

Ocean Networks Canada Ferry Maintenance Report – Queen of Alberni

Date: March 25, 2015

Arrival: 12:45AM sailing to Tsawwassen. We signed in at terminal supervisor at Duke Point.

Reporter: Chris Sundstrom (Servicing), Akash Sastri (Science Analysis)

Attending Personnel: Chris Sundstrom (ONC-Operations), Steve Mihaly (ONC Science)

Reason for Visit

Investigate anomalous instrument readings.

Observations

1. There was evidence of condensation and leaking within the Instrument Box. Approximately 8-10 liters of water were in the catchment basin. The pump was shut down due to a leak sensor trip.

Actions Taken

- 1. The system was not operating upon arrival.
- 2. The upper and lower boxes were opened and system operation was observed. Water was evident within the instrument box and there was water in the catchment basin.
- Switched off the system and proceeded with normal instrument cleaning and calibration procedures.
- 4. Minor biofouling was observed within all instrument housings. Some indications of spring bloom were present (biological growth).
- 5. Replaced all tubing with new sections to ensure that no splits or cracks in the tubing were overlooked.
- 6. Added additional tape waterproofing to the new (replacement) leak sensor to prevent false positives from condensation onto the connector.
- 7. Reassembled system.
- 8. Checked and cleaned the Sea Strainer unit.
- 9. Turned system on and operation was noted as abnormal. No leaks were immediately evident but pump noise was louder than normal and seemed strained. Opening the sample valve resulted in a large release of pressure, higher than expected.



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- 10. Shut the system down.
- 11. Removed the backwater check valve and reassemble system. Removal showed excessive buildup of pressure within the instrument box as reverse pressure from outside the ship was apparently high enough within the dock to prevent the check valve from cracking (only 2 psi differential is required).
- 12. Turned the system on and observed operation. Operation appeared normal without straining on the part of the pump. Closed up the system.
- 13. Signed out at Engineering room.

Future Actions

- 1. Inspect new plumbing for leaks.
- Replace braided stainless steel hose with transparent reinforced TYGON tubing so that flow and fouling throughout the system can be observed. Use wrap-on guard material to protect TYGON at wear points.
- 3. Add a logging pressure sensor to the discharge line to monitor the pressure along the line and check for anomalous pressure spikes.

Discussion of Test Procedures and Results

The test procedures used are documented in the supplemental report, which also provides preliminary analysis of the data and its consequences.

Pictures:



Figure 1: Instrument box upon arrival. Note the water in the catchment basin and throughout the instrument box.



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Figure 2: Water on the CT unit and manifold



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Figure 3: Water on the OPTODE sensor.



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Figure 4: Water on the CT sensor.



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Figure 5: Biofouling on the OPTODE sensor.



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Figure 6: Biofouling within the CT sensor.



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Figure 7: BBFL2 Interior.



Figure 8: Instrument box post-cleaning.



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Figure 9: Additional tape waterproofing of the leak sensor input end.



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Figure 10: Taped position of the leak sensor.



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Figure 11: Discharge line after removal of check valve.



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Figure 12: Cleaning the Sea Strainer.