

Document No: 1-0101-APRO-S001	Rev: 00
Project Name: NEWPCC Secondary Clarifiers 11 to 26 Sludge Level Detection	

Purpose:	Sludge Level Detection System Commissioning		
General Impact on Operations:	No impact on secondary clarifier operation is expected. The sludge level detection system is used for monitoring only and is not used for control.		
Required Personnel:	City of Winnipeg	Electrician	Operations
			SCADA Technician
			Instrument Technician
	Contractor	Electrician	
	AtkinsRéalis	Brian Cleven	Samadi Warnakulasooriya

Level Transmitter Tag:
Date and Time of Test:

Safety Compliance Checklist	
Item	Task
1	Review of site-specific safety requirements and Contractor Safe Work Plan.
2	Confirm all personnel have appropriate PPE (e.g., safety boots, gloves, hard hat, safety glasses).
3	Inspect installation area for trip hazards, exposed conductors, or unsafe conditions.
4	Ensure all panels and instruments are properly grounded.
5	Confirm that all work complies with CSA C22.1 (Canadian Electrical Code).
6	Verify that energy isolation points are identified.



## COMMISSIONING PROCEDURE

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Pre-Commissioning Checklist		Verified
Item	Task	
1	Verify level sensor, level transmitter, and proximity switch are mounted securely and in accordance with the drawings.	
2	Verify level sensor, level transmitter, and proximity switch cables have cable tags installed, have wire tags installed, and are terminated correctly.	
3	Verify sludge level transmitter parameters are configured as per the instrument settings sheet.	
4	Verify grounding and shielding of signal cables are properly implemented.	
5	Confirm bridge PLC and facility DCS programming is complete (by City of Winnipeg).	
6	Verify fusing matches the drawings.	
7	Confirm power supply voltage at the transmitter is within specification. Turn on transmitter and verify unit is functional.	
8	Verify proximity switch installation and alignment. Verify proximity switch can sense bridge position.	
9	Ensure all required tools, test equipment, and documentation are available.	

**Commissioning Checklist**

Item	I/O Type	Function	State / Range	Task
1	AI	Sludge Blanket Level Indication	Varies with sludge blanket level	<input type="checkbox"/> Measure output signal and confirm scaling. Adjust High Trim and Low Trim to compensate for loop impedance. Perform at minimum a 3-point calibration (4 mA, 12 mA, 20 mA). Record Trim settings on instrument settings sheet.  <input type="checkbox"/> Simulate level change and verify correct reading on HMI/DCS.
2	AI	Transmitter Fault	4-20 mA signal < 4 mA or > 20 mA = Fault	<input type="checkbox"/> Simulate fault condition and verify alarm activation on the DCS. Verify alarm description and alarm priority.  <input type="checkbox"/> Clear the fault condition and verify alarm is reset on the DCS.
3	AI	Alarm Thresholds	High = 0.60 m, High-High = 1.2 m	Perform functional test of the level alarms:  <input type="checkbox"/> Simulate a High level and verify the High alarm appears on the DCS  <input type="checkbox"/> Simulate a High-High level and verify the High-High alarm appears on the DCS
4	DI	Bridge Position from Proximity Switch	0 = Not in Position 1 = In Position	<input type="checkbox"/> Activate proximity switch and verify the PLC takes a sample of the sludge blanket level.  <input type="checkbox"/> Verify sample is only taken when bridge is moving in the reverse direction (towards the effluent troughs).

**Post-Commissioning Checklist**

Item	Task
1	Verify DCS HMI trend display updates correctly with sample rate and scale.
2	Verify contractor has cleaned up the work area.
3	Submit final commissioning report including calibration certificates, test results, instrument settings, and red-lined drawings.