synthol Fischer-Tropsch processes adapted to fit U.S. coal quality, environmental requirements and products specifications. It would produce liquid transportation fuels, pipeline-quality gas and chemical feedstocks.

Originally developed in Germany, the Lurgi and Fischer-Tropsch processes were selected by Sasol, Ltd. to develop a synthetic fuels industry in South Africa in the early 1950's. The company's first plant, Sasol I, served as a base for the improvement in technology which led to the design and construction of Sasol II, a greatly improved version of Sasol I.

Sasol II was recently completed and put into operation at Secunda, South Africa. (A third plant, Sasol III, is now under construction.) The Tri-State Synfuels Project proposed for Henderson County will be almost identical to the Sasol II facility. However, it will have even more sophisticated environmental control equipment.

It is essential that a synfuels industry be developed in the U.S. to produce liquid transportation fuels to replace diminishing domestic supplies and relieve our growing dependency on imported crude petroleum. A recently completed study concluded that the technology for this project is commercially feasible; and that the Tri-State Synfuels Project can be constructed and operated in an environmentally acceptable manner.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

DESCRIPTION OF SPONSORING COMPANIES

Texas Eastern Corporation is a diversified energy company with a broad and continuing interest in the ownership and operation of synthetic fuels plants. For many years, the Company has investigated the use of coal, shale and hydrocarbon resources -- as well as the entire range of first- and second-generation technologies to convert these materials into substitute natural gas, methanol, other liquid fuels and chemical feedstocks.

Texas Eastern's pipelines transport natural gas and liquid petroleum products. The Company also explores for and produces hydrocarbons, with major interests in the North Sea. It markets petroleum products at wholesale and propane at retail.

Texas Gas Transmission Corporation is a diversified energy company with major interests in natural gas transmission. The Company is also active in oil and gas exploration and production. It provides inland waterway services and truck transportation.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

TRI-STATE PROJECT MANAGEMENT TEAM

Texas Eastern will provide the overall project management team for the Tri-State Project subject to policies determined by a joint Texas Eastern-Texas Gas Transmission Advisory Board. The project management team, headed by a Project Director, will represent and utilize the combined expertise of:

- Texas Eastern Synfuels, Inc.
- Texas Gas Synfuel Corporation
- Fluor Corporation
- Sasol (Pty) Ltd.
- Lurgi Mineraloltechnik
- Radian Corporation

The project management team will exercise total responsibility for overall technical, financial, economic, environmental and management control aspects of all phases of the project: design, construction, start-up and operation.

THE TRI-STATE SYNFUELS PROJECT

Project Technology

Project Construction

Project Operation

Project Status

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Project Technology

The Lurgi/Sasol Processes

Fuels and Feedstocks

Product Slate

Conversion Technology.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Fuels and Feedstocks: The conceptual design proposed for the Tri-State Project would convert approximately 28,600 tons per day of high-sulfur Illinois Basin coal to transportation fuels, pipeline quality substitute natural gas, chemical feedstocks and other products (as outlined in the following section, "Product Slate"). It is projected that the coal will come primarily from new deep mines in western Kentucky. Texas Gas Transmission owns coal resources in the immediate area which will supply a substantial portion of the plant's requirements. Possible supplementary supplies will come from southern Illinois or southern Indiana.

Existing mining operations could possibly supply a part of the plant requirements for coal. The plant would be a stable large user of locally produced coal over its 25-year estimated economic life (approximately 10½ million tons per year).

A full-scale gasification test on the proposed coal at the Sasol facility in Sasolburg is planned. These tests prior to final plant design will effectively eliminate coal feed properties as an element of uncertainty and risk for the Tri-State Plant.

Conversion Technology: In the Lurgi/Fischer-Tropsch processes, coal is not burned to produce substitute gas and liquids products. Coal is first gasified with oxygen and steam via the Lurgi process under controlled temperature and pressure conditions to a syngas containing some methane. Then, the syngas is converted by the Synthol process; methane and chemicals are recovered; and liquid hydrocarbons are refined into transportation fuels.

The Lurgi Process

Mined coal is first crushed and screened. Then, it is fed into the top of the Lurgi gasifier units and oxygen and superheated steam are fed into the bottom. As the coal moves down the reactor, the volatile matter in the coal is distilled off and the char formed is gasified. The crude gas produced in the gasifier is cooled, purified and sent to the Fischer-Tropsch Synthol unit.

The Fischer-Tropsch Process

The Synthol unit uses the Fischer-Tropsch catalytic reaction to convert hydrogen and carbon monoxide components of the syngas into hydrocarbons. A methane-rich gas stream from the Synthol unit is further treated to produce high-btu, pipeline-quality gas. The Synthol crude oil product is sent to a refinery unit for further treatment, while aqueous chemicals produced in the Synthol unit are further treated in the chemical workup unit.

The Refinery Unit

The refinery unit is similar to existing modern refineries in the U.S. It contains fractionating and polymerization/hydrotreating facilities and other petroleum refining processes which produce

transportation fuels consisting of gasoline, jet fuel
and diesel.

The Chemical Workup Unit

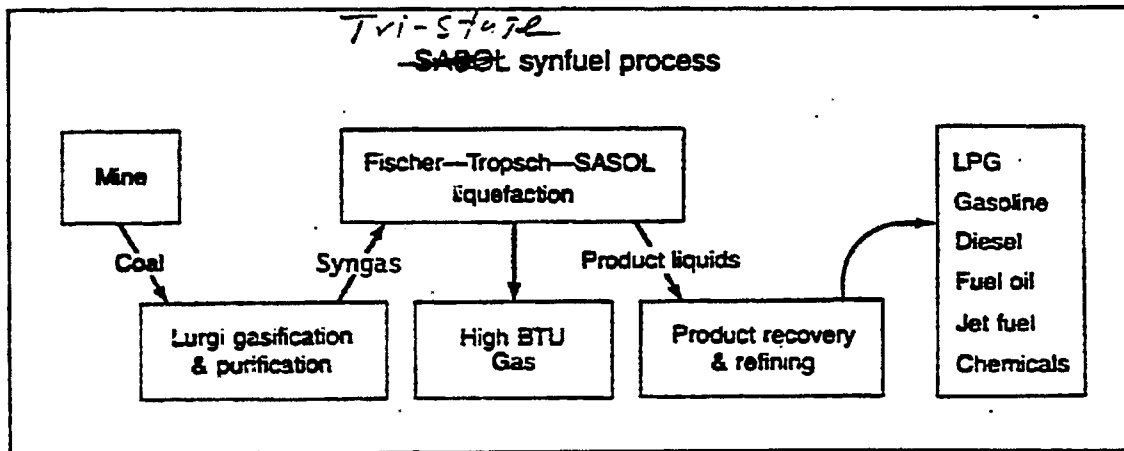
The chemical workup unit uses fractionation to produce methyl ethyl ketone (MEK), acetone, methanol, ethanol, propanol, butanol and pentanol, plus heavier alcohols, methyl ethyl ketone and a mixed higher ketone stream.

A description of the processes outlined above has been presented on the following page.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

TECHNOLOGY BASIS

Lurgi Gasification &
Sasol Fischer-Tropsch Synthesis and Refining
(Commercially proven for over 25 years)



OVERALL THERMAL EFFICIENCY

47.7%

PLANT OWNERSHIP

Texas Eastern (Managing Partner), Texas Gas Transmission
Additional partner(s) will be sought.

PLANNED SCHEDULE

Possible start of construction — January, 1983.

