436881_20B Issue 1
Enbridge Energy Limited Partnership
MFL 20in Inspection

Line 5: 20" Straits of Mackinac - West Leg
Run Date: 27 August 2013
Issue Date: 29 November 2013

Upstream Girth Weld	Joint Length (feet)	Relative Distance (feet)	Absolute Distance (feet)	Long Seam Orientation (Deg)	Weld Type	Feature Type	Comment	Feature Code	Feature Subtype	Feature ID	Cluster ID	Orient. (Deg)	Start Absolute Distance (feet)	Start Orient (Deg)	End Absolute Distance (feet)	End Orient (Deg)	MSP Relative Distance (feet)	MSP Orient (Deg)	Nominal Wall Thickness (in)	Length (in)	Width (in)	Peak Depth (in)	Peak Depth (%NomWT)	MSP Rel to LSW (Deg)	0.85 DL RPR	Effective Length (in)	Effective Depth (in)	Effective Depth (%NomWT)	Effective Area RPR	Radial Position	Data Degradation	Dent Depth (%OD)	Dent Depth (in)	Ovality (%OD)	Min ID (in)	Dent in Close Proximity	Dent Association	Top/Bottom Dent	Relative Position
10	3.52	0.00	0.00		E.R. WELD	GIRTH WELD	GIRTH WELD	1					0.00		3.52				0.687																				
13	3.52	0.00	0.00		E.R. WELD	PIPE TYPE CHANGE	E.R. WELD START	24		1			0.00		0.00				0.687																				
13	3.52	1.48	1.48		E.R. WELD	OFFTAKE	2 IN OFFTAKE-WELDOLET	41		2		0	1.48	0	1.48	0			0.687																				
13	3.52	2.47	2.47		E.R. WELD	OFFTAKE	2 IN OFFTAKE-WELDOLET	41		3		0	2.47	0	2.47	0			0.687																				
21	5.12	3.52	3.52		E.R. WELD	GIRTH WELD	GIRTH WELD	1					3.52		8.64				0.687																				
21	5.12	0.00	3.52		E.R. WELD	LOCATION COMMENT	STRAITS OF MACKINAC - WEST LEG	102		4			3.52		3.52				0.687																				
21	5.12	2.58	6.10		E.R. WELD	VALVE	GATE VALVE MP 1475.68	52		5			6.10		6.10				0.687																				
31	1.08	5.12	8.64		E.R. WELD	GIRTH WELD	GIRTH WELD	1					8.64		9.72				0.687																				
41	2.53	1.08	9.72		E.R. WELD	GIRTH WELD	GIRTH WELD	1					9.72		12.25				0.687																				
41	2.53	1.28	11.00		E.R. WELD	OFFTAKE	20 IN OFFTAKE-FORGED	40		6		90	11.00	90	11.00	90			0.687																				
51	2.95	2.53	12.25		E.R. WELD	GIRTH WELD	GIRTH WELD	1					12.25		15.20				0.687																				
51	2.95	1.99	14.24		E.R. WELD	OFFTAKE	2 IN OFFTAKE-WELDOLET	41		7		0	14.24	0	14.24	0			0.687																				
61	14.67	2.95	15.20		E.R. WELD	GIRTH WELD	GIRTH WELD	1					15.20		29.87				0.687																				
61	14.67	1.25	16.45		E.R. WELD	OFFTAKE	2 IN OFFTAKE-WELDOLET	41		8		0	16.45	0	16.45	0			0.687																				
61	14.67	2.19	17.39		E.R. WELD	OFFTAKE	2 IN OFFTAKE-WELDOLET	41		9		0	17.39	0	17.39	0			0.687																				
61	14.67	7.54	22.74		E.R. WELD	BEND	BEND-HOT PULLED OVER	10	2	10			22.74		22.74				0.687																				
71	5.02	14.67	29.87		E.R. WELD	GIRTH WELD	GIRTH WELD	1					29.87		34.89				0.687																				
81	14.82	5.02	34.89		E.R. WELD	GIRTH WELD	GIRTH WELD	1					34.89		49.71				0.687																				
81	14.82	7.46	42.35		E.R. WELD	BEND	BEND-HOT PULLED UNDER	10	2	11			42.35		42.35				0.687																				
91	14.89	14.82	49.71		E.R. WELD	GIRTH WELD	GIRTH WELD	1					49.71		64.59				0.687																				
91	14.89	7.37	57.08		E.R. WELD	BEND	BEND-HOT PULLED LEFT	10	2	12			57.08		57.08				0.687																				
101	7.37	14.89	64.59		E.R. WELD	GIRTH WELD	GIRTH WELD	1					64.59		71.96				0.687																				
111	14.56	7.37	71.96		E.R. WELD	GIRTH WELD	GIRTH WELD	1					71.96		86.52				0.687																				
111	14.56	7.25	79.21		E.R. WELD	BEND	BEND-HOT PULLED RIGHT	10	2	13			79.21		79.21				0.687																				
121	3.63	14.56	86.52		E.R. WELD	GIRTH WELD	GIRTH WELD NWT 0.687/0.812IN	1					86.52		90.14				0.812																				
125	1.38	3.63	90.14		SEAMLESS	GIRTH WELD	GIRTH WELD	1					90.14		91.52				0.812																				
125	1.38	0.00	90.14		SEAMLESS	PIPE TYPE CHANGE	SEAMLESS START	23		14			90.14		90.14				0.812																				
135	27.13	1.38	91.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					91.52		118.66				0.812																				
135	27.13	10.55	102.07		SEAMLESS	OFFTAKE	2 IN OFFTAKE-WELDOLET	41		15		0	102.07	0	102.07	0			0.812																				
135	27.13	14.92	106.44		SEAMLESS	OFFTAKE	4 IN OFFTAKE-STOPPLE	44		16		0	106.44	0	106.44	0			0.812																				
160	27.72	27.13	118.66		SEAMLESS	GIRTH WELD	GIRTH WELD	1					118.66		146.38				0.812																				
170	27.81	27.72	146.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					146.38		174.19				0.812																				
