NORTH DAKOTA PUBLIC SERVICE COMMISSION

CERILON GTL ND INC.
CERILON GTL NORTH DAKOTA PROJECT – WILLIAMS COUNTY
APPLICATION FOR A CERTIFICATE OF SITE COMPATIBILITY

CASE NO. PU-23-325

JUNE 5, 2024

PART II

PREPARED TESTIMONY OF
NIEL ERASMUS

I. Introduction and Background

Q1. Please state your name, your employer, and your business address.

A. My name is Niel Erasmus. I am employed by Cerilon Inc. ("Cerilon"). My business address is First Canadian Centre, 350 7 Ave SW 29th Floor, Calgary, AB T2P 3N9, Canada.

Q2. What is your position with Cerilon?

A. I am the Project Director, GTL Engineering for Cerilon, based in Calgary, Alberta. As part of the Cerilon Group's project delivery arm, I am overseeing the engineering development and construction planning of a new gas-to-liquids facility near Trenton, Williams County, ND, which Cerilon will also operate.

Q3. Please describe your educational and professional background.

A. I am a professional engineer registered in the province of Alberta, Canada. I earned a bachelor's degree in metallurgical engineering and a master's degree in engineering management from the University of Pretoria in South Africa.

I have operational and project experience gained in Africa, Australia, and Canada. Most recently I was part of the executive team, responsible for the feasibility and engineering of a project (value of $1.2 billion) at Canadian Natural Resources Ltd.'s Horizon oil sands

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Exhibit 10 - Pre-Filed Testimony of Niel Erasmus (Dkt. #26)
Cerilon GTL ND Inc.

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Prefiled Testimony of Niel Erasmus
Cerilon GTL ND Inc.
Wade Mann, Crowley Fleck, PLLP

site to recover hydrocarbons and valuable critical minerals together with major reductions on the environmental impact of oil sand tailings. I have delivered various stage projects in the oil sands with a large engineering contractor for companies such as CNRL and Syncrude. The projects varied from hundreds of millions to multi-billion-dollar projects. I further have operational and large project development experience with global Tier 1 mining companies with a focus on coal, iron ore, and titanium sands.

Q4. What is your role with respect to the Cerilon GTL North Dakota Project (the "Project")?

A. In my role as Project Director, I am responsible for engineering and feasibility assessment for the gas-to-liquids ("GTL") facility. In this role I coordinate with various stakeholders, including operations personnel, engineering contractors, equipment vendors, major process licensors, and utility service providers, ultimately to ensure the establishment of a safe, reliable and highly automated facility.

Q5. Are you familiar with the contents of Cerilon's Application for a Certificate of Site Compatibility for the Project (the "Application"), which is marked as Exhibit No. 1?

A. Yes. I am familiar with the contents of the Application.

II. Summary of Testimony and Conclusions

Q6. What is the purpose of your testimony today?

