



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

400 Seventh Street, S.W.  
Washington, D.C. 20590

MAY - 8 2001

Mr. Spencer Neal  
Vice President of Operations  
Dome Pipeline Corporation  
P.O. Box 200  
Station M  
Calgary, Alberta, Canada  
T2P 2H8

Re: CPF No. 3-2001-5008H

Dear Mr. Neal :

Enclosed is a Corrective Action Order issued by the Associate Administrator for Pipeline Safety in the above-referenced case. It requires you to take certain corrective actions with respect to the operation of your pipeline. Service is being made by registered mail and facsimile. Your receipt of the enclosed document constitutes service of that document. The terms and conditions of this Corrective Action Order are effective upon receipt.

Sincerely,

Gwendolyn M. Hill  
Pipeline Compliance Registry  
Office of Pipeline Safety

Enclosure

cc: David Millage  
Manager of NGL Operations  
Dome Pipeline Corporation  
Plaza Center One - Suite 380  
125 S. Dubuque Street  
Iowa City, IA 52240

**VIA REGISTERED MAIL (RETURN RECEIPT REQUESTED) AND TELECOPY**

**DEPARTMENT OF TRANSPORTATION  
RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION  
WASHINGTON, DC 20590**

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In the Matter of )  
Dome Pipeline Corporation, )  
Respondent. )  
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CPF No. 3-2001-5008H

**CORRECTIVE ACTION ORDER**

**Purpose and Background**

This Corrective Action Order is being issued, under authority of 49 U.S.C. § 60112, to require Dome Pipeline Corporation (Dome) to take the necessary corrective action to protect the public and environment from potential hazards associated with its Cochin Line, which extends from North Dakota through Minnesota, Iowa, Illinois, Indiana, Ohio, and Michigan.

On April 1, 2001, Dome's 12¾-inch diameter Cochin Line failed near Maxbass, North Dakota, resulting in the release of 12,800 barrels of ethylene which ignited.

Pursuant to 49 U.S.C. § 60117, the Central Region, OPS initiated an investigation of this failure.

**Preliminary Findings**

1. At approximately 6:15 p.m., on April 1, 2001, Dome's 12¾-inch diameter Cochin Line ruptured, resulting in the release of 12,800 barrels of ethylene which ignited. The failure at Mile Post 647 (MP 647) occurred in an open field, approximately 1100 feet south of where the line crosses North Dakota State Highway 5. No injuries or fatalities occurred.
2. The line passes within 1-2 miles of numerous small communities along the route as well as crossing numerous state and interstate highways.
3. The Cochin Line originates in Fort Saskatchewan, Alberta, Canada and crosses the U.S. border just north of Minot, North Dakota continuing in a southeasterly direction across Minnesota, into Iowa (just north of Charles City). The line then moves east through Illinois, (south of Chicago) into Indiana where it shifts in a northeasterly direction, through Ohio into Michigan, near Detroit, looping back into Windsor, Ontario, Canada.

4. Within the United States, the Cochin Line transports natural gas liquids, specifically, propane, ethylene and ethane. Propane, ethane and ethylene are highly volatile liquids. Highly volatile liquids form a vapor cloud when released into the atmosphere and have vapor pressures exceeding 40 psia and 100°F. The vapor clouds generated by propane and ethane will stay close to the ground and follow the terrain accumulating in the low areas, such as the ditches along a highway or railroad.
5. The pipeline was installed in 1977 and is constructed of 12¾-inch x 0.213-inch w.t., API 5L-X60, ERW pipe manufactured by U.S. Steel Corporation. The protective coating is tape wrap consisting of a Polyken 927 primer with a 960 outer wrap. The pipe is not known to have a history of manufacturing problems.
6. At the time of the incident, discharge pressure at the Alameda Pump Station was 1380 psig. The maximum operating pressure of the Cochin Pipeline is 1440 psig. Pressure at the failure site (MP 647) was 1304 psig.
7. The preliminary investigation, conducted April 3-4, 2001, indicates the failure appears to have initiated in the body of the pipe. The rupture propagated down the length of the pipe body arresting at the upstream girth weld. The length of the fracture was approximately 43 feet. The failed section was blown out of the ditch in four (4) large pieces with several smaller fragments. The failed pipe segments have been sent to a metallurgical laboratory for further analysis.
8. A preliminary evaluation by the metallurgical laboratory suggests that the origin of the fracture is a dent which also contained a gouge, indicating localized issues. The investigation is ongoing.
9. Preliminary investigation of corrosion, either internal or external, was inconclusive as the pipe is badly scorched from the heat.
10. Dome internally inspected this line section in 1991 and 1994, using a magnetic flux leakage (MFL) tool to address corrosion concerns. As a result of these internal inspections, Respondent made twelve (12) repairs between MP 636 and MP 652 to remediate external corrosion and damage to the pipe. No anomalies were identified at the failure site by the inspection tool.
11. Following the April 1, 2001 accident, Dome's personnel isolated the line by closing the valves at the Maxbass Pump Station, located approximately 5 miles downstream of the failure, and at the first upstream mainline valve, located approximately sixteen (16) miles from the station.
12. Respondent restarted the Cochin Line on April 4, 2001 with 20% pressure reduction from the Alameda Pump Station to the Orrin Pump Station. The failure site is located approximately 61 miles southeast of Alameda Pump Station and approximately 65 miles northwest of the Orrin Pump Station.

