ENBRIDGE	External Pipeline Inspection Form for L5 Straits of Mackinac

General Information			
Date:	08/30/2017	**Contractor:**	Ballard Marine Co
AFE / W.O.#:	20008990	**Company Rep / Inspector:**	Trish McClelland
Segment:	EAS-4	**Water Depth (ft):**	136
Longitude:	[redacted]	**Latitude:**	[redacted]

External Pipe Coating Inspection Results			
General Area	☒ Disturbed Area ☐Dislodged Coating ☐Holiday	**Size of anomaly (ft^2):**	3.0 (1'6" X 2')
Holiday 1	☐ Disturbed Area ☐Dislodged Coating ☒Holiday	**Size of anomaly (ft^2):**	0.53 (7" X 11")
Holiday 2	☐ Disturbed Area ☐Dislodged Coating ☒Holiday	**Size of anomaly (ft^2):**	1.11 (1'4" X 10")
	☐ Disturbed Area ☐Dislodged Coating ☐Holiday	**Size of anomaly (ft^2):**	
	☐ Disturbed Area ☐Dislodged Coating ☐Holiday	**Size of anomaly (ft^2):**	
Corrosion present:	☐YES ☒NO	**Biota present:**	☐YES ☒ NO
Dislodged coating observed on the lake floor: ☐YES ☒NO		**Lake floor location wrt pipe:**	Pipe buried

Comments/Issues/Discussion

East Additional Site #4.

Two (2) features with DFT measurements below the minimum resolvable thickness of gauge were found. The Polatrak CP gun was used to confirm the existence of bare metal:
Holiday 1 presented average CP reading of -963mV CSE (holiday confirmed).
Holiday 2 presented average CP reading of -958mV CSE (holiday confirmed).

No external corrosion was detected by dive team.

Contractor Signature	Enbridge Representative/ Inspector Signature

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Visual Inspection (General Coating Condition, Holidays 1 and 2)

For all sections of dislodged coating or holidays, provide pictures below.
Included the date and time stamps associated with video sdurveillance.





Date:	8/30/17	Frame(HH:MM:SS)	09:17:44	Date:	8/30/17	Frame(HH:MM:SS)	08:55:25

Coating Gauge Information

Manufacturer:	Elcometer Inspection Equip	**Product:**	211 Coating Thickness Gauge
Last Calibrated:	08/09/2017	**Next Calibration Due:**	08/09/2018
Gauge verified prior to use:	☒YES ☐ NO		

Coating Thickness Inspection Data

Thickness Measure (mil)	Area of Interest	Undisturbed Area (< 2 in.)	Undisturbed Area (> 5 ft.)
North End #1	≤25	N/R (see note, below)	N/R
#2	≤25	N/R	N/R
#3	≤25	N/R	N/R
South End #4	≤25	N/R	N/R
#5	≤25	N/R	N/R
#6	≤25	N/R	N/R
Average Thickness			

Additional Coating Thickness Inspection Data (A/R)

Note: coating thickness in undisturbed areas around the cable rub could not be obtained due to the presence of silt and soil (lake bed). The pipe is below the level of the lake bed. See Holiday 1 and Holiday 2 *'DFT thicknesses adjacent to the Holidays'* for representative coating thickness in the area.

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Cathodic Protection and Coating Measurements (if Holiday is found) - Holiday 1							
CP Reading #1 (mV)	-955 -991	CP Reading #2 (mV)	-938 -965	CP Reading #3 (mV)	-951 -979		
Temperature (°F)	44	DFT at Holiday (mil)	≤ 25	DFT Adjacent to Holiday (mil)	96, 84, 100, 135		
For all sections of dislodged coating or holidays, provide pictures below. Included the date and time stamps associated with video surveillance.							





Date:	8/30/17	Frame(HH:MM:SS)	8:58:31	Date:	8/30/17	Frame(HH:MM:SS)	9:17:40

Cathodic Protection and Coating Measurements (if Holiday is found) - Holiday 2							
CP Reading #1 (mV)	-981 -1012	CP Reading #2 (mV)	-907 -933	CP Reading #3 (mV)	-944 -974		
Temperature (°F)	44	DFT at Holiday (mil)	≤ 25	DFT Adjacent to Holiday (mil)	105, 140, 76, 95, 84		
For all sections of dislodged coating or holidays, provide pictures below. Included the date and time stamps associated with video surveillance.							





Date:	8/30/17	Frame(HH:MM:SS)	10:03:31	Date:	8/30/17	Frame(HH:MM:SS)	10:14:55