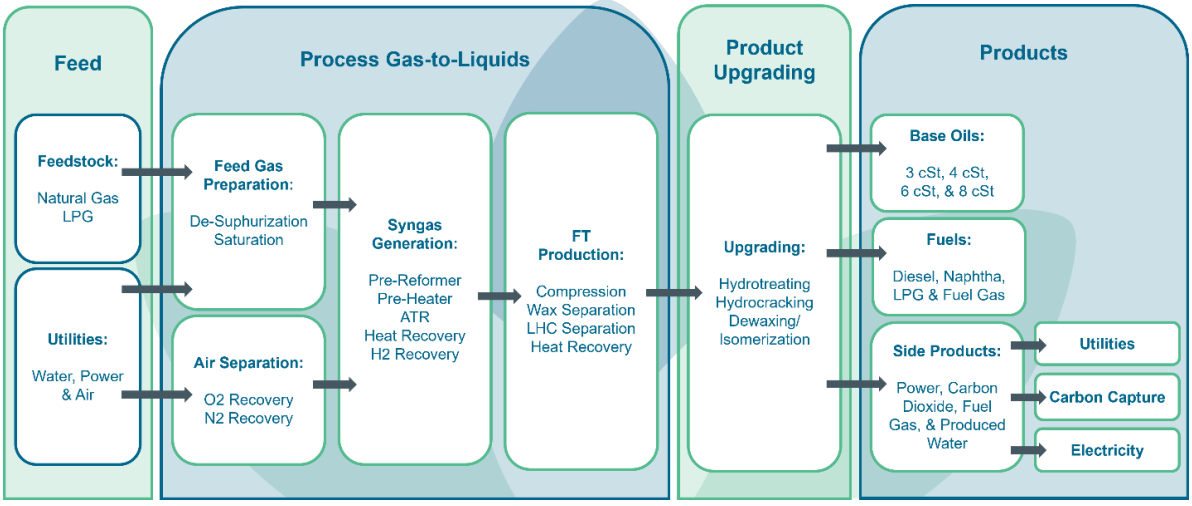
A. I will provide an overview of the facility design, the gas-to-liquids process the Project will employ, and a description of the Project construction execution. I will also discuss how the automated plant will be monitored and controlled, and more importantly, the various safety aspects we are addressing as part of engineering design and operational procedures and policies. My testimony and Cerilon's supporting evidence will demonstrate that the Project will have minimal environmental and human impacts and that the Project meets the Commission's siting criteria.

Q7. Describe the Project's facilities and the products it will produce.

A. The Project will include two GTL facilities constructed in two phases. Each GTL facility will convert 240 million standard cubic feet per day ("MMscf/day") of natural gas to approximately 24,000 barrels per day (bpd) of high-value synthetic energy products. Cerilon designed Phase 1 to produce ultra-low sulfur diesel, naphtha, and Group III+ lubricant base oils. Cerilon intends to construct Phase 2 with the same capacity but may alter the product slate based on future market conditions.

III. Summary of process to convert natural gas to liquids[1]

Q8. Provide a brief description of the process the Project will utilize to convert natural gas to liquids.



A. The GTL process includes three major process steps:

- Step 1 - Natural Gas Conversion to Syngas– An autothermal reformer (ATR) will convert natural gas supplied to the site via pipeline into syngas, a mixture of predominantly hydrogen (H_2) and carbon monoxide (CO). Each GTL facility will contain two parallel autothermal reformer trains converting natural gas to syngas.
- Step 2 - Syngas Conversion to Liquids– The Fischer-Tropsch (F-T) process, using a

[1] This section is intended to be a general overview of complex chemical reactions and processing. Refer to Cerilon's Application at *§ 4.1 Conversion of Natural Gas to Liquids* for a more detailed description of these processes and reactions. *See* Dkt. No. 1 § 4.1 (Cerilon 000018–30).

specific catalyst, pressure, and temperature, will convert syngas into light hydrocarbons and liquid wax. Each GTL facility will contain two parallel F-T reactor trains converting syngas to liquid hydrocarbons.

- Step 3 - Product Work-Up– The product work-up unit further refines the light hydrocarbons and wax streams into the final naphtha, diesel, and base oil products. The product work-up unit will consist of several catalytic reactors and distillation columns to create these products within their associated specification. Each GTL facility will have one product work-up unit, which will process all liquid hydrocarbons and wax generated by the GTL facility's two autothermal reformers and F-T reactor trains.

Each of these three steps will be supported by fuel gas-fired process heaters, heat recovery steam-generators, heat exchangers, and enclosed piping.

IV. Other Project Components

Q9. Other than the components required for the gas-to-liquid process described above, what other components will the Project include?

A. The process operations will also be supported by various utilities, such as fuel gas-fired steam-generating boilers, interim liquid and gas storage vessels, air separation units for producing nitrogen and oxygen, raw water treatment and wastewater treatment plants, and emergency flares. The Project will also include electric energy generation from two (2) steam turbine generators and pre-combustion carbon capture components to enable carbon sequestration.