13. The segment of pipe that failed on April 1, 2001, was last pressure tested in 1977.

**Determination of Necessity for Corrective Action Order and Right to Hearing**

Section 60112 of Title 49, United States Code, provides for the issuance of a Corrective Action Order, after reasonable notice and the opportunity for a hearing, requiring corrective action, which may include the suspended or restricted use of a pipeline facility, physical inspection, testing, repair, replacement, or other action as appropriate. The basis for making the determination that a pipeline facility is hazardous, requiring corrective action, is set forth both in the above referenced statute and 49 C.F.R. §190.233, a copy of which is enclosed.

Section 60112, and the regulations promulgated thereunder, provide for the issuance of a Corrective Action Order without prior opportunity for notice and hearing upon a finding that failure to issue the Order expeditiously will result in likely serious harm to life, property or the environment. In such cases, an opportunity for a hearing will be provided as soon as practicable after the issuance of the Order.

After evaluating the foregoing preliminary findings of fact, I find that the continued operation of this pipeline without corrective measures would be hazardous to life, property and the environment. Additionally, after considering the circumstances surrounding this failure, the proximity of the pipeline to populated areas, the line's proximity to a public highway, the highly volatile liquids the pipeline facility transports, the pressure required for transporting the material, and the uncertainties as to the cause of the failure, I find that a failure to issue expeditiously this Order, requiring immediate corrective action, would result in likely serious harm to life, property, and the environment.

Accordingly, this Corrective Action Order mandating needed immediate corrective action is issued without prior notice and opportunity for a hearing. The terms and conditions of this Order are effective upon receipt.

Within 10 days of receipt of this Order, Dome may request a hearing, to be held as soon as practicable, by notifying the Associate Administrator for Pipeline Safety in writing, delivered personally, by mail or by telecopy at (202) 366-4566. The hearing will be held in Kansas City, Missouri or Washington, D.C. on a date that is mutually convenient to OPS and Respondent.

After receiving and analyzing additional data in the course of this investigation, OPS may identify other longer term measures that need to be taken. Dome will be notified of any additional measures required and amendment of this Order will be considered. To the extent consistent with safety, Dome will be afforded notice and an opportunity for a hearing prior to the imposition of any additional corrective measures.

**Required Corrective Action**

Pursuant to 49 U.S.C. § 60112, I hereby order Dome to immediately take the following corrective actions with respect to its Cochin pipeline:

1. Maintain the 20% pressure reduction from the Alameda Pump Station to the Orrin Pump Station.
2. Conduct a detailed metallurgical analysis of the pipe that failed on April 1, 2001 to determine the cause and contributing factors. Submit to the Regional Director, Central Region, OPS, within one week of its receipt by Dome Pipeline.
3. Submit a written plan, with a schedule, to verify the integrity of the line from the North Dakota/Canada border to the Orrin Pump Station. The plan must provide integrity testing that addresses all known or suspected factors in the failure, including if relevant:
  - A. Internal inspection tool surveys and remedial action. The type of internal inspection tools used shall be technologically appropriate for assessing the system based on the type of failure that occurred on April 1, 2001, with emphasis on identifying and evaluating the following: 1) anomalies associated with dents, gouges and grooves; 2) metal loss due to corrosion; 3) the orientation of the longitudinal seam of the pipe; 4) pipe deformation, and 5) longitudinal cracks, mill defects and stress corrosion cracking.
  - B. A detailed description of the inspection and repair criteria that will be used in the field evaluation of the anomalies that are excavated. This is to include a description of how any defects are to be graded and the schedule for repairs or replacement.
  - C. An evaluation of the line for areas of damaged or disbonded coating, including but not limited to, a close-interval, current interrupted, pipe-to-soil potential survey.
  - D. Integration of all available data from internal inspections, metallurgical analyses, and historical data, including repair and cathodic protection records.
  - E. Hydrostatic pressure testing of line segment.
  - F. A schedule and means for providing the results and data for testing programs performed to the Central Region.
4. Each element of the plan must be approved by the Regional Director, who may provide approvals incrementally. Implement the plan as approved.

5. Respondent may request approval from the Regional Director, to increase its operating pressure above the interim maximum operating pressure under item 1, based on showing that the hazard has been abated or that a higher pressure is justified based on an analysis showing that the pressure increase is safe considering all known defects, anomalies and operating parameters of the pipeline. The Regional Director's determination will be based on cause of failure and provision of evidence that mitigation actions taken by the operator provide for the safe operation of the pipeline. Appeals to determinations of the Regional Director in this regard will be subject to the decision of the Associate Administrator for Pipeline Safety.
6. The Central Regional Director may grant an extension of time for compliance with any of the terms of this order for good cause. A request for an extension must be in writing.

The procedures for the issuance of this Order are described in Part 190, Title 49, Code of Federal Regulations, § 190.233, a copy of which is enclosed, is made part of this Order and describe the Respondents' procedural rights relative to this Order.

Failure to comply with this Order may result in the assessment of civil penalties of not more than \$25,000 per day and in referral to the Attorney General for appropriate relief in United States District Court.

  
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Stacey Gerard  
Associate Administrator  
for Pipeline Safety

MAY - 8 2001

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Date Issued