Possible plant start-up — Late 1986—Early 1987

STATUS

Feasibility Study completed (April, 1980)

Project selected for Cooperative Agreement
funding by Department of Energy (DOE),
July 9, 1980.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS OF THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Product Slate: The major products of the Tri-State Synfuels Plant are as follows:

- Liquid transportation fuels (propane, gasoline, jet fuel, and diesel)
- Substitute natural gas
- Polymer-grade ethylene
- Sulfur
- Chemicals (cresols, creosotes, phenols, alcohols and ketones)
- Ammonia
- Carbon dioxide

A prime advantage of the Lurgi/Fischer-Tropsch process is that it is a commercially proven technology that produces low-sulfur products from high-sulfur coals. The transportation fuels and substitute natural gas produced are not only fully interchangeable with conventional fuels and compatible with fuel supply systems, but they are produced and used in an environmentally acceptable manner. The gasoline, which meets the projected octane requirements of the late 1980's, contains no lead and is free of sulfur and nitrogen compounds so that no adverse impacts are created in end use.

The transportation fuel products and chemical feedstock products will be marketed in the region as the markets dictate. For example, a number of industrial complexes along the Ohio River could serve as possible markets. Liquid transportation fuels would be moved to customers via Texas Eastern's petroleum products pipeline system north of Evansville, Indiana. Project plans include construction of approximately 38.6 miles of products pipeline to tie into the existing terminal at Princeton, Indiana.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

PROJECT TECHNOLOGY

The Lurgi/Sasol Processes: The Lurgi/Sasol (Fischer-Tropsch) technology proposed for the Tri-State Project has been used on a commercial scale for some 25 years by Sasol, Ltd., Sasolburg, South Africa. Originally developed in Germany, the Lurgi/Fischer-Tropsch process has been improved by Sasol from the first generation -- as exemplified by the company's first commercial-scale conversion facility, Sasol I -- to second generation technology.

Sasol II, recently completed, utilizes this improved technology. The new plant was engineered and constructed by Fluor Corporation, Irvine, California. Sasol is providing design and technical assistance on the Tri-State Project, which will be very similar to the Sasol II facility. Fluor Corporation will provide the engineering and construction services.

The Lurgi/Fischer-Tropsch combination, as a direct result of its long-term commercial utilization, affords the greatest certainty of building a synfuels plant in the shortest possible time with the fewest problems. In addition, it offers flexibility in that its product mix can be changed as future market needs might demand.

Complementing the successful technical history of this conversion route, careful and extensive monitoring has been performed on the environmental, health and safety aspects of the Sasol I plant at Sasolburg over its 25-year operating period. The Sasol I plant and adjacent city of Sasolburg are a testimonial to a clean and safe operation. Environmental control systems required for a U.S. location are of proven design with extensive operating histories in similar services.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

The high-btu substitute natural gas will be marketed to existing customers of Texas Gas Transmission and Texas Eastern, whose existing gas distribution systems are within miles of the proposed Tri-State plant site. Tie-ins will be constructed to both systems (approximately 40 miles - Texas Eastern; approximately 20 miles - Texas Gas).

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS IN THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Project Construction

Siting
Construction Workforce
Proposed Timetable

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

PROJECT CONSTRUCTION

Siting: The Tri-State Synfuels plant will require about 2,000 acres of land. Additional acreage for buffer areas around the plant will also be acquired, resulting in a considerably larger project site.

The Commonwealth of Kentucky, in furtherance of its objectives regarding coal use, development and employment within the state, is currently negotiating to secure options for the American Electric Power Company site near Geneva, KY. Minor amounts of additional acreage surrounding the AEP site will also be required.

The proposed plant site was selected according to a number of criteria:

1. The AEP Corporation owns the majority of the land associated with the site, greatly simplifying acquisition procedures.
2. The coal reserves of the Illinois Basin are readily accessible to the site by barge, rail or short-haul means.
3. River access provides opportunities for marketing the chemical products of the plant among the chemical complexes along the Ohio River Valley.
4. The attitude toward development within the Commonwealth of Kentucky is positive.

If project development proceeds as planned and the acreage is successfully acquired by the Commonwealth, the Tri-State Project sponsors (Texas Eastern and Texas Gas Transmission) will exercise the option for the land prior to plant construction.

1

Construction Workforce: A prime advantage of the Henderson County site is its proximity to the Henderson, KY - Evansville, IN metropolitan area. The city/community development already well established in this area will be able to absorb to a large extent the socioeconomic impact of the workforce necessary to construct and operate the proposed synfuels plant.

Construction would take place over a three- to four-year period. Initially, the construction workforce would number approximately several hundred workers. It would build to a peak of about 15,000 and then decline to several hundred as the plant neared completion. The peak period would last only several months. It is possible that the peak-worker requirement could be reduced by fabricating modules of the plant at other locations along the Ohio River. The average annual construction workforce (based on 15,000 at a peak) over the three- to four-year construction period would be approximately 7,500.

During the construction period, it is anticipated that the construction workforce would become a part of the surrounding larger communities. In fact, it is hoped that plant construction will provide employment for a number of people already living and established in the surrounding communities. Texas Eastern and Texas Gas Transmission will study the effects of construction impacts on these communities carefully with local planning commissioners.

Proposed Timetable: A feasibility study by Texas Eastern and Sasol, with cooperation of Fluor Corporation, on the Tri-State Project was completed in April, 1980.

In July, 1980, the project was selected for Cooperative Agreement funding from the U.S. Department of Energy (DOE) for a work program to include a large-scale gasification test of Illinois Basin coal at a Sasol plant in South Africa; engineering design; capital and operating cost estimates; studies to determine the optimum product slate; site-specific environmental, health, safety and socio-economic impact studies; and negotiation of contracts for coal and other resource requirements. These activities, which will bring the project to the point of a decision to proceed with construction of the plant, will begin immediately and will continue about two years.

Based on the results of the Cooperative Agreement work program, construction of the plant could begin as early as the first part of 1983. Contingent upon this date, full operation would commence in 1987. The plant has an estimated economic life of about 25 years.

NO PART OF THIS REPORT IS TO BE
REPRODUCED OR TRANSMITTED IN ANY
FORM OR BY ANY MEANS, ELECTRONIC
OR MECHANICAL, INCLUDING PHOTOCOPYING,
RECORDING, OR BY ANY INFORMATION
STORAGE AND RETRIEVAL SYSTEM,
WITHOUT PERMISSION IN WRITING FROM
THE U.S. DEPARTMENT OF ENERGY.

Project Operation

Production/Material Resources

Employment/Human Resources

Environmental Impact

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION OF THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

PROJECT OPERATION

Production/Material Resources: The Tri-State Synfuels Plant, as proposed, would utilize the following material resources:

Coal

As stated earlier in this summary, the project is expected to convert approximately 28,600 tons of high-sulfur Illinois Basin coal per day -- or approximately 10½ million tons per year. The coal will come primarily from new mines in western Kentucky; and possibly from southern Illinois or southern Indiana. It is also possible that existing mining operations would supply a part of the plant's requirements.

Water

The plant will require about 26,000 acre-feet of water per year. The water source will be the Ohio River.

The plant will have only minimal discharges (about 2,000 gpm) of water. In fact, only wastewater from the plant's raw water treatment system and sanitary effluents will be discharged back into the Ohio River. No water used in plant processes will be discharged. These effluents will be treated to satisfy water quality standards, as well as effluent standards. The impact on the water environment as a result of this discharge is projected to be insignificant.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
INSIDE PAGE AT THE FRONT OF THIS REPORT

Employment/Human Resources: The Tri-State Synfuels Plant will operate in a manner very similar to a modern refinery. It will run around the clock, year round. It is estimated that a workforce of approximately 2,300 to 3,000 will be employed by the plant.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

All solid waste material generated by the Tri-State Plant will be disposed of in an environmentally acceptable manner as mandated by current and proposed solid waste practices outlined under the Resources Conservation and Recovery Act. Some of this waste may be suitable for landfill material, road paving, diking, fertilizing, etc. Other wastes will be disposed of in environmentally acceptable landfills designed to prevent seepage into ground and/or surface waters. In addition, groundwater sources will be carefully monitored to ensure that no seepage has occurred.