180	22.50	27.81	174.19		SEAMLESS	GIRTH WELD	GIRTH WELD	1					174.19		196.69				0.812																				
190	27.13	22.50	196.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					196.69		223.82				0.812																				
190	27.13	23.96	220.65		SEAMLESS	MILL FAULT	INT MFG	103	3	17	1	160	220.65	159	220.67	161	23.97	160	0.812	0.28	0.39	0.178	22							Internal									
190	27.13	25.65	222.34		SEAMLESS	MILL FAULT	INT MFG	103	3	18	2	235	222.34	224	222.96	247	26.13	226	0.812	7.44	3.98	0.106	13							Internal									
200	27.10	27.13	223.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					223.82		250.92				0.812																				
210	22.50	27.10	250.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					250.92		273.42				0.812																				
220	26.57	22.50	273.42		SEAMLESS	GIRTH WELD	GIRTH WELD	1					273.42		299.98				0.812																				
230	26.20	26.57	299.98		SEAMLESS	GIRTH WELD	GIRTH WELD	1					299.98		326.18				0.812																				
230	26.20	1.66	301.63		SEAMLESS	MILL FAULT	INT MFG	103	3	19	3	173	301.63	169	301.84	178	1.84	175	0.812	2.44	1.50	0.219	27							Internal									
240	27.14	26.20	326.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					326.18		353.32				0.812																				
240	27.14	24.42	350.60		SEAMLESS	MILL FAULT	*EXT MFG	103	3	20	4	326	350.60	309	350.69	343	24.47	339	0.812	1.02	5.91	0.333	41							External									
250	20.90	27.14	353.32		SEAMLESS	GIRTH WELD	GIRTH WELD	1					353.32		374.22				0.812																				
250	20.90	17.62	370.94		SEAMLESS	MILL FAULT	*INT MFG	103	3	21	5	319	370.94	316	370.99	322	17.64	319	0.812	0.63	0.98	0.268	33							Internal									
260	26.18	20.90	374.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					374.22		400.40				0.812																				
270	27.20	26.18	400.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					400.40		427.60				0.812																				
270	27.20	1.95	402.35		SEAMLESS	MILL FAULT	*EXT MFG	103	3	22	6	125	402.35	123	402.39	128	1.97	125	0.812	0.55	0.87	0.154	19							External									
280	23.03	27.20	427.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					427.60		450.64				0.812																				
280	23.03	0.96	428.56		SEAMLESS	MILL FAULT	EXT MFG	103	3	23	7	254	428.56	251	428.60	256	0.97	254	0.812	0.47	0.94	0.203	25							External									
290	26.59	23.03	450.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					450.64		477.22				0.812																				
300	24.99	26.59	477.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					477.22		502.21				0.812																				
300	24.99	12.88	490.10		SEAMLESS	BEND	20 DEG BEND-COLD LEFT	11	2	24			490.10		490.10				0.812																				
310	25.48	24.99	502.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					502.21		527.69				0.812																				
310	25.48	12.02	514.24		SEAMLESS	BEND	20 DEG BEND-COLD LEFT	11	2	25			514.24		514.24				0.812																				
320	25.75	25.48	527.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					527.69		553.43				0.812																				
320	25.75	13.09	540.78		SEAMLESS	BEND	25 DEG BEND-COLD LEFT	11	2	26			540.78		540.78				0.812																				
330	26.21	25.75	553.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					553.43		579.65				0.812																				
330	26.21	11.51	564.94		SEAMLESS	BEND	25 DEG BEND-COLD LEFT	11	2	27			564.94		564.94				0.812																				
340	7.57	26.21	579.65		SEAMLESS	GIRTH WELD	GIRTH WELD	1					579.65		587.22				0.812																				
350	26.82	7.57	587.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					587.22		614.04				0.812																				
360	27.56	26.82	614.04		SEAMLESS	GIRTH WELD	GIRTH WELD	1					614.04		641.60				0.812																				
360	27.56	1.84	615.88		SEAMLESS	MILL FAULT	EXT MFG	103	3	28	8	157	615.88	156	615.96	158	1.88	157	0.812	0.98	0.35	0.219	27							External									
360	27.56	26.32	640.38		SEAMLESS	MILL FAULT	EXT MFG	103	3	29	9	297	640.38	294	640.43	299	26.36	297	0.812	0.83	0.87	0.219	27							External									
370	27.65	27.56	641.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					641.60		669.25				0.812																				
380	28.36	27.65	669.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					669.25		697.61				0.812																				
390	26.75	28.36	697.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					697.61		724.35				0.812																				
400	25.12	26.75	724.35		SEAMLESS	GIRTH WELD	GIRTH WELD	1					724.35		749.48				0.812																				
