

# As-Built Inspection Report

Arrow Bear Den Gas Processing Plant II

Arrow Field Services, LLC

ND PSC Case No. PU-17-397

## Prepared for:

North Dakota Public Service Commission  
Public Utilities Division  
State Capitol  
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As-Built Inspection Report  
Keitu Engineers & Consultants, Inc.



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## Executive Summary

The State of North Dakota, acting through its North Dakota Public Service Commission (Commission), Division of Public Utilities, has contracted Keitu Engineers & Consultants, Inc. (Keitu) to perform consulting services for an As-Built Siting Inspection. This report addresses the Orders established by the Commission and issues established in Case No. PU-17-397.

The Arrow Bear Den Gas Processing Plant II Project (Project) is located in McKenzie County, North Dakota. The Project consists of a processing plant with fractionation to remove natural gas liquids (NGLs) from an influent natural gas stream, with subsequent transmission of the residue gas and NGLs through pipelines. The processing capacity of the Plant will be up to 200 million cubic feet per day (MMscfd), which exceeds the Commission's processing capacity criteria and thus, defines the Plant as a gas or liquid energy conversion facility under North Dakota Century Code (N.D.C.C.) Section 49-22.1-01(6). The Project is located approximately 7.5 miles southeast of Watford City, in the W/2NE/4 of Section 21, Township 149 North, Range 98 West, McKenzie County, North Dakota. Construction of this Project began in March 2018 and was completed in August 2019. The purpose of the As-Built Inspection was to ensure the Project was constructed in compliance with the siting laws, rules, and the applicable Commission 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 June 10, 2020 by Keitu staff. The Project was well-maintained, secured, and in good condition. During the As-Built Inspection, the areas appeared to have been properly restored. Overall, the Project appeared to be constructed as planned with numerous efforts to minimize impacts and to stay in compliance with the siting laws, siting rules, and Commission Orders.

## Introduction

The Project was approved and constructed in 2018 and is operated by Arrow Field Services, LLC. (Arrow). The Plant will consist of one cryogenic turbo-expander processing unit with a design capacity of 200 MMscfd that will process well-head natural gas purchased from local crude oil production facilities. The natural gas will be transported to the Plant for processing via Arrow's newly constructed Bear Den West Gathering Pipeline. The Project is under the jurisdiction of the North Dakota Public Service Commission, which issued its Certificate of Site Compatibility First Amended Certificate #54 and Permit for Case No. PU-17-397 on March 14, 2018.

## Purpose and Scope of Inspection

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorizes the Public Service Commission to determine that the location, construction, and operation of jurisdictional energy conversion and transmission facilities 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 Order Amending Certificate and Permit (Order).

The Commission retained Keitu Engineers & Consultants, Inc. (Keitu) to complete an As-Built Construction Inspection of the Project. The inspection process included a review of the Consolidated Application for Certificate of Corridor Compatibility and Route Permit (Application), Order, Certification Relating to Order Provisions (Certification), 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, Certification, 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.

Keitu Staff visited the Project area on June 10, 2020 to visually inspect the site. Digital photographs were taken showing typical Project infrastructure and documenting any problem areas (starting page 12). The Project was in operation at the time of visit.

## Orders

The following section includes discussion of a list of components of the Project that were asserted in the Order which could be documented during the As-Built 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 As-Built Inspection for the Project. Arrow Field Services LLC (Arrow) filed on November 1, 2017 application for a waiver of procedures and time schedules is granted.

On December 20, 2017 (Docket #42) the Commission deemed complete the application for a certificate of corridor compatibility and a route permit complete and issue a Notice of Filings and Public Hearing in the request of Arrow Field Services LLC, Arrow Bear Den Gas Plant II - McKenzie County, Siting Application, Case No. PU-17-397.

- 1. Certificate of Site Compatibility No. 54 is issued to Arrow Field Services, LLC. designating a site for the construction, operation, and maintenance of the Gas Processing Plant. For purposes of this Certificate, the designated site is 51.48 acres of the 72.8-acre parcel of land located approximately 7.5 miles southeast of Watford City, in the W/2NE/4 of Section 21, Township 149 North, Range 98 West, McKenzie County, North Dakota, and as identified on Figure 1 of Hearing Exhibit 1.**

On March 14, 2018 the Commission designated an energy conversion facility site for Arrow Field Services, LLC. for the construction, operation and maintenance of a 120 million standard cubic feet gas per day natural gas processing plant and associated facilities in McKenzie County, North Dakota. The certificate (Docket #42), was issued in accordance with the Order of the Commission in Case No. PU-17-397 and was subject to the conditions and limitations noted in the Order. "Hearing Exhibit 1" can be viewed in Docket #28.