Water Quality

As outlined in the previous section (Production/Material Resources), the Tri-State Plant will have only minimal water discharges (2,000 gpm). Only wastewater from the plant's raw water treatment system and sanitary effluents will be discharged back into the Ohio River after these effluents have been treated to satisfy water quality standards, as well as effluent standards.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Project Status

Initial Feasibility Studies
Current Status of Project

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

PROJECT STATUS

Initial Feasibility Studies: Initial feasibility studies on the Tri-State Synfuels Project were completed in April, 1980. The studies, conducted by Texas Eastern Corporation and Sasol, Ltd., in cooperation with Fluor Corporation, concluded that the technical risks are minimal and that the plant can be operated in an environmentally acceptable manner. The acceptability of the economics will depend on national synfuels objectives and governmental price supports available.

USE REPRODUCTION OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Current Status of Project:

1. Feasibility Study was completed in April, 1980.
2. A Cooperative Agreement Proposal was submitted to the U.S. Department of Energy (DOE) in late April, 1980.
3. In July, 1980, the project was selected for Cooperative Agreement funding from DOE. Under the Agreement, which is expected to be finalized by negotiation between Texas Eastern, Texas Gas Transmission and DOE in the immediate future, DOE would provide a total of \$24.3 million of an estimated \$44.1 million work program to include:

- Site-specific environmental, health, safety and socio-economic impact studies
- Large-scale gasification test of Illinois Basin coal (western Kentucky, southern Illinois and southern Indiana) at a Sasol plant in South Africa
- Engineering design
- Capital and operating cost estimates
- Studies to determine the optimum product slate
- Negotiation of contracts for coal and other resource requirements

This work program, which is expected to begin immediately and will continue for the next two years, will bring the project to the point of a decision to proceed with construction of the plant.

QUESTIONS RAISED DURING MAY 20, 1980

CITIZEN MEETING CONCERNING THE TRI-STATE SYN-FUEL PLANT

1. Why was Henderson County chosen for all of these plants?

A. We can only speak for the Tri-State Synfuels Plant. A number of factors were investigated: type and availability of coal, market for products, water supply, river transportation, availability of land, cooperation of state officials, etc. Henderson County scored high in every category.

The high degree of interest and professionalism exhibited by The Kentucky Department of Energy (KDOE) and the availability of a large block of land from a single industrial company (eliminating the need for purchasing a large amount of land from private land-owners) greatly enhanced the site's attractiveness. In addition, the site is close to the cities of Henderson and Evansville, which together can provide skilled people and accommodate a reasonable amount of socioeconomic impact.

2. Why build the plant so close to the City Limits and the Community College?

A. The layout of the plant on the site has not been determined as of yet. Every effort will be made to configure the plant so that it will be as distant or remote from the City Limits, the Community College and other existing homes and businesses as possible. One primary factor which tends to shift the plant site south is the need to stay outside of the floodplain area.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

3. How much SO₂ emissions will there be as compared to a conventional power plant?

A. Conventional coal-fired power plants using an equivalent amount of coal as the Tri-State plant would emit approximately 135% more SO₂ and generate 40% less energy. In a SASOL II-type plant, over 72% of the coal used in the process is chemically gasified in a closed system which emits virtually no SO₂ into the atmosphere.

4. What about heavy metals and other hazardous wastes that will be buried? Will they cause problems?

A. The majority of solid wastes generated in the plant are in the form of ash. This ash is similar to that generated by coal-fired power plants. These plants have been disposing this waste for many years without causing any known environmental health hazards.

The plant's wet scrubbers will generate sludge. Any solid wastes will, if required, be disposed of in lined landfills. In addition, monitoring wells will probably be required by EPA regulations to insure that no leaching take place through the liner. All regulations will be observed.

5. What will they do with the sulfur? Will it leach?

A. The majority of the sulfur contained in the coal feedstocks will be recovered as solid sulfur and sold to the chemical and fertilizer industries.

Altogether, some 95% of the sulfur present in the coal will be recovered or removed from the coal feedstock. Only about 5% -- some 43 tons per day -- will be emitted into the atmosphere.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
INSIDE PAGE AT THE FRONT OF THIS REPORT

6. Can they and will they use our coal?

A. Yes. In fact, Texas Gas Transmission, a partner in the Tri-State Project, owns an interest in large deposits close to the plant and will probably supply a substantial portion of the coal from this source. Additional coal from other areas in western Kentucky, as well as from Illinois and Indiana sources, will be required. We anticipate that most of the coal will come from new underground mines.

7. What effect will this have on our airport?

A. The airport will have to be moved when construction begins. If the airport is moved, the project sponsors will arrange for an equal or better airport at a location acceptable to the Air Board.

8. Will there be any bad odors from the plant?

A. The only odors associated with the process (sulfur compounds) will be controlled by equipment so that these odors will not be perceptible outside the plant.

9. What exactly will the City of Henderson gain from this?

A. The City of Henderson will benefit in several ways. The Tri-State plant will need several thousand highly skilled employees. Some of these will probably come from outside Henderson County; but there will be an opportunity for many people in Henderson to upgrade their present employment.

The housing industry will benefit from the new homes and apartments required. Both general merchants and industrial suppliers should benefit from an increase in demand for goods and services. It is likely that in addition to this plant, other satellite industries will be attracted to the Henderson area. Therefore, the industrial

tax base is likely to increase greatly as a result of the synfuel plant and associated satellite industries.

In addition, nearby new coal mines will require permanent employees. Due to the constant coal demand, these mines would not suffer from seasonal and economic fluctuations.

10. Who is paying for all of this? Where is the \$3.5 billion coming from?

A. The \$3.5 billion plant cost will be raised by the sponsoring companies through normal financing channels such as long-term commercial loans, issuance of bonds, or other financial mechanisms. However, because of the tremendous cost, most energy companies will not be able to borrow or raise money privately without federal loan guarantees or some other form of support mechanism. A portion of the total cost will be funded directly by project sponsors as equity.

11. What percent of the nation's energy demands will synfuels provide?

A. The total 1987 synfuels production goal as established by Congress is at least 500,000 BPD (in 1992, about 2,000,000 BPD). The Tri-State plant will satisfy approximately 10% of the 1987 goal. The Tri-State plant production would reduce Mid-East OPEC oil imports by approximately 2%.

12. Is this the most efficient use of our coal?

A. Coal is used in so many forms that it would be difficult to determine the most efficient use. However, as a comparison, large coal-powered electrical generating plants have feedstock-to-energy products efficiency of 30-35%. The efficiency of our proposed Tri-State Synfuel Plant is around 50%.

USE OR MISUSE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Furthermore, the development of stringent environmental regulations over the last decade has limited the use of coal as a primary or combustible fuel. It will -- in most cases -- be necessary to convert coal to other forms of energy to remain in compliance with existing and proposed environmental regulations. Synfuels, therefore, seem an efficient use of our coal under the laws and habits of our present society.

13. How much coal do we have here?

A. The Illinois basin area has recoverable reserves of about 46 billion tons. Western Kentucky alone has 6 billion tons in recoverable reserves.

The Tri-State Synfuels Project requires about 28,600 tons of coal per day, or 10.4 million tons per year, based on the Sasol feasibility study recently completed. A substantial amount of this coal will be supplied from a planned new mine on nearby coal reserves owned by Texas Gas Transmission and Consolidated Coal. The balance will be supplied by producers in the Tri-State area.

14. Why is the KDOE involved in this if it's a private company proposing it?

A. The Kentucky Department of Energy is involved in the same way that many states and/or state agencies get involved in the attempt to attract industrial activity. The Commonwealth of Kentucky has made a commitment to attracting synthetic fuel plants from coal and it is the mandate of the Kentucky Department of Energy to carry out this policy.