The Project will also include underground firewater reticulation systems with fire monitors, deluge systems, a dedicated firewater tank and emergency standby pumps, together with a fire and gas detection system.

Q10. Describe the Project's electric energy generation component.

A. The Fischer-Tropsch process to convert natural gas into liquid products is exothermic, meaning that the chemical reactions release heat, and generate excess steam with useful heat content. Excess off-gases produced in the process will be used as fuel gas within various fuel-fired process heaters and steam generating boilers, generating additional

steam. While the steam generated will be utilized within plant operations, a large fraction of it will be routed to two (2) steam turbines to generate electricity. During steady state operation, each plant (or phase) will consume ~50 MW power and generate ~65 MW, increasing to ~81 MW over a period of three to four years from start-up due to catalyst aging.

Q11. How will the electricity generated at the facility be used?

A. The electricity generated on-site will exceed the Project's electrical demand during normal operations. Using a buy-all, sell-all arrangement, the Project will sell all electrical power generated at the site to Basin Electric Power Cooperative. The Project will purchase electricity from the grid, through Lower Yellowstone Rural Electric Cooperative (LYREC) for all its electrical consumption needs (~50 MW per plant during normal operations).

Q12. How much electricity does Cerilon anticipate will be sold to the grid?

A. Based on current design preferences, Cerilon estimates that during steady-state operation, each plant (or phase) will generate ~65 MW, increasing to ~81 MW over a period of three to four years from start-up due to catalyst aging. Cerilon will update electricity generation, consumption, and export numbers as engineering decisions evolve regarding the Project's power consumption and generation capacity.

Q13. Describe Cerilon's plans for carbon capture and sequestration at the Project.

A. Cerilon has committed to using carbon capture and sequestration ("CCS") to reduce carbon emissions from the facility. A carbon capture unit on-site will separate CO_2 from off-gases generated by the GTL facilities. This captured CO_2 will then be compressed and routed via underground pipeline for on or offsite geologic sequestration by Cerilon or another third-party.

Q14. How much CO2 does Cerilon anticipate its CCS system will capture?

A. Cerilon's configuration will capture approximately 450,000 metric tons of CO_2 per year, reducing the Project's greenhouse gas emissions by approximately 33%.

Q15. Describe Cerilon's plans for sequestering the captured CO2.

A. Geologic sequestration of CO_2 is the process of injecting CO_2 into specific types of geologic formations deep underground for permanent storage. Cerilon conducted a CCS pre-feasibility study with the Energy & Environmental Research Center ("EERC") to evaluate potential geologic storage sites. The EERC report analyzed four potential locations for CO_2 storage in the Williston Basin. The evaluation confirmed the Project Site as an ideal location for CCS; however, Cerilon is still exploring alternative arrangements with other third parties dealing with the off-site transportation and sequestering of CO_2.

Q16. Will Cerilon be operating the CO2 sequestration site?

A. No. Cerilon does not plan to own or operate either the CO_2 pipeline or the sequestration site. A third party will apply for all permitting and approvals required for both the pipeline and sequestration.

Q17. Please describe the facility flares and thermal oxidizers that will be employed by the Project.

A. The facility flares and thermal oxidizers have separate purposes and will operate independently. The purpose of the flares will be to safely combust excess process gases generated during startup, shutdown, and process unit upset events within the GTL facilities. No process gases will be routed to the flares during normal operation; however, a pilot flame will always be present on the flare to ensure combustion during an upset event. Each GTL facility will be equipped with a high-pressure flare header and a low-pressure flare header, both of which will be routed to a combined flare structure.

