

## PETROLEUM ADMINISTRATION FOR WAR

WASHINGTON 25, D. C.

December 6, 1943.

My dear Senator Truman:

In response to the request of Senator Kilgore at the hearing of your Committee on the Canol project on November 22, we have undertaken to estimate the cost of transportation to and the storing of petroleum products at Skagway, Alaska, and Whitehorse, Canada, as an alternative to the construction of the crude oil pipe line from Norman Wells and the refinery at Whitehorse.

We estimate that, under conditions which we believe would apply to this operation, the following cash expenditure would probably be incurred during the course of a two-year operating period:

Capital expenditure for tank construction (500,000 barrel)	\$1,550,000
Tanker transportation costs on products Los Angeles-Skagway	627,020
Pipe line transportation of gasoline Skagway-Whitehorse	270,000
Handling charges	<u>154,800</u>
Total	\$2,601,820

In any estimation of the capital investment involved in the erection of the necessary storage tanks, or the cost per barrel for handling the products, certain fundamental factors must be considered:

1. The volume and type of product which will be stored.
2. The daily and yearly rate of consumption of the product in the area to be served by the storage in question.
3. The amount of stock which will be carried in terms of the daily or monthly consumption rate.
4. The number and size of the tanks which will be constructed.
5. The cost of constructing these tanks, complete with all fittings, and connections, and surrounded by the necessary firewalls for fire protection.
6. The number of years it is assumed that these tanks will be in service.



In estimating the cost of transporting petroleum products from California to Skagway and Whitehorse and storing them at these points, we have made the following assumptions which we believe would approximate the actual operating conditions:

1. Storage tanks would be erected at both Skagway and Whitehorse, of a sufficient capacity to permit the unloading of products in tanker lots, the motor gasoline and aviation to be transported to Whitehorse for storage and ultimate consumption along the Alcan highway and at the flying fields of that area. The fuel oil would be stored at Skagway for use as needed in the coastal area.
2. Storage would be erected in a sufficient volume to carry at all times the equivalent of four months' production of the Whitehorse refinery.
3. The storage would be in constant use for a period of two years. The utility of these facilities beyond this period, by reason of the uncertainties of war, is too indefinite to form the basis of any computations of operating costs.
4. The estimated cost of the completed steel storage has been based upon the current costs of constructed storage in that general area.

Any variations from the above assumptions would change in some degree both the estimated capital investment required and the cost per barrel for handling and storing the petroleum products.

We understand that the anticipated daily production of aviation gasoline, motor gasoline, and heavy fuel oil by the Whitehorse refinery, and a four months' total of that expected production would be as follows:

<u>Products</u>	<u>Daily Rate</u> (In barrels)	<u>4 Months' Total</u> (In barrels)	<u>2 Years' Total</u> (In barrels)
Aviation Gasoline	479	58,000	348,000
Motor Gasoline	1,018	122,000	732,000
Heavy Fuel Oil	<u>650</u>	<u>78,000</u>	<u>468,000</u>
Total	2,147	258,000	1,548,000

It would be necessary to construct approximately 360,000 barrels of storage at Skagway and 140,000 barrels at Whitehorse in order to unload the tankers and to store and have on hand an amount equivalent to four months' refining runs. The total costs on completed tankage in this area have approximated \$3.10 per barrel, for tanks of ten thousand barrel capacity. If larger than ten thousand barrel tanks were erected, the cost would be slightly less per barrel, while tanks of a smaller capacity would be somewhat higher per barrel. The construction of 500,000 barrels of storage would involve a capital expenditure of approximately \$1,550,000.

In estimating the cost per barrel of handling these products, we have amortized the cost of the tanks over a two-year period for the reasons stated above. We have



assumed transportation costs from Los Angeles, California, to Skagway, and transportation of the aviation and motor gasoline to Whitehorse through the products pipe line which is already in operation. No actual operating costs for this pipe line are available but, based upon conditions as they exist, we would estimate that it would cost approximately 25 cents per barrel to transport these products from Skagway to Whitehorse. Ample facilities exist for transporting even larger volumes of products than are involved in these calculations. The evaporation and handling charges set up are average figures for the product involved.

Estimated transportation, handling, evaporation, and storage costs in dollars per barrel of the stored product would be as follows:

Transportation And Storage Costs Per Barrel For Petroleum  
Products at Skagway-Whitehorse

	<u>Aviation Gasoline</u>	<u>Motor Gasoline</u>	<u>Heavy Fuel</u>
Tanker Transportation Los Angeles-Skagway	\$ 0.385	\$ 0.40	\$ 0.43
Evaporation Losses and Handling Charges	.35	.27	.10
Pipe Line Transportation Skagway-Whitehorse	.25	.25	
Capital Investment Amor- tization, 2-Year period Considered	<u>1.04</u>	<u>1.04</u>	<u>1.04</u>
Total	\$ 2.025	\$ 1.96	\$ 1.57

If a five-year period of service for the tankage were assumed rather than two years, then the cost per barrel to amortize the capital investment would be reduced from \$1.04 to \$0.45 per barrel. Likewise, a ten-year period would further reduce this figure to \$0.24 per barrel.

If less than four months' storage were carried, thereby reducing the volume of tankage required, or the amortization period exceeded two years, both capital investment and cost per barrel figures would be reduced. We have not estimated any salvage value for the tanks as it is not probable that they could be torn down, transported to the United States, and re-erected as cheaply as equivalent new tanks could be constructed in any American oilfield.

Sincerely yours,

(Sgd) Ralph K. Davies

Ralph K. Davies,  
Deputy Petroleum Administrator.

Hon. Harry S. Truman,

United States Senate.