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21 August 1967

In response to your memorandum of 1 August 1967, the following answers are hereby submitted:

Steel Pipe Manufacture

a. All pipe produced in the Soviet Union, when classified by diameter, falls into one of three categories:

Small diameter -- less than 159mm
Medium diameter - 159mm to 529mm
Large diameter - 529mm to 1,420mm

Although 529mm, 729mm, 820mm, and 1,020mm pipes are the most common sizes in the large diameter category, 1,220mm and 1,420mm pipes have been produced on a limited scale for use as water mains. The Soviets have announced that 1,220mm pipe will be in use as oil and gas transmission lines sometime in 1967, and that 1,420mm pipe will be used for this purpose by 1970.

b. Soviet specifications are similar to API-5LX specifications. Typical steels used in Soviet oil and gas transmission lines are chrome-manganese steels. These steels, according to official Soviet standards (GOST 5058-57), have the following mechanical properties:

Tensile strength - 50kgs/mm^2 (72,000psi)
Yield strength - 34kgs/mm^2 (49,000psi)

c. The major large diameter pipe producing plants in the USSR are:

Chelyabinsk Tube Mill, Chelyabinsk, R.S.F.S.R.
Novomoskovsk Tube Mill, Novomoskovsk, Ukrainian S.S.R.
Zhdanov Metallurgical Plant imeni Ilyich, Zhdanov, Ukrainian S.S.R.
Khartsyzsk Tube Plant, Khartsyzsk, Ukrainian S.S.R.

The Chelyabinsk plant, the largest of the four, produced about one half of the total Soviet production of about 900,000* tons of 1,020mm pipe in 1965. The remaining production of 1,020mm pipe was distributed among the other three plants. There are many plants in the USSR that produce pipe of smaller diameters. We do not have production data on these other pipe sizes.

d. Although specific data are not available on the output of wide plate in the USSR, production presumably has been increasing inasmuch as the output of heavy plate (4mm and over) has risen in recent years. Additionally, no evidence exists to indicate a shortage of wide plate in the Soviet Union. Several branches of Soviet industry -- pipe making, machine-building, shipbuilding, etc. -- are consumers of wide plate, but information on the quantity allocated to each branch is not available. The widest plate currently made in the USSR is rolled on a 3,600mm plate mill.

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* All tonnages are metric tons.

e. The USSR plans to achieve a significant increase in the production of all types of flat-rolled steel products by 1970, but specific goals for the production of wide plate are not known. Several years ago the Soviets announced plans for the construction of a 4,200mm plate mill, but these plans apparently have been abandoned or postponed as no further announcements have been made on the subject.

f. Although the USSR has purchased some pipe making machinery from Czechoslovakia, and possibly buys some from other Communist or Free World countries, most of their equipment is produced domestically.

g. Under the directives of the USSR's current Five Year Plan (1966-70), a 50 percent increase is planned for the production of large diameter pipe, and an even greater — but unspecified — increase is planned for the production of 1,020mm and 1,220mm pipe. Most of this increase will come from existing plants. The only known plan for new facilities concerns the construction of the Volzhskiy Pipe Plant, Volzhskiy, R.S.F.S.R. Construction of this plant began in 1966, and one stage is scheduled for completion in 1967. The second stage is to be completed in 1970. The plant reportedly will produce 1,420mm pipe for oil and gas transmission lines.

Pipe Welding Equipment

a. Double submerged arc welding is used in the manufacture of 1,020mm pipe in the USSR. The welding speed is between 59-63 inches per minute, although a maximum speed of 72 inches per minute can be attained.

b. The Soviets also use electrical resistance welding with a high frequency of 400 to 500 kc in the manufacture of some pipe, but the diameter of the pipe is not known.

Soviet Imports of Pipe

During 1960-62, the Soviet Union imported nearly 700,000 tons of 1,020mm pipe from the Free World. About three-fourths of this pipe came from West Germany, with Italy and Sweden supplying the remainder. In late 1962, a NATO embargo was imposed on the export of large diameter pipe to the USSR and Eastern Europe, which sharply reduced the amounts of Soviet pipe imports from the West. Early in 1963 the USSR received about 50,000 tons of 1,020mm pipe from West Germany and Italy but this was pipe already in process and committed before the embargo became effective. West Germany and Italy then discontinued shipments to the USSR. Sweden (not a member of NATO) was the only Free World country to supply the USSR with 1,020mm pipe (about 50,000 tons a year) through 1965 (the last year complete trade data are available).

During the period 1962-65, Czechoslovakia and Rumania exported about 250,000 tons of 1,020mm pipe to the USSR, and Poland and East Germany supplied the Soviets with small quantities of large diameter pipe of less than 1,020mm. The 1962 NATO embargo was rescinded in late 1966, and although Sweden reportedly is continuing to sell about 50,000 tons of 1,020mm pipe to the USSR annually, no evidence exists to indicate that the Soviets have placed sizable orders for large diameter pipe elsewhere in the West.

Internal Transportation of Pipe

We have no information that the transportation of large diameter pipe in the USSR presents any problem.