Order #1 is complete.

- 2. The Certification Relating to Order Provisions - Energy Conversion Facility Siting with attached Tree and Shrub Mitigation Specifications executed February 14, 2018, is incorporated by reference and attached to this Order.**

Arrow Field Services, LLC. signed the Certification Relating to Order Provisions – Energy Conversion Facility Siting with attached Tree and Shrub Mitigation Specifications (Docket #42), binding Arrow to requirements set forth by the Commission in its Order.

Order #2 was followed.

3. **To the extent there are any conflicts or inconsistencies between Arrow's application and the Certification, the Certification provisions control.**

Order #3 was followed.

4. **Prior to commencing construction of any portion of the proposed Project, Arrow shall obtain all other necessary licenses and permits for construction of such portion, and provide copies to the Commission prior to construction of that portion of the project.**

Permits and approvals granted to Arrow were submitted (Docket #11) on December 8, 2017. A McKenzie County Conditional Use Permit 0015-17 (Docket #47) for the Project was filed with the PSC on February 23, 2018.

Order #4 was followed.

5. **If a spill by Arrow requires notification to any other state or federal agency. Arrow will also inform the Commission of such spill within 24 hours of occurrence by leaving a message at the Commission's Toll Free Number, with a follow-up email to the Commission's Executive Secretary.**

No incident reports or other notifications were filed with the PSC concerning spills or accidental releases. A review of the Project files also did not indicate a spill event had occurred during construction.

Order #5 has been followed to date.

6. **Arrow is required to comply with all applicable laws, rules, and/or regulations in the event it desires to construct another or a different energy conversion facility than was specified in the application within the site designated in this proceeding.**

The as-built inspection of the Arrow Bear Den Gas Plant confirmed the facility had been constructed as permitted by the Commission according to designs filed with the Amended Application for Certificate of Site Compatibility (Docket #9) on December 8, 2017.

Order #6 was followed.

## Certification

The following section includes discussion of relevant items included in the Certification attached by reference to original Order (Docket #80 in Case No. PU-17-397). All certification points relevant to the As-Built Inspection Report are included.

1. **Company understands and agrees that the Certificate of Site Compatibility will be issued by the Commission subject to the conditions and criteria set forth in Chapter 49-**

**22 of the North Dakota Century Code and Chapter 69-06-08 of the North Dakota Administrative Code, and that Company shall be responsible for compliance with this order and conditions and criteria set forth in the applicable laws and rules.**

On March 14, 2018 the Commission designated an energy conversion facility site for Arrow Field Services, LLC. for the construction, operation and maintenance of the Project facility located in McKenzie County, ND. The certificate (Docket #42) was issued in accordance with the Order of the Commission dated March 14, 2018 in Case No. PU-17-397 and was subject to the conditions and limitations noted in the order.

Certification Point #1 was followed.

- 2. Company agrees to comply with the rules and regulations of all other agencies having jurisdiction over any phase of the transmission facility including all city, township and county zoning regulations.**

On December 1, 2017, Lawrence Bender of Fredrikson & Byron, P.A. provided the Commission with a Consolidated Application for Certificate of Site Compatibility and an Application for Waiver or Reduction of Procedures and Time Schedules (Docket #1). An Amended Application for Site Compatibility was filed on December 8, 2017 (Docket #9). Included in this application is receipt of notification of the Project made to numerous State and Federal agencies requesting feedback. These agencies include; but are not limited to, State Historical Society of North Dakota, North Dakota Game and Fish Department, North Dakota State Water Commission, and the U.S. Fish and Wildlife Service were contacted.

Certification Point #2 was followed.

- 3. Company agrees that it shall obtain all necessary licenses and permits, and shall provide copies of all licenses and permits to the Commission prior to initiating operation of the transmission facility that requires said license or permit.**

Company has complied with the applicable statutes, rules, regulations, standards, and permits of other state or federal agencies to date.

Certification Point #3 was followed.

