U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue SE
Washington, DC 20590

VIA CERTIFIED MAIL AND FAX TO: 307-237-3164

December 20, 2016

Mr. H. A. True, III, President
Belle Fourche Pipeline Company
P.O. Box 2360
Casper, WY 82602-2360

Re: CPF No. 5-2016-5013H

Dear Mr. True:

Enclosed is a Corrective Action Order (CAO) issued in the above-referenced case. It requires Belle Fourche Pipeline Company to take certain corrective actions with respect to the Bicentennial Pipeline system that failed on December 5, 2016, near Belfield, North Dakota. Service of this CAO is being made by certified mail and facsimile. Service of the CAO by electronic transmission is deemed complete upon transmission and acknowledgement of receipt, or as otherwise provided under 49 C.F.R. § 190.5. The terms and conditions of this Order are effective upon completion of service.

Thank you for your cooperation in this matter.

Sincerely,

Alan K. Mayberry
Associate Administrator
for Pipeline Safety

Enclosure

cc: Ms. Linda Daugherty, Deputy Associate Administrator for Field Operations, OPS
Mr. Chris Hoidal, Region Director, Western Region, OPS
Mr. Ken Dockweiler, Director of Land, Government & Compliance, Belle Fourche Pipeline Company, P.O. Box 2360, Casper, Wyoming 82602
Mr. Jared Radosevich, Pipeline Compliance Coordinator, Belle Fourche Pipeline Company, P.O. Box 2360, Casper, Wyoming 82602

U.S. DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION
OFFICE OF PIPELINE SAFETY
WASHINGTON, D.C. 20590

In the Matter of	)	
	)	
Belle Fourche Pipeline Company,	)	**CPF No. 5-2016-5013H**
	)	
Respondent.	)	

CORRECTIVE ACTION ORDER

Purpose and Background:

This Corrective Action Order (CAO or Order) is being issued, under the authority of 49 U.S.C. § 60112, to require Belle Fourche Pipeline Company (BFPC or Respondent), to take necessary corrective action to protect the public, property, and environment from potential hazards associated with the recent failure on BFPC's Bicentennial Pipeline system.

On December 5, 2016, an accident occurred on the Bicentennial Pipeline system, resulting in the release of approximately 4,200 barrels of crude oil into the Ash Coulee Creek (the Failure).[1] The Bicentennial line is a 6-inch diameter pipeline approximately 58 miles in length that transports Bakken crude oil from Skunk Hill Pump Station in Billings County, North Dakota, to Bicentennial Station in McKenzie County, North Dakota (Bicentennial Pipeline or Affected Segment). *See* Figure 1. The cause of the Failure has not yet been determined. Pursuant to 49 U.S.C. § 60117, the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), initiated an investigation of the accident. The preliminary findings of the ongoing investigation are as follows.

Preliminary Findings:

- BFPC gathers and transports crude oil in the Williston Basin of western North Dakota and the Powder River Basin of Wyoming.[2]

[1] On December 8, 2016, BFPC provided an initial spill estimate of 1,000 barrels. On December 12, 2016, BFPC revised this amount to approximately 4,200 barrels based on the meter data.

[2] Belle Fourche Pipeline Company's website, *available at* http://www.bellefourchepipeline.com/ (last accessed December 20, 2016).

- The failed segment is a 6-inch diameter line that transports Bakken crude oil and runs from Skunk Hill Pump Station to the Treetop Station, a distance of approximately 19 miles (Isolated Segment). The Failure occurred near Milepost (MP) 17.4 near Ash Coulee Creek in Billings County, North Dakota (Failure Site). The oil traveled approximately 4.5 river miles downstream from the point of release into the eastern edge of a High Consequence Area (HCA) (ecologically sensitive area).[3] The Ash Coulee Creek ultimately drains into the Little Missouri River. There are numerous other drainage paths and creeks that the pipeline traverses that lead to the Little Missouri River. It appears that much of the Affected Segment may affect HCAs due to the topography and drainage of the land.

- The Bicentennial Pipeline system was constructed between 1980 and 1990. A portion of the Isolated Segment near the release site was replaced in 2013 using a Horizontal Directional Drill (HDD). The new HDD-installed pipeline consists of 6-inch, 0.250-inch wall thickness, Grade API 5LX-52 pipe. The new pipe was connected to the adjacent vintage pipe installed in 1985, which consists of 6-inch diameter, 0.188-inch wall thickness, and Grade API 5LX-42 electric resistance welded (ERW) pipe. The pipeline flowrate is fairly low.

