STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

NUSTAR PIPELINE OPERATING PARTNERSHIP L.P.	)	
	)	
Application pursuant to Section 15-401 of the Common Carrier by Pipeline Law and Sections 8-503 and 8-509 of the Public Utilities Act for a Certificate in Good Standing to Operate an Anhydrous Ammonia Pipeline as a Common Carrier Pipeline and to Construct and Operate an Extension Thereto and When Necessary to Take Private Property as Provided by the Law of Eminent Domain	)	**Docket No. 15-____**

DIRECT TESTIMONY OF

WILLIAM BUCHANAN III

ON BEHALF OF

NUSTAR PIPELINE OPERATING PARTNERSHIP L.P.

NUSTAR EXHIBIT 4.0

DECEMBER 22, 2015

TABLE OF CONTENTS

I. WITNESS INTRODUCTION…….1

II. PURPOSE AND COVERAGE OF TESTIMONY…….2

III. ENGINEERING AND CONSTRUCTION OF THE DECATUR LATERAL……...4

IV. ECONOMIC DEVELOPMENT AND EMPLOYMENT BENEFITS OF THE DECATUR LATERAL …….…...21

I. WITNESS INTRODUCTION

Q. Please state your name, present position and business address.

A. My name is William Buchanan III. I am the Vice President of Project Engineering of NuStar Energy L.P. ("NuStar Energy") the ultimate parent company of NuStar Pipeline Operating Partnership L.P. ("NuStar"), the applicant in this proceeding. My business address is 19003 IH-10 West, San Antonio, Texas 78257.

Q. What are your duties and responsibilities as Vice President of Project Engineering?

A. I oversee the development and execution of NuStar Energy's and its affiliates', including those of NuStar, larger strategic projects.

Q. Please describe your educational and professional background.

A. I am a graduate of Texas A&M University with a Bachelor of Science in Civil Engineering (1988) and have 26 years of experience in the midstream industry. I started my career in 1988 as a field engineer for a tank storage fabricator where my duties included material management between the shop fabricator and field, field layout of nozzles and appurtenances, and providing overall support and assistance to the construction superintendents. In 1990, I moved to another field engineering position with an offshore fabricator where my responsibilities included generating weekly progress reports including such items as schedule updates and analysis and earned value reports. I also assisted with critical lift procedures and overall construction execution and planning.

In 1991, I became a project manager for GATX Corporation where I managed a variety of pipeline and terminal projects, including new tank builds, tank repair and refurbishments, and pipeline relocations.

In 1996, I joined SFPP, L.P., as a pipeline engineer, working in the integrity management program responsible for running internal inspection tools in the pipelines, assessing the data to determine the repairs required, and overseeing the field repairs. Subsequently, I joined SPEC Services, Inc. as a pipeline engineer where I worked with several midstream clients in an engineering, development and management role on a variety of projects including developing pipeline Operating and Maintenance procedures, pipeline reversal projects, FERC regulated change of service pipeline projects, and greenfield pipeline and terminal projects. I also served as a certified third party hydrotest engineer as required by the California Fire Marshall to test and certify pipeline hydrotests for clients. In 2001, I joined Kinder Morgan as a project manager where I managed a variety of pipeline and terminal projects, including a large greenfield breakout terminal in El Paso, Texas.

I joined NuStar in 2006, serving as a project manager where I was responsible for the larger, strategic projects of the company. In 2007, I was promoted to a management position where my duties included overseeing and developing other project managers as they developed and executed the larger strategic projects for the company. In 2014, I was promoted to Vice President of Project Engineering where I continue to oversee a group of project managers but also oversee and manage our in-house design/drafting department and a group of company construction managers who oversee and supervise our field construction efforts.