- 4. Company understands and agrees that any Certificate of Site Compatibility Permit issued by the Commission is subject to suspension or revocation and may, in an appropriate and proper case, be suspended or revoked for failure to comply with the Commission's order, the conditions and criteria of the certificate or subsequent modification, or failure to comply with the applicable statutes, rules, regulations, standards, and permits of other state or federal agencies.**

Company has complied with the applicable statues, rules, regulations, standards, and permits of other state or federal agencies to date. The Company's Certificate of Corridor Compatibility or Route Permit was not found to have been suspended or revoked for failure to comply with the Commission's order.

Certification Point #4 was followed.

- 5. Company agrees to maintain records that will demonstrate that it has complied with the requirements of the Commission's order and the Certificate of Site Compatibility, and that it will preserve these records for Commission inspection at any reasonable time upon reasonable notice.**

Certification Point #5 as followed.

- 6. Company understands and agrees that the authorizations granted by any Certificate of Corridor Compatibility or Route Permit issued by the Commission for the energy conversion facility are subject to modification by order of the Commission if deemed necessary to protect further the public or the environment.**

Should the Commission deem necessary in the future to modify the site certificate it can do so to further protect the public or the environment. No modifications were made to the Certificate of Site Compatibility (#42).

Certification Point #6 was followed.

- 7. Company agrees to hold a construction conference prior to initiating operation of the facility as a transmission facility, which must include a Company representative, its construction supervisor, and a representative of Commission Staff, to ensure that Company fully understands the conditions set forth in the Commission's order.**

Based on a review of the documents filed for Case #: PU-17-397, a construction conference was held on March 20, 2018 with Arrow Representatives, Linde Engineering North America, Bilfinger Westcon (construction contractor), and Patrick Fahn of the Commission. Meeting minutes were filed with the Commission on March 23, 2018 (Docket #46).

Certification Point #7 was completed.

- 8. Company understands and agrees that all cultural resource mitigation plans must be submitted to the North Dakota State Historic Preservation Office and approved prior initiating operation of the facility as a transmission facility.**

SWCA Environmental Consultants (SWCA) performed a Class I and Class III cultural resource inventory for the proposed Project in McKenzie County. The conclusions are that construction activity within the survey corridor will not affect any known cultural resources (Docket #1).

On October 30, 2017 the North Dakota State Historic Preservation Office (ND SHPO) reviewed the NDSHPO Ref: 18-0062 ND Public Service Commission (PSC) "A Class I and Class III Cultural Resources Inventory for the Arrow Gas Plant Project, McKenzie County, North Dakota," written by SWCA in April, 2017 (Docket #30) and found it acceptable. In the letter of concurrence (Docket #30), the ND SHPO concurred there has been acceptable effort to identify and avoid impacts to "Significant Sites," provided the project remains as described and mapped in the report dated April 2017.

Certification Point #8 was followed.

- 9. Company understands and agrees that topsoil removal will begin when the Commission's third party construction inspector is present at the Project site to observe that topsoil is properly removed and kept segregated from subsoil until replacement occurs. Company shall establish the date and time for the Commission's third-party construction inspector's topsoil removal oversight in the preconstruction conference.**

During the pre-construction meeting (Docket #17), Mr. Fahn of the Commission noted that a third-party inspector would not be on location when Arrow initiated construction, but that an inspector would review and inspect the Project after construction concludes, stating also that this provision did not directly apply to the project but the Commission would like topsoil preserved to the best of the Project's ability.

Certification Point #9 was completed.

- 16. Company understands and agrees that if any cultural resource, paleontological site, 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 North Dakota State Historic Preservation Office.**

SWCA Environmental Consultants (SWCA) performed a Class I and Class III cultural resource inventory for the proposed Project in McKenzie County. The conclusions are that construction activity within the survey corridor will not affect any known cultural resources (Docket #1). The ND SHPO agreed with the conclusions from SWCA (Docket #30).

No cultural resource, paleontological site, archeological site, historical site, or grave site was discovered during construction. This is based on verification that no correspondence was identified in the Commission's file.

Certification Point #16 was followed.

**20. Company agrees to comply with the Tree and Shrub Mitigation Specifications, attached.**

As stated by Mr. Fahn of the Commission during the pre-construction meeting (Docket #17), no trees were to be removed to complete construction of the Project, so this provision does not apply to the Project.

Certification point # 20 does not apply to this project.

**21. Company understands and agrees that all pre-existing township and county roads and lanes used during construction must be repaired or restored to a condition that is equal to or better than the condition prior to the construction of the energy conversion facility and that will accommodate their previous use, and that areas used as temporary roads or working areas during construction must be restored to their original condition.**

During the As-Built inspection, McKenzie County road construction was occurring adjacent to the Gas Processing Plant, this construction crew was not associated with Arrow.

