

Hawthorn Pipeline
8-inch Crude Oil Pipeline
Stanley, ND
ND PSC Case No. PU-09-153
Keitu Project # 569-208

Post-Construction Inspection Report



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**Hawthorn Pipeline
8-inch Crude Oil Pipeline
Stanley, ND
(Mountrail County, ND)**

Prepared by Keitu Engineers & Consultants, Inc.

Executive Summary

The State of North Dakota, acting through its North Dakota Public Service Commission (PSC), Division of Public Utilities, has contracted Keitu Engineers & Consultants, Inc. (Keitu) to perform consulting services for post-construction siting inspections. This report addresses the Orders established by the PSC and issues established in File No. PU-09-153. The pipeline is located in Mountrail County, ND and is owned and operated by Hawthorn Oil Transportation (North Dakota), Inc. (“Hawthorn”). Construction for the Project began in January 2010 and was completed in March 2010. The purpose of the construction inspection was to ensure the Project was constructed in compliance with the siting laws, rules, and the applicable PSC Order for the Project. Prior to the construction inspection, Keitu reviewed all Project documents to identify any and all aspects requiring site verification.

The site was visually inspected on November 13, 2013 by Keitu staff. Overall, the project was very well-maintained and in good condition. It appeared to be constructed as planned with numerous efforts to minimize impacts. However, there were several non-critical issues that may need to be resolved for the Project to be considered in full compliance. Keitu recommends that the PSC request the following from the company: 1) documentation of re-vegetation surveys and noxious weed surveys will be required for Order #14 to be complete, and 2) report of Tree & Shrub replacement survival monitoring to fulfill Order #16. The PSC will need to decide whether these recommendations are necessary to fulfill Project obligations. Keitu expects that the follow-up action taken by Hawthorn to address these particular issues can be corroborated in writing.

Introduction

The Hawthorn Oil Pipeline (Project) was completed in spring of 2010 and is operated by Hawthorn. The pipeline construction spans from an oil bulk storage facility southeast of Stanley, ND to a railroad loading facility northeast of Stanley, ND.

The Project comprises approximately 6 miles of an eight inch crude oil pipeline beginning at an existing crude oil storage facility and terminating at a railroad loading facility northeast of Stanley, ND. The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC), which issued its Findings of Fact, Conclusions of Law, and Order on Case No. PU-09-153 on December 9, 2010, granting a Certificate of Corridor Compatibility No. 107 and Route Permit No. 117 for the Project.

Purpose and Scope of Inspection

The North Dakota Common Pipeline Carriers (North Dakota Century Code Chapter 49-19) authorizes the PSC to determine that the location, construction, and operation of pipelines will produce minimal adverse effects on the environment and welfare of the citizens of North Dakota. Construction inspections ensure the Project is constructed in compliance with siting laws, rules, and the applicable Commission Findings of Fact, Conclusions of Law, and Order (Order).

The PSC retained Keitu Engineers & Consultants, Inc. (Keitu) to complete a post-construction inspection of the Project. The inspection process included a review of the Application for Corridor Compatibility and Route Permit, Order, and other applicable documents to determine Project-specific siting and construction requirements; a site visit and inspection of facilities; documentation of compliance; and a report summarizing findings. This report includes, but is not limited to, site visit observations, documentation of compliance deficiencies, and a summary of issues that should be addressed for the Project to be considered complete and in full compliance.

Methods

Keitu reviewed North Dakota siting laws and rules, the Application for Certificate of Corridor Compatibility and Route Permit (Application), and the Order for the Project to identify what Project-specific documentation was required for compliance. Keitu then reviewed Project documents in the PSC Online Case Search to identify those siting laws, rules, and Application and Order assertions that already had written verification, those that still required documentation, and those that required physical site verification.

Nathan Gaffrey, Project Engineer, and Jeremiah Trnka, Staff Engineer, of Keitu visited the Project area on October 13, 2013. The site was visually inspected along portions of the pipeline route by accessing as many points as feasible where road access was available. Digital

photographs were taken showing typical Project infrastructure and documenting problem areas (Appendix A). Geographic coordinates were recorded at observation points or potential problem areas using a handheld Global Positioning System (GPS) (Trimble GeoExplorer 6000 series). A map showing the location of the observation points is attached as Figure 1 in Appendix B.

Observations/Findings of Commission Orders

The following section includes discussion of a list of components of the Project that were asserted in the Application and Order which could be documented during the post-construction inspection to verify compliance with siting laws, rules and the Order for the Project, via either written documentation or physical site verification. Included are detailed findings and observations from Keitu personnel involved in the post-construction inspection for the Project.