II. PURPOSE AND COVERAGE OF TESTIMONY

Q. What is the purpose of your direct testimony?

A. I am testifying in support of NuStar's request to be issued a certificate in good standing pursuant to §15-401(a) of the Common Carrier by Pipeline Law ("CCPL"), 220 ILCS 5/15-401(a), for its Illinois ammonia pipeline, including, if and to the extent needed, a certificate in good standing pursuant to §15-401(a) of the CCPL for NuStar's new Decatur Pipeline Lateral ("Decatur Lateral") and Dalton City Ammonia Terminal ("Dalton City Terminal"), and for orders pursuant to §8-503 (220 ILCS 5/8-503) and §8-509 (220 ILCS 5/8-509) of the Public Utilities Act authorizing NuStar to, respectively, construct the proposed Decatur Lateral including the Dalton City Terminal and acquire easements and other land rights for the construction of the Decatur Lateral by the use of eminent domain if and as necessary.

My testimony will describe the design and construction specifications and methods for the proposed Decatur Lateral and Dalton City Terminal and NuStar's fitness and ability to engineer and construct these facilities. I will also describe the economic development and employment benefits of the Decatur Lateral project.

Q. In addition to your prepared testimony, which is identified as NuStar Exhibit 4.0, are you sponsoring any other exhibits?

A. Yes, I am also sponsoring exhibits identified as NuStar Exhibits 4.1 through 4.3. NuStar Exhibit 4.1 is a preliminary list of the required permits and approvals from governmental bodies other than the Illinois Commerce Commission for the construction of the Decatur Lateral. NuStar Exhibit 4.2 is a depiction of the construction process for the Decatur Lateral. NuStar Exhibit 4.3 depicts the various topsoil separation and replacement methods that will be employed in construction. These exhibits were prepared by me or

under my supervision and direction, or I have direct and firsthand knowledge of their contents.

III. ENGINEERING AND CONSTRUCTION OF THE DECATUR LATERAL

Q. What permits and authorizations must NuStar obtain from other governmental bodies in order to construct the Decatur Lateral?

A. NuStar Exhibit 4.1 is a preliminary list of environmental authorities and other governmental entities (other than the Illinois Commerce Commission), and their permitting, approval and consultation requirements that must be obtained or satisfied in connection with the routing and construction of the Decatur Lateral. The exhibit also shows the current status of NuStar's efforts to obtain or complete each permit, approval or other requirement.

Q. Please describe NuStar Energy's and its affiliates' recent experience in constructing pipelines and terminals.

A. NuStar and its affiliates have on-going construction projects. The following summarizes recently completed pipeline and terminal projects.

The Pawnee Construction Project was an approximate twenty four (24) mile, twelve (12) inch diameter crude oil pipeline construction project for transporting crude and processed condensate from Pawnee, Texas, to Oakville, Texas. In addition to the pipeline construction, this project included a new 100,000 barrel storage facility with seven (7) truck offloading stations in Pawnee, Texas and a connection to a third party pipeline facility in Pettus, Texas. The Pawnee project went into service on July 30, 2013.

The Choke Canyon Loop Construction Project was an approximately fifty

three (53) mile, twelve (12) inch diameter crude oil pipeline project traversing through South Texas to a terminal in Oakville, Texas. Construction involved obtaining right-of-way across sixty four (64) parcels and avoiding approximately one hundred (100) marked and unmarked buried utility lines in the heart of the Eagle Ford crude oil area. There were over forty (40) horizontal directional drills ("HDD") and four (4) valves sites installed. It also included an expansion of the Oakville, Texas, terminal, including construction of a total of 1,000,000 barrels of storage, four (4) truck offloading stations, and connectivity to four (4) incoming pipeline systems. This facility also supports an outbound pipeline with a 8,000 horse power pump station. The Choke Canyon Loop Project was placed into service on January 6, 2015.

The Corpus Christi Refinery Supply Construction Project was an approximately six (6) mile, twelve (12) inch diameter crude oil pipeline project supplying two refineries in Corpus Christi, Texas. Construction was confined to a highly congested corridor work and consisted of two point six (2.6) miles of HDD and required a 3,950 foot directional drill under the Corpus Christi ship channel. This project was placed into service on October 1, 2015.