The thermal oxidizers are back-up emission control devices used to reduce emissions from the GTL facilities' liquid storage vessels and wastewater treatment equipment when the primary emission control methodology is not available. During normal operation, emissions from the storage vessels and wastewater treatment equipment will be routed to a vapor recovery unit, which will recycle these emissions back to the GTL facilities for re-use as fuel within the various fuel-fired process heaters and steam-generating boilers. However, if the vapor recovery unit were to experience a malfunction or were otherwise unavailable, these emissions would be routed to a thermal oxidizer.

Similar to a flare, a thermal oxidizer combusts gases routed to it using supplemental fuel (natural gas) to verify complete combustion is achieved. However, unlike a flare a thermal oxidizer combusts these gases within an enclosed combustion chamber and thus they appear and operate more similarly to a small process heater than a flare.

The thermal oxidizers will normally be maintained in "hot-standby mode" such that they are available to safely combust these emissions in the event that the vapor recovery unit were to shut down or malfunction unexpectedly. Each GTL facility will be equipped with one thermal oxidizer, meaning that there will be two thermal oxidizers at the site.

Q18. Please describe the [air separator, cooling tower, etc.] that will be employed by the Project.

A. The Project will require roughly 6,000 tons per day of oxygen for each GTL facility and some nitrogen for vessel purging safety systems. An Air Separation Unit separates atmospheric air into its primary components (namely nitrogen and oxygen). These units are typically composed of air compressors, an air purification system, heat exchangers, cryogenic cooling systems and distillation columns, and liquid oxygen and nitrogen storage systems.

The Project will also feature numerous heat exchangers and aerial coolers to minimize overall raw water consumption. These aerial coolers will feature winterized designs that utilize air recirculation and/or other strategies to ensure safe and proper operation during the cold North Dakota winter nights.

V. Project Inputs

Q19. What are the main inputs needed for the Project and the GTL process?

A. Natural gas feedstock is the main input required for the products produced by the Project. In addition, raw water will be required as process water and to make up for water losses from the Project's water-cooling facilities.

Q20. Where is the natural gas feedstock for the facility sourced?

A. The Project will connect to the Northern Border Pipeline through a new pipeline

approximately two miles in length that will be permitted, constructed, owned, and operated by a third-party partner.

Q21. Describe the source of raw water for the Project.

A. Raw water will be appropriated from the Missouri River. Cerilon is in discussions with third-party water suppliers with existing water appropriation permits sufficient to supply the Project. If commercial arrangements cannot be made with a third-party water supplier, Cerilon will evaluate other options for water access, including potentially applying for a water appropriation permit from the North Dakota Department of Water Resources and all other permits necessary to construct an intake structure and water pipeline to the site.

Q22. Will Cerilon take any steps to minimize the Project's water demand?

A. Yes. Many of the processes within the Project will generate water. To the extent practicable, this water will be treated and recycled within the Project. Cerilon has also designed the Project to minimize the need for cooling water by utilizing air cooling to the extent practicable. Although air cooling increases the complexity of the Project's design, Cerilon estimates that it reduced water demand by approximately 70% relative to using only water cooling.

VI. Product Marketing and Delivery

Q23. Describe how Cerilon will market its products.

A.
- **Naphtha:** Cerilon intends to market naphtha to Canadian oil sands producers, where it will be used as a diluent to reduce the viscosity of bitumen in pipelines.
- **Diesel:** Cerilon will market a portion of its #1 Diesel within Williams County and surrounding areas, with the remainder destined for the Gulf Coast for blending purposes.
- **Group III + base oils:** Cerilon will be the only significant producer of these exceptionally high-grade lubricant base oils in North America. These products will be transported via rail tanker cars and sold to refineries on the Gulf Coast.

VII. Wastewater and solid waste management

Q24. Describe how Cerilon will manage wastewater generated by the Project.

