

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

Arrow Field Services, LLC
Arrow Bear Den Gas Processing Plant II – McKenzie
Siting Application

Case No. PU-17-397

AFFIDAVIT OF SERVICE BY CERTIFIED MAIL

STATE OF NORTH DAKOTA
COUNTY OF BURLEIGH

Geralyn R. Schmaltz deposes and says that:

she is over the age of 18 years and not a party to this action and, on the **15th** day of **March, 2018**, she deposited in the United States Mail, at Bismarck, North Dakota, **one** envelope with certified postage, return receipt requested, fully prepaid, securely sealed and containing a photocopy of:

- **Findings of Fact, Conclusions of Law and Order**

And Original Of:

- **Certificate of Site Compatibility First Amended Certificate Number 54**

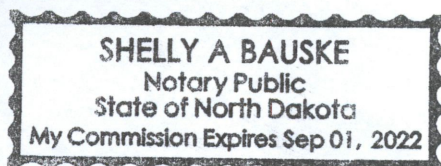
The envelope was addressed as follows:

Lawrence Bender
Danielle Krause
Fredrikson & Byron P. A.
1133 College Drive Suite 1000
Bismarck, ND 58501-1215
Cert. No. 7017 2400 0001 0890 4551

The address shown is the respective addressee's last reasonably ascertainable post office address.



Subscribed and sworn to before me
this **15th** day of **March, 2018**.



SEAL


Notary Public

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

Arrow Field Services, LLC
Arrow Bear Den Gas Processing Plant II – McKenzie
Siting Application

Case No. PU-17-397

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER

March 14, 2018

Appearances

Commissioners Randy Christmann, Julie Fedorchak and Brian Kroshus.

Lawrence Bender and Danielle M. Krause, Attorneys at Law, Fredrikson & Byron, P.A., 1133 College Drive, Suite 1000, Bismarck, North Dakota 58501, on behalf of Arrow Field Services, LLC.

Brian Schmidt, Special Assistant Attorney General, 122 East Broadway Avenue, Bismarck, North Dakota 58501, on behalf of the North Dakota Public Service Commission.

Timothy Dawson, Administrative Law Judge, Office of Administrative Hearings, 2911 North 14th Street-Suite 303, Bismarck, North Dakota 58503, as Procedural Hearing Officer.

Preliminary Statement

On November 1, 2017, Arrow Field Services, LLC (Arrow), filed with the North Dakota Public Service Commission (Commission) an application for a Certificate of Site Compatibility for the Arrow Bear Den Gas Processing Plant II (Plant II).

On November 15, 2017, Commission Staff requested additional information regarding the project.

On December 8, 2017, Arrow filed a letter in response to the request.

On December 8, 2017, Arrow filed an amended application for a Certificate of Site Compatibility for Plant II dated December 8, 2017 (Amended Application).

On December 20, 2017, the Commission deemed complete the application of Arrow.

Also on December 20, 2017, the Commission issued a Notice of Filing and Public Hearing (Notice) scheduling a hearing for February 15, 2018, at 9:00 a.m. Central Time at Teddy's Residential Suites, 113 9th Avenue SW, Watford City, North Dakota 58854.

The Notice identified the following issues to be considered with respect to the Amended Application:

1. Will the location and operation of the proposed facility produce minimal adverse effects on the environment and upon the welfare of the citizens of North Dakota?
2. Is the proposed facility compatible with the environmental preservation and the efficient use of resources?
3. Will the proposed facility location minimize adverse human and environmental impact while ensuring continuing system reliability and integrity and ensuring that energy needs are met and fulfilled in an orderly and timely fashion?

On February 15, 2018, the hearing was held as scheduled.

On February 23, 2018, Arrow filed the following late-filed exhibits: Late-Filed Exhibit 8: Unanticipated Cultural Find Study and Late-Filed Exhibit 9: Flare Stack Information.

Having allowed all interested persons an opportunity to be heard and having heard, reviewed, and considered all testimony and evidence presented, the Commission makes the following findings of fact:

Findings of Fact

1. Arrow is a Delaware Limited Liability Company authorized to do business in the State of North Dakota since July 16, 2009, and is currently in good standing, as evidenced by the corporate papers filed with the Commission on December 8, 2017 (see Case No. PU-11-117).