The Fortier Lateral Reactivation Project is the reactivation of an approximately sixteen (16) mile, twelve (12) inch diameter idle pipeline in Louisiana and placement into ammonia transportation service. The project entailed repairing the pipeline and installing a new pump and pig traps. The pipeline traverses through rural, residential, and industrial areas as well as bayous and wetlands. The reactivated pipeline was placed into service on April 30, 2015.

Q. What department or group at NuStar will manage the design and construction of the Decatur Lateral, including the Dalton City Terminal?

A. NuStar Energy's Engineering group based in San Antonio, Texas, will manage the design and construction of the Decatur Lateral, including the Dalton City Terminal. A project manager, who will report directly to me, will be assigned from the NuStar Engineering group to oversee the design and construction of the Decatur Lateral, including the Dalton City Terminal. A contracted construction management team, including the agricultural and other inspectors required pursuant to the AIMA, will be assembled to provide on-site construction management and will report to the project manager.

Q. What engineering and construction firms will be used to design and construct the Decatur Lateral, including the Dalton City Terminal?

A. The engineering work for the pipeline portion, including survey work and alignment sheet development, will be performed by Egan, Field & Nowak, Inc. ("EFN"), a civil engineering firm based in Minneapolis, Minnesota. EFN has been in business since 1872 and has over 10 years experience in the energy services market, including the development of cross-country pipelines. NuStar intends to perform the engineering work on the metering stations utilizing company personnel, but may retain outside engineering services to assist with the civil design as required.

NuStar has not yet selected the construction firm or firms for the engineering or construction of the Dalton City Terminal or the construction of the Decatur Lateral. However, NuStar will only retain a highly qualified contractor or contractors with excellent safety records that have been fully vetted by NuStar's Strategic Sourcing department.

Q. What criteria will NuStar take into consideration in evaluating potential construction contractors for the Decatur Lateral, including the Dalton City Terminal?

A. Contractor evaluations are conducted in conjunction with our Strategic Sourcing group and with the assistance of our Health Safety and Environment, Legal, and Risk Management groups. NuStar will issue a request for proposals and will evaluate the responding companies to determine how they meet NuStar's requirements. The evaluations start with a safety record examination that includes, at a minimum, the following criteria:

- Total Recordable Injury Rate ("TRIR") – TRIR 3 year average must be less than 3.0.
- Adequate Health and Safety programs
- No OSHA citations or fatalities in the last 3 years

The evaluation also considers the responding companies' financial capability, level of experience with similar projects, and overall performance from a quality and production perspective. Once qualified responding contractors have been vetted, based on the above criteria, NuStar will evaluate their insurance coverage. Finally, NuStar will select a contractor and negotiate the agreement for the project.

Q. Please explain what is shown on NuStar Exhibit 4.2.

A. NuStar Exhibit 4.2 depicts a general overview of how NuStar will construct the Decatur Lateral, with a separate diagram depicting HDD and road bores. The construction process will also implement the trenching and tiling provisions set forth in the AIMA as well as any landowner-specific agreement set forth in a specific easement agreement.

Q. Is NuStar negotiating an Agricultural Impact Mitigation Agreement ("AIMA") with

the Illinois Department of Agriculture relating to the construction and installation of the Decatur Lateral?

A. Yes. NuStar is negotiating an AIMA with the Illinois Department of Agriculture and anticipates that it will soon be finalized. However, many of the terms of the AIMA, which I will discuss in my testimony, have been tentatively been agreed to. NuStar will file the AIMA in this docket when it is finalized. The AIMA will be incorporated into the easement agreements for the Decatur Lateral.

Q. What measures will NuStar implement to restore easement properties to their pre-construction condition after construction activities on a property have been completed?