A. The Project will generate the following types of wastewater that will be discharged off-site:

- Treated Process Wastewater: The GTL facilities will produce wastewater. This wastewater will be treated and recycled back to the GTL facilities as much as practicable. The treated wastewater will be discharged to the Missouri River in accordance with applicable limitations. Cerilon anticipates that a discharge line will be installed in the same right-of-way as the Project's water supply line, with the water discharged near the intake structure. The discharge structure will be permitted and constructed to comply with applicable environmental requirements.
- Potentially Contaminated Stormwater Runoff: Stormwater from within the GTL Facility process units has an increased potential for minor contamination due to small leaks from equipment, inadvertent small spills to grade when equipment is opened for maintenance, or other means. Good operation, maintenance, and housekeeping practices will mitigate potential sources of stormwater contamination potential. However, as an added precaution this stormwater will be routed to an onsite stormwater pond for temporary holding. The stormwater pond will be tested for contamination and routed to an outfall to Eightmile Creek on the Project Site if found safe for discharge. If the stormwater in this pond is found to be potentially contaminated, it will be sent to the wastewater treatment operations that are also used to treat process wastewater. The potentially contaminated stormwater pond will be designed with sufficient capacity for a large rainfall event. However, in the event of an unusually large rainfall event, or series of rainfall events, that exceed the capacity of the stormwater pond, it will overflow to the outfall on Eightmile Creek. In the unlikely event that a hydrocarbon spill reaches the potentially contaminated stormwater pond during a rainfall event that exceeds the pond's capacity, additional steps will be taken to mitigate the risk of stormwater leaving the site. These steps include potentially deploying booms, skimmers, and/or other equipment.

- Uncontaminated Stormwater Runoff: Stormwater from the developed areas of the Project Site with reduced potential for contamination (e.g., utilities, electric energy production, liquid storage, etc.) will flow overland to either Eightmile Creek or to the Buford-Trenton Irrigation Canal following existing flow patterns at the Project site. Offsite impacts from stormwater runoff will be mitigated in accordance with the North Dakota Department of Environmental Quality's ("NDDEQ") regulations.
- Sanitary Wastewater: Sanitary wastewater will be collected in holding tanks which are periodically pumped into tanker trucks for off-site treatment at an appropriate publicly owned treatment works. Sanitary wastewater will not be directly discharged from the site.

Q25. Describe the steps Cerilon intends to take to mitigate potential impacts from industrial stormwater.

A. All industrial stormwater generated on-site must be managed in accordance with the multi-sector general permit NDR05-0000 issued by the NDDEQ. This permit requires baseline control practices aimed at minimizing the impact of stormwater discharges to waters of the state. A stormwater pollution prevention plan ("SWPPP") must be developed, which identifies potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges and specifies practices to minimize pollutants in stormwater discharges from industrial facilities. Controls must be identified for each industrial source or activity that could contribute pollutants to stormwater runoff, including good housekeeping, dust control, preventative maintenance, spill prevention and response, employee training, erosion and sediment controls, stormwater management, total maximum daily load conditions, and non-stormwater control practices. Cerilon intends to route stormwater from process areas to stormwater ponds which can temporarily store stormwater in the event that contamination is detected. Contaminated stormwater would then be routed to the wastewater treatment operations also used to treat process wastewater. Noncontaminated stormwater will be diverted to Eightmile Creek consistent with the site's current drainage patterns. The ponds will also provide a location for settling of sediments collected by stormwater runoff before discharging. These stormwater management techniques will be incorporated into the Project's NDPDES permits.

Q26. Describe the steps Cerilon intends to take to mitigate potential impacts from process treated wastewater.

A. Process treated wastewater to be discharged from the Project will be managed under the North Dakota Pollutant Discharge Elimination System ("NDPDES"). The NDPDES program addresses wastewater discharged from point source facilities either to an outfall or a publicly owned treatment works. Depending on the location of the discharge, existing water quality impairments in the receiving water body, total maximum daily loads of pollutants in the discharged wastewater, and technology-based effluent limits would impact the concentration at which certain constituents may or may not be permitted to be discharged. These conditions are in place to protect the environment and the water quality. Cerilon submitted an application for a NDPDES permit to the NDDEQ on February 5, 2024 for the proposed discharge of process wastewater to the Missouri River. The NDDEQ is currently evaluating the application to confirm the proposed wastewater will not cause or contribute to an exceedance of the North Dakota Water Quality Standards, which are established to protect public health and the environment. As part of the NDDEQ application, Cerilon has committed to testing the quality of the treated wastewater on a regular basis.

