

ENCLOSURE

7 April 1954

X-Ray Engineering Company
765 Redwood Highway
Mill Valley, California

ATTENTION: Mr. Walter W. Offner

Gentlemen:

Reference is made to your letter of 8 March 1954 and inclosure regarding the radiographic inspection for the Haines to Fairbanks pipeline. An interim reply to this letter was forwarded to you on 12 March 1954.

A report on this matter has been received from the District Engineer in Alaska who is the officer of the Corps of Engineers responsible for the design, construction and inspection of the pipeline. The report indicates that the consultant employed by the District Engineer, Mr. A. G. Barkow of the Natural Gas Pipeline Company of America is a recognized authority on welding and radiographic inspection. Mr. Barkow is secretary of the Joint American Petroleum Institute - American Gas Association Committee on Oil and Gas Pipeline Field Welding Practices, a member of the Radiographic Subcommittee, and of the Welding Subcommittee. It was this joint committee who prepared the American Petroleum Institute "Standard for Field Welding of Pipe Lines," referred to generally as API Std. 1104, which is the standard under which the Haines-Fairbanks pipeline is being built. Mr. Barkow's experience covers many years of materials inspection and metallurgical laboratory work for prominent industrial firms. His experience in radiographic inspection of metals dates back to 1930, making him one of the pioneers in this field. In the late thirties Mr. Barkow was employed by one of the largest American casualty companies as a welding metallurgical engineer, and has served for the last 11 years in his present position with the Natural Gas Pipeline Company of America. In addition to his participation in the preparation of API Std. 1104, he is the author of an authoritative treatise, "How to Interpret Radiographs of Pipeline Welding Defects," which appeared in the Oil and Gas Journal of 4 October 1951.

The District Engineer's decision that Iridium 192 is the preferable radioactive source to be used in the inspection of this pipeline was based on Mr. Barkow's recommendation, which was in turn based upon Mr. Barkow's view from long experience that Iridium 192 was the only radioisotope available which would produce the film definition necessary to insure the superior results required on this job. This decision was made particularly

ENRDU

X-Ray Engineering Company

Mr. Maschke/nde/Y1149
7 April 1954

in view of the expectation that a fine cracking condition in the welding was expected to be encountered because of climatic influences in that region, a factor which ruled out the use of radioactive sources other than those which, because of their longer wave lengths, would provide the maximum clarity and definition. This necessarily ruled out Cobalt 60, which has a very short wave length.

It may be of interest to know that the District Engineer has received several expressions of affirmation of the superiority of Iridium 192 over Cobalt 60 from prominent American industrial and engineering sources and also from the British Columbia Research Council. Under the circumstances, it is the opinion of this office that the District Engineer's decision was sound and in the best interest of the Government.

Your view that the specifications favored the use of X-ray because of the lack of ready availability of Iridium 192 is not affirmed by the bidding experience in this case. Of the eight bids received, four were for both X-ray and Iridium 192, two were for X-ray only, and two were for Iridium 192 only. The eight firms which submitted bids in this instance are representative of industry, and the low bid is considered to be favorable to the Government. The contract has been awarded to the low bidder. Incidentally, the low bid is based on the use of Iridium 192.

You also pointed out objections to the provision in the specifications for the use of a diagnostic film length not exceeding 25% of the pipe circumference, and supported your view with reasons based on your experience. While this office is fully appreciative of all professional views in cases where more than one possibility exists for the solution of a particular problem, it should be emphasized that here again is a point on which the District Engineer based his decision on the professional experience of his consultant, whose judgment was that a film length longer than 25% would not provide the quality of definition desirable on this particular project.

From the foregoing it is hoped the above information will result in a better understanding of the actions taken by the Corps of Engineers to protect the Government's interests on this highly specialized project.

Sincerely yours,

G. A. FINLEY
Colonel, Corps of Engineers
Asst for Planning, Engr & Contracts
Military Construction

FROAN

GHAMM

ZACKRISON