Size, Type, and Preferred Location of Facility

2. The proposed Plant II will consist of one cryogenic turbo-expander unit with a capacity to process 120 million standard cubic feet of natural gas per day (MMscfd) to produce natural gas liquids (NGLs) and residue gas. Arrow owns a 72.8-acre parcel located approximately 7.5 miles southeast of Watford City, McKenzie County, North Dakota, and Plant II will occupy 51.48 acres of the 72.8-acre parcel. The remaining 21.32 acres is occupied by Arrow Bear Den Gas Processing Plant I, a 30 MMscfd gas processor that is owned and operated by Arrow.

3. The NGLs and residue gas will be transported from Plant II through existing pipelines and by truck.
4. Plant II infrastructure will include underground piping, above ground piping, and above ground gas processing equipment and systems.
5. The estimated cost of Plant II is \$136 million.

Study of Preferred Location

6. Arrow conducted an environmental analysis for the 51.48-acre parcel of land and an approximately 0.5-mile-wide buffer area around the perimeter of the 51.48-acre parcel (Study Area). Arrow also conducted a Class I Cultural Resource Literature Search to identify any previously recorded cultural resources within the Study Area.
7. Arrow performed field surveys on the 51.48-acre parcel (Survey Area). Arrow also conducted a Class III inventory of the Survey Area, which consisted of a pedestrian survey with a maximum 15-meter survey line separation distance.
8. Arrow initiated consultations with the federal, state and local agencies designated in North Dakota Administrative Code Section 69-06-01-05. The following agencies provided comments regarding Plant II: (i) U.S. Army Corps of Engineers ("USACE"); (ii) North Dakota Regulatory Office; (iii) U.S. Fish and Wildlife Service; (iv) North Dakota State Historic Preservation Office ("SHPO"); (v) North Dakota Department of Trust Lands; (vi) North Dakota Department of Health ("NDDOH"); (vii) North Dakota Department of Transportation ("NDDOT"); (viii) North Dakota State Water Commission; and (ix) the McKenzie County Weed Officer.

Siting Criteria

9. The Commission has developed criteria pursuant to North Dakota Century Code section 49-22-05.1 to guide the site, corridor, and route suitability evaluation and designation process. The criteria, as set forth in North Dakota Administrative Code section 69-06-08-02 are classified as Exclusion Areas, Avoidance Areas, Selection Criteria, and Policy Criteria.
10. Arrow evaluated the Study Area regarding the Exclusion Areas, Avoidance Areas, Selection Criteria, and Policy Criteria.
11. With the exception of prime and unique farmland as stated in North Dakota Administrative Code Section 69-06-08-01(1)(d), an Exclusion Area is a geographic area that must be excluded in the consideration of a site for an energy conversion facility.

12. Arrow's surveys did not record any Exclusion Areas within the Study Area of Survey Area.

13. An Avoidance Area is a geographic area that may not be approved as a site for an energy conversion facility unless the applicant demonstrates that under the circumstances there is no reasonable alternative. In determining whether an Avoidance Area should be designated for a facility, the Commission may consider, among other things, the proposed management of adverse impacts, the orderly siting of facilities, system reliability and integrity, the efficient use of resources, and alternative sites.

14. Arrow's field surveys did not record any Avoidance Areas within the Survey Area, although intermittent tributaries to Elkhorn Creek and Cherry Creek were noted in the Study Area. One wetland was identified on the south side of County Route 37 in the Study Area, and south of the Survey Area. Adverse impacts to wetlands are not anticipated.

15. The Commission's Selection Criteria are set forth in North Dakota Administrative Code section 69-06-08-01(5). A site shall be approved only if it is determined that any significant adverse effects resulting from the location, construction, and operation of the facility as they relate to the selection criteria will be at an acceptable minimum, or will be managed and maintained at an acceptable minimum. Arrow analyzed the effects that may result from the location, construction, and operation of Plant II to determine that no significant adverse effects will result.

16. The Commission's Policy Criteria are set forth in North Dakota Administrative Code section 69-06-08-01(6). The Commission may give preference to an application demonstrating certain benefits of the energy conversion facility. Arrow has committed to maximizing benefits that result from implementing the policies and practices applicable to the proposed energy conversion facility.