Q27. Describe the solid waste that will be generated by the Project.

A. Cerilon anticipates a relatively low generation of hazardous and non-hazardous solid wastes for an industrial site of its size. The types of waste to be generated include, but are not limited to:

- Spent catalysts that cannot be regenerated, recycled, or otherwise reclaimed;
- Wastewater treatment plant solids; and
- General industrial wastes such as aerosol cans, paints and other coatings, and used cleaning solvents.

Q28. How will Cerilon dispose of solid wastes generated by the Project?

A. Non-hazardous solid waste will be transported by truck to the local landfill. Any contaminated or hazardous waste would be trucked to an appropriate licensed disposal off-

site. No wastes will be disposed on-site.

VIII. Project Construction

Q29. Provide a brief overview of the Project's construction process.

A. Various activities must be completed throughout Project construction, including land surveying, geotechnical surveys and analyses, locating existing underground utilities, site grading, installation of foundations and underground utilities, erection of aboveground components and utilities, and finally, Project commissioning.

Once the necessary siting approvals are received from the Commission for the Project, several activities must be completed prior to the proposed commercial operation date. The majority of the activity relates to delivery of the equipment and construction of the facilities. Pre-construction, construction, and post-construction activities for the Project will include:

- Relocating existing pipelines that interfere with the proposed facility layout.
- Constructing access roads and or improving/upgrading existing roads. Road upgrades will be designed in consultation with Trenton and Buford Townships and the North Dakota Department of Transportation.
- Site clearing and grubbing.
- Grading of site.
- Foundation design and installation. The majority of foundations are anticipated to be piles.
- Delivery, assembly, and installation of modular components and equipment.
- Delivery of prefinished modular buildings (administration, control room, laboratory, and electrical houses).
- Erection of other buildings on site (process or warehouse structures).
- Reclaiming areas disturbed by construction, temporary facilities, staging, etc.
- Facility, module, and process testing; followed by commissioning and ramp-up activities and,
- Commencing commercial operations.

Q30. Are there any existing pipelines/infrastructure on the Project Site that will need to be relocated?

A. Cerilon has confirmed that pipelines owned by Kinder Morgan and Grayson Mill will need to be rerouted to accommodate construction of the Project.

Q31. Describe how the relocation of existing pipelines will be handled.

A. Cerilon has initiated discussions with both Kinder Morgan and Grayson Mill to discuss rerouting these lines at Cerilon's expense. Pipeline owners will be responsible for securing regulatory authorizations for these routing changes. Work is underway to confirm the new pipeline routing, the timing of construction of new pipelines, the abandonment and removal of old pipelines, and the costs of rerouting these lines. The rerouting of these pipelines are targeted to be done just prior to site clearing.

Q32. Describe how Project construction will be managed.

A. Cerilon will hire an Engineering, Procurement, and Construction ("EPC") contractor to manage the design and construction of the Facility. The EPC contractor will coordinate multiple construction and vendor contracts and ensure conformity with Project plans and specifications as well as compliance with all regulatory requirements. Cerilon will require the EPC contractor to develop a Health and Safety Plan to address public and worker safety during the construction and operation of the proposed Project. The Health and Safety Plan will identify requirements for minimum construction or operation distances from residences or businesses and for temporary fencing around staging, excavation, and laydown areas during construction.

Q33. Once construction is completed, what types of testing will be required before the commercial operations of the Project can safely begin?