- 1. Hawthorn agrees to hold a preconstruction conference prior to commencement of any construction, which must include a Hawthorn representative, its construction supervisor, and a representative of Commission Staff to ensure that Hawthorn fully understands the conditions set forth in the Commission's order.**

On December 14, 2009 (Docket #40), a preconstruction meeting was held via conference call and included the following personnel: Gust Benninger (Construction Superintendent North Dakota with Pecan Pipeline), Jodie Davis (Pipeline Operations Manager with Pecan Pipeline), Greg Jacobsen (Landman with Pecan Pipeline), John Watson (Operations Superintendent with Pecan Pipeline), Wayne Tompkins (Chief Inspector with McDaniels Technical Services), Jammie Petras (Superintendent with Brandon Construction), David Gilmore (Foreman with Brandon Construction) and Patrick Fahn (The ND Public Utilities Commission).

Order #1 is complete.

- 2. Hawthorn agrees to comply with the rules and regulations of all other agencies having jurisdiction over any phase of the proposed pipeline, will obtain all other necessary licenses and permits, and provide copies of all licenses and permits to the Commission prior to construction of the pipeline.**

On November 11, 2009, Hawthorn provided the Commission with an Application for Waiver of Procedures & Timelines & Certificate of Corridor Compatibility & Route Permit as prepared by HDR Engineering, Inc. (Docket #23) Within the report, numerous State and Federal agencies including; but not limited to, State Historical Society of North Dakota, U.S. Army Corps of Engineers, North Dakota Parks and Recreation, North Dakota State Water Commission and the North Dakota Geological Survey were contacted.

Order #2 is complete.

- 3. Hawthorn agrees to inform the Commission of its intent to start construction on the pipeline prior to the commencement of construction, and once construction has started, it will keep the Commission updated on construction activities on a weekly basis.**

On December 14, 2009 the Commission (Docket #41) was notified via email that the contractor intended to start construction. Weekly progress reports were submitted to the Commission starting with Docket #42 via email to Patrick Fahn throughout the construction process.

Order #3 is complete.

- 4. Hawthorn agrees that the pipeline will be buried to a minimum depth from ground surface to the top of the pipe of 48 inches in rangeland, 48 inches in cultivated land, 48 inches at the bottom of the ditch for road crossings, and 72 inches across undeveloped section lines.**

No exposed piping existed along the route or at road crossings at the post-construction site observation points. Potholing to find the exact depth of pipe was not performed during post-construction inspection.

Order #4 is complete.

- 5. Hawthorn agrees to construct and operate the pipeline in the manner described in its application, in any late filed exhibits and supplemental material, and in accordance with all applicable safety requirements.**

No piping leaks were noticed along the route or at road crossings at the post-construction site observation points. This would indicate satisfactory construction practices and continuing pipeline maintenance.

Order #5 is complete.

- 6. Hawthorn agrees to promptly report to the Commission the presence in the permit area of any critical habitat of threatened species, endangered species, bald eagles, or golden eagles of which Hawthorn becomes aware and which were not previously reported to the Commission.**

A review of the weekly construction progress reports (Docket #'s 42, 47-52) did not note any critical habitat in the area during construction. No report of any critical habitat of threatened or endangered species, or of bald or golden eagle's notification to the Commission was found in Case File No. PU-09-153.

Order #6 is complete.

- 7. Hawthorn understands that all cultural resource mitigation plans must be submitted to the North Dakota State Historic Preservation Office for approval prior to the start of any field work or construction activity.**

Hawthorn submitted the tree and shrub mitigation specifications to the Commission on December 9, 2009 as noted in Docket #35. This submission took place before construction began in December 15, 2009 as noted in Docket #41.

Order #7 is complete.

- 8. Hawthorn understands and agrees that if any cultural resource, paleontological sites, archeological site, historical site, or grave site is discovered during construction, it must be marked, preserved and protected from further disturbances until a professional examination can be made and a report of such examination is filed with the Commission and the State Historical Society and clearance to proceed is given by the Commission.**

The State Historical Society of North Dakota (Docket #19) concurred with the report prepared by HDR Engineering, Inc. (Docket #6) that “No Historic Properties Affected” and “No Significant Sites Affected”. In addition, a review of the weekly construction progress reports (Docket #'s 42, 47-52) was completed and did not indicate any of these types of sites were encountered.

Order #8 is complete.

- 9. Hawthorn understands and agrees that all crossings of graded roads must be bored unless the responsible governing agency specifically permits Hawthorn to open cut the road.**

From the post-construction site observation points, it appears that all pipe crossings were bored. The roads over the pipe crossings appeared undisturbed and to grade.