A. NuStar intends to restore the easement properties to their pre-construction condition in accordance with the AIMA entered into with the Illinois Department of Agriculture or as otherwise specified by the landowner. Pursuant to the AIMA, NuStar will contract a state approved agricultural inspector for the project. The agricultural inspector will be on site for the duration of the construction project to help ensure that NuStar satisfies the construction and restoration requirements of the AIMA.

Q. What provisions will the AIMA contain relating to actions that NuStar will take to avoid, minimize, or, if necessary, remediate impacts to agricultural properties resulting from construction of the Decatur Lateral on those properties?

A. In accordance with the AIMA, NuStar will implement the following measures, among others, to avoid, minimize, and where necessary remediate impacts to agricultural properties due to construction, such as soil compaction and erosion, interference with or damage to drainage tiles, construction of access roads, and interference with irrigation

systems.

Topsoil Replacement/Trenching/Double Ditching (depicted in NuStar Exhibit 4.4)

Working with the landowner, NuStar will determine whether to use topsoil replacement, trenching or double ditching in its pipeline construction process, as depicted in NuStar Exhibit 4.4 and explained below.

Under the topsoil method, NuStar will strip topsoil directly over the pipeline location as well as the area directly adjacent to the trench where the subsoil will be stored. The topsoil will be segregated by means of dozers or similar earth-moving equipment and will be windrowed separately from the subsoil that will be excavated. Once removed, the subsoil directly above the pipeline will be excavated to the required trench depth and placed on the location directly adjacent to the trench where the topsoil was stripped. Once the pipeline is installed, the excavation will be backfilled in reverse order, starting first with the subsoil and finished with the topsoil.

Under the trenching method, NuStar will trench both the topsoil and subsoil without any segregation. Once the pipeline is installed, the excavation will be backfilled with the combined material.

Under the double ditching method, NuStar will strip topsoil directly over the pipeline location and the topsoil will be segregated by means of a trenching machine or track excavator and side cast into a separate stockpile pile away from the trench. The subsoil directly above the pipeline location will be excavated to the required trench depth and placed on the location directly adjacent to the trench, separate from the topsoil stockpile. Once the pipeline is installed, the excavation will be backfilled in reverse order, starting first with the subsoil and finishing with the topsoil.

Repair of Damaged Tile Lines and/or Installation of New Tile Lines

If underground drainage tile is damaged by the construction of the pipeline, the drainage tile will be repaired in a manner that assures the proper operation of the tile line at the point of repair. If construction requires installation of new drainage systems, NuStar will install such additional drainage tile and other drainage measures as are necessary to properly drain wet areas on the permanent and temporary easements, to the extent interference with drainage has been caused by the construction and/or existence of the pipeline.

Rock Removal

If rocks are encountered, NuStar will employ standard rock removal techniques.

Compaction, Rutting, Fertilization and Liming

The AIMA will include detailed procedures regarding prevention and remediation of compaction. NuStar will restore rutted land within the easement to reflect a substantially similar (or better) condition to the pre-construction condition.

Right of Way Restoration

Following the completion of construction, should uneven settling occur or surface drainage problems develop as a result of construction of the pipeline, NuStar will restore the right-of-way to reflect a substantially similar (or better) condition to its pre-construction elevation and contour.

Q. Will NuStar enter into road use agreements with applicable county or township officials regarding NuStar's use of local roads to access construction sites with heavy equipment or vehicles and the need to reinforce or repair local roads if and where necessary?

A. Yes. NuStar will enter into road use agreements where necessary. It is NuStar's intent to maintain local roads during construction and, when construction is completed, to leave them in the same condition they were in (or better) prior to construction.

Q. Considering the proposed route of the Decatur Lateral, do the design and construction of the Decatur Lateral present any unusual engineering or construction challenges?

A. No, there are no unusual engineering or construction challenges. The majority of the proposed route will be installed through conventional pipe installation methods. Later in this testimony, I will provide further details on the installation techniques that will be used.

Q. Will the Decatur Lateral be designed and constructed in accordance with applicable governmental requirements and industry codes and standards?