A. To achieve readiness for start-up for the facility, various testing needs to be performed on the equipment and systems to ensure their integrity, safety, and proper functioning. The key testing requirements include:

- Pressure Testing
    - Strength/Hydrostatic Testing: This involves pressure testing vessels, piping

systems, boilers, and other equipment to verify their structural integrity and leak-tightness at pressures above the design operating pressure. It is typically done using water or other incompressible fluids.

- Pneumatic Testing: In cases where hydrostatic testing is impractical, pneumatic (air/gas) testing may be performed, but with strict safety precautions due to the higher potential energy of compressed gases.
- Integrity Testing: Used to locate and verify repairs of leaks in heat exchangers, vessels, and special equipment.

- Inspection and Non-Destructive Testing
  - Visual inspections to check for defects, corrosion, or damage.
  - Non-destructive testing methods like radiography, ultrasonic testing, magnetic particle inspection, and liquid penetrant testing to examine welds, vessel shells, and other critical components for flaws or defects.
- Functional Testing
  - Testing of instrumentation, control systems, alarms, and emergency shutdown systems to ensure proper operation.
  - Checking of relief valves, flares, and other safety systems.
- Analytical Testing
  - Testing of process fluids, feedstocks, and products to verify composition, purity, and conformance to specifications using methods like gas chromatography, mass spectrometry, and others.
  - Analysis of water streams for corrosion control, treatment chemicals, and environmental compliance.

The specific testing requirements may vary based on the facilities' configuration, equipment, and applicable codes and standards (e.g., ASME, API, ASTM). Close coordination with operations, maintenance, and inspection teams is crucial to ensure all systems are thoroughly tested and verified before start-up.

Q34. Please explain Cerilon's process for addressing public and interested parties if there are any concerns during or after construction.

A. If members of the public and/or interested parties have concerns, they may contact the

designated liaison officer with the appointed Construction Manager during construction and the designated Cerilon Operations liaison after construction. Prior to construction, all immediate neighbors to the Project Site will receive mailers that will include the Construction Manager's liaison contact information.

IX. Operations and Maintenance and Project Decommissioning

Q35. Discuss the personnel that will be involved in operating and maintaining the Project.

A. Cerilon will operate and maintain Phase 1 of the Project with approximately 110 full-time employees. Phase 2 is projected to require a similar level of staffing.

The majority of employees will consist of engineers, technicians and highly trained operators, with some administrative staff. Some maintenance personnel and support personnel with be sub-contracted to third parties.

The operations and maintenance staff will have full responsibility for ensuring that the Project operates consistent with applicable permits, prudent industry practice, and equipment manufacturer recommendations.

Q36. Discuss the steps Cerilon will take to minimize safety risks during operation.

A. Cerilon will maintain safe operations by following operating procedures, conducting routine maintenance on all equipment, complying with all environmental regulations, and worker safety regulations. Safe work procedures will be in place prior to start-up.

Additionally, Cerilon will develop policies and procedures to maintain safety during normal and abnormal operating conditions. It will also cover startups, shutdowns and malfunctions. Cerilon's standard operating procedures will be continuously updated and improved. The Project design will include monitoring devices, alarms, and fail-safe devices and equipment that will mitigate the risk of dangerous operating conditions due to unanticipated malfunctions. Any malfunction will be investigated to identify the root cause of the malfunction, contributing factors, and appropriate corrective actions. Regular safety reviews and hazardous and operability analysis (HAZOPs) will also be conducted as per standard refining operating practice.

Q37. Describe the steps Cerilon will take to promote onsite worker safety during Project operations.

A. OSHA regulations for workplace safety will be enforced and executed as necessary to protect the safety of the workers. All employees, contractors, and sub-contractors will receive mandatory worker safety training appropriate for their expected duties and must conform to OSHA safety procedures. Personal safety equipment such as hard hats, ear and eye protection, safety boots, high visibility vests, and fire-resistant clothing would be required for all workers onsite. Accidents and injuries would be reported to Cerilon's designated safety officer. All equipment brought or constructed onsite will also meet the requirements of OSHA regulations. A routine and ongoing training program will be in place. All personnel in the operating units will have personal gas monitors.