15. Is all of this cut and dried?

A. No. There are many steps to be taken and many "break-points" to be resolved before the Tri-State Synfuels Project becomes a reality.

USE OF DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
INSIDE PAGE AT THE FRONT OF THIS REPORT

For example, environmental impact statements must be prepared and all environmental requirements satisfied; a number of public hearings will be held; all federal and state requirements must be met; financing arrangements must be worked out. We are optimistic that all environmental, regulatory and economic requirements will be met.

16. Will there be public hearings?

A. Public hearings are an integral part of permitting procedures. In addition, we have assured local officials and planning organizations that we will be happy to consult with them, or community residents, at any time on any problem areas or questions that come up during the planning stages.

17. Should we get a lawyer to check out our legal options?

A. This is something for each individual to decide.

18. Is this, or any project like this, really economically feasible?

A. We think it is, particularly in light of our diminishing supplies of domestic crude and the worldwide price control of crude by foreign producing nations. We expect that products coming from this plant will be competitive with conventional fuels within five years after start up.

Of long-term concern is the fact that crude petroleum is a non-renewable resource. At today's consumption rate, we will need synthetic fuels in the foreseeable future to maintain our standard of living. To have production in the volumes that would meet our internal needs and provide for national security, we must begin to build these plants now because of the long lead time needed to bring them into production.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Furthermore, the Tri-State Plant is technically feasible because it uses a commercially proven technology. Its Lurgi/Fischer-Tropsch indirect-conversion processes are -- and have been -- working and producing fuels in South Africa for 25 years. There is every indication that these processes will prove just as economically valuable to the U.S.

19. All of our farmland is being used up. If the plants close because of economic or environmental problems, we won't have a tax base left.

A. Very little farm acreage, in comparison to the amount of farm land available, will be required in Henderson County for the Tri-State Project. The plant site itself will be comprised primarily of land in the AEP acreage, which had already been designated for industrial usage.

We can foresee no economic or environmental problems that would cause this plant to be shut down. The economic life of the plant is calculated to be 25 years; however, the operating life is expected to be much longer.

20. Why not locate the plant on the Green River around Hebbardsville area on the Reynolds property?

A. The Green River area was seriously considered, but the Henderson site was preferred for various reasons: The Ohio River is more capable of handling the barge traffic; Henderson is closer to the proposed coal supplies; and the Henderson/Evansville metropolitan area can accommodate the construction and operating workforce. In addition, the large industrial site (AEP) was available.

21. What effects will the plant have on the school system? The road system?

School System: Unquestionably, the several thousand permanent jobs created by locating the plant in Henderson County will have a substantial impact on schools. During the course of studying the environmental and socioeconomic impacts in the months ahead, this specific problem will be addressed and resolved in cooperation with local officials. Although the tax base has not been calculated, we know that the plant investment will be immense -- creating a substantial increase in County school taxes. Projected tax revenues will be calculated and made available in the near future.

Road System: The transportation systems, particularly the roads, could be a critical factor during the construction of the plant. The time frame is such that major road improvements are unlikely prior to construction. This is one of the difficulties faced in construction of a large project like this and considerable effort will be made to minimize the problems to the local community.

22. Will pollution from these plants affect crop production?

A. No. The Tri-State Project will not emit any pollutants harmful to crop production.

23. Why so many plants in one area?

A. We can only speak for the Tri-State Project. However, it would appear that the very factors that attracted the Tri-State Project attracted the others to this area as well.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

24. How will all the coal be brought in here? If trucked, we're really going to have a problem.

A. Since the exact sources of coal have not been pinpointed, it is too early to decide on transportation modes and networks. We anticipate extensive use of conveyors, barges, and -- to a lesser extent -- rail transportation. In the event that trucks were to be used, they would be restricted to private-haul roads.

25. What problems will there be with selling or moving the by-products and the landfill operation?

A. The proposed plant will produce a variety of chemical by-products of upgraded quality, suitable for sale into existing, nearby markets. These saleable by-products will be transported by way of existing conventional pipeline, barge, railroad and highway distribution networks, utilizing proven, safe handling techniques.

All solid wastes will be disposed of in lined landfills if required. A well-monitoring program will be instituted to assure that these wastes do not pollute water supplies. Thus, there should be no problems with the landfill operation.

26. What about the coal pile? How large? Dust problems, etc.?

A. The size of the coal pile has not been determined. We will work closely with state and federal air pollution officials to employ suitable control measures which may include water sprays and partial enclosures, among other methods, to assure there is no dust problem.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

27. What about coal strikes?

A. We will keep a supply of coal feedstock on hand to cover short periods of interruption of supply for whatever reason.

28. What are we going to do when all of these construction workers leave the area and all the business that sprang up to support them won't have the business to keep going?

A. A large construction workforce will be in the area over a period of several years. Once the plant is on stream, a plant workforce of 2,300 to 3,000 will be employed on a permanent basis, partially replacing the temporary construction workers. Other satellite industries attracted by the project will be located in the area and will fill part of this void.

Some of the plant employees will likely come from the existing work population already in the area; others will relocate to the immediate Henderson area to live; the rest will commute from cities further away. We anticipate that existing and new businesses will base their future plans on these realities.

EXHIBIT XVII-E

←The Gleaner, Henderson, Ky., Sunday, April 12, 1981

gleaner

opinion page

Walt Dear, publisher

Ron Jenkins, editor

Public relations for plant good

Even those local citizens who have misgivings about synthetic fuels development in Henderson County should admit that the Tri-State Synfuels Co. sponsors are making high marks in public relations.

Thursday's well-organized update on the Tri-State project is clear evidence that Texas Eastern Corp. and Texas Gas Transmission Corp. want to make the best possible impression here.

From the day the Sasol-type coal conversion plant was proposed, Texas Eastern officials especially have been very responsive to public inquiries and media contacts. On several

occasions, Texas Eastern's public relations manager, Ponce de Leon, has personally contacted this newspaper to relate progress on the Geneva-area project.

It also should be noted that it was Texas Eastern and de Leon who came up with the proposal for a local synthetic fuels advisory committee. That committee is in the works now and will have a broad range of citizen participation.

The candid and open atmosphere created by Tri-State officials is healthy and should be appreciated even by those who aren't eager to see a synfuels plant built here.

USE OF DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

HENDERSON, KY.
CLEANER
D. 11,206 & 12,913

EXHIBIT XVII-F

MAY 11 1980

Local leaders seem to favor Geneva plant

By TOM CAUDILL
and CHUCK STINNETT
Staff Writers

PAGE ONE

Developers of the proposed coal liquefaction plant near Geneva are taking their case to various community leaders, apparently with some success.

Representatives of Texas Eastern Corp. of Houston, Texas Gas Transmission Corp. of Owensboro and the Kentucky Department of Energy have been in Henderson in recent days on a campaign to boost community support for the huge \$3.5 billion plant, which would convert area coal into fuel, pipeline-quality synthetic gas and chemical feedstocks.

Officials from the two companies and the state DOE met Friday with community leaders in Henderson, Morganfield and Owensboro, and they also contacted again the owners of some of the land where the plant would be located.

State Sen. Bill Sullivan, who attended the Henderson meeting, said the local people in attendance appeared to be "cautiously favorable" toward the plant. The local meeting was attended by representatives of city and county governments, the schools, Community Methodist Hospital, various area utilities, the chamber of commerce and present and past legislators.

Although the companies appeared to make

some headway in persuading community leaders to support the plant, they still have not won over the farmers from whom they want to buy some of the land for the facility.

Houston Keach Jr., a farmer along U.S. 60-West near Henderson Community College, said project officials contacted him Thursday night. He had been approached a few days earlier by Arthur Nicholson, an agent for the state DOE, who told Keach he wanted to secure an option to buy some of his land.