A. Yes. The pipeline and associated above ground facilities will be designed and constructed in accordance with all applicable federal, state and local rules and regulations; special regulatory permit requirements; and applicable industry design and construction standards, specifications, and recommended practices. Where specified, design and construction work shall be performed in accordance with NuStar engineering, design and construction standards and specifications. In the event of any conflict between reference documents, the more stringent of the conflicting specifications will control. More specifically, the following regulations, codes and standards shall apply:

Design and Construction Codes

- U.S Department of Transportation, Pipeline and Hazardous Materials Safety Administration ("PHMSA") regulations, as set forth in Title 49, Part 195, "Transportation of Hazardous Liquids by Pipeline"

- ASME (American Society of Mechanical Engineers) B31.4, Pipeline Transportation Systems for Liquid Hydrocarbons and other Liquids
- API (American Petroleum Institute) RP 1102, Steel Pipelines Crossing Railroads and Highways
- NACE (National Association of Corrosion Engineers) RP0169, Control of External Corrosion on Underground or Submerged Metallic Piping Systems
- ASME Section VIII, Division 1, Boiler and Pressure Vessel Code, Rules for Construction of Pressure Vessels
- UBC, Uniform Building Code
- API 1104, Standard for Welding Pipelines and Related Facilities
- National Electric Safety Code

Applicable codes and standards of the American Welding Society, American Society of Civil Engineers, American Concrete Institute, American Iron and Steel Institute, and the National Fire Protection Association, as well as the regulations of the Occupational Safety and Health Administration, will also be followed.

Material Codes

- API 5L, Specification for Line Pipe
- API 6D, Specification for Pipeline Valves
- ASME/ANSI (American National Standards Institute) B16.5, Pipe Flanges and Flanged Fittings
- ASME/ANSI B16.9, Factory Made Wrought Steel Buttwelding Fittings
- ASME/ANSI B16.25, Buttwelding Ends
- MSS (Manufacturers Standardization Society) SP-44, Steel Pipeline Flanges
- MSS-SP-75, Specification for High Test Wrought Buttwelding Fittings
- MSS-SP-97, Integrally Reinforced Forged Branch Outlet Fittings

NuStar (NS) Engineering Standards

- NS-ES-20-001 Pipeline Construction

- NS-ES-20-007 Steel Line Pipe 14-inches and Smaller
- NS-ES-40-005 Flanged Equipment Bolting
- NS-ES-40-007 Pipeline Valves
- NS-ES-40-014 Stations and Terminals Construction
- NS-ES-40-017 Fence Construction
- NS-ES-40-020 Pipe Bends
- NS-ES-68-001 Line Pipe Coating

The latest applicable version of the regulations, codes, standards, specifications and recommended practices shall apply when referenced in engineering calculations, reports, specifications and requisitions.

Q. At what operating pressure will the Decatur Lateral be designed and constructed to operate?

A. The Decatur Lateral will be designed for a Maximum Operation Pressure ("MOP") of 1480 psig in accordance with the regulations of PHMSA, 49 CFR Part 195, based on a 0.72 safety design factor for the mainline portions and a 0.5 safety design factor at road and waterbody crossings. The "safety design factor" is part of the standard pipe sizing engineering calculations required to be performed per PHMSA, 49 C.F.R. Part 195, to ensure the correct wall thickness and grade of pipe are selected based on the MOP for the pipeline. The valves and flanges will be ASME/ANSI Class 600 and will be designed for 1480 psig, but the normal operating pressure is anticipated to be approximately 550 psig with a minimum of 275 psig and a maximum of 1200 psig, well below the applicable safety design factor. However, as Mr. Koegeboehn explains in his direct testimony, the Decatur Lateral will operate at the same pressure as the existing Illinois Ammonia Pipeline (1,340 psig).

