COMPARISON

Pipe lines

	National defense	Tapco	Percentage
Length (miles)	1,400	1,050	
Size	24 inches	12¾ inches	
Capacity (barrels)	250,000	70,000	28
Cost	$95,000,000	$25,000,000	38
Steel required (net tons)	420,000	85,000	20.4
Steel per barrel capacity	1.69 tons	1.229 tons	73
Cost per barrel capacity	$380	$357	93.9

NOTE.—With one-fifth the steel, Tapco can carry but slightly less than one-third the oil capacity of the 24-inch line.

EXPLANATION OF SCHEDULES

Schedule A—Steel line pipe (p. 9): The weights are determined on the basis of a safety factor of 3. Seamless steel tubing, electric weld or lap weld, will be acceptable if conforming to American Petroleum Institute specifications for the service intended.

Schedule B—Engines and pumps (p. 9): As presently viewed, there will be a total of 26 main-line pumping stations. Of these stations, 6 will be on the 300-mile, 10¾-inch section of the line, and 20 will be on the 750-mile, 12¾-inch O. D. section.

Each of the six stations on the 10¾-inch line will have an estimated capacity of 40,000 barrels of crude oil per day of 24 hours. In each station there will be three 450-horsepower Diesel engines connected, through step-up gears, to three multistage centrifugal pumps.

Each of the 20 stations on the 750-mile, 12¾-inch O. D. section of the line will have a capacity of approximately 70,000 barrels of crude oil per day of 24 hours. In each of these stations there will be three 625-horsepower Diesel engines connected, through step-up gears, to three multistage centrifugal pumps.

The operating unit in each station will consist of two engines and two pumps operating in series. The third engine and pump will be a stand-by unit to function in case of a shut-down of any of the operating engines.

Each station will be provided with both an automatic and a manual bypass to function in case of a complete station shut-down.

Where electric power can be purchased at a sufficiently low rate, electric motors will be used instead of Diesel engines. When electric motors are used to drive the pumps, the over-all cost of an electric-powered station will be but about 40 percent of the cost of the Diesel-engine stations.

Schedule C—Service and storage tanks (p. 10): The main storage tanks at the terminal are to be of concrete and placed underground so as to lessen their vulnerability to attack. Until final design is available, it is not possible to determine the weights of reinforcing steel required for the underground tank installations, nor is it possible, at this time, to determine the number and weight of the field service tanks required for the line. In many instances, the producers will run the oil from their own tanks. In fact, this may become the usual procedure. However, at each of the 26 pumping stations there should be, at least, 1 service tank of not less than 55,000 barrels capacity. Any additional tank installations required will become the subject of a subsequent application.

Schedule D—Buildings (p. 10): The buildings for the 26 pumping stations will be designed for bolted steel frames. The walls will be of clay tile, and the roofs of corrugated asbestos.

Each building will be equipped with one 5-ton chain hoist and one 3-ton chain hoist.

Windows and doors will have steel sash and frames. Ridge ventilators will be provided for each building.

Foundations and floors will be of concrete.

Schedule E—Recapitulation (p. 10):