Measures to Minimize Impact

17. Arrow has made representations and covenants as indicated by the Certification Relating to Order Provisions – Energy Conversion Facility Siting, with accompanying Tree and Shrub Mitigation Specifications.

18. In a response dated January 5, 2017, the USACE noted that a Section 10 and/or Section 404 permit would be required if the project results in work by navigable waters or discharge of dredged or fill materials into waters of the United States. The project does not require work by a navigable water, nor the discharge of dredged or fill materials into a water of the United States.

19. Arrow's Class III cultural resource survey did not identify any new or previously recorded cultural resources within the Survey Area. SHPO concurred with Arrow's Class III survey recommendation of "No Significant Sites Affected."

20. In a response dated August 14, 2017, the NDDOH recommended that: (i) care be taken during construction activity near any water of the state to minimize adverse effects on a water body from disturbance, reclamation, and oil, gas, or fuel spills associated with construction equipment; (ii) a storm water discharge permit may be necessary; (iii) care should be taken to avoid spills of any materials that may have an adverse effect on groundwater quality and all spills must be immediately reported to the NDDOH and appropriate remedial actions performed; (iv) the proposed project has the potential to be a source of emissions to the air capable of causing or contributing to air pollution and may be required to have an Air Pollution Control permit to Construct/Operate as required by Chapter 33-15-14 of the North Dakota Air Pollution Control Rules; (v) projects that involve construction of pipelines should select locations that minimize the potential for impacts to human health and the environment during and after construction by avoiding, when possible, source water protection areas and sensitive surface and groundwater environments; (vi) pipeline routes should select areas with natural barriers to both surface and ground waters; (vii) human health and the environment should be further protected by developing a spill response plan that emphasizes rapid deployment of prepositioned assets necessary to contain spills and subsequent cleanup; and (viii) proper surveillance and monitoring for early detection of leaks should be required.

21. In a response dated August 24, 2017, the NDDOT stated the project should have no adverse effect on the NDDOT highways, but if work needs to be performed on highway right-of-way, appropriate permits and risk management documents need to be obtained.

22. In a response dated August 24, 2017, the North Dakota State Water Commission noted that if surface water or groundwater will be diverted for construction or operation of the project, a water permit is required pursuant to N.D.C.C. § 61-04-02.

23. In a response dated August 3, 2017, the McKenzie County Weed Office required Arrow to complete a weed management plan for approval. Arrow filed a Weed Control Plan and McKenzie County approved the Plan.

24. Arrow received a conditional use permit from McKenzie County for Plant II on February 20, 2018.

25. Arrow testified that it will comply with any requirements or recommendations made by any local, state, or federal agency.

26. The addition of Plant II adjacent to an existing gas processing facility will minimize environmental disturbance and utilize existing infrastructure including access roads, utilities, gathering systems, and delivery and take away pipelines.

27. Arrow will continue to coordinate with local authorities and emergency managers regarding emergency response measures. During both construction and operation, Arrow will implement its Environmental, Health, and Safety program at Plant II.

28. Arrow testified that it will perform pressure and function testing before putting new facilities into service, and will comply with all applicable safety laws and standards.

29. Arrow will utilize the ND One Call system during construction.

30. Arrow does not expect any adverse impact on surface drainage because construction specifications for Plant II take into consideration surrounding topography and drainage patterns.

31. Arrow testified it will work with adjacent landowners by communicating construction plans and mitigating, where possible, negative impacts of the plant operation long term.

From the foregoing Findings of Fact the Commission makes the following conclusions of law:

Conclusions of Law

1. The Commission has jurisdiction over the applicant, Arrow Field Services, LLC, and over the subject matter of the Amended Application under North Dakota Century Code Chapter 49-22.1.

2. Arrow is a utility as defined in North Dakota Century Code Section 49-22.1-01(12).

3. Plant II is an energy conversion facility as defined in North Dakota Century Code Section 49-22.1-01(5).

4. The location, construction, and operation of Plant II will produce minimal adverse effects on the environment and upon the welfare of the citizens of North Dakota.

5. The location, construction, and operation of Plant II is compatible with the environmental preservation and the efficient use of resources.

6. Plant II will minimize adverse human and environmental impact while ensuring continuing system reliability and integrity and ensuring that energy needs are met and fulfilled in an orderly and timely fashion.

From the Findings of Fact and Conclusions of Law, the Commission makes the following order:

Order

The Commission orders:

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 Arrow Bear Den

Gas Processing Plant II. 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.

