



U.S. Department
of Transportation
Research and
Special Programs
Administration

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

APR - 2 2003

Mr. Kevin Brown
Senior Vice President, Operations
Sinclair Oil Corporation
550 East South Temple
Salt Lake City, UT 84102

Re: CPF No. 5-2003-5011H

Dear Mr. Brown:

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, including a pressure reduction, with respect to your Medicine Bow pipeline running from the Sinclair Pump Station in Carbon County, Wyoming to the Denver Products Terminal in Adams County, Colorado. Service is being made by certified mail and facsimile. Your receipt of this Order constitutes service of that document under 49 C.F.R. § 190.5. 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: Mr. Mark A. Petersen
Manager, Pipelines & Terminals

VIA CERTIFIED MAIL (RETURN RECEIPT REQUESTED) AND TELECOPY

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

In the Matter of)
)
Sinclair Pipeline Company,) **CPF No. 5-2003-5011H**
)
Respondent.)

CORRECTIVE ACTION ORDER

Purpose and Background

This Corrective Action Order is being issued, under authority of 49 U.S.C. § 60112, to require Sinclair Pipeline Company (Respondent) to take the necessary corrective action to protect the public, property, and the environment from potential hazards associated with a failure on Respondent's "Medicine Bow" pipeline extending from the Sinclair Pump Station in Carbon County, Wyoming to the Denver Products Terminal in Adams County, Colorado.

On March 26, 2003, a failure occurred on Respondent's 6-inch Medicine Bow pipeline approximately 10 miles west of Elk Mountain, Wyoming. The cause of the failure has not yet been determined. Pursuant to 49 U.S.C. § 60117, the Western Region, Office of Pipeline Safety (OPS) initiated an investigation of the incident.

Preliminary Findings

- On March 26, 2003, at approximately 4:56 P.M. MST, Respondent's Medicine Bow pipeline ruptured in Carbon County, WY resulting in the release of an estimated 500-600 barrels of unleaded gasoline. The failure occurred in a rural area at Mile Post (MP) 33.2, approximately 10 miles west of the town of Elk Mountain, WY.
- No fires, injuries, fatalities, or evacuations were reported in connection with the incident.
- The Medicine Bow pipeline transports refined petroleum products including fuel oil and gasoline.
- The Medicine Bow pipeline originates at the Sinclair Pump Station located on the outskirts of the town of Sinclair, WY and extends approximately 204 miles in a southeasterly direction to the Denver Products Terminal located approximately 10 miles north of the city of Denver.

- Portions of the Medicine Bow pipeline are routed near populated areas and cross numerous state and local highways. The release occurred approximately 210 yards from a stock pond in or near a drinking water Unusually Sensitive Area identified in the U.S. Department of Transportation's National Pipeline Mapping System.
- Following the failure, Respondent mitigated the release by shutting down the pump at the Sinclair station. The nearest upstream and downstream block valves were closed within two hours of the failure.
- A 119 foot section of pipe containing the failed joint was cut out and replaced. The Medicine Bow pipeline was returned to service on March 28, 2003. Respondent initiated environmental clean-up actions in coordination with the U.S. Environmental Protection Agency and the Wyoming Department of Environmental Quality including containing the runoff and removing snow and soil in the affected area.
- The preliminary investigation indicates that the failure occurred on the side of the pipe at the three o'clock position and may have originated in an area where an outside force deformation was noted via a visual inspection. There were no indications that any excavation activity had recently occurred in the area of the failure site. The cause of the failure has not yet been determined. Respondent plans to transport a 47-inch section of pipe containing the 8-inch rupture to a metallurgist for detailed analysis.
- The Medicine Bow pipeline was installed in 1963 and is constructed of 6-inch nominal diameter, 0.156-inch wall thickness, Grade X-52, API 5LX, electric resistance welded (ERW) pipe manufactured by U.S. Steel.
- The Medicine Bow pipeline is cathodically protected by impressed current. It has a protective coating composed of tar tape manufactured by Seamless Rubber Company.
- The maximum allowable operating pressures were 1760 and 1525 psig at the Sinclair Pump Station and the failure site, respectively. At the time of the failure, the actual operating pressures were 1721 and 1360 psig at the Sinclair Pump Station and the failure site, respectively.
- The Medicine Bow pipeline was hydrostatically tested in 1963 at pressures of 2210 and 1904 psig at the Sinclair Pump Station and the Elk Mountain Pump Station, respectively.
- Since the mid-1990's, the hydraulic profile of the Medicine Bow pipeline has been significantly altered by the decommissioning of the Elk Mountain Pump Station in 1999, the intermittent operation of the Laramie and Loveland Pump Stations, the introduction of drag reducing agents at the Sinclair Pump Station, and the addition of back pressure control methods at the Laramie Pump Station and the Denver Products Terminal. As a result, operating pressures in many pipeline segments are significantly higher than historic pressure levels. There is insufficient information to determine the extent to which the changed hydraulic profile may have contributed to the March 26, 2003 rupture or may impact other sections of the pipeline.