- The maximum operating pressure (MOP) of the pipeline was 1100 psig, as established by hydrostatic test in 2013. At the time of the Failure, the actual operating pressure of the pipeline was 621 psig, as measured at the discharge pump at the Skunk Hill Station.

- At approximately 10:30 am MST, on December 5, 2016, a failure occurred on the Bicentennial Pipeline in Billings County, North Dakota, resulting in the release of approximately 4,200 barrels of crude oil into the Ash Coulee Creek. A rancher at the release site discovered the release, which was not detected by BFPC's leak detection system. The Failure was reported to the National Response Center (NRC Report No. 1165618) on December 5, 2016, at approximately 12:21 pm MST by Respondent. The Failure was subsequently reported two more times: (1) a concerned citizen reported at 8:09 am MST on December 7, 2016, that there was a release into the Ash Coulee Creek (NRC Report No. 1165786); and (2) the U.S. Forest Service Region 1 reported at 6:22 pm MST on December 9, 2016, that a pipeline in the Dakota Prairie Grasslands had an equipment failure (NRC Report No. 1166008).

- It was difficult to access the failure site and investigate the accident due to weather conditions in the area. The roads leading to Belfield, North Dakota were snowy and covered in ice. Investigators had to travel off-road approximately 2 miles, and then walk approximately 300 yards in 2-feet deep snow to reach the release site. Because there were numerous ground fissures covered by the snowfall, investigators had to walk directly behind one another to avoid falling into crevices. Temperatures ranged from minus 20-30° F.

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[3] According to 49 C.F.R. § 195.450, a "High Consequence Area" is (1) a commercially navigable waterway, (2) a high population area, (3) an "other populated area," or (4) "an unusually sensitive area," as more specifically defined in § 195.6.

- Immediately following discovery of the Failure, BFPC halted operation of the Isolated Segment, physically isolated the failed pipeline segment from the Skunk Hill Pump Station to the Treetop Station (a distance of approximately 19 miles), and closed the manually-operated block valves on both sides of the release location. The Isolated Segment was then drained of product. Booms were installed on the Ash Coulee Creek at the three- and four-mile marks on December 5, 2016, and additional booms were installed downstream two days later. The migration of crude oil has stopped and clean up has begun along the creek.

- Various state and federal agencies responded to the scene, including PHMSA, the U.S. Environmental Protection Agency (EPA), and the North Dakota Department of Health.

- The cause of the Failure is unknown and the investigation is ongoing. It appears that there has been ground movement in the area of the Failure, as indicated by numerous ground fissures and slope sloughing along the pipeline right-of-way (ROW). The release site is estimated to be in the HDD-installed segment installed in 2013. The HDD places the pipe at approximately 45 feet below the ground surface. BFPC plans to excavate the failed pipe once excavation can be accomplished safely.

- Although the Failure investigation is ongoing, and this analysis may change, the release site may be where the pipeline experienced compressive or other bending forces within the slope failure. Although the cause of the Failure is not yet determined, this type of excessive stress and strain imposed by land movement could occur in other areas of the pipeline system where similar conditions exist. It appears that a majority of the Affected Segment traverses similar topographic features prone to slope instability.

- The accident did not cause any known injuries. According to the EPA, the release appears to have entered the Little Missouri National Grassland, and may have caused some grazing cattle to become ill or die.[4]

- In 2004 and 2009, PHMSA conducted Integrity Management Plan (IMP) inspections on BFPC. Both inspections revealed that portions of BFPC's pipeline system lacked accurate or timely leak-detection systems.

- On January 23, 2015, PHMSA issued a CAO to Bridger Pipeline, LLC (Bridger), for a failure that occurred on January 17, 2015, and resulted in a release of crude oil into the Yellowstone River (CPF 5-2015-5003H). Item 10 of the CAO ordered Bridger to review and assess the effectiveness of its emergency response plan and facility response plan (FRP). BFPC's Bicentennial Pipeline and Bridger are covered by the same FRP. PHMSA has received and reviewed the FRP for the North Dakota, Montana, and Wyoming Response Zones, dated July 2016. This FRP, however, does not adequately address Item 10 of the 2015 CAO and has been deemed inadequate for other systems, including the Bicentennial Pipeline system.

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[4] According to the North Dakota Department of Health, there were at least two cows confirmed dead in the area of the oil spill, but the cause of death has not been verified by a veterinarian.