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.

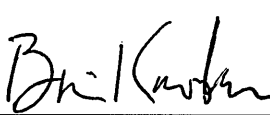
3. To the extent there are any conflicts or inconsistencies between Arrow's application and the Certification, the Certification provisions control.

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.

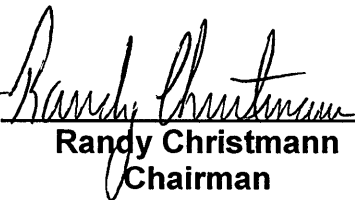
5. If a spill by Arrow requires notification to any other state or federal agency, Arrow will also inform the Commission of such spill within 24 hours of occurrence by leaving a message at the Commission's Toll Free Number, with a follow-up email to the Commission's Executive Secretary.

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.

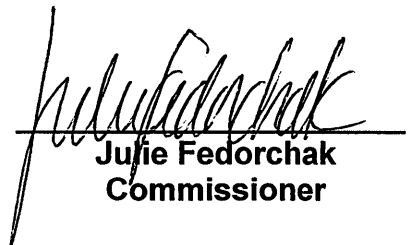
PUBLIC SERVICE COMMISSION



Brian Kroshus
Commissioner



Randy Christmann
Chairman



Julie Fedorchak
Commissioner

PUBLIC SERVICE COMMISSION

STATE OF NORTH DAKOTA

Certificate of Site Compatibility

First Amended Certificate Number 54


This is to certify that the Commission has designated an energy conversion facility site for Arrow Field Services, LLC's 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.

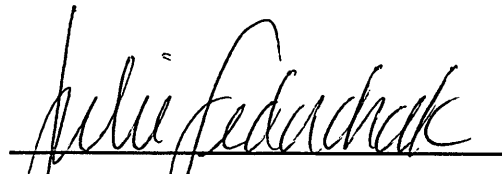
The facility may be sited in this designated location in compliance with the energy conversion facility siting criteria. This certificate is issued in accordance with the Finding of Fact, Conclusion of Law and Order of the Commission in Case No. PU-17-397 dated March 14, 2018 and is subject to the conditions and limitations noted in that order.

Bismarck, North Dakota, March 14, 2018.

ATTEST:

PUBLIC SERVICE COMMISSION


Executive Secretary


Commissioner

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

Arrow Field Services, LLC
Arrow Bear Den Gas Processing Plant II - McKenzie
Siting Application

Case No. PU-17-397

CERTIFICATION RELATING TO ORDER PROVISIONS
ENERGY CONVERSION FACILITY SITING

I am Robert S. Thompson IV, a representative of Arrow Field Services, LLC ("Company") with authority to bind Company to requirements to be set forth by the Commission in its Order and I certify the following:

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.
2. Company agrees to comply with the rules and regulations of all other agencies having jurisdiction over any phase of the proposed energy conversion facility including all city, township, and county zoning regulations.
3. Company understands and agrees that it shall obtain all other necessary licenses and permits, and shall provide copies of all licenses and permits to the Commission prior to construction activity associated with the energy conversion facility that requires said license or permit.
4. Company understands and agrees that the Certificate of Site Compatibility 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.
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.
6. Company understands and agrees that the authorizations granted by the Certificate of Site Compatibility 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.

Construction:

7. Company agrees to hold a preconstruction conference prior to commencement of any construction, 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.
8. Company understands and agrees that all cultural resource mitigation plans must be approved by the North Dakota State Historic Preservation Office prior to the start of any fieldwork and construction activity in the affected area.
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.
10. Company agrees to inform the Commission and the Commission's third-party construction inspector of its intent to start construction on the energy conversion facility prior to the commencement of construction. Once construction has started, Company shall keep the Commission and the Commission's third-party construction inspector updated of construction activities on a monthly basis.
11. Company agrees to construct and operate the energy conversion facility in accordance with all applicable safety requirements.
12. Company understands and agrees that it shall bury all underground lines to a depth of at least 48 inches to the top of the lines.
13. Company understands and agrees that topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas, roadways, and locations of associated facilities must be carefully stripped and segregated from the subsoil. Any area on which excavated subsoil will be placed must first be stripped of topsoil. The stripped topsoil must not be stockpiled in natural drainages, and must be protected from water erosion. Care must be taken to protect topsoil from unnecessary compaction by heavy machinery. Unless otherwise approved by the Commission, topsoil must be removed before topsoil freezes in the late fall/ early winter to the point that frost inhibits proper soil segregation. After backfilling with subsoil 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 the subsoil is replaced.

