



DORR-OLIVER

INCORPORATED

2900 GLASCOCK STREET, OAKLAND 1, CALIF.

December 21, 1956

Colonel of Quartermaster Corp.
Erwin L. Keener
Hdq. U. S. Army - Alaska
Office of Quartermaster
APO 949 Seattle, Washington

Re: Dorr-Oliver Hydrocarbon Rectifier Data as
Applicable to the Alaskan Pipe Line System

Dear Col. Keener:

May we here at Dorr-Oliver extend the Season's Greetings to you and your Command, and particularly those who were so gracious with their time when the writer visited you last May.

On a recent trip to Wright Patterson Air Force Base, the Pentagon, Washington, D. C. and Colonel Gillett's office at Washington, D. C. to re-view the results of our work at Castle Air Force Base on the Dorr-Oliver Hydrocarbon Rectifier, we promised each group we would write you and bring you up to date as to how the final test turned out, so you would be properly advised at your proposed January meeting.

First, we have been very fortunate as we now have proof of the expected final results I gave you on my trip to your Command in May. Please contact Captain Fullerton at Castle Air Force Base, who has been in command of all work and is thoroughly familiar as to the results that can be anticipated.

A brief resume of what has transpired to date as far as results are concerned are as follows:

1. When the Hydrocarbon Rectifier is handling all the JP4 at Castle Air Force Base the flight line micronic filters remain clean with no pressure build up, when the Hydrocarbon Rectifier is off stream these filters have a turn around time on the elements of about 90 days. In all cases the fuel passes through approved coalescer filter units.
2. The average dissolved moisture content capacity of the fuel at saturation as determined by lab tests for the ambient temperatures involved were 110 to 120 ppm, average fuels received ran 90 to 95 ppm, average discharge from the Hydrocarbon Rectifier ran 70 to 75 ppm.

The above is a very interesting result as it was one not fully anticipated. We believe however, the answer lies within the facts that the method of determining saturation was run in the conventional manner and the moisture in-

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Colonel Erwin E. Keener

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indicated was that being carried by small particles of solids in the stream coated with a thin film of moisture, hence when these were removed the water content dropped to the amounts indicated. This was further proven by actual freeze tests on the fuel and observing the ice crystals form.

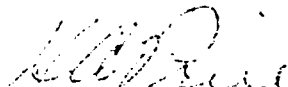
We believe this may also explain the phenomena that happens in your area when moisture still proves to be a problem even though the fuel has gone through a deep freeze. These tests indicate that the Hydrocarbon Rectifier by removing these troublesome particles washing them out of the stream would allow you to attain the dryness you cannot expect under any other known method.

3. All operation and general maintenance is being handled by the Air Force troops without trouble or intensive training.
4. At other installations we are washing considerable quantities of contaminants successfully from the streams. This would be of utmost importance in your area due to the layover in the pipe line proper.
5. The U. S. Navy submarine model has passed all preliminary operating tests and is now ready for shock testing.
6. Captain Fullerton, U.S.A.F. Castle Air Force Base Officer, has submitted a report on work to date, copy of which can be secured from Colonel Bado, A.I.F.A. San Francisco, or possibly from E. Muer, Wright Patterson Air Force Base.
7. Dorr-Oliver is now convinced beyond any doubt that the Hydrocarbon Rectifier should be classified as a little piece of the refinery that can be moved to areas such as yours and process fuels to a state of acceptability even though they have been seriously mishandled, for military use.

In view of the above, we would certainly like to review the whole fuels program in the north further with you as we now believe we are in a position to substantiate further the proposals made to you early in the year. May we hear from you further on this at an early date if this sounds attractive to you.

Very truly yours,

DORR-OLIVER INCORPORATED


H. A. Price,
Consulting Engineer

HAP:dt