During the Thursday visit, Keach said he was asked why he objected to the project's site. Aside from not wanting to sell his land, Keach — a member of the city-county planning commission

— said he just doesn't think a site so close to the city is appropriate.

Keach said one Texas Eastern official "tried to paint a glowing picture, and I'll admit I was impressed with his presentation."

Still, Keach said he is more concerned than ever about the project. "It's bigger than I thought. It's a monster, and we're going to try to persuade whoever is in authority on this matter that it's a bad location."

Sullivan said he understands such concern, and said he isn't totally sold on the project. "It's a gigantic proposal. I would want to inquire fully into the environmental impact before making a decision," he said.

City Manager Dick Brown said he's impressed with the proposal, primarily because the technology — known as SASOL — already has been proven at a plant in South Africa.

"Because it has been tested already, we won't have to go through a demonstration phase on this one," Brown said. "When it's started up, it will work."

Brown said the plant would have "great economic impact" on Henderson. "We're looking at new jobs, new money being pumped into our community. And, I think federal regulations will take care of the environmental

Continued on back page.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

AHG

THE EVANSVILLE COURIER
EVANSVILLE, IND.
A. 23,973

MAY 17 1980

Meeting on proposed plant may shape mayor's stance

By ROD SPAW
Courier staff writer

Mayor Michael Vandever said Friday he wants to know exactly what Texas Eastern Corp. and Texas Gas Transmission Corp. are proposing to build across the Ohio River at Geneva, Ky., in Henderson County.

Vandever said he will attempt to get as much information as possible about the companies' proposal to construct a \$3.5 billion coal conversion facility at Geneva when he meets with officials of Texas Eastern next Wednesday at 2 p.m. in the mayor's office.

Saying the proposal calls for construction of a "really massive facility," Vandever said he is concerned about both the economic and environmental impact the project would have on Evansville.

The mayor said any position he might take with regard to the project also would consider the country's need for synthetic fuels that would be produced by the conversion plant.

Vandever said he has invited Joan Shelton, director of the Evansville Environmental Protection Agency, and Mary Brown, executive director of the Southwestern Indiana and Kentucky Regional Council of Governments, to participate in the session.

Texas Eastern spokesman Ponce de Leon said earlier this week that the company wants to meet with Evansville officials to allay what fears they may have about the project.

The proposed plant site is owned by American Electric Power Service Co. of New York, which ran into strong opposition from Evansville officials in the early 1970s when it tried to construct a coal-fired power generating station on the property. AEP eventually canceled the project.

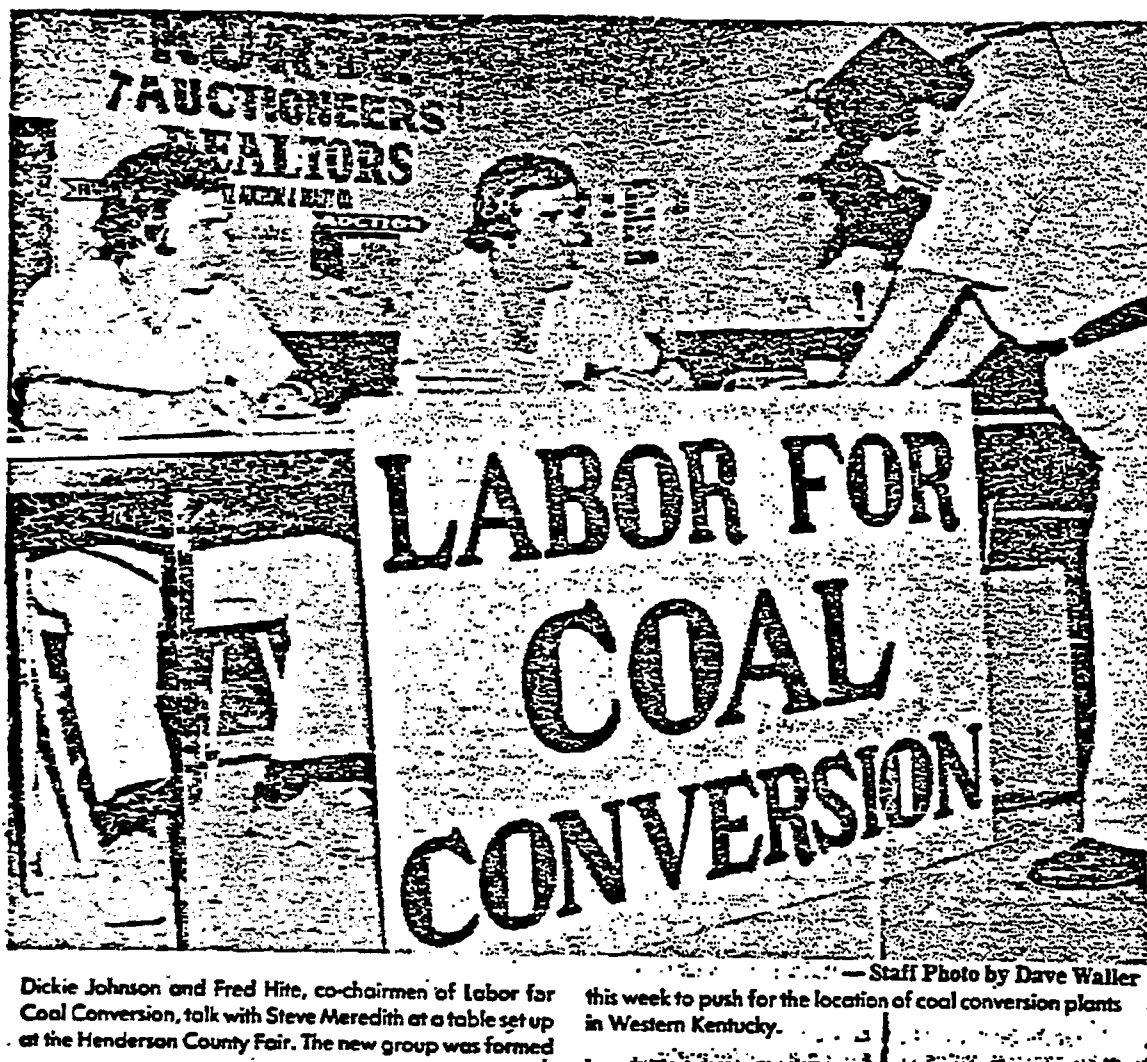
Texas Eastern and Texas Gas have proposed to construct a facility that would produce liquid transportation fuels such as pipeline quality synthetic gas from high-sulfur coal.

Besides the boost synthetic fuels will give to the Tri-State coal industry, company officials also point out that 15,000 construction workers will be needed at peak times during the mid-1980s and that the facility will have a permanent employee force of 2,300 to 3,000 persons.

Area environmentalists caution that synthetic fuel technology has not been tested on the scale proposed by the Geneva project and that little is known about how such plants will operate or what type of emission controls will be used.

A group of environmentalists already has met with Vandever to discuss its concerns. 2

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT



Dickie Johnson and Fred Hite, co-chairmen of Labor for Coal Conversion, talk with Steve Meredith at a table set up at the Henderson County Fair. The new group was formed

— Staff Photo by Dave Waller
this week to push for the location of coal conversion plants in Western Kentucky.

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Geneva plant

Planners meet Evansville mayor to discuss process

Continued from page one

will be sold, other solid waste will be disposed of in landfills meeting government regulations, Greer said.

- Some of the 10½ million tons of coal consumed by the plant each year will be used to generate steam.

The firms hope to buy electric power from existing utilities in the area. If the needed power is not available, the plant will produce its own.

- By 1982, five years after the plant is expected to be completed, the price of the gasoline it produces will be competitive with other sources.