In Keitu's opinion, certification Point #21 was followed.

**27. Company certifies that it has removed all waste that was a product of construction and has properly disposed of it. Company understands and agrees that it shall remove all waste that is a product of operation, restoration, and maintenance of the site, and properly dispose of it on a regular basis. To the extent it is discovered that this has not occurred for the existing pipeline, Company will comply with this provision.**

From the as-built construction inspection, pipeline route was free of construction debris.

Certification Point #27 was followed.

**29. Upon request, Company agrees to provide the Commission with engineering design drawings of the transmission facility prior initiating operation of the facility as a transmission facility.**

Construction plans and engineering drawings were supplied to the Commission in the Consolidated Application for Corridor Compatibility and Route Permit in Appendix A (Docket #1).

Certification Point #29 was followed.

**30. Company understands and agrees that it shall advise the Commission as soon as reasonably possible of any extraordinary events which take place at the site of the transmission facility, including injuries to any person.**

A review of the Commission's files indicate no extraordinary events took place on site to date.

Certification Point #29 was followed; however the Commission has the option of requesting the documentation from the Company.

**31. Company agrees to report to the Commission, as soon as reasonably possible, the presence in the permit area of any critical habitat or threatened or endangered species of which Company becomes aware and which were not previously reported to the Commission.**

No critical habitat or threatened or endangered species were discovered during construction.

Certification Point #31 was followed.

**32. Company agrees to provide the Commission with both an electronic and a paper copy of the site approved by the Commission and the facility design specifications for the construction of the energy conversion facility showing the location of the energy conversion facility as built, and will provide this information within 3 months of the completion of the construction. Company also agrees to provide an electronic version of the site approved by the Commission and the facility design specifications for the construction of the energy conversion facility showing the location of the energy conversion facility as built that can be imported into ESRI GIS mapping software within 3 months of the completion of the construction. This electronic map data must be referenced to the North Dakota coordinate system of 1983, North and/or South zones US Survey feet (NAD 63) UTM Zone 13N or 14N feet (NAD 83), or geographic coordinate system (WGS 84) feet. The vertical data must be in the appropriate vertical datum for the coordinate system used. All submissions must specify the datum in which the data was developed.**

Certification Point #32 was followed.

**33. Company shall notify the Commission as soon as reasonably possible if any damage, as defined by North Dakota Century Code Chapter 49-23, occurs to underground facilities during activities conducted under the certificate or permit issued in this proceeding. In the event of any damage to underground facilities, Company shall suspend activities in the vicinity of the damage until compliance with One-Call Excavation Notice System requirements under North Dakota Century Code Chapter 49-23 has been determined.**

Based on the Commission's project files, there is no documentation that damage occurred to underground facilities during construction.

Certification Point #33 was followed.

**34. Company agrees that it shall provide, if requested, educational material for landowners within the site boundaries about the proposed energy conversion facility and any restriction or danger concerning the proposed energy conversion facility.**

No record of any such requests exist in the Commission's Project files.

Certification Point #34 has been followed to date, although PSC may request these materials from Arrow at any time.

**35. Before conducting any construction activities for any modification within the designated site, the Company will file the name and contact information for a key contact person for the purposes of notice and communication during the site modification application.**

Arrow Field Services LLC lists two site contacts for any issues occurring during Project construction, including for the purposes of notice and communication during any site modification applications (Docket #49): Chris McFarland (Project Manager) and Matt Comeaux (Environmental Project Manager).

However, no record of site modification applications exist in the Commission's Project files.

Certification Point 35 has been followed.

## Conclusions

Overall, the Project appeared to be constructed as designed with minimal impacts to the surrounding environment. The Project site was in good condition, well maintained, and appeared to be constructed in compliance with the siting laws, siting rules, and applicable Commission Orders.

## Management Review

The services performed by Keitu and its staff for this project have been conducted in a manner consistent with the degree of care and technical skill appropriately exercised by professionals currently practicing in this area under similar time and budget constraints.

Recommendations and findings contained in this report represent our professional judgment and are based upon available information and technically accepted practices at the present time and location. Other than this, no warranty is implied or expressed.



