

It is a pleasure to be with you today and to have the opportunity to talk with people engaged in a field so vital to the future of America. I say an opportunity to talk "with" you rather than "to" you, because I am vitally interested in the views and comments of those who are in the nuclear field. I would appreciate a chance to discuss some of the points that I am making.

Wednesday
HOLD FOR THURSDAY A. M.'s

*Wednesday
release*

Nuclear development presents not only a great challenge, but is also in the sense that probably no challenge today offers as much potential good for the peoples of the world.

The potential range of application of nuclear technology is tremendously diverse. One form of application in which I am greatly interested is the application of nuclear technology to the maritime field.

THE CHALLENGE OF NUCLEAR DEVELOPMENT

PREPARED FOR DELIVERY BY
SENATOR WARREN G. MAGNUSON

There is no doubt in my mind that our experience with the nuclear ship Savannah has been overwhelmingly successful. The fact that it has required an operating subsidy from the Federal Government does not lead me to the conclusion that a nuclear-powered merchant vessel is safe and feasible.

TO

THE AMERICAN NUCLEAR SOCIETY
RICHLAND, WASHINGTON

And, as you will know, the life cycle cost for a nuclear-powered merchant vessel is comparable to that of a traditional vessel of comparable size and capabilities.

MARCH 29, 1967 - 8:00 A. M.

This Session of Congress I have introduced a Bill--S. 708--which would provide for the development of six privately owned nuclear-powered merchant vessels. I see no reason to delay our entry into what is surely the next phase of merchant shipping. Delay now will only cost us money and prestige in the future.

There are those who argue that we should delay any effort to develop an active nuclear merchant fleet because there is no certainty that it is economically feasible at this time. There are a variety of factors to be considered in this argument. First, the nuclear ship Savannah, which was never designed to be an efficient cargo vessel--it actually has less cargo capacity than a World War II Liberty vessel--has operated commercially with an actual operating subsidy of only about \$750,000 more than operating subsidies being paid for large conventional cargo liners today. This does not lead me to the conclusion that a nuclear-powered merchant vessel that was designed

It is a pleasure to be with you today and to have the opportunity to talk with people engaged in a field so vital to the future of America. I say an opportunity to talk "with" you rather than "to" you, because I am vitally interested in the views and comments of experts in the nuclear field. Following my remarks--which I hope are appropriately short enough for a breakfast meeting--I would appreciate a chance for some discussion with you.

Nuclear development presents not only a great challenge, but is unique in the sense that probably no challenge today offers as much potential good for the peoples of the world.

The potential range of application of nuclear technology is tremendously diverse. One form of application in which I am greatly interested is the application of nuclear technology to the maritime field.

There is no doubt in my mind that our experience with the nuclear ship Savannah has been overwhelmingly successful. The fact that it has required an operating subsidy from the Government detracts not one iota from the conclusion that a nuclear-powered merchant vessel is safe and feasible. And, as you well know, over the life of a ship the fuel cost for a nuclear-powered merchant vessel would be far less than for a fossil-fueled vessel of comparable size and capabilities.

This Session of Congress I have introduced a Bill--S. 508--which would provide for the development of six privately owned nuclear-powered merchant vessels. I see no reason to delay our entry into what is surely the next phase of merchant shipping. Delay now will only cost us money and prestige in the future.

There are those who argue that we should delay any effort to develop an active nuclear merchant fleet because there is no certainty that it is economically feasible at this time. There are a variety of factors to be considered in this argument. First, the nuclear ship Savannah, which was never designed to be an efficient cargo vessel--it actually has less cargo capacity than a World War II Liberty vessel--has operated commercially with an actual operating subsidy of only about \$750,000 more than operating subsidies being paid for large conventional cargo liners today. This does not indicate to me that a nuclear-powered merchant vessel that was designed

specifically for efficient cargo handling could not make money. I am thinking of a 30 knot, 1,000 container capacity vessel that would traverse the oceans $1\frac{1}{2}$ times faster than most present day vessels.