But while Greer said the companies have estimated the cost per gallon of the Tri-State project's product, he would not reveal it. "What if I say it will produce gas for \$1.50 a gallon, then it produces it at \$2?" Greer asked.

"I don't think synfuel plant's main point is economic. They are being built to end dependence on foreign oil." Price supports may be necessary, he said.

He did, when asked, say the price would not exceed \$5 per gallon. But he added that discussing price would be "an academic exercise."

- None of the 26,000 acre feet of Ohio River water that the plant will use each

year will be discharged back into the Ohio.

- Sasol I — the 1955 pioneer plant — would not meet federal EPA guidelines, but only because the necessary controls have not been installed. Those pollution controls would be installed on the Geneva plant, he said.

- Financing for the plant — estimated to cost \$3.5 billion in 1980 dollars — has not been worked out. "That will depend on synfuel legislation in Congress," Greer said.

A development on that matter came this week.

A multibillion-dollar synthetic fuel bill was approved by congressional negotiators Wednesday, and House leaders said they hoped to have it on President Carter's desk by July 4 — a new "energy independence day."

The agreement by House and Senate negotiators came after 5½ months of work to resolve differences in bills passed last year by the two chambers. The compromise version is expected to go before the two houses during the last week in June.

The centerpiece of the bill is a \$20 billion, five-year program to build plants that could make synthetic fuel out of coal and oil shale.



Dennis Greer
of Texas Eastern

With the \$20 billion used in price and loan guarantees to encourage private investment, energy officials hope to be producing the equivalent of 500,000 barrels of oil a day by 1987, when the Geneva plant is scheduled to begin production.

The 500,000 barrels represents roughly 8 percent of the current rate of oil imports or 4 percent of total U.S. oil consumption. The Geneva plant would produce 50,000 barrels of crude oil a day, Texas Eastern and Texas Gas have said.

With additional federal assistance later in the decade, the synthetic fuel program aims at a production level of 2 million barrels a day by 1992.

"I think this is the most significant piece of legislation we're going to pass this year, and possibly this decade," House Majority Leader Jim Wright, D-Texas, said after the final session.

MAY 28 1980

Chamber backs area synfuels plant

9717

The Press West Kentucky Bureau

HENDERSON — The Henderson-Auburn Area Chamber of Commerce board of directors today adopted a resolution endorsing the proposed \$3.5 billion synthetic fuel plant at Geneva and pledged to assist in assessing the expected impact the plant would have on the community.

The resolution was approved at a luncheon today at the Henderson Ramada Inn. The chamber's backing of the project

came a week after residents around Geneva voiced opposition to the proposed plant.

Texas Eastern Transmission Corp. of Houston, Texas, and Texas Gas Transmission Corp. of Owenston are partners in the venture to build the Tri-State Synfuels Plant at Geneva to turn high-sulfur coal into synthetic natural gas, gasoline, jet fuel and other products.

The plant would require 28,600 tons of coal a day or 10.5 million tons a year.

Texas Eastern and Texas Gas officials were in the Evansville area last week to explain the plant's operation, discuss the possible socio-economic impact the plant would have on the area and assure Evansville city officials that the facility would not create any significant threat to air quality.

The chamber board's resolution said the group "pledges to assist business and government in assessing the expected impact of the plant and planning to insure that both the short-term and long-term good of the community is served by the plant being built and operated here."

The directors noted the plant would employ an average of 7,500 construction workers and between 2,300 to 3,000 permanent workers, "adding greatly to this area's economic life and well being." At the peak construction period an estimated 15,000 construction workers would be needed.

In addition, company officials have said that new mines would be opened in western Henderson County to supply a portion of the coal needed for the plant. Other coal supplies would come from mines in Southern Indiana and Southern Illinois, officials said.

The resolution said the \$3.5 billion cost, in 1980 dollars, would be added to the county's tax rolls and that officials of the companies and the Kentucky Department of Energy have said all required permits and all regulations would be met.

The resolution added that the plant, to be built on more than 7,000 acres owned by American Electric Power Co., would use land which had been acquired "for use other than agriculture." The AEP company had purchased the site for a proposed 3,900-megawatt coal-burning power plant, an idea that since has been shelved.

The resolution also said there is a "serious energy shortage" in the country and that Kentucky has an abundant supply of available coal.

Texas Eastern and Texas Gas have applied to the federal government for financial aid to fund half of the \$40 million needed to design the plant. Whether the federal Department of Energy will fund the plant probably won't be known until September.

The companies also want loan guarantees from the government to help build the facility. Present plans call for construction to start in 1983 and be completed in late 1986 or early 1987. —3

USE OF DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

Coalition of labor unions supports synfuel plants

By Dennis Joyce

The Press Staff Contributed Bureau

HENDERSON, Ky. — Labor unions representing construction workers throughout Western Kentucky and the Evansville area have thrown their support behind synfuel plants proposed in Western Kentucky with the formation this week of Labor for Coal Conversion.

A four-man committee met for the first time Tuesday to discuss the group's strategy, said Fred Hite of Evansville, who represents the 600-member Iron Workers Local 163 as a co-chairman of the group.

In explaining the new group's strong stand in favor of synfuels development, Hite cited projections of the number of construction and permanent workers who would be needed if the decision is made to build coal conversion plants at Baskett, Newman and Geneva.

"We feel like people in this area need jobs," he said. "There's a lot of unemployment here right now. Plus, the country needs the fuel these plants would produce."

The coal-to-gasoline plant proposed by

W.R. Grace and Co. at Baskett would employ as many as 6,000 construction workers and 1,500 permanent workers. The solvent refined coal plant at Newman would employ about 3,500 workers during peak construction and 800 permanent workers at the outset. The Newman plant is proposed by International Coal Refining Co.

But the number of workers needed to build the SASOL plant at Geneva dwarfs even these other two multi-billion-dollar projects. The plant, proposed by Texas Eastern Transmission Corp. and Texas Gas Transmission Corp., would require a maximum of 15,000 and average of 7,500 construction workers over the four years it would take to build.

Two other synfuels plants proposed in Western Kentucky, in Breckinridge and Webster counties, together would employ a maximum of 6,500 construction workers and 1,250 permanent workers.

Co-chairman of Labor for Coal Conversion is Henderson County resident Dickie Johnson, representing Carpenters Local

601. The other two members of the organizing committee are Lonnie Rideout, representing Millwrights Local 1000 in Owensboro, and Louis Smith of Teamsters Local 215 in Evansville.

The group's first project is a petition drive started this week that is aimed at indicating widespread support for the synfuels plants among Western Kentucky residents.

Hite and Johnson set up a table Tuesday to begin soliciting signatures at the Henderson County Fair, just a few yards away from the table of Citizens for Responsible Growth — a Henderson County group that hopes through its own petition drive to postpone construction of the SASOL plant until questions about its health and environmental impacts are answered.

Both groups will submit their petitions to Gov. John Y. Brown, who was instrumental in bringing the SASOL process to Kentucky through contacts he made even before his election in November with officials from South Africa, where a plant has been operating for 25 years.

USE OF INFORMATION OF REPORT DATA IS SUBJECT TO THE RESTRICTIONS ON THE NOTICE PAGE AT THE FRONT OF THIS REPORT

THE GLEANER
Henderson, Kentucky
Thursday, July 31, 1980

Union gives qualified support to Geneva

EVANSVILLE (AP) — Clifford Arden, president of Teamsters Local 215, has offered his qualified support for a \$3.5 billion synthetic fuels plant proposed for Geneva.

The plant, which would employ as many as 15,000 during its peak construction period, would use 23,000 tons of high-sulfur coal a day in a process that would convert the coal into synthetic natural gas, gasoline, jet fuel and chemical feedstocks.