Order #9 is complete.

- 10. Hawthorn understand and agrees that all-pre-existing roads and lanes used for construction must be restored to a condition that will accommodate their previous use, and areas used as temporary roads or working areas during construction must be restored to their original condition.**

From the post-construction site observation points, it appears that all all-pre-existing roads and lanes used for construction were restored to their pervious conditions. These areas appeared to be revegetated from the observation points.

Order #10 is complete.

11. Hawthorn understands that construction must be suspended when weather conditions are such that construction activities will cause irreparable damage, unless adequate protection measures approved by the Commission are taken.

According to the weekly progress report for week ending 1-09-2010 (Docket #47), little progress was made due to weather conditions which included excess snow and extreme cold. Based on review of the progress reports, construction was suspended or delayed when weather conditions were such that construction should not occur.

Order #11 was followed.

12. Hawthorn understands and agrees that all topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas where cuts will be made, must be stripped and segregated from the subsoil. Except along segments of the line using the double ditching method, any area on which excavated subsoil will be placed must also be stripped of topsoil. After backfilling is completed, any excess subsoil must be placed over the excavation area, blending the grade into existing topography. Topsoil must be replaced over areas from which it was stripped only after subsoil is replaced.

It is difficult from a post-construction site observation to determine if this method of construction took place where topsoil was segregated from other soil; however, the vegetation along the pipeline route was in favorable condition. The areas along the pipeline observed were to grade evenly to the adjacent soil level.

Order #12 is deemed complete.

13. Hawthorn understands and agrees that reclamation and clean up along the right-of-way must be continuous and coordinated with construction.

Regular maintenance and inspections are performed during the life of the facility to ensure its continued integrity. Inspections are limited to the right-of-way. When problems are found, repairs will be scheduled.

Based on a post construction inspection, Hawthorn has performed reclamation and maintenance of the right-of way and has continued since the pipeline has been placed in operation.

Order #13 has been followed to date.

14. Hawthorn understands and agrees that reclamation, fertilization, and reseeding is to be done according to the Natural Resources Conservation Service recommendations, unless otherwise specified by the landowner and approved by the Commission.

Construction activities disturbed soils and vegetation to an extent that would require some reseeding following completion of operations. The ground was re-graded to the approximate original contour and re-vegetated (rangeland) or tilled (cropland) when the work was completed. Soils were smoothed to the natural contours of the surrounding areas. Reseeding with native perennial species compatible with the surrounding vegetation appeared to occur. If surface disturbance did not significantly impact nearby vegetation, plants regenerated or sprouted from onsite existing propagates.

Clean up of the pipeline line, including removing and disposing of debris occurred. All temporary facilities were removed, and the staging and laydown areas were cleaned up. Reclamation along the right-of-way was continuous and coordinated with construction.

Documentation of re-vegetation surveys and noxious weed surveys will be required for Order #14 to be complete.

15. Hawthorn understands and agrees that its obligation for reclamation and maintenance of the right-of-way will continue throughout the life of the pipeline.

Regular maintenance and inspections are performed during the life of the facility to ensure its continued integrity. Inspections are limited to the right-of-way. When problems are found, repairs will be scheduled. If damages to crops occurred during maintenance and repairs, reimbursement is to be made to the landowner, consistent with the terms of the easement.

Based on a post construction inspection, Hawthorn has performed reclamation and maintenance of the right-of way has continued since the facilities have been placed in operation.

Order #15 has been followed to date.

16. Attached is document entitled Tree and Shrub Mitigation Specifications. Hawthorn agrees to comply with the Tree and Shrub Mitigation Specification from this attachment that the Commission requires in its Order.

The tree and shrub plans was proposed in (Docket #35) that was prepared by HDR Engineering, Inc. A majority of the route consisted of grasses and cropland.

Order #16 is deemed incomplete until documentation can be provided to the Commission indicating survival rates or replanting of trees and shrubs as needed on a yearly basis for 3 years following replanting.

17. Hawthorn agrees to work with landowners and residents to mitigate any increase in television and residential radio interference that results from the route of the pipeline.

There are no occupied residences within 500 feet of the route as noted in Docket #6. There is no record of television or residential radio interference were found in the Commission's file.

Order #17 is complete.

18. Basin Hawthorn agrees that it must obtain approval from the Commission prior to any changes in the facility route or structure locations.

A review of the weekly construction progress reports (Docket #'s 42, 47-52) did not note any request to modify the facility route or structure locations.

Order #18 is complete.

19. Hawthorn agrees to provide the Commission, within 3 months of the Commission's order approving a corridor, a map of the corridor as approved (in both paper and electronic form) and an electronic version of the corridor as approved that can be imported to ESRI GIS mapping software.