- The Medicine Bow pipeline was internally inspected in 2000 with a magnetic flux leakage (MFL) in-line inspection (ILI) tool. As a result of this inspection, 18 areas of the pipeline were excavated and examined. Respondent reported that the majority of the anomalies found during these examinations were corrosion related. The ILI report did not accurately indicate the apparent pipe deformation at the failure site noted during the initial visual inspection.
- Respondent is headquartered in Salt Lake City, Utah and operates several pipelines that supply refined petroleum products to the Rocky Mountain region of the country. Respondent is a component of Sinclair Oil Corporation.
- OPS issued Alert Notices on January 28, 1988 and March 8, 1989 informing pipeline operators that low-frequency ERW pipe, such as the pipe used to construct the Medicine Bow pipeline, was subject to longitudinal weld seam failures caused by the presence of manufacturing defects in the ERW seams that can grow over time. These Alert Notices further advised operators that seam corrosion and cyclic fatigue had been found to have contributed to the growth of these defects and in some cases, operational failures had occurred many months or years after successful hydrostatic testing was conducted.

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, provides 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 the Medicine Bow pipeline without corrective measures would be hazardous to life, property and the environment. Additionally, after considering the age of the pipe and method of manufacturing, the operating history of the pipeline, the proximity of the pipeline to unusually sensitive environmental areas, the highly combustible nature of the product the pipeline transports, the pressure required for transporting the material, and the lack of a determination as to the cause of the failure, I find that a failure to expeditiously issue this Order, requiring immediate corrective action, would likely result in serious harm to life, property, or the environment.

Accordingly, this Corrective Action Order mandating 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, Respondent 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 Denver, Colorado or Washington, DC 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 corrective measures that need to be taken. In that event, Respondent will be notified of any additional measures required and amendment of this Order will be considered. To the extent consistent with safety, Respondent 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 Sinclair Pipeline Company to immediately take the following corrective actions with respect to its Medicine Bow pipeline extending from the Sinclair Pump Station in Carbon County, Wyoming to the Denver Products Terminal in Adams County, Colorado:

1. Maintain a minimum 20 percent (20%) reduction in the operating pressure on the entire Medicine Bow pipeline. The pressure is not to exceed 80 percent of the maximum allowable operating pressure in effect just prior to the March 26, 2003 failure. Specifically, the pressure may not exceed 1408 psig at the Sinclair Pump Station discharge point. This pressure restriction shall remain in effect until written approval to increase the pressure or return the pipeline to full service is obtained from the Director, Western Region, OPS.
2. Reset the maximum discharge pressure set points on the Laramie and Loveland pump stations to 20 percent below the settings in effect on March 25, 2003. Alternatively, they may be locked out of service.
3. Determine the cause of the failure and identify any contributing factors by conducting detailed metallurgical testing and failure analysis of the ruptured section of pipe. Provide the Director, Western Region, OPS with at least 5 days advance notice of the date scheduled for this testing, which OPS may elect to witness, and submit the testing protocol to the Regional Director for approval as soon as it is developed. Submit all metallurgical and failure analysis reports to the Regional Director within 7 days of receiving them.
4. Within 30 days of receipt of this Order, provide hydraulic gradient profiles for each of the Medicine Bow pipeline's different historic operating configurations. These profiles must include consideration of commodity specific gravity, elevation profiles, pump station operations, and use of drag reducing agent. Identify those pipeline segments where operational changes over the last 10 years may have increased their normal operating pressures.

