

North Dakota Public Service Commission
SCS Carbon Transport LLC
Case No. PU-22-391
Response to Commission's Supplemental Information Request 3.1.1

January 29, 2024
Page 1 of 4

PHMSA Exceedance Table			
CFR 49 PART 195 SUBPART	CFR 49 PART 195 REFERENCE	CFR 49 PART 195 REQUIREMENT	SCS COMPLIANCE MEASURES
C - Design Requirements	CFR 195.106	Internal Design Pressure - When utilizing the internal design pressure for pipe, pipe specifications shall be selected such that a maximum design factor of 0.72 be maintained across the system	<p>SCS will exceed requirements by increasing minimum nominal wall thickness for the following pipe sizes which result in a higher calculated MOP versus the proposed system MOP of 2,183 psig:</p> <p>4.5" Pipe - 0.183" WT @ X52 Grade - DF=0.52 6.625" Pipe - 0.203" WT @ X52 Grade - DF=0.69</p> <p>In addition, SCS will utilize pipe with an increased wall thickness for road crossings, horizontal directional drilled crossings, and within the fence line at facilities.</p>
C - Design Requirements	CFR 195.112	New pipe - Any new pipe installed in a pipeline must comply with the requirements spelled out in this section	SCS will exceed requirements by specifying compliance with API 5L, PSL-2 standards which mandate additional metallurgical requirements, inspections, and record retention. In addition, all pipe will be manufactured in accordance with SCS developed Line Pipe Specification with considerations to more stringent requirements for mechanical properties for fracture control design, stringent dimensional requirements for improved constructability, and stringent inspection and testing criteria to include non-destructive evaluation of the welded pipes.
C - Design Requirements	CFR 195.134	CPM Leak detection - Requires leak detection systems to comply with section 4.2 of API 1130	<p>SCS will exceed these requirements and recommended practices for computational pipeline monitoring (CPM) system requirements set forth in API 1130 and 1175. Overlapping SCADA leak detection technologies including volume balance with rate of change calculations, inventory balance with rate of change calculations, and pressure differential control logic will be implemented.</p> <p>Additionally, the following onsite equipment will be installed at multiple locations along the MCE system: Atmospheric sensors, thermal cameras, and redundant PIT's.</p>
D - Construction	CFR 195.206	Material inspection - No pipe or other component may be installed in a pipeline system unless it has been visually inspected at the site of installation to ensure that it is not damaged in a manner that could impair its strength or reduce its serviceability	SCS will exceed this requirement by performing inspections on all phases of the pipe manufacturing at each pipe mill to ensure full compliance with all QC measures. In addition, SCS will perform Factory Acceptance Testing for each premanufactured component for facilities (pumps, compressors, dehydration units). In addition to this, all the components shall be inspected on site, prior to installation.
D - Construction	CFR 195.214	(a) Welding must be performed by a qualified welder or welding operator in accordance with welding procedures qualified under section 5, section 12, Appendix A or Appendix B of API Std 1104 (incorporated by reference, see § 195.3), or Section IX of the ASME Boiler and Pressure Vessel Code (ASME BPVC) (incorporated by reference, see § 195.3). The quality of the test welds used	SCS will exceed these requirements by incorporating additional mechanical testing exceeding of API 1104 Sections 5 and 12 by conducting Charpy V-Notch Testing, Vickers Hardness Testing and Cross Weld Reduced Section Tensile.

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Page 2 of 4

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		to qualify the welding procedures must be determined by destructive testing.	
D - Construction	CFR 195.234	Welds: Nondestructive testing - During construction, at least 10 percent of the girth welds made by each welder each welding day must be nondestructively tested.	SCS will exceed this requirement by requiring 100 percent of all girth welds to be nondestructively tested and incorporating auditing of nondestructively test results, records, and procedures
D - Construction	CFR 195.234	Weld inspection shall follow Section 9 API 1104	SCS will exceed these requirements by having a level 3 NDE inspector spot check welds in addition to the requirements laid out in Section 9 API 1104
D - Construction	CFR 195.248	Cover over buried pipeline: 1) Below the cultivation line or to a depth of 30 inches, whichever is greater 2) Industrial, commercial and residential areas - 36 inches required 3) Drainage ditches at public roads and railroads - 36 inches required 4) Waterbodies 100-foot and greater - 48 inches required	1) SCS will have a minimum cover of 48 inches (4 feet) 2) SCS will have a minimum cover of 48 inches (4 feet) 3) SCS will have a minimum cover of 60 inches (5 feet) 4) SCS will utilize horizontal directional drill technology to cross waterbodies 100-foot and greater which will result in depth of cover far greater than the required 48 inches
D - Construction	CFR 195.250	Clearance between pipe and underground structures - Any pipe underground must have at least 12 inches of clearance between outside of pipe and the extremity of any other underground structure, except drainage tile minimum clearance is 2 inches	SCS will exceed this requirement by utilizing a 24 inches clearance between the outside of the pipe and the extremity of any underground structure, including drain tiles, where feasible. In the event 24 inches clearance cannot be achieved, SCS will meet the minimum requirements stated in 49 CFR 195.
D - Construction	CFR 195.262	Pumping Equipment a) Warning devices must be installed to warn of the presence of hazardous vapors in the pumping station building	Summit is installing multiple CO2 and O2 detectors to detect both the presence of hazardous vapors and confirm that there is sufficient oxygen to confirm a safe environment.
D - Construction	CFR 195.262	Pumping Equipment d) pumping equipment must be installed at least 50 feet from station boundary	SCS will exceed this requirement by locating all pumps greater than 50 feet from the boundary and will be contained within a shelter building (which is not a requirement)
E - Pressure Testing	CFR 195.304	Test Pressure - Requires hydrotest for 4 hours at 125% MOP (plus additional 4 hours if the pipe can't be visually inspected during testing)	SCS will exceed this requirement by testing all pipe systems for 8 hours at 125% MOP