Q. Will the Decatur Lateral have a cathodic protection system?

A. Yes, the Decatur Lateral will have an impressed current cathodic protection system. An impressed current cathodic protection system is a method of protecting the pipeline from external corrosion by making the pipeline become the cathode of an electrochemical cell. This is done by applying an impressed current to the pipeline from an outside source commonly referred to as a sacrificial anode. This current is applied by means of an external power source and is controlled by what is called a rectifier. Ultimately, there will be two means of corrosion protection of the pipeline, the external fusion bonded epoxy coating that will be applied to the exterior of the pipeline and the impressed current cathodic protection system.

Q. What material will be used for the Decatur Lateral?

A. Line pipe will be manufactured, tested and inspected in accordance with the requirements of API-5L-PSL2. Pipe wall thickness will comply with the requirements of PHMSA, 49 CFR Part 195; taking the 0.72 safety design factor into consideration, the following will be used:

- Main line pipe – 6.625 inch outside diameter ("OD") x 0.219 inch API-5l-PSL2, Grade X-52
- Bores and HDD - 6.625 inch OD x 0.280 inch API-5l-PSL2, Grade X-52
- Lake Decatur HDD – 6.625 inch OD x 0.432 inch API-5l-PSL2, Grade X-52

Additionally, in unusually sensitive areas, the Decatur Lateral will be designed with a safety design factor greater than 0.72.

Q. Please explain what is meant by "unusually sensitive areas."

A. An "unusually sensitive area" is defined by PHMSA, 49 CFR Part 195.6, as a "drinking water or ecological resource area that is unusually sensitive to environmental damage

from a hazardous liquid pipeline release." The regulations at 49 CFR Part 195 do not require increased wall thicknesses in unusually sensitive areas, however, given the pipe materials that will be used, the Decatur Lateral will have a more conservative design factor than the 0.72 safety design factor as required by 49 CFR Part 195 in any unusually sensitive areas.

Q. What manufacturing and fabrication processes will be used for the pipe that will be used to construct the Decatur Lateral?

A. The line pipe will be manufactured in accordance with API 5L by API-certified pipe manufacturing facilities.

Q. How will the manufactured pipe be transported to the installation locations in the field?

A. As NuStar Exhibit 4.2 depicts, the line pipe will be transported to the field via truck, in accordance with federal regulations and industry standards.

Q. Please describe the installation techniques that will be used to install the new pipeline in the field.

A. The installation techniques can be categorized into two general categories, the conventional pipeline installation techniques and the trenchless installations, including road bores and HDDs. They are explained as follows:

Conventional Pipeline Installation – As NuStar Exhibit 4.2 depicts, after the construction zone is cleared, trenching machines will begin excavating the trench. The trenching equipment usually consists of trenching machines or track excavators, a diesel refueling truck and maintenance pickup trucks. The trenching machine will cut the trench to the appropriate depth and side cast the soil.

The line pipe stringing will typically begin following the trenching. Pre-coated pipe joints are unloaded from trucks with sidebooms and placed end to end alongside the trench or staged for the trenchless installation. From there, the pipe will be welded and all welds will be 100% field tested using non-destructive methods. Coating of each weld will occur after the testing is complete. Once all welds have been coated, an inspection crew will check the pipe for nicks and scratches with a high-voltage testing device. Any defects will be repaired. After the preceding tasks are completed, the pipe will be lowered into the trench by a team of sidebooms; or for trenchless installations the pipe will be lifted with a side boom and pulled through the pilot hole.

Trenchless Installations – These construction techniques are typically employed to cross roadways, railroad rights of way, and water bodies. These technologies include HDD and conventional bores. These installations will be performed according to applicable industry design and construction standards, specifications, and recommended practices.

Q. Will there be metering and the scraper facilities for the Decatur Lateral?

A. Yes. The Decatur Lateral will include scraper traps to run in-line inspection tools, isolation valves along the length of the pipeline and at each endpoint, and metering facilities at the Dalton City Terminal and at the Archer-Daniels-Midland delivery point. These facilities will be designed and constructed in accordance with NuStar's engineering and design standards and with all applicable industry standards.