Area environmentalists already have lined up to oppose the Geneva plant. But Arden said Monday that while it was "premature to take sides," he is "leaning" toward supporting the project.

"We want it built, but not if it will be a detriment or pollute the whole countryside," said Arden, one of 10 Evansville labor leaders who met privately last week with developers of

the plant.

Arden said union officials are investigating other chemical plants to determine what environmental effects the Geneva facility is likely to have.

"We're looking at it, trying to justify it," he said. "We're looking at it in a positive way and not a negative way."

The Geneva plant is a joint venture proposed by Texas Eastern Transmission Corp. of Houston and Texas Gas Transmission Corp. of Owensboro.

Arden said that if Texas Eastern officials are correct in their statements that the plant would cause no significant deterioration of local air quality, "we would see no reason for not going along with the plant in this area."

The Geneva facility is one of four

synthetic fuels plants proposed for Western Kentucky and one of three planned for sites within 15 miles of Henderson. The plants are part of the national effort to reduce American dependence on foreign oil and provide a viable market for high-sulfur coal.

Other plants are proposed for Baskett in Henderson County, Newman in Daviess County and for a site in Breckinridge County. Construction of the Geneva plant just west of Henderson would not begin for three years. Union labor is expected to be used to build the facility.

"I think this area needs some market for its coal and we certainly need the fuel," Arden said.

He said that if his union and other labor organizations decide to support the project, members could help boost community support for the plant.

USE OR DISSEMINATION OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

EXHIBIT XVII-G

FOR RELEASE: IMMEDIATELY

News Release

SURVEY SHOWS PUBLIC SUPPORT OF SYN-FUEL PROGRAM

Henderson, Kentucky, June 11, 1981--Tri-State Synfuels Company, a partnership between affiliates of Texas Eastern Corporation and Texas Gas Transmission Corporation, today announced that a public opinion survey they commissioned found that the majority of people in Henderson, Kentucky, and Evansville, Indiana, favor the location of the proposed coal-based synthetic fuels plant within their community. According to Paul M. Anderson, Tri-State project director, the survey results show that the main reasons for community support of the project are potential opportunities for employment and economic growth.

"We are pleased with the degree of public acceptance found by the survey," said Anderson. "However, we were even more interested in learning what concerns exist within the community about our project. The survey results have helped identify these concerns, and will be useful in focusing our efforts when working with community representatives in the future."

Anderson said the telephone survey was developed and conducted by V. Lance Tarrance & Associates of Houston, Texas, and included a random sampling of seven hundred people living in the Henderson-Evansville area. Combined and separate statistics were developed for the two cities.

Following are highlights from the survey:

When citizens were asked if they agreed or disagreed that a synthetic fuel industry should be developed in the U.S., a strong majority agreed.

	<u>Henderson</u>	<u>Evansville</u>
Agree	77%	72%
Undecided	12%	14%
Disagree	11%	14%

-add one-

When asked if construction of the synfuel plant at Geneva, near Henderson, was favored or opposed, a majority favored such a project.

	<u>Henderson</u>	<u>Evansville</u>
Favor	64%	60%
Undecided	13%	17%
Oppose	23%	23%

Citizens were asked which item on the following list of community issues was of most concern to them.

<u>Henderson</u>		<u>Evansville</u>	
Unemployment	(29%)	Unemployment	(19%)
Synfuel Plant	(26%)	Crime	(18%)
Schools	(15%)	Taxes	(17%)
Taxes	(13%)	Synfuel Plant	(16%)
Crime	(10%)	Schools	(14%)
Roads/Highways	(5%)	Roads/Highways	(10%)

A majority of Henderson citizens (52%) and Evansville citizens (57%) agreed that the proposed synfuel plant would make the area a better place to live.

However, there are still several areas where Henderson citizens have concern and reservations about the proposed synfuel plant.

	<u>Concerned</u>	<u>Undecided</u>	<u>Unconcerned</u>
Presence of Construction Workers	29%	8%	63%
Misuse of Farm Land	49%	17%	34%
Traffic Problems	68%	8%	23%
Air & Water Quality	25%	32%	43%
Fish & Wildlife	29%	28%	43%

A majority of Henderson citizens feel the companies building the synfuel plant had kept them well informed of what is going on.

	<u>Henderson</u>	<u>Evansville</u>
Well Informed	56%	46%
Unsure	19%	31%
Not Well Informed	25%	23%

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

-more-

-add two-

In rating the companies on past work, and predicting future involvement, a majority of Henderson citizens gave the companies good job ratings.

	<u>Henderson</u>			<u>Evansville</u>		
	<u>Good Job</u>	<u>Undecided</u>	<u>Poor Job</u>	<u>Good Job</u>	<u>Undecided</u>	<u>Poor Job</u>
Selection of Plant Site	54%	32%	14%	38%	54%	9%
Help Local Government	54%	36%	10%	48%	44%	8%
Will Take Interest in Community	52%	34%	14%	52%	37%	11%

Survey participants were asked to indicate from the following list their first and second news source about the project.

	<u>Henderson</u>		<u>Evansville</u>	
	<u>First Choice</u>	<u>Second Choice</u>	<u>First Choice</u>	<u>Second Choice</u>
Radio	4%	9%	11%	18%
Television	24%	37%	43%	40%
Newspapers	62%	47%	21%	26%
Local citizen meetings	3%	1%	7%	2%
Companies building the project	1%	0%	2%	1%
From friends and relatives	4%	5%	13%	8%
Dont know/No answer	2%	1%	3%	5%

-30-

USE OF STATISTICS OF REPORT DATA IS SUBJECT TO THE RESTRICTION ON THE NOTICE PAGE AT THE FRONT OF THIS REPORT

EXHIBIT XVII- H

SYNTHETIC FUELS CITIZEN'S ADVISORY COMMITTEE
FOR
ENERGY IMPACT ANALYSIS

ENVIRONMENT

- Audubon Society
- Evansville EPA Representative
- Ducks Unlimited
- Henderson County Extension Agent
- A Junior College Professor
- A representative of League of Women Voters
- A representative of a Neighborhood Planning Unit
- Kentucky Department of Fish and Wildlife
- Farm Bureau President
- Soil Conservation District

LABOR

- Union representative (Construction)
- Training
- Coal Mine Union Official
- Minority group

HEALTH

- Medical Society
- Green River Mental Health Association
- Henderson Health Department
- Vanderburgh County Health Department

SOCIAL INFRASTRUCTURE

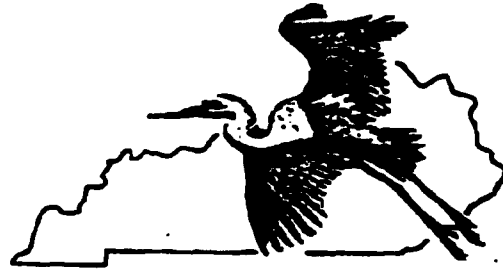
- Representative from County Judge and Fiscal Court
- Representative from Henderson Mayor's Office
- Representative from Evansville Mayor's Office
- School Administrator
- Public Safety — Police and Fire
- Home Builders Association
- Transportation
- Local Business
- Heritage Society
- Ministerial Association
- Senior Citizens
- Community Facilities — Hospitals, EMS. Hospital Administrator

USE OR DISCLOSURE OF SECRET DATA
IS SUBJECT TO THE RESTRICTION ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

EXHIBIT XVII- I

P.O. BOX 376 - HENDERSON, KENTUCKY 42420
TELEPHONE: (502) 827-5467

President Mr. Ronald G. Dodson
Vice President . . . Mr. Ralph E. Madison
Secretary Mrs. Mary F. Travis
Treasurer Mr. William R. Buster



Kentucky Audubon Council

April 29, 1982

RECEIVED

MAY 5 1982

Mr. I. David Bufkin, President
Chief Executive Officer
Texas Eastern Corporation
P. O. Box 2521
Houston, Texas 77001

Dear Mr. Bufkin:

As president of the Kentucky Audubon Council and a resident of Henderson, Kentucky, I have been involved in many synthetic fuels related meetings over the past few years. It goes without saying that the entire issue surrounding the development of a synthetic fuels industry has been quite controversial. Many unanswered questions remain. It was, I am sure, several unanswered economic questions that resulted in Texas Eastern's recent decision to shelve plans to develop the Tri-State facility in Henderson.