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Page 3 of 4

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F - Operation and Maintenance	CFR 195.406	Maximum operating pressure - Each operator must provide adequate controls and protective equipment to control the pressure within this limit.	SCS will exceed this requirement by implementing redundant PIT's on pump discharge, overlapping over pressure protection control logic, soft high pressure alarms well below MOP, and pump shutdown control logic below MOP. Additionally, SCS performed a comprehensive surge study that showed anticipated surge pressures to be well within regulation even when only local controls were considered.
F - Operation and Maintenance	CFR 195.407	Communications	SCS will exceed this requirement by implementing a system wide dual communication path to all pump stations, MLV sites, PLR sites, and capture sites.
F - Operation and Maintenance	CFR 195.440	Public Awareness	Public awareness will conservatively include stakeholders beyond the modeled areas of potential impact. SCS has contracted with PAPA and Paradium for the public outreach.
Pipeline Integrity Management	CFR 195.450	High Consequence Area (HCA) Identification	SCS exceeds standard practice by delineating potential additional HCA's according to the most up to date information rather than solely relying on Census Bureau data.
Pipeline Integrity Management	CFR 195.452(h)	Post Construction Caliper Cut-out Criteria	SCS specification for Post Construction Caliper In-line inspection is more conservative than the repair criteria for the pipelines immediate, 60-day, and 180-day criteria as required by the code.
Pipeline Integrity Management	CFR 195.452(h)	Risk Assessment Requirements	Method Selection - SCS selects the recommended practice (not mandated) which exceeds requirements Level of Conservatism - SCS chooses conservative inputs beyond standard practice Level of Detail of Inputs - SCS uses 200+ inputs, approx. ten times the regulations mandated ~21 minimum inputs Level of Detail of Analyses - SCS used dynamic segmentation to ensure superior resolution (granularity) of analyses
Pipeline Integrity Management	CFR 195.452(h)	Risk Management Decision Process	SCS far exceeds standard practice in risk management by employing quantitative, objective decision-support methods consistent with most widely used applications in all industries worldwide. This ensures consistent decision-making and avoids subjectivity and inconsistency that accompanies normal practice among pipeline operators (i.e., decision by committee)
Pipeline Integrity Management	CFR 195.452(f)+(g)	Geohazards	SCS exceeds standard practice by integrating detailed, site-specific data into risk assessment, allowing targeted risk management strategies to be applied.
H - Corrosion Control	CFR 195.563	Cathodic protection must be activated within 1 year after the pipeline begins operation	SCS will exceed this requirement by having cathodic protection active well before the 1 year after the beginning of operation
H - Corrosion Control	CFR 195.452(c)(1)(i)(A)	An operator must assess the integrity of the line pipe by in-line inspection tools in its written baseline assessment plan	SCS will go above regulations by also utilizing an Inertial Measuring Unit (IMU) pipeline inspection tool to provide continuous measurement of the pipeline centerline coordinates post construction. This provides better granularity on the baseline assessment and allows the operator to identify any movement in the pipeline over time.

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H - Corrosion Control	CFR 195.561	You must inspect all external pipe coating required by 195.557 just prior to lowering the pipe into the ditch	In addition to inspecting the coating prior to lowering the pipe into the ditch, SCS will also be performing a Direct Current Voltage Gradient (DCVG) to assess the corrosion protection effectiveness after the pipeline has been backfilled.
H - Corrosion Control	CFR 195.579	If you transport any hazardous liquid or carbon dioxide that would corrode the pipeline, you must investigate the corrosive effect of the hazardous liquid or carbon dioxide and take adequate steps to mitigate internal corrosion	SCS is committed to maintaining very tight quality control on the CO2 stream entering the pipeline to minimize any risk of corrosion. On top of dehydrating the CO2 stream, there are multiple redundant protections including gas chromatograph, moisture analyzer, and product quality shut-in valves at every CO2 inlet on the system. Additionally, corrosion probes will be installed across the system to monitor any potential corrosion.