14. Company understands and agrees that all buried facility crossings of graded roads shall be bored unless the responsible governing agency specifically permits Company to open cut the road.
15. Company understands and agrees that staging areas or equipment shall not be located on land owned by a person other than Company unless otherwise negotiated with landowners.
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 by the State Historical Society, a report of such examination is filed with the Commission.
17. Company understands and agrees that construction must be suspended when weather conditions are such that construction activities will cause irreparable damage to roads or land, unless adequate protection measures are taken by Company.
18. Company understands and agrees that the Commission has authority to stop Project construction activities in the event of a probable violation of the siting laws, siting rules, or applicable Commission Orders if, in the opinion of the Commission, construction activities are likely to result in irreparable or significant harm.

Restoration and Maintenance:

19. Company agrees that it shall, as soon as practicable upon the completion of the construction of the energy conversion facility, restore the area affected by the activities to as near as is practicable to the condition as it existed prior to the beginning of construction.
20. 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.
21. Company understands and agrees that reclamation, fertilization, and reseedling is to be done according to the Natural Resources Conservation Service recommendations, unless otherwise specified by the landowner and approved by the Commission.

22. Company will fulfil its obligation for reclamation and maintenance of the approved site continuing throughout the life of the energy conversion facility.
23. Company will repair all fences and gates removed or damaged during all phases of construction and operation of the proposed energy conversion facility.
24. Company will repair or replace all drainage tile broken or damaged as a result of construction and operation of the proposed energy conversion facility.
25. Company agrees to comply with the Tree and Shrub Mitigation Specifications, attached.
26. Company understands and agrees that it shall work with landowners and residents to mitigate any increase in television and residential radio interference that results from the construction of the energy conversion facility.
27. Company understands and agrees that it shall remove all waste that is a product of construction and operation, restoration, and maintenance of the site, and properly dispose of it on a regular basis.
28. Company understands and agrees that it shall provide any necessary safety measures for traffic control or to restrict public access to the energy conversion facility.

Communication with Landowners and PSC:

29. Company agrees to provide the Commission with engineering design drawings showing surveyed structure and collection substation locations prior to construction.
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 energy conversion facility, including injuries to any person.
31. Company agrees to report to the Commission, as soon as reasonably possible, the presence in or near the approved site of any critical habitat of threatened or endangered species that Company becomes aware of and which were not previously reported to the Commission.
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 83) 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.

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 construction conducted under the certificate or permit issued in this proceeding. In the event of any damage to underground facilities, Company shall suspend construction 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.
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.
35. Company understands and agrees that it shall implement a procedure for how complaints concerning the proposed energy conversion facility will be handled by Company

Modification of Energy Conversion Facility or Energy Conversion Site Plan:

36. 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 and will use the following procedures:
 - A. Before conducting any construction activities for any modification within the designated site, and such **construction activities will not affect any known exclusion or avoidance areas** within the designated site, the Company will file certification and supporting documentation:
 1. Affirming that construction activities will not affect any known exclusion or avoidance areas within the designated site;
 2. Including a map meeting the requirements of N.D. Admin. Code § 69-06-04-01(2)(n) identifying the designated site and site modification(s); and
 3. Affirming that Company will comply with the Commission's order, law and rules designating the site.
 - B. Before conducting any construction activities for any modification within the designated site, and such construction activities will not affect any known exclusion but may affect an avoidance area within the designated site, the Company will file:

1. A specific description of the avoidance area expected to be impacted, including a map meeting the requirements of N.D. Admin. Code § 69-06-04-01(2)(n) identifying:
 - a. the designated site and the site modification;
 - b. all exclusion and avoidance areas within the portion of the designated site containing the site modification.
2. Certification and supporting documentation affirming that construction activities will not affect any known exclusion area.
3. All field studies performed on the portion of the designated site containing the site modification;
4. Specific information about any mitigation measures Company will take within the modification area;
5. Certification that each owner of real property on which the modification is to be located and any applicable governmental entity with an interest in the same modification area do not oppose the modification;
6. Certification that unless the Commission previously authorized the impact to the same avoidance area, that the utility has good cause and a specific reason to impact the avoidance area and a reasonable alternative does not exist;
7. Certification that Company will comply with the Commission's order, law and rules designating the site.