Here in Henderson, as you are no doubt aware, at one time or another four huge synthetic fuel facilities were in the planning stages. As such, the controversial aspect of the development was compounded. Every local, state and federal agency must have descended upon Henderson at one time or another.

Of the proposers, however, Texas Eastern outshined all. The willingness displayed by Texas Eastern to work with anyone at any time is to be commended. The fears and concerns of citizens and local governmental officials are still present, but the attitude displayed by the various Texas Eastern officials while in Henderson went a long way toward easing the anxiety.

The actual purpose of this letter is self serving. I know that Texas Eastern did not have to go to the trouble and expense it did with this public relations program. But, whether your project moves ahead now, later or never, the Texas Eastern image and concern for public involvement displayed by Mr. Paul Anderson, Mr. Mike Burke, Mr. Owen Adams, Mr. Dennis Greer, Mr. Jay Christopher and especially Mr. Armando Ponce

USE OR DISCLOSURE OF REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

de Leon should be commended. Where ever future endeavors take Texas Eastern, I urge continuation of this approach toward development with community involvement.

Sincerely,


Ronald G. Dodson
President

USE OF CLASSIFIED REPORT DATA
IS SUBJECT TO THE RESTRICTIONS ON THE
NOTICE PAGE AT THE FRONT OF THIS REPORT

XVIII
ENGINEERING - IRVINE (FLUOR)

Prepared by: D. C. Longshore, Assistant Manager
R. W. Fincher, Project Engineer

I. INTRODUCTION

Engineering work for the Tri-State Project was performed in Irvine, California by Fluor Engineers and Constructors, Inc. (Advanced Technology Division). The Fluor design group consisted of managers and designers from all disciplines such as process, structural, mechanical, piping, cost and scheduling, etc. This design group varied between 30 and 100 persons at various times during the Phase I effort. Tri-State maintained a project team in Fluor's office to monitor and control daily design activities. The Tri-State Irvine Project team, see Exhibit XIII-A, consisted of up to 10 representatives from Texas Eastern and Texas Gas.

Design work in Irvine (Fluor) was begun in July of 1981 and continued through April of 1982. A detailed summary of this work is presented in the Engineering volumes of the Tri-State Synfuels Project Review. These volumes attempt to capture the "Design" of the Case 13 plant as of April 1982.

II. OBJECTIVE

The prime engineering objective during phase I work was to advance plant design to the point that a detailed cost estimate could be compiled. This estimate was to be used to aid the "Go, no Go" decision planned at the end of Phase I.

Three other important objectives of Phase I Engineering were:

- Provide support to Tri-State and coordinate with Houston, Radian and others to insure initially required permits were filed and in place.
- Select licensors and obtain engineering packages on licensed process units.
- Contact major vendors and lay ground work for long delivery items such that the Phase II construction schedule could be maintained.

The Irvine Project Team objective centered around accomplishment of the engineering objectives on schedule and within the Phase I budget.

III. ENGINEERING EFFORT

Initial engineering work, July, 1981 - November, 1981, was devoted to project kick-off, SASOL Coal Test support, and preliminary optimization work on the full size Fischer-Tropsch plant. Work during this time frame was kept general until results of the coal test were received and reviewed. This generalized work was used to provide a basis for expanding the design work accomplished in the feasibility study. During this time frame several realizations suggested the need for additional studies which would be used to evaluate the overall plant configuration and product slate.

In October of 1981 design work on a Fischer-Tropsch type plant was substantially reduced allowing additional optimization studies to be scoped and completed within the original budget and time frame. This study period continued into December of 1981 when the reduced size "MTG" plant was chosen as the most appropriate configuration for the Tri-State plant. Late December of 1981 and January 1982 were spent studying and optimizing the "MTG" plant until Case 13, 14, and 15 were defined.

The January through April, 1982 period was utilized to develop cost estimates and detailed design directions for Case 13. Although Case 13 was chosen as a definitive design basis, design points were not established and would not have been for some time. In order to allow design work to proceed in areas where final design points were not established, "Design points" were assigned by Tri-State Irvine. These "Design points" were as realistic as possible and were to be revised as soon as true/final values were known.

The effect of assigned design points was to create a defined plant which could be engineered as a whole with modifications to certain units later in Phase I as licensor information became available. The assigned design points also allow engineering results to develop and take shape in areas where major design direction/decisions had not been made; i.e., coal supply, land requirements, fines quantity, etc.

IV. DEMOBILIZATION

Design work continued on the Case 13 plant from middle-January until late-March 1982. Early March and April were spent supporting the partnership search underway in Houston. By mid April, the possibility of project demobilization was realistic and the work/design effort was adjusted to reflect this. Following the official intent to terminate the Cooperative Agreement, Demobilization Plans were initiated.

The Demobilization effort in Irvine was to accomplish three major objectives by middle June, 1982.

- Terminate all new design work effective immediately while wrapping-up in progress design work so as to retain as much of the previous work as possible.
- Compile, organize, and store project files such that they may be retrieved and used should the project be restarted in the future.
- Prepare a detailed set of Project Review Books to "capture" the project. These project review books were to satisfy three goals.
 - Serve as DOE Deliverables.
 - Clearly show all design work to date and its interactions with project decisions which support the creation of Case 13.
 - Capture the current status of the project so that if restarted the Project Review Books could be used as the launching point of the renewed design effort.

The majority of work during the final weeks of demobilization was writing, assembling, and printing the Project Review Books. The Tri-State Irvine Team compiled as much as possible into the Review Books to document work accomplished and to facilitate an efficient restart of the project in the future.

A brief summary of each review volume is located in Volume 1A Section II.

XVII. COMMUNITY RELATIONS

CONFIDENTIAL

XIV. FINANCING

NTIS does not permit return of items for credit or refund. A replacement will be provided if an error is made in filling your order, if the item was received in damaged condition, or if the item is defective.

Reproduced by NTIS

National Technical Information Service
Springfield, VA 22161

*This report was printed specifically for your order
from nearly 3 million titles available in our collection.*

For economy and efficiency, NTIS does not maintain stock of its vast collection of technical reports. Rather, most documents are printed for each order. Documents that are not in electronic format are reproduced from master archival copies and are the best possible reproductions available. If you have any questions concerning this document or any order you have placed with NTIS, please call our Customer Service Department at (703) 605-6050.

About NTIS

NTIS collects scientific, technical, engineering, and business related information — then organizes, maintains, and disseminates that information in a variety of formats — from microfiche to online services. The NTIS collection of nearly 3 million titles includes reports describing research conducted or sponsored by federal agencies and their contractors; statistical and business information; U.S. military publications; multimedia/training products; computer software and electronic databases developed by federal agencies; training tools; and technical reports prepared by research organizations worldwide. Approximately 100,000 *new* titles are added and indexed into the NTIS collection annually.

For more information about NTIS products and services, call NTIS at 1-800-553-NTIS (6847) or (703) 605-6000 and request the free *NTIS Products Catalog*, PR-827LPG, or visit the NTIS Web site <http://www.ntis.gov>.

NTIS

***Your indispensable resource for government-sponsored
information—U.S. and worldwide***



U.S. DEPARTMENT OF COMMERCE
Technology Administration
National Technical Information Service
Springfield, VA 22161 (703) 605-6000