The First Atomic Ship Transport Company--the only company in the world that has ever operated a nuclear-powered merchant vessel (the Savannah)--has stated to me:

"We are convinced that over the lifetime of the ship, a nuclear vessel will cost less to build and operate than its conventionally powered counterpart. The initial construction cost will be more than offset by the lower operating cost and greater productivity of the nuclear ship."

And, of course, industry representatives of organizations such as Babcock and Wilcox Company have stated that their studies indicate that a 30 knot nuclear-powered container ship would reduce the Government's overall maritime subsidy in spite of the higher original construction cost.

Other nations, even though they are operating with budgets tighter than ours, are not hesitant to enter the nuclear merchant vessel field. The Soviet Union, Japan, Germany, Italy, Communist China and others are engaged in the building of nuclear merchant vessels this very day. This points up a most important factor: one vital resource of the United States is that it has more money available at a lower cost than any nation in the world. This is a distinct advantage to us in developing any type of program which involves a higher capital expenditure in order to achieve a lower operating cost. In short, we are more capable of undertaking a program of this type than any other nation. We should take advantage of this resource--we should implement our greater financial ability--and start building what surely will be the ships of the future.

There is another obvious and important impact upon the maritime industry from the development of nuclear technology in addition to propulsion. That is the creation of a new type of ocean traffic based upon the transportation of nuclear cargoes. The big supplier of nuclear fuel has, of course, been the United States. We have leased considerable material for use in foreign reactors, and once the fuel is irradiated, it

is returned to the United States for reprocessing. It is true that nuclear materials move in rather small quantities--even taking into consideration the protective casks in which they travel--but it is to be anticipated that not only the frequency of such cargo will increase, but that there will be as well important changes in its nature. For example, some American supplied nuclear cores for reactors in European power plants will be coming back to the United States in the near future and this will surely be a larger and more attractive cargo source.

The United States now has its first commercially operated plant for reprocessing nuclear fuel at West Valley, New York. If this plant, or others like it, becomes able to compete on a straight commercial basis for business around the world, then there will be important consequences for our merchant marine. Of course, the ability of our merchant marine to transport such cargoes in an efficient and economical manner will in turn affect the ability of the private sector of our economy to compete with other nations of the world for such business.

A recent report prepared for the Atomic Energy Commission by the consulting firm of Arthur D. Little, Inc. predicted that nuclear generating capacity in the free world outside the United States will advance from 14,000 megowatts in 1960 to 280,000 megowatts by 1985. In addition to present efforts in Western Europe, Canada, Japan, India, Israel, the Philippines and Nationalist China all have nuclear reactor programs underway.

The Pacific Northwest is expected to rapidly expand in the area of nuclear produced electric energy. This is the obvious course of action, for the Bonneville Power Administration projects no major new hydro-facilities after 1975. Over the years we have been fortunate to have low cost power from the Columbia River. However, we must look beyond the present and prepare to satisfy our future power requirements.

Nuclear produced electric energy is becoming increasingly feasible. Its cost has decreased from about 5¢ per kilowatt-hour in 1950 to about 8 mills in 1960 and it is estimated that such power can be produced in 1972 for about 2.4 mills per kilowatt-hour. This is a remarkable

achievement in view of the fact that we have been receiving power at a cost of about 2 mills per kilowatt-hour from the Bonneville Power Administration. Thus, nuclear produced electric energy seems the obvious course for the future in the Northwest, particularly in view of the general lack of fossil fuels. The Northwest is, of course, not unique in this situation. The situation is the same throughout most of the United States and eventually for the world.

In summary, international commerce resulting from peaceful development of nuclear energy is inevitable. There is no doubt that the future of the Northwest, America and the world is closely tied to peaceful development of nuclear energy. Any such factor that is as important to our nation and the world as nuclear development requires our immediate efforts as well as our interest. To merely gaze with interest upon the development of nuclear energy throughout the world because of uncertainty as to exact immediate economic benefits would be foolish and unjustifiable.