- In April 2016, a third-party vender performed an in-line inspection (ILI) of the Bicentennial Pipeline. As part of its investigation of the Failure, PHMSA is reviewing the ILI vendor results to insure BFPC had met the required remediation upon discovery of any anomalies on the pipeline. PHMSA has requested but has not yet received the report from the 2016 ILI runs.

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 or would be 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 notice and opportunity for hearing, upon a finding that failure to issue the Order expeditiously would result in the likelihood of serious harm to life, property, or the environment. In such cases, an opportunity for a hearing and expedited review will be provided as soon as practicable after the issuance of the Order.

After evaluating the foregoing preliminary findings of fact, I find that continued operation of the pipeline without corrective measures is or would be hazardous to life, property, or the environment. Additionally, having considered the location of the Failure, the hazardous nature of the product being transported, the proximity of the pipeline to ecologically sensitive areas, the fact that the release was not detected by Respondent's leak detection system, the inaccessibility of the pipe, and the ongoing investigations to determine the cause of the Failure, I find that a failure to issue this Order expeditiously to require immediate corrective action would result in the likelihood of 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 contest its issuance obtain expedited review either by answering in writing or requesting a hearing under 49 C.F.R. § 190.211, to be held as soon as practicable under the terms of such regulation, by notifying the Associate Administrator for Pipeline Safety in writing, with a copy to the Director, Western Region, PHMSA (Director). If Respondent requests a hearing, it will be held telephonically or in-person in Lakewood, Colorado.

After receiving and analyzing additional data in the course of this investigation, PHMSA may identify other corrective measures that need to be taken. In that event, PHMSA will notify Respondent of any additional measures that are required and an amended Order issued, if necessary. 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 Actions:

Definitions:

Affected Segment - The Affected Segment is Respondent's crude-oil Bicentennial Pipeline system that runs approximately 58 miles in length, from the Skunk Hill Pump Station in Billings County, North Dakota, to the Bicentennial Station in McKenzie County, North Dakota, as illustrated in Figure 1.

Director – The Director means the Director, Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety, Western Region.

Isolated Segment - The Isolated Segment is that portion of the Affected Segment running approximately 19 miles from the Skunk Hill Pump Station to the Treetop Pump Station, as illustrated in Figure 1.

Pursuant to 49 U.S.C. § 60112, I hereby order BFPC to immediately take the following corrective actions for the Affected Segment (including the Isolated Segment):

1. **Shutdown of Isolated Segment.** BFPC must not operate the Isolated Segment until authorized to do so by the Director.

2. **Aerial Patrols of Affected Segment.** BFPC must provide daily aerial patrols of the Affected Segment for the next 14 calendar days from the date of this Order. One of the aerial patrols during this time must utilize Forward Looking Infrared Radar (FLIR) or equivalent technology to locate any areas of potential crude oil leakage. After the next 14 calendar days, provide weekly aerial patrols for one year not to exceed 8 days, weather and safety conditions permitting.

3. **Return to Service.** BFPC must obtain written approval from the Director prior to resuming operation of the Isolated Segment of the pipeline.

4. **Excavation of Failure.** BFPC must provide PHMSA with advance notice of at least three business days prior to the failed section of pipe being excavated. BFPC must not conduct on-site testing or pipeline removal without a PHMSA Representative on site.

5. **Metallurgical Testing.** Within 90 days of receipt of this Order, BFPC must complete mechanical and metallurgical testing and failure analysis of the failed pipe section, including analysis of the forces need to fail the pipe should it have occurred due to external loads. BFPC will complete the testing and analysis as follows.

    a. Document the chain-of-custody when handling and transporting the failed pipe section and other evidence from the Failure site;

    b. Within 10 days of receipt of this Order, develop and submit to the Director the testing protocol, including selection of the testing laboratory, for prior approval;

c. Prior to commencing the mechanical and metallurgical testing, provide the Director with the scheduled date, time, and location of the testing to allow a PHMSA representative to witness the testing; and

d. Ensure that the testing laboratory distributes all resulting reports in their entirety (including all media), whether draft or final, to the Director at the same time as they are made available to Respondent.

6. **Root Cause Failure Analysis**. Within 120 days following receipt of this Order, BFPC must complete a root cause failure analysis that is supplemented and facilitated by an independent third-party vendor acceptable to the Director. The root cause analysis must document all contributory factors and the decision-making process. BFPC must submit a final report of the root cause analysis to the Director, including any lessons learned and whether the findings are applicable to other locations within the Affected Segment.