Q. At what depth will the Decatur Lateral be buried?

A. The pipeline will be installed at a minimum depth of five feet below grade, which will be specified in the AIMA, unless the landowner gives consent to allow a four foot depth of

cover. These depths exceed the PHMSA, 49 CFR Part 195, three (3) foot requirement.

Q. Based on the proposed route of the Decatur Lateral that NuStar is presenting in this proceeding, will it be necessary for the Decatur Lateral to cross any rivers, streams, lakes, or other water bodies?

A. Yes, there are a total of fifty-one (51) potential intermittent and perennial creeks, streams, rivers, lakes and other water bodies along the proposed route. Thirty-four (34) are intermittent waterbodies which may only carry water periodically or only during a time of heavy rainfall. There are seventeen (17) perennial waterbodies which will generally hold or carry water all year long. Of the perennial waterbodies, there are seven (7) that are identifiable as listed below:

1. Lake Decatur
2. Long Creek
3. Brush Creek
4. Wilborn Creek
5. Robinson Creek
6. Swafford Branch
7. Kaskaskia River

All other perennial waterbodies are small and were not identifiable through review of U.S. Geological Survey mapping.

Q. Please describe the construction techniques that will be used to cross these water bodies.

A. The seven waterbodies listed above, as well as any other regulated perennial waterbody, will be crossed utilizing trenchless installation technology, which includes HDD. Any

non-regulated intermittent waterbody that is not holding or flowing water at the time of crossing could be crossed utilizing conventional trenching techniques. In addition, the crossings under Lake Decatur and the Kaskaskia River will be constructed to include line break operated block valves on each side of the crossing. A line break operated valve is designed to automatically close the main pipeline valves when it detects a change in pressure and mitigate the amount of product released.

Q. Please describe the construction techniques that will be use to cross Lake Decatur.

A. We propose to cross Lake Decatur through a HDD that will be a minimum of approximately 40 feet below the lake bed (actual depth will be confirmed after engineering work has been completed). The design of the drill will be per industry standards, including:

- API Bulletin D20 *Directional Drilling Survey Calculation Methods and Terminology*
- API Specification 13A/ISO 13500 *Specification for Drilling-Fluid Materials*
- API Recommended Practice 13B-1/ISO 10414-1 *Recommended Practice for Field Testing Water-Based Drilling Fluids*
- API Recommended Practice 13D *Recommended Practice on the Rheology and Hydraulics of Oil-well Drilling Fluids*
- International Association of Drilling Contractors Drilling Manual
- Pipeline Research Counsel International, *Installation of Pipelines by Horizontal Directional Drilling An Engineering Design Guide, PRCI Report PR-227-9424*

The drill will be approximately 2,800 feet long, which is a common distance for directional drills.

Q. Will remotely controllable sectionalizing valves be installed in the Decatur Lateral?

A. Yes, the Decatur Lateral will use line break operated valves that will shut and isolate impaired line segments in the event of an emergency.

Q. What testing and inspection of the installed pipeline will be performed before it is put into service to transport anhydrous ammonia?

A. The pipeline will be subject to the inspection requirements set forth in the applicable government, industry, and owner requirements specified earlier in this testimony. During construction, the Decatur Lateral construction management team will contract safety, welding, coating, agricultural, and environmental inspectors as required to assure that full compliance with these standards is achieved. Also, the pipeline installation is subject to PHMSA inspections and audits at any time during the construction project.

The Decatur Lateral will undergo multiple testing requirements to ensure the integrity of the pipeline during installation. This includes 100% field weld testing by non-destructive methods, 100% coating inspection prior to burial, internally inspecting the pipeline with an in-line inspection tool, and hydrostatically testing the pipeline prior to service. The Decatur Lateral will only go into service once compliance with all applicable federal and state regulations and with all industry and owner requirements is met.

