

## 4.0 Nature of Proposed Project

The proposed project will consist of a new pipeline that will connect to the existing NBPL interstate pipeline and will traverse approximately 13.2 miles. A 60-foot permanent ROW with a 15-foot temporary construction ROW will be acquired to facilitate the installation and operation of the pipeline. Additional ROW will be acquired where necessary for work space needed for directional drilling shafts. The pipeline will be constructed of welded steel and is designed to accommodate the passage of instrumented internal inspection devices. No new compressor stations or storage facilities will be required. The pipeline will have on average a lifespan of 75 years.

### 4.1 Design Capacity

Exhibit 4.1.1 is a diagram of pipeline flow and daily capacity, and Table 4.1-1 summarizes the pipeline parameters. The inlet flow capacity will be 95 million standard cubic feet per day (mmscfd). The pipeline will have a 10.75-inch outside diameter and a design pressure of 1,440 psig. Delivery to the gas turbines will be approximately 475 psig. The entire pipeline length is within a Class I location. A Class I location, as defined in 49 CFR Part 192.5, refers to an onshore location for a pipeline.

**Table 4.1-1:**  
**Deer Creek Station—Summary of Pipeline Design Parameters**

Parameter	Characteristic	Measurement
<b>Flow Rates</b>	NBPL Inlet Capacity	94.8 mmscfd
	Turbine Delivery Capacity	47.4 mmscfd
	Future Capacity	47.4 mmscfd
<b>Pressure</b>	Inlet Pressure	1435 psig
	Turbine Delivery Pressure	475 psig
	Maximum Operating Pressure	1435 psig
	Minimum Operating Pressure	795 psig
<b>Temperature</b>	Minimum	-41° F
	Maximum	109° F

### 4.2 Changes in Flow

The proposed pipeline would be connected to the NBPL transmission facilities. Flow characteristics of the NBPL system are dynamic and cannot be generally determined with respect to a pipeline interconnection intended to operate on a demand basis. The proposed pipeline is a normal use associated with the NBPL system and is not anticipated to change the flow.

### 4.3 Technical Specifications of Pipeline

The American Petroleum Institute (API) provides a published specification for high-test line pipe. This specification covers various grades of seamless and welded steel line pipe. Process of manufacture, chemical and physical requirements, methods of test, dimensions and other parameters are specified. Grade designates pipe manufactured according to API specifications. The pipe type, according to API is “5L PSL2” with a specified minimum yield strength designated in pounds per square inch. Electric resistance welding (ERW) has one longitudinal seam formed during the manufacturing process. Table 4.3-1 provides an overview of the proposed pipeline technical specifications.

**Table 4.3-1:  
Deer Creek Station—Pipeline Technical Specifications**

Technical Specification	Measurement
Weight per foot	21.65 lbs for 0.219 inch wall thickness and 31.23 lbs for 0.279 inch wall thickness
Outside Diameter	10.75 inches
Nominal Wall Thickness	0.219 inches
	0.279 inches (bores)
Pipe Type	API 5L PSL2, ERW
Pipe Design Factor	0.72
Longitudinal or Seam Joint Factor	1.0
Temperature De-rating Factor	1.0
Specified Minimum Yield Strength	52,000 pounds per square inch
Tensile Strength	66,000 pounds per square inch
Coating Type	FBE (Fusion Bonded Epoxy)
Manufacturer of Pipe	Domestic
% SMYS at MAOP for Main Line	68%
% SMYS at MAOP for Bores	54% under roads

The maximum actual operating pressure (psig) of the proposed pipeline will be approximately 1,200 psig at the inlet side of the line and is dependent on NBPL and the volume throughput of the pipeline. The maximum allowable operating pressure design point will be 1,440 psig. The design pressure for steel pipe is determined in accordance with the following formula:

$$P = \left( \frac{2St}{D} \right) \times E \times F \times T$$

Where P = design pressure in pounds per square inch gauge (psig)

S = yield strength in pounds per square inch (psi)

D = nominal outside diameter of pipe in inches

t = nominal wall thickness of the pipe in inches

F = design factor

E = longitudinal joint factor

T = temperature de-rating factor.