37. Company acknowledges and agrees that written authorization from the Commission for impacting the avoidance area is necessary prior to commencement of construction activity.

Dated this 14th day of February, 2018.

Arrow Filed Services, LLC

By 

Its Vice President & Associate General Counsel

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

Arrow Field Services, LLC
Arrow Bear Den Gas Processing Plant II - McKenzie
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Case No. PU-17-397

Tree and Shrub Mitigation Specifications

Inventory

1. Trees and shrubs anticipated to be cleared, including those that are considered invasive species or noxious weeds (e.g., *Caragana arborescens*, *Elaeagnus angustifolia*, *Rhamnus cathartica*, *Tamarix chinensis*, *T. parviflora*, *T. ramosissima*, *Ulmus pumila*), must be inventoried before cutting. The inventory must record the location, number, and species of trees and shrubs.
2. In windbreaks, shelterbelts and other planted areas, trees or shrubs anticipated to be cleared, regardless of size, must be inventoried for replacement.
3. In native growth areas, trees anticipated to be cleared that are 1 inch diameter at breast height (dbh) or greater must be inventoried for replacement.
4. In native growth areas, shrubs anticipated to be cleared in the permanent right-of-way must be inventoried for replacement.
5. In native growth areas outside the permanent right-of-way, shrubs must be cut flush with the surface of the ground, taking care to leave the naturally occurring seed bank and root stock intact. If soil disturbance is necessary, the native topsoil must be preserved and replaced after construction. Shrubs must be allowed to regenerate naturally where native topsoil is preserved and replaced. Where native topsoil is not preserved and replaced, shrubs anticipated to be cleared must be inventoried for replacement.
6. In native growth areas, trees and shrubs may be inventoried by actual count or by a sampling method that will properly represent the woody vegetation

population. A sampling plan developed by the company, filed with the North Dakota Public Service Commission (Commission) and approved prior to the start of construction must define the sampling method to be used for trees, for tall shrubs and for low shrubs. The data from the sample plots must be extrapolated to the total acreage of the wooded area to be cleared to determine the species and quantity of trees and shrubs to be replaced.

Clearing for Construction

7. Trees and shrubs must be selectively cleared, leaving mature trees and shrubs intact where practical.
8. The maximum width of clear cuts through windbreaks, shelterbelts and all other wooded areas is 50 feet, unless otherwise approved by the Commission.
9. If the area of trees or shrubs actually cleared differs from the area inventoried, the difference in number of trees and shrubs to be replaced must be noted on the inventory.

Replacement

10. Prior to tree and shrub replacement, documentation identifying the number and variety of trees and shrubs removed, as well as the mitigation plan for the proposed number, variety, type, location and date of replacement plantings, must be filed with and approved by the Commission.
11. Two 2-year-old saplings must be planted for every one tree removed. Two shrubs (stem cuttings) must be planted for every one shrub removed.
12. Except in the case of invasive or noxious species, trees and shrubs must be replaced by the same species or similar species, suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service. Invasive or noxious species must be replaced by similar non-invasive or non-

noxious species suitable for North Dakota growing conditions as recommended by the North Dakota Forest Service.

13. Tree and shrub replacement must not be conducted within a 20 to 30 foot wide path over the pipeline to facilitate visual inspections of the right-of-way in accordance with U.S. Department of Transportation safety regulations.
14. Landowners must be given the option of having replacement trees and shrubs planted on the landowner's property, either on or off the right-of-way. The landowner must also be given the opportunity to waive those options in writing in order to have replacement trees and shrubs planted off the landowner's property.
15. At the conclusion of the project, documentation identifying the actual number, variety, type, location and date of the replacement plantings must be filed with the Commission.
16. Tree and shrub replacements must be inspected annually, in September, for three years. The first annual inspection must be at least one year from the anniversary date of the original plantings. A report of each annual inspection must be submitted to the Commission by October 1 of each year, documenting the condition of plantings and any woodlands work completed as of September of each year. If after the third annual report the survival rate is less than 75%, the Commission may order additional planting(s).