Hawthorn provided the anticipated pipeline route in Exhibit # 3 (Docket #25). There is no docket indicating that an electronic version has been submitted; however, prior to the post construction site visit the GIS file for the project was provided by the Commission to Keitu (3rd party inspector) for reference. This would indicate that the Commission has received the required files.

Order #19 is complete.

20. Hawthorn agrees to provide the Commission, within 3 months of the Commission's order approving a corridor, a map of the facility alignment drawings with alignment data showing the facility as-built (in both paper and electronic form) and an electronic version of the as-built facility as approved that can be imported to ESRI GIS mapping software.

Please refer to response for Order #19.

Order #20 is complete.

21. Hawthorn understands and agrees that the authorizations granted by the corridor certificate and route permit are subject to modification by the order of the Commission if deemed necessary to further protect the public or the environment.

Should the Commission deem necessary in the future to modify the corridor certificate and route permit it can do so if deemed necessary to further protect the public or the environment. No other

information was found in the case file to deem that the Commission should modify the Certificate of Corridor Compatibility (Number 107) and Route Permit (Number 117).

Order #21 is complete.

Conclusions

Overall, the Project appeared to be constructed as designed with minimal impacts to the surrounding natural and human environment. It appeared to be constructed as planned with numerous efforts to minimize impacts. However, there were several non-critical issues that may need to be resolved for the Project to be considered in full compliance. Keitu recommends that the PSC request the following from the company: 1) documentation of re-vegetation surveys and noxious weed surveys will be required for Order #14 to be complete, and 2) report of Tree & Shrub replacement survival monitoring to fulfill Order #16. The PSC will need to decide whether these recommendations are necessary to fulfill Project obligations. Keitu expects that the follow-up action taken by Hawthorn to address these particular issues can be corroborated in writing.



Appendix A: Site Photos



Photo 1 – Direction: South – Stanley Pipeline/ Valve Stations



Photo 2 – Direction: North– Oil Tank Battery (Bridger Facility) served by Hawthorn Pipeline located just south of Highway 2, Stanley, ND



Photo 3 – Direction: South – Showing perimeter fence surrounding valve stations. Valve station gates were also locked to prevent admittance to improper personnel. Notice: Yellow bollards surrounding above ground pipe connections at valve stations.



Photo 4 – Direction: East – Showing perimeter fencing on valve station.



Photo 5 – Direction: East – Showing typical field pipeline marker.



Photo 6 – Direction: East – West valve station before crossing Little Knife River in background.



Photo 7 – Direction: East – Pipeline marker on west valve station before crossing Little Knife River.



Photo 8 – Direction: East– West valve station before crossing Little Knife River.



Photo 9 – Direction: West– West valve station before crossing Little Knife River.



Photo 10 – Direction: Southeast – Showing revegetation at Little Knife River crossing between West and East valve stations.



Photo 11 – Direction: Northwest – East valve station after crossing Little Knife River.



Photo 12 – Direction: Northwest – Showing revegetation at Little Knife River crossing between West and East valve stations. Looking back towards the West valve station.



Photo 13 – Direction: West – Pipeline marker on 80th Ave NW, Stanley, ND



Photo 14 – Direction: East – Pipeline marker on 80th Ave NW, Stanley, ND



Photo 15 – Direction: South –Pipeline marker on 62nd Street NW, Stanley, ND



Photo 16 – Direction: North –Pipeline marker on 62nd Street, Stanley, ND



Photo 17 – Direction: North –Pipeline crossing Highway 2, Stanley, ND. No pipe marker was able to be located in this area marking the pipeline crossing located just south of Highway 2, Stanley, ND



Photo 18 – Direction: South –Pipeline crossing just north of Highway 2, Stanley, ND



Photo 19 – Direction: North –Pipeline marker crossing just north of Highway 2, Stanley, ND



Photo 20 – Direction: South –Pipeline marker on 63rd Street, Stanley, ND.



Photo 21 – Direction: North –Pipeline marker on 63nd Street, Stanley, ND.