Q. Will design and construction standards be applicable to construction of the Dalton City Terminal?

A. Yes. The Dalton City Terminal will be designed and constructed in accordance with NuStar's engineering and design standards and with all applicable industry standards. As are all NuStar facilities, the Dalton City Terminal will be designed to withstand pressures over and above normal operating pressure. Specifically, the Dalton City Terminal will be operated at 720 psig with a 0.72 safety design factor for the piping portions. These operating parameters meet or exceed federal regulatory

requirements. The materials for the Dalton City Terminal will be manufactured of high strength carbon steel which is appropriate for ammonia piping and storage, with a wall thickness of 0.280 inches for the majority of the terminal piping. All new pipe, valves and storage tanks at the Dalton City Terminal will be inspected and integrity-tested at the factory to assure quality and adherence to standards. To the extent possible, the new pipe, valves and fittings will be coated at the factory with external fusion-bonded epoxy to protect against corrosion. Coating in the controlled environment of a plant greatly enhances the efficacy of the process. Any pipe, valves and fittings (including ammonia storage tanks) that cannot be coated at the factory will be coated on location based on industry standards and legal requirements. The factory and field coatings will be re-inspected in the field. The new pipe, valves, fittings and storage bullets will be transported in accordance with applicable federal regulations and industry standards to the installation locations.

Q. What are the estimated installed costs for the Decatur Lateral and the Dalton City Terminal?

A. The current estimated total installed cost for the Decatur Lateral and the Dalton City Terminal is approximately $55 – 60 million, comprised of approximately $46 – 50 million for the Decatur Lateral and approximately $9 – 10 million for the Dalton City Terminal. This estimated cost includes engineering and design, acquisition of land and land rights, material and equipment costs, construction and installation, inspection and testing, and site restoration costs. The actual costs could be higher or lower depending on such factors as materials prices (in particular, steel prices) at the time of ordering and construction, the length of the final approved route, soil conditions along the route

impacting excavation costs, weather conditions and the season in which construction activities are being conducted, specific landowner concerns that need to be addressed, and the final sizing of storage and other facilities at the Dalton City Terminal

Q. What is the estimated schedule duration to construct, test and commission the Decatur Lateral in order to place it in to service?

A. The actual construction, testing and commissioning is estimated to take approximately 4 months from the commencement of in-the-field construction activities.

IV. ECONOMIC DEVELOPMENT AND EMPLOYMENT BENEFITS OF THE DECATUR LATERAL

Q. Will the construction of the Decatur Lateral and the Dalton City Terminal benefit the economy of Illinois?

A. Yes.

Q. What is the estimated amount of investment in Illinois from development and construction of the Decatur Lateral and the Dalton City Terminal?

A. Of the current total estimated construction cost of approximately $55 - 60 million, approximately $49.5 - $50 million is projected to be spent in Illinois. This amount includes payments to landowners for easements and other land rights, and payments to engineering, construction, and professional services firms for work to be performed in Illinois, including payments for materials, components, equipment and labor. Construction materials that may be procured from Illinois vendors (by either NuStar or its contractors) for the project include concrete, select structural fill, and various consumables.

Q. How many construction jobs are expected to be created in Illinois for work on the Decatur Lateral?

A. We are expecting to create about 120 contracted jobs for the Decatur Lateral work and another 50 contracted construction jobs for the Dalton City Terminal work.

Q. Will design and construction of the Decatur Lateral require local professional services?

A. Yes, local professional services to be used will include right of way acquisition, surveying, and legal services. NuStar may also retain outside engineering services to assist with the civil design as required.

Q. Will construction and operation of the Decatur Lateral have any impact on state and local tax receipts in Illinois?

A. Yes. The Decatur Lateral and the Dalton City Terminal will be subject to real property taxation by county and other local governments. In addition, there will be sales and use tax paid to the State of Illinois and to local governments related to operating expenses.

Q. Does this conclude your prepared direct testimony?

A. Yes.