7. **Emergency Response**. BFPC must review and assess the effectiveness of the emergency response, including implementation of the company's FRP, as related to the Failure, including response equipment, deployment actions, and training activities prior to the Failure, as well as on-scene response, coordination, communication, and support during the Failure. BFPC must submit any revisions to PHMSA for review and approval prior to starting up the Isolated Segment, but no later than 90 days.

8. **Geotechnical Evaluation of Existing HDD-installed Pipe Segments.** Within 180 days of receipt of this Order, BFPC must complete a geohazard evaluation and analysis of the existing HDD-installed pipe segments, the surrounding subsoil conditions, and any waterways crossed within the Affected Segment, to ensure that the HDD-installed pipe segments have been installed to minimize damage. The analysis shall be facilitated by an independent third-party geotechnical specialist acceptable to the Director. The geotechnical analysis must document soil parameters, topography, river flow, and other design factors when assessing the existing HDD-installed segments and evaluate whether a significant risk of pipeline damage exists. Respondent must submit a final report of the geohazard analysis of the existing HDD-installed segments to the Director, including any lessons learned and whether the findings are applicable to other locations within the Affected Segment.

9. **Future Geotechnical Evaluation and Remediation.** Within 12 months of resuming operation, BFPC must perform a risk assessment of all slopes steeper than 3H:1V in proximity to the Affected Segment to determine whether slope movement could damage the pipeline. BFPC must submit to the Director for approval an analysis and remediation plan of whether HDD crossings should be installed at these locations or whether the pipeline should be rerouted or reinstalled deeper to avoid unstable areas.

10. **Records Verification.** As recommended in PHMSA Advisory Bulletin 2012-06, BFPC must verify the records for the Affected Segment that confirm the operating specifications for MOP. Within 30 days of receipt of this Order, BFPC must submit report(s) on this record verification for the Affected Segment to the Director and make the supporting records available. Within 90 days of receipt of this Order, BFPC must

submit a report to the Director on the remaining portion of the Affected Segment and make the supporting records available.

11. **In-line Inspection.** Within two months of resuming operation of the Isolated Segment, BFPC must perform an ILI of the entire Affected Segment. The Director must provide prior approval of the final criteria and technology considerations taken into account in selecting the specific inspection tool. At a minimum, the ILI tool must be able to detect deformation that may be resulting from externally-imposed stress, e.g. ground movement. The data analysis must be completed within 60 days of successful completion of the ILI. The ILI vendor must evaluate the results per a performance specification, including consideration of the location and size of the defects and/or deformation. The ILI vendor must distribute all reports in their entirety (including all media), whether preliminary or final, to the Director and the Respondent at the same time. Respondent must submit a final report to the Director with a comparison of the results of the ILI with the results of previous ILIs, including criteria and a plan for remediation of anomalies.

12. **Reporting.** BFPC must submit quarterly reports to the Director that: (1) include all available data and results of the testing and evaluations required by this Order; and (2) describe the progress of the repairs or other remedial actions being undertaken. The first quarterly report is due on March 1, 2017. The Director may change the interval for the submission of these reports.

13. **Leak Detection.** BFPC must install and implement leak-detection equipment that is compliant with 49 C.F.R. §§ 195.134, 195.444, and 195.452(i), according to API RP 1130 requirements for the Affected Segment. Installation of devices should be completed within six months of receipt of this Order in accordance with a risk-based schedule provided to PHMSA that meets the following requirements:

    a. A high priority shall be placed on areas associated with the Little Missouri River and other water crossings over 100 feet wide.

    b. BFPC must implement instrumentation maintenance and a repair tracking system that keeps all control room instruments functional and properly prioritized within 30 days of being installed.

    c. Within nine months of receipt of this Order, BFPC must provide documentation of the Supervisory Control and Data Acquisition (SCADA) system for the Affected Segment. This shall include, but not be limited to, display reviews for consistency with API RP 1165 application and added instrumentation, point-to-point completed checkouts for leak detection, and associated instrumentation such as flow and pressure monitoring, low-low alarm pressure limits for those points that do not operate in slack line condition, verification of the accuracy of all points, pressure cycle monitoring, implementation of pressure and flow rate monitoring application where possible, and training operators on the system. A change to the pipeline monitoring or operation locations may not result in decreased operations monitoring or leak detection performance. If third parties are utilized for operations and monitoring control room activities, contracts shall be kept current and performance of the third-party vendor periodically audited.

In addition to the above Corrective Action Items, PHMSA strongly encourages, but does not order, that Respondent implement a Safety Management System (SMS). API RP 1173 provides pipeline operators with safety management system requirements that, when properly applied, provide an effective framework for revealing and managing risk, promoting a learning environment, and continuously improving pipeline safety and integrity.