Q38. How will Cerilon minimize the risk of fire or other risks associated with flammable/hazardous materials?

A. A risk of fire may be present during the operation of the Project due to the presence of flammable materials (e.g., natural gas, syngas, hydrogen, diesel, naphtha, and base oils) and potential ignition sources. The Project will meet or exceed industry and regulatory standards for the safe design of process equipment to minimize the risk of a fire starting or spreading to other potential fuel sources. The standards include using appropriate building materials and properly spacing equipment. The Project will also be equipped with a fire suppression system. In the unlikely event of an incident, all potentially hazardous materials (automotive fluids, spray paint cans, etc.) will be collected and shipped to a licensed and permitted disposal or recycling facility. To reduce the potential for a release of regulated or hazardous materials during the construction phase of the Project, work will be planned and performed in accordance with OSHA standards and protocols addressing the use of potentially hazardous materials and applicable federal and state environmental regulations. If a hazardous release were to occur, cleanup, management, and disposal of contaminated soils would be conducted according to U.S. Environmental Protection Agency (EPA) and state standards. Conformance to these standards and procedures would reduce the potential for significant impacts resulting from releasing hazardous materials.

Q39. Explain how the Project will be monitored and controlled during operations.

A. The Project will entail a highly automated process that requires less operating personnel. This means the extensive use of instrumentation, automated valves, communication systems, advanced motor control centers, and CCTVs - all controlled and monitored by a state-of-the-art main control room located at the site. This control room is the heart of the operation and will be manned continuously 24/7 by two to three highly trained operators. In the unlikely event of an emergency, the operators or automated system can shut down the facility either manually or automatically. Production data will be transferred to Cerilon's Calgary office in real-time to enable data analysts to review process algorithms for optimization and accounting purposes.

Q40. Please explain what steps Cerilon will take to ensure the Project's emergency preparedness.

A. The Project will have an Emergency Response Plan ("ERP") that governs reporting and response procedures in the event of an emergency. The ERP will be shared with local emergency response teams for review and comment, and training will be coordinated as necessary. Additionally, Cerilon personnel will be trained annually on emergency equipment use, emergency response, and first aid procedures.

The EPC contractors for the Project will coordinate the ERP during construction. During operations, the Project's O&M Manager will continue coordination of the ERP with local emergency responders. Cerilon has engaged with the Williston Fire Department, the Williston Rural Fire Department, and the Trenton Rural Fire Department regarding emergency preparedness and these discussions and engagement remains ongoing. Cerilon has had preliminary discussions with the County regarding the Project's ERP.

Q41. Explain what types of maintenance activities are required for the Project during operations.

A. The Project is focused on designing a highly reliable facility. This means redundant equipment in some cases that can be taken offline for minor repairs or replaced. Condition monitoring of equipment is of great importance to assist with regular maintenance planning and the planning for major turnarounds. Each plant will undergo a two-to-three-

week turnaround every three to four years, where the process is completely shut down and made safe to enable equipment replacements or change-outs, refurbishments, minor modifications, critical vessel/reactor inspections, as well as catalyst change-outs. Third-party contractors will be engaged to assist with performing the various turnaround activities.

Q42. What is the estimated life of the Project?

A. The Project is being engineered for a 30-year design life. This lifespan can easily be extended through proper maintenance programs and future engineered refurbishments to 50 years.

X. Conclusion

Q43. In your opinion, will the Project's location and operation produce minimal adverse effects?

A. Yes. The Project has been sited to comply with Williams County zoning regulations and the Commission's siting criteria, as well as to minimize potential impacts to existing land uses, infrastructure, and environmental resources. Additionally, the Project will provide significant benefits to the local community and the state. For these reasons, and as demonstrated through the Application, supporting filings, and my testimony, the Project will produce minimal adverse effects.

Q44. Does this conclude your testimony?

A. Yes.