

Mr George E

6 July 1955

TO: District Engineer
Alaska District
Corps of Engineers, U S Army
Anchorage, Alaska

FROM: Norris Plank
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INTERIM REPORT: Period 1 July to 4 July 1955

SUBJECT: Haines - Fairbanks Products Pipeline - Contractor's Complaint.

First Liquid Interface

1. The first real important event, from an operating standpoint which has occurred on this pipe line, to date, took place when Haines Station started pumping diesel oil last Friday night 1 July. I wish to report this event as I saw it. Since I understand there will probably be some conflicting views expressed on the subject I wish to resort to the narrative form of reporting and cover a large number of details.
2. I have had several casual conversations with the person who has been appointed by the Joint Venture as the official superintendent of pump stations. Approximately one week previous to 1 July this person proposed to me in the office of the Area Engineer that he and I should endeavor to work together on this pipe line operation without going around through the regular channels with our various small problems and complaints. I agreed that this was a good idea and I offered to help his boys get started with their meter calibration since he had no one on the job who knew how to calibrate the meters.
3. I also advised the Superintendent of Stations that I thought the most important job he had facing him was the arrangement of a good clean interface between the water tender, which is now in the pipe line, and the diesel oil which will be pumped in later to follow the water. He stated that he intended to drain all the water out of the yard piping from the field manifold to the

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pump room. The main pump suction and discharge piping should also be bled dry, with bleed outlets must be installed for this purpose. The Superintendent's men spent two days installing the bleed connections and bleeding the water out of all station and yard piping.

4. The writer and Captain Trimble prepared a check list of operational items that should be observed at the time when the stations start pumping petroleum products. The following notes were copied from the list we prepared 2 June 1955:

Operational Notes

(a) Remove all water from the Haines station piping system from the field manifold through the pump room and station by-pass piping.

(b) Fill station piping with diesel oil, bleeding all air from all the piping and pumps.

(c) Prepare to use all station control instruments, including the gravitometer, at both Haines and Border Stations.

(d) Prepare to run three scrapers at the water-oil interface in approximately the following order.

(1) Scraper No. 1: In the water 100 bbls downstream from the interface.

(2) Scraper No. 2: At the interface at Haines. At the midpoint of mixture at other stations.

(3) Scraper No. 3: At 100 bbls upstream from interface or midpoint.

(e) Prepare to issue 24 hour pumping orders from the dispatching office and receive hourly gauge reports from the station operators.

(f) Prepare to maintain a pumping rate at, or near, the maximum allowed by full pump capacity and / or maximum line pressure conditions.

(g) Arrange for qualified field laboratory technician to sample and report the water-oil interface at each station for the purpose of plotting the progressive spread of the interfacial mixing from Haines station to destination.

5. We discussed all these items in a casual way with the superintendent of stations. We got the general impression that the above items would be considered and probably be incorporated in their program when they started pumping oil. However the meter prover tank was not equipped with gauge scale plates at Haines station. The gravitometer instruments were not prepared for

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use at Haines or border stations. No proper provisions were made for sampling at either of the stations.

6. Friday, 1 July the report was received that the field crews were ready to move the water 200 miles north in order to continue the hydrostatic testing program. The Haines station operators spent several hours carefully filling the lines in the yard and pump room with oil, bleeding the air at the proper places to insure a solid oil fill from the field manifold to the scraper launching barrel at the discharge side of the main pump station. A scraper was installed in scraper launching barrel ready for launching. No scraper had been placed in the water 100 ft ahead of the tail end of the water but a clean interface had been provided for No. 1 scraper. No. 2 scraper was scheduled to be placed at some point in the oil following scraper No. 1. No provisions were made for a third scraper at Haines Station.

7. The Haines station was scheduled to start pumping oil at 2000 hr 1 July 1955. In the group present at Haines station at this time the Joint Venture had the following representatives:

- (a) The General Manager of Station Construction.
- (b) The Superintendent of station operations.
- (c) The Chief Dispatcher.
- (d) A number of operators.

The writer was interested principally in observing the procedure for launching the scraper at the interface of the water and the oil. I was standing near the scraper barrel when the pumps were started. I noted that the 8" valve was open which would allow the full stream to by-pass the scraper barrel.

8. I was quite concerned about the oil being rumped around the scrapers and I spoke to the operators to remind them that they had forgotten to line up the valves to direct the oil stream through the scraper launching barrel. Several minutes after the pumps were started one of the operators manipulated the 8" valve, mentioned above, to a point about 2/3s closed at which point the oil stream was slightly restricted and a hissing sound was set up by the increased velocity through the valve. This hissing was evidently interpreted as the sound of the scraper moving out of the barrel. At this point the General Manager, the Chief Dispatcher and the Superintendent of Stations announced that the scraper had been launched. The station operators made no statements. The writer stated that the scraper had not been moved and even if it were gone the nice clean interface, that had been so carefully prepared, was completely destroyed by the large quantity of oil that was allowed to flow around the scraper barrel.