5. Within 60 days of receipt of this Order, re-evaluate the data from the 2000 ILI tool run for the purpose of identifying pipe deformations or metal loss anomalies.
6. Within 75 days of receipt of this Order, overlay any deformations or anomalies identified by the ILI re-evaluation required by Item 5 with the various hydraulic gradient profiles required by Item 4.

Within 90 days of receipt of this Order, develop and submit a written remedial plan, with a proposed schedule, for prior approval by the Director, Western Region, OPS. The plan must provide for the identification and remediation of any anomalies similar to the one associated with the failure site in accordance with accepted methods of testing and repair. Anomalies identified in areas where the historic hydraulic gradient and normal operating pressures have increased must be given priority for repairs. All integrity threatening anomalies must be remediated by September 30, 2003. The Regional Director may provide approvals of remedial plan elements incrementally. The plan must be fully implemented, as each element is approved, according to the plan schedule.

Within 10 days of receipt of this Order, submit the complete results of the 2000 ILI in electronic format to the Director, Western Region, OPS for an independent evaluation. Provide permission for an OPS third-party expert to discuss the ILI data and analysis with the MFL tool vendor.

9. The Director, Western Region, OPS may require modification of remedial plan elements based on the independent evaluation of the ILI data, or other appropriate considerations. The plan must be revised, as necessary, to incorporate new information obtained during the investigation and determinations concerning the cause of the failure.
10. Within 60 days of receipt of this Order, provide a schedule for conducting the Integrity Management Program (IMP) initial baseline assessment of the Medicine Bow pipeline in accordance with 49 C.F.R. Part 195, to the Director, Western Region, OPS. Respondent's selection of ILI tools for conducting the IMP baseline assessment must take into account the performance of the 2000 MFL ILI tool in identifying pipe deformations or metal loss anomalies and other integrity threats which caused or contributed to the March 26, 2003 rupture.

If approval of the Director, Western Region, OPS, is requested to remove or modify the pressure restriction set forth in Items 1 and 2 of this Corrective Action Order, Respondent must submit information demonstrating that the hazard has been abated and that restoring the pipeline to its pre-failure operating 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 Director, Western Region, OPS 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.

Respondent may appeal any decision of the Regional Director to the Associate Administrator for Pipeline Safety. Decisions of the Associate Administrator shall be final.

The procedures for the issuance of this Order are described in Part 190, Title 49, Code of Federal Regulations. 49 C.F.R. § 190.233 is made part of this Order and describes the Respondent's procedural rights relative to this Order.

Failure to comply with this Order may result in the assessment of civil penalties of not more than \$100,000 per day and in referral to the Attorney General for appropriate relief in United States District Court.



Stacey Gerard

Stacey Gerard
Associate Administrator
for Pipeline Safety

APR - 2 2003

Date Issued



U.S. Department of Transportation
Research and Special Programs Administration

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

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OPTIONAL FORM 98 (7-90)

FAX TRANSMITTAL

of pages ▶ 7

To <i>CHRIS HOWAL</i>	From <i>REGINA RA FORA</i>
Dept./Agency <i>RSPA/OPS</i>	Phone # <i>(202) 366-4401</i>
Fax # <i>(303) 231-5711</i>	Fax # <i>(202) 366-7041</i>

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