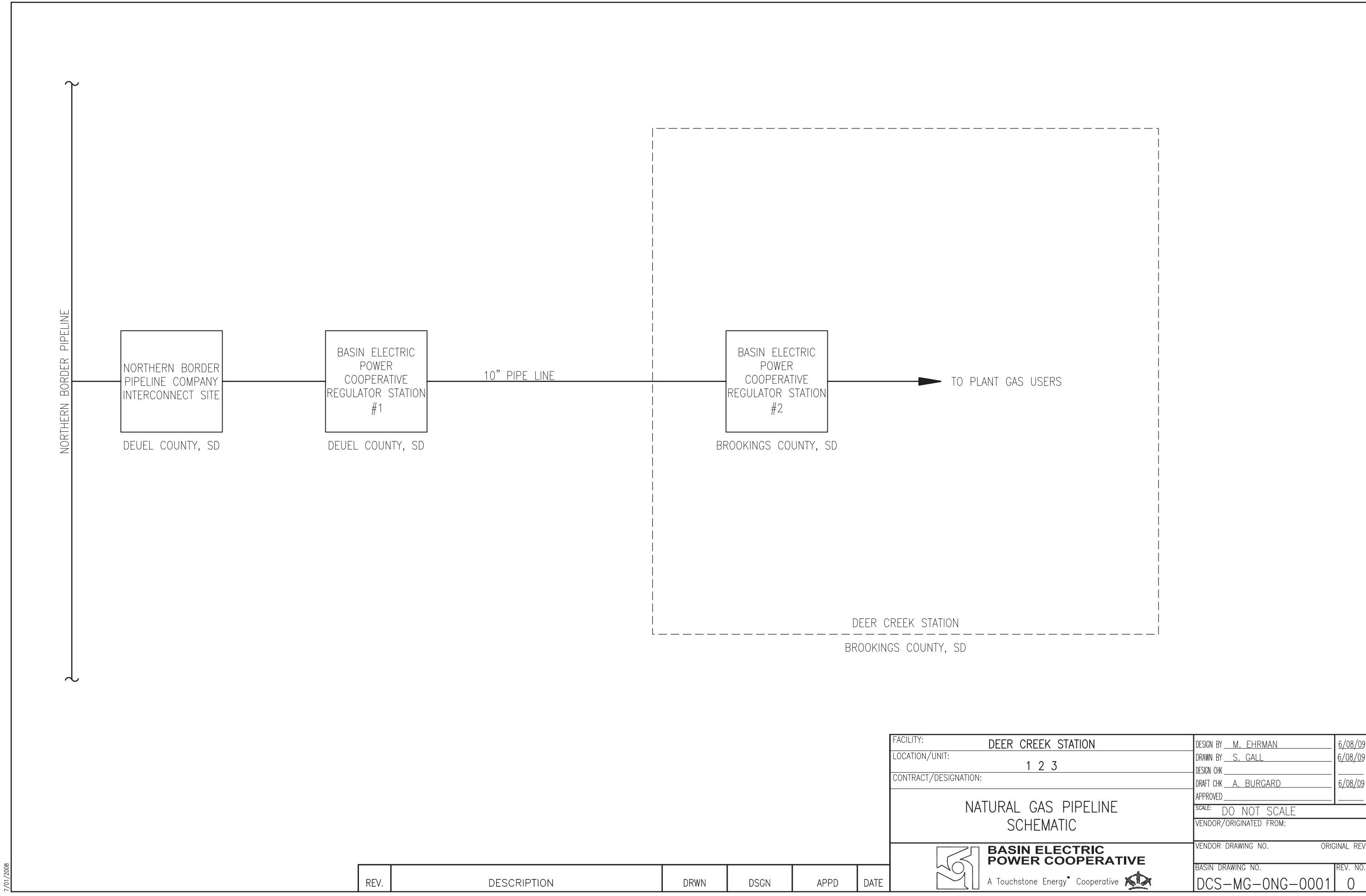


Exhibit 4.1-1: Flow Diagram of Pipeline

Pipe testing will utilize either nitrogen or water and will have a minimum test pressure of 1,800 psig. The pipeline will be tested upon completion in accordance with applicable provisions of 49 CFR part 192, latest or replacement issue. SD PUC will be notified prior to testing, and after completion a written report will be filed showing the test method and results.

#### **4.4 Associated Facilities**

Two gas regulator stations will be associated with the proposed project. The first stage regulator station will be immediately adjacent to the NBPL interconnect site. The second stage regulator station will be located at the gas yard within the energy conversion facility. No compressor stations or storage facilities will be constructed for this proposed project. All components other than the pipe material, including valves, fittings, flanges, regulators, and other components, will be designed and purchased for an American National Standards Institute (ANSI) 600 minimum rating.

A cathodic protection system will be designed for the pipeline. Plug and ball valves and welded and flanged valve connections will be utilized and will be of API class 6D, ANSI 600. Plug valves will be sourced from either Flowserve-Nordstrom or Grove manufacturers. Ball valves will be sourced from either Grove or Cameron manufacturers. Valves will not be present along the length of the pipeline and will be spaced at 14.0-mile intervals: one at the origination point and one at the pipeline terminus. Launcher and receiver stations will be located at the ends of the pipeline.

#### **4.5 Future Additions and Modifications**

While Basin Electric desires to keep opportunities open for future modification or expansion of the proposed project, or for construction of additional facilities, there are no current or pending specific generation expansions or modifications planned.

## **Natural Gas Pipeline to Support Deer Creek Station Project**

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