Other Requirements:

1. **Reporting.** BFPC must submit monthly reports to the Director that: (1) include all available data and results of the testing and evaluations required by this Order; and (2) describe the progress of the repairs or other remedial actions being undertaken. The first monthly report is due on January 31, 2017. The Director may change the interval for the submission of these reports.

2. **Documentation of Costs.** It is requested, but not required, that Respondent maintain documentation of the costs associated with implementation of this Order. BFPC should include in each monthly report the to-date total costs associated with: (1) preparation and revision of procedures, studies and analyses; (2) physical changes to pipeline infrastructure, including repairs, replacements and other modifications; and (3) environmental remediation, if applicable.

3. **Approvals.** With respect to each submission requiring the approval of the Director, the Director may: (a) approve the submission in whole or in part; (b) approve the submission on specified conditions; (c) modify the submission to cure any deficiencies; (d) disapprove the submission in whole or in part and direct Respondent to modify the submission; or (e) any combination of the above. In the event of approval, approval upon conditions, or modification by the Director, Respondent shall proceed to take all action required by the submission, as approved or modified by the Director. If the Director disapproves all or any portion of a submission, Respondent must correct all deficiencies within the time specified by the Director and resubmit it for approval.

4. **Extensions of Time.** The Director may grant an extension of time for compliance with any of the terms of this Order upon a written request timely submitted and demonstrating good cause for an extension.

The actions required by this Corrective Action Order are in addition to and do not waive any requirements that apply to Respondent's pipeline system under 49 C.F.R. Part 195, under any other order issued to Respondent under authority of 49 U.S.C. § 60101, *et seq.*, or under any other provision of Federal or State law.

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

Be advised that all material you submit in response to this enforcement action is subject to being made publicly available. If you believe that any portion of your responsive material qualifies for confidential treatment under 5 U.S.C. 552(b), along with the complete original document you must provide a second copy of the document with the portions you believe qualify for

confidential treatment redacted and an explanation of why you believe the redacted information qualifies for confidential treatment under 5 U.S.C. 552(b).

Failure to comply with this Order may result in the assessment of civil penalties and in referral to the Attorney General for appropriate relief in U.S. District Court pursuant to 49 U.S.C. § 60120.

In your correspondence on this matter, please refer to CPF No. 5-2016-5013H and for each document you submit, please provide a copy in electronic format whenever possible.

The terms and conditions of this Corrective Action Order are effective upon receipt.

DEC 20 2016

Alan K. Mayberry
Associate Administrator
for Pipeline Safety

Date Issued

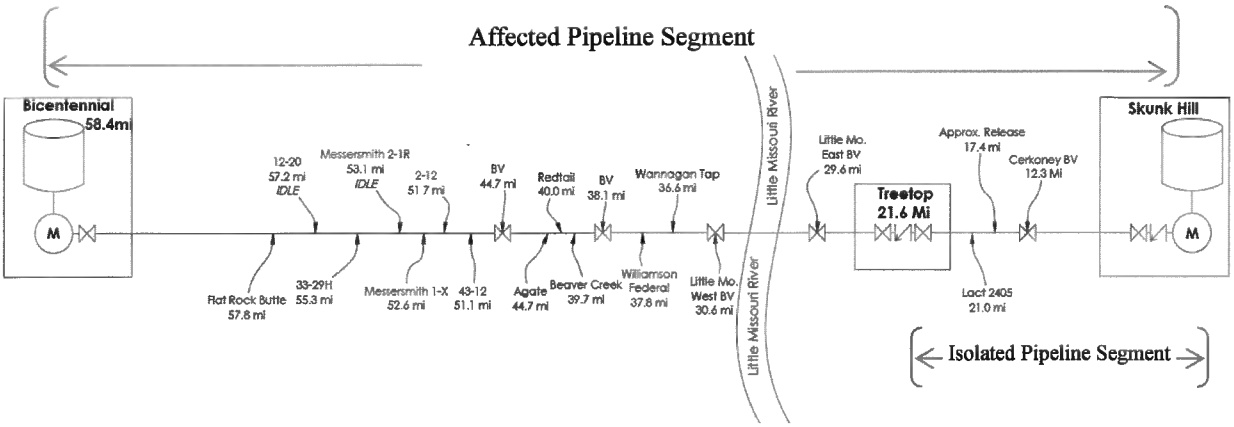

Figure 1. Affected Segment and Isolated Segment
Skunk Hill to Bicentennial 6"
Provided by Belle Fourche