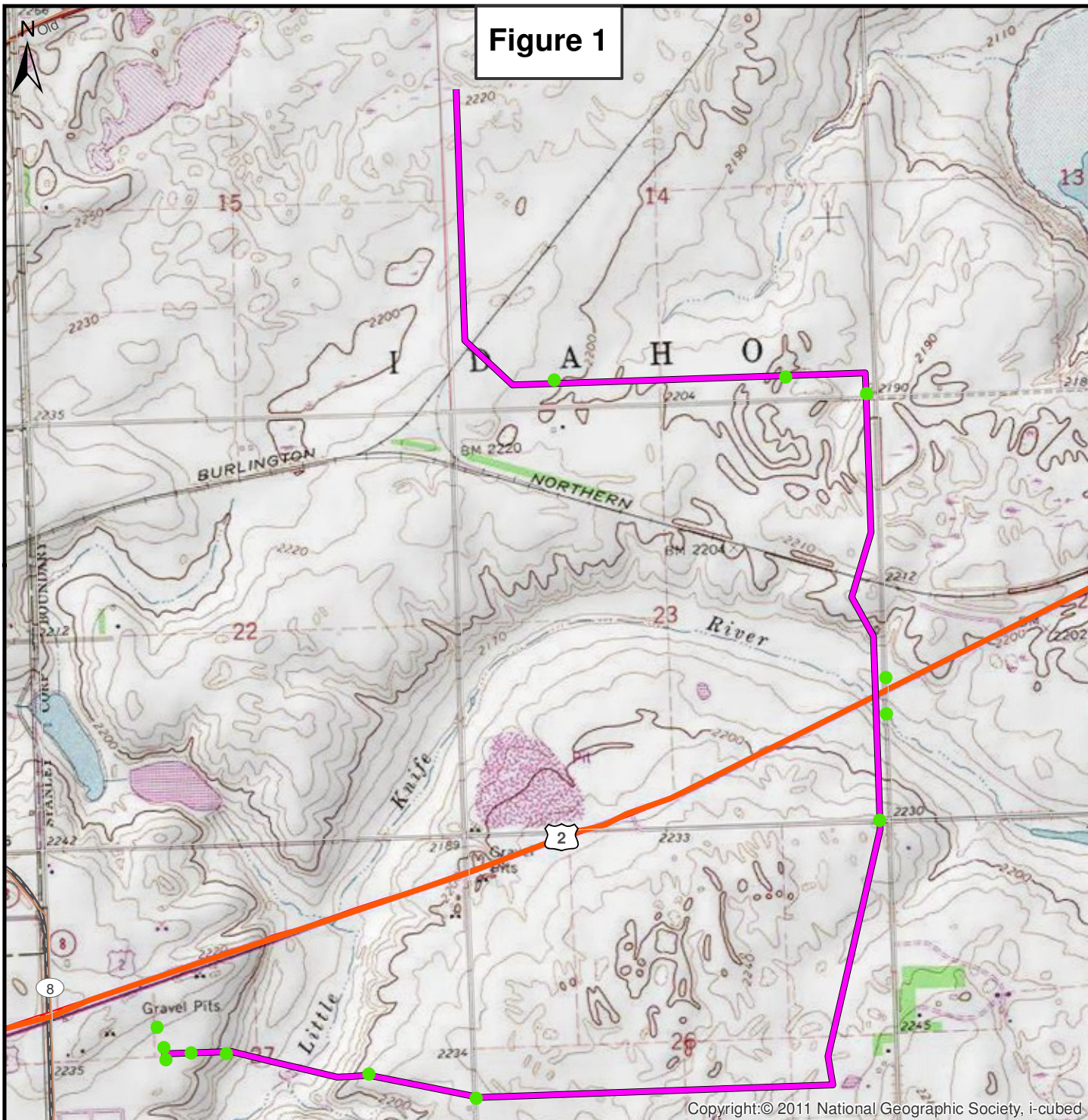
Photo 22 – Direction: Southwest – Photo taken at shelter belt approximately 0.20 miles west of intersection of 78th Ave NW & 63nd Street, Stanley, ND.



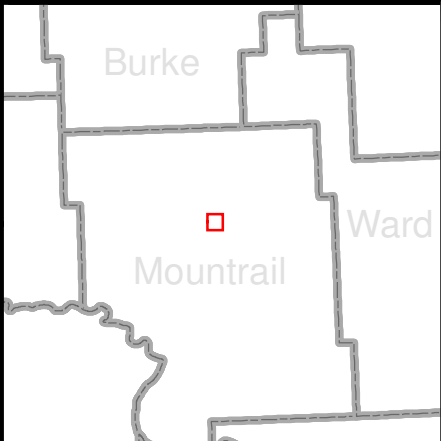
Photo 23 – Direction: North – Valve Station north of Highway 2, Stanley, ND.

Appendix B: Figures

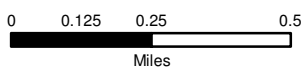
Figure 1



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- Legend
- Observation Point
 - Pipeline Route



**ND PSC Case Number PU-09-153
Hawthorn Oil Transportation, Inc.
Crude Oil Pipeline**

November 2013