06/29/2020

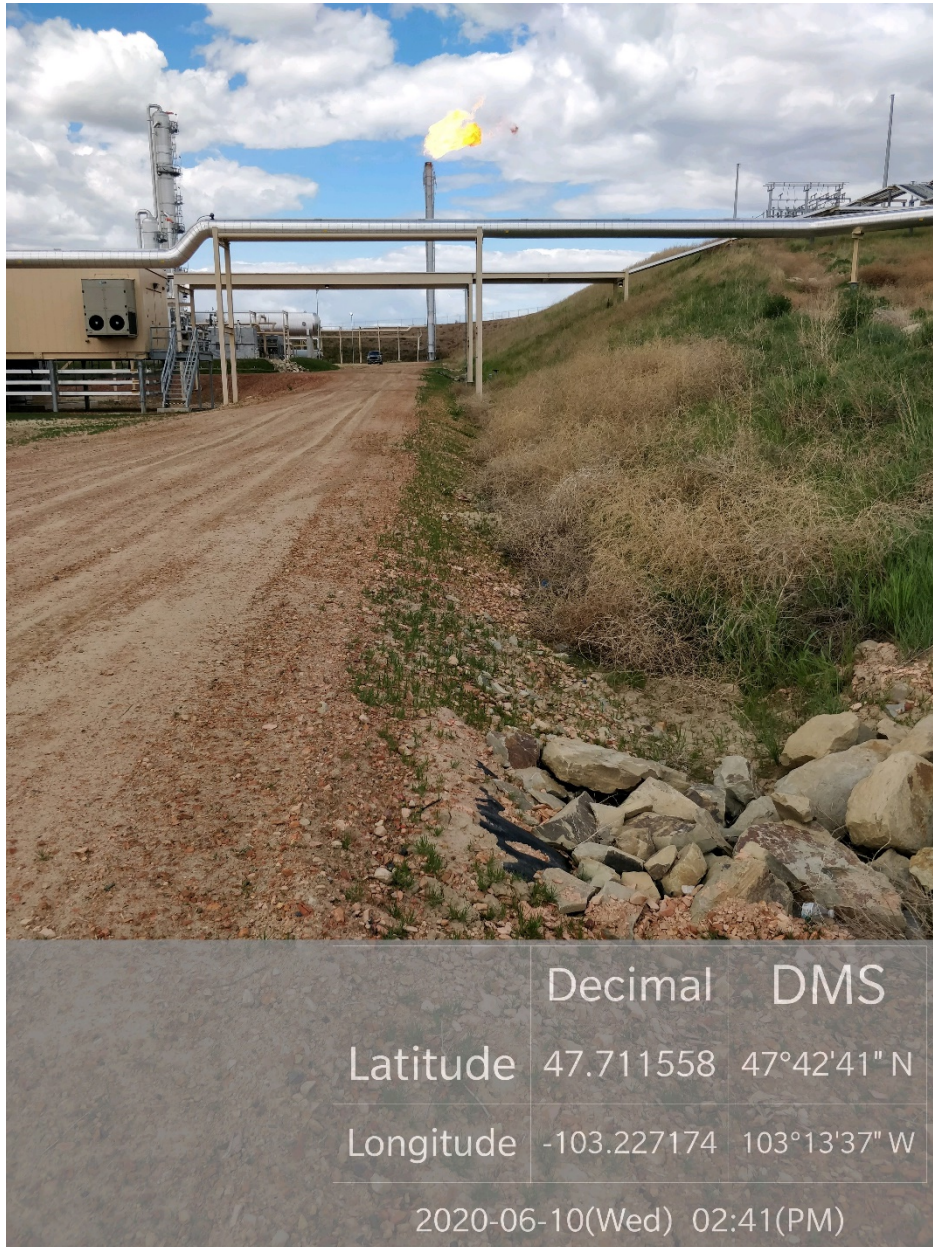
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Jaimee Antognazzi, Operations Manager