9. The scraper barrel was opened up for inspection about 1/4 hour after the pumping started. This inspection revealed the fact that the scraper was

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still reposing in the launching barrel. The barrel was then closed and the eight inch main line valve was again "pinched" toward a closed position. The writer again urged the operator to close the 8" valve if he expected to move the scraper out of the barrel. He refused to close the valve, but he did continue to "pinch" the main stream until enough dynamic force (estimated 50 psi) was built up behind the scraper to overcome its inertia and force it out of the scraper barrel into the main stream where its progress was clearly indicated by a metallic scratching sound which was clearly audible for a distance of 20 feet each side of the pipe line. The writer estimates about 100 bbls of oil was pumped into the line before No. 1 scraper was launched.

10. The writer spent considerable time Friday night trying to determine the cause of the failure to launch No. 1 scraper at the proper time. This analysis indicated that the failure must be attributed to one or more of the following reasons:

- (a) Casual negligence
- (b) Rank ignorance
- (c) Willful intent

The first reason must be eliminated when we consider the fact that the operators attention was called to the fact that the 8" valve, which allows the stream to by-pass the scraper barrel, had not been closed. The second reason was discarded by the writer after considerable reflection. It is simply not logical to assume that a group of individuals, sane and sober enough to spend the whole day laboriously operating dozens of valves to prepare good interface conditions for the scraper location, would refuse to line up the final valves which would insure the launching of the scraper exactly at the interface. They may forget to make the final line-up. But they would not refuse to do so when their attention was directed to the oversight. With the elimination of the first two reasons, we must assume that this failure was due to the third reason: willfull intent.

11. One of the contractor's general managers was there with no adverse comments, their superintendent of stations was there with apparent approval, their chief dispatcher was also present. All of these persons observed the faulty valve line-up which permitted the flow of oil around the scraper barrel. None of these people gave orders to close the by-pass valve or shut the pumps down. The writer cannot escape the conclusion that this performance resulted from a premeditated plan. It is just barely possible that "rank ignorance" could be the answer. However when the writer reviews his observations on the scene and sifts the sequence of events through the process of elimination the recurrent result is "willfull intent".

12. At approximately 1000 hr Saturday 2 July I engaged in what was intended to be a friendly conversation with the chief dispatcher. I especially

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wished to inquire about when I could assist their operators calibrate the meters in accordance with my promise to the Superintendent of Stations. In the course of our conversational exchange we reviewed the general operating conditions which included a number of aggravating irregularities. Included in the list of the irregularities were the following items:

- (a) Meter prover tank not ready for use.
- (b) Meters not calibrated
- (c) Gravimeters not in service at any stations.
- (d) Tank gauges are not taken to coincide with hourly meter readings:
 - (a) No liquid temperatures are taken for the purpose of converting the gross volume indicated by the tank gauges, meter readings and pipe line fill, to the standard conditions of 60 deg. F.
 - (f) The present communications service is very irregular and unreliable.
 - (g) The location of the two scrapers at the head end of the water fill is unknown. The scrapers are "lost".
 - (h) The operators were not permitted to use the engine control system to control the line pressure.

I sympathized with him and remarked that most of these irregularities were not too important at the moment and would probably iron out satisfactorily in due time. However, I remarked that precise methods of switching at the interfaces or tender changes should be developed before the time arrives for dispatching product-to-product interfaces. Since product mixtures may result in serious losses of valuable material good operation demands good switching practice. At this point the dispatcher indicated by his manner that he resented my remarks on switching. He suddenly terminated the conversation and left the scene.

13. I left Haines at noon Saturday, with Captain Tribble on a projected trip to Donjek Station. We were intercepted at Junction station Saturday afternoon by a phone call from the Resident Engineer who informed me that the Joint Venture management had made a formal complaint objecting to my remarks to their chief dispatcher at Haines. The Resident Engineer instructed me to confine my future activities on the pipe line operations to visual observations and if I have any questions or comment I should get in touch with him (the Resident Engineer.)

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14. My purpose in writing this lengthy discourse is two-fold. First, that you be fully informed of my activities. Secondly I have endeavored to present enough detail to help you understand my contention that I must obtain a certain amount of first hand information regarding the character and capacity of the individual operators as well as the character and capacity of the physical equipment if I expect to be able to advise you properly in the future. I may tend to classify reports of some events as fantastic and unbelievable if I had not seen similar events with my own eyes. However I believe I have enough of this type of information for the present. I should be able to stay pretty well in the background from now on.

15. In closing I wish to state that if my actions in this current matter have caused you any embarrassment I wish to offer you my apologies. I shall make an effort to prevent future complaints. I have no apologies to offer, however, for any of my past comments or opinions and I do not desire to retract or revise them at this time.

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