

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 22, 2000

Mr. Carl O. Gast
Vice President and Manager
Olympic Pipe Line Company
2319 Lind Avenue S.W.
P.O Box 1800
Renton, Washington 98057

CPF NO. 59505H

Dear Mr. Gast:

Thank you for your correspondence dated June 14, 2000, regarding your proposed repair methods for defects at Mileposts 27.02, 25.52, 26.06, and 26.10 in the Ferndale to Allen segment of your 16-inch pipeline. The correspondence requests my concurrence with the Olympic Pipe Line Company (Olympic) plans and procedures for repair of the abovementioned defects. Further, you indicate your plans and procedures are based on research completed by PRC International presented in a report titled "Repair of Pipeline Dents Containing Minor Scratches" by John Kiefner and Christopher Alexander. The Office of Pipeline Safety (OPS) has great respect for the aforementioned authors and their work regarding pipeline repairs, however, it must be acknowledged the referenced research has not yet been incorporated into the industry standards. The OPS believes these studies will demonstrate the industry standards are conservative regarding repairs to all your pipelines.

The OPS recognizes the ASME B31.4 Code for Pressure Piping as the industry standard governing repairs to hazardous liquid pipelines. The OPS believes a conservative application of the repair standards in this document is an appropriate application regarding repairs to your pipelines. In regard to defects identified on the out-of-service Ferndale to Allen segment of your pipeline: in accordance with paragraph 451.6.2(b)(1) of the B31.4 Code the pipeline, repairs will be made by cutting out a cylindrical piece of pipe containing the defects and replacing it with pipe meeting the requirements of paragraph 401.2.2, of the B31.4 Code, and having a length of not less than one-half of the pipe diameter.

As specified in paragraph 451.6.2(b)(2) of the B31.4 Code, repairs to pipeline segments which can be demonstrated as not practical to take out of service are to be made by installation of a full encirclement welded split sleeve in accordance with paragraph 451.6.2(c) or other repair methods listed under paragraph 451.6.2(b) Allowable Pipeline Repairs.

Due to concerns regarding cyclic fatigue acting on stress concentrators in hazardous liquid pipelines the following is required in excess of the B31.4 Code:

- 1) Identified excavated gouges and grooves not coincident with dents having a depth less than 12.5 percent of the nominal wall thickness will be repaired by grinding in such a manner as to remove the stress concentrator.
- 2) Dents of depths equal to 2 percent but less than 6 percent of the nominal pipe diameter in the top half of the pipeline (9:00 o'clock to 3:00 o'clock) not containing stress concentrators, cracking, or mechanically induced metal loss damage will be repaired by full encirclement welded split sleeve or composite reinforcement sleeve applied in such a manner so as to restrain the dent.
- 3) As an alternate to repairing the dents described in item 2) above: if cyclic fatigue evaluations can be provided that validate the pipeline's ability to be returned to service without concern relative to pipeline integrity compromises as a result of cyclic fatigue, (as per the work described in - "Effects of Smooth and Rock Dents on Liquid Petroleum Pipelines" API Publication 1156, November 1997, authors Christopher Alexander and John Kiefner), then, no repairs will be required.

The OPS believes repairing the pipeline to the most current industry standard will assure pipeline integrity. Thank you for your cooperation in this important safety matter. If you have any questions regarding this correspondence please contact me at (303) 231-5701.

Sincerely,

Chris Hoidal
Director