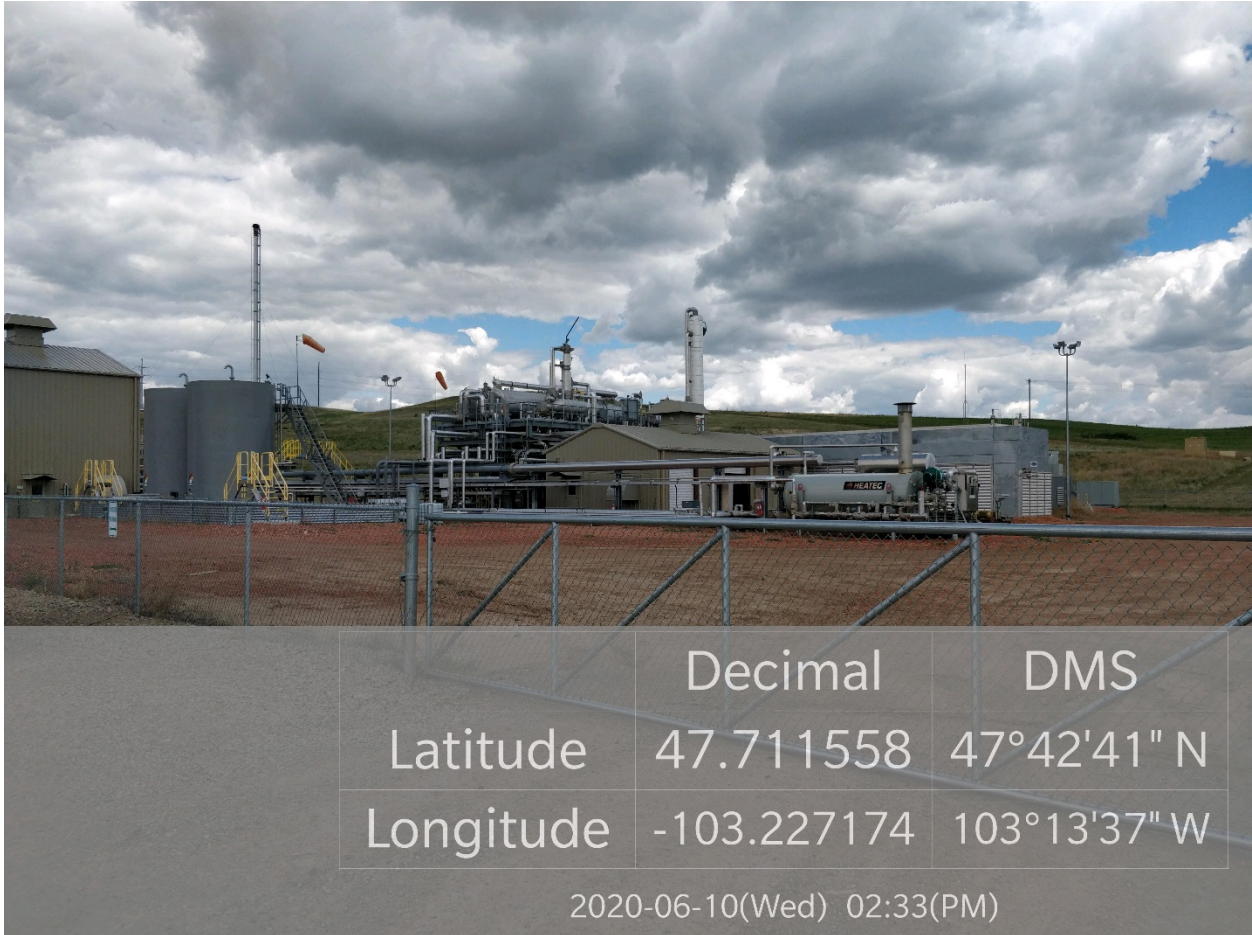
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Date

**Report Photo #1: Flare Stack**



**Report Photo #2: Facility Building**



**Report Photo #3: Facility Building**



	Decimal	DMS
Latitude	47.711226	47°42'40" N
Longitude	-103.22856	103°13'42" W

2020-06-10(Wed) 02:33(PM)

**Report Photo #4: Perimeter Fence and Vegetation**



	Decimal	DMS
Latitude	47.714653	47°42'52" N
Longitude	-103.228984	103°13'44" W

2020-06-10(Wed) 02:32(PM)

**Report Photo #5: On-Pad Elevated Drainage Ditch**



**Report Photo #6: Perimeter Fence with External Silt Fence**



	Decimal	DMS
Latitude	47.71743	47°43'2" N
Longitude	-103.226925	103°13'36" W

2020-06-10(Wed) 02:29(PM)

**Report Photo #7: Rip-Rap and Silt Fence before North Perimeter Fence**



**Report Photo #8: Extra Materials Stored On-Site**



**Report Photo #9: North On-Pad Drainage Ditch and Office Building**



	Decimal	DMS
Latitude	47.71627	47°42'58" N
Longitude	-103.225952	103°13'33" W

2020-06-10(Wed) 01:23(PM)

**Project Map:**