410	25.61	25.12	749.48		SEAMLESS	GIRTH WELD	GIRTH WELD	1					749.48		775.09				0.812																				
420	23.89	25.61	775.09		SEAMLESS	GIRTH WELD	GIRTH WELD	1					775.09		798.97				0.812																				
430	27.80	23.89	798.97		SEAMLESS	GIRTH WELD	GIRTH WELD	1					798.97		826.77				0.812																				
440	23.72	27.80	826.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					826.77		850.49				0.812																				
450	23.85	23.72	850.49		SEAMLESS	GIRTH WELD	GIRTH WELD	1					850.49		874.34				0.812																				
460	28.06	23.85	874.34		SEAMLESS	GIRTH WELD	GIRTH WELD	1					874.34		902.41				0.812																				
470	19.89	28.06	902.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					902.41		922.30				0.812																				
480	26.92	19.89	922.30		SEAMLESS	GIRTH WELD	GIRTH WELD	1					922.30		949.21				0.812																				
490	24.26	26.92	949.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					949.21		973.47				0.812																				
500	27.84	24.26	973.47		SEAMLESS	GIRTH WELD	GIRTH WELD	1					973.47		1001.31				0.812																				
510	26.55	27.84	1001.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1001.31		1027.86				0.812																				
520	25.64	26.55	1027.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1027.86		1053.51				0.812																				
530	21.01	25.64	1053.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1053.51		1074.52				0.812																				
530	21.01	0.36	1053.88		SEAMLESS	MILL FAULT	EXT MFG	103	3	30	10	200	1053.88	200	1053.91	201	0.38	200	0.812	0.43	0.20	0.162	20							External									
540	26.80	21.01	1074.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1074.52		1101.32				0.812																				
540	26.80	0.23	1074.74		SEAMLESS	MILL FAULT	INT MFG	103	3	31	11	82	1074.74	79	1074.82	86	0.26	82	0.812	0.91	1.26	0.162	20							Internal									
550	27.10	26.80	1101.32		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1101.32		1128.42				0.812																				
560	26.89	27.10	1128.42		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1128.42		1155.32				0.812																				
570	23.28	26.89	1155.32		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1155.32		1178.60				0.812																				
580	24.96	23.28	1178.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1178.60		1203.55				0.812																				
590	26.29	24.96	1203.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1203.55		1229.85				0.812																				
600	21.02	26.29	1229.85		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1229.85		1250.86				0.812																				
600	21.02	17.54	1247.38		SEAMLESS	MILL FAULT	EXT MFG	103	3	32	12	338	1247.38	335	1247.45	340	17.57	338	0.812	0.87	0.83	0.203	25							External									
610	27.94	21.02	1250.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1250.86		1278.81				0.812																				
620	24.57	27.94	1278.81		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1278.81		1303.38				0.812																				
630	24.19	24.57	1303.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1303.38		1327.57				0.812																				
640	20.09	24.19	1327.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1327.57		1347.66				0.812																				
650	27.01	20.09	1347.66		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1347.66		1374.67				0.812																				
660	21.30	27.01	1374.67		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1374.67		1395.97				0.812																				
670	27.76	21.30	1395.97		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1395.97		1423.73				0.812																				
680	24.37	27.76	1423.73		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1423.73		1448.10				0.812																				
680	24.37	0.64	1424.37		SEAMLESS	MILL FAULT	INT MFG	103	3	33	13	353	1424.37	347	1424.71	359	0.67	356	0.812	4.13	2.05	0.170	21							Internal									
690	27.29	24.37	1448.10		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1448.10		1475.38				0.812																				
700	24.66	27.29	1475.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1475.38		1500.04				0.812																				
710	26.96	24.66	1500.04		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1500.04		1527.00				0.812																				
720	27.45	26.96	1527.00		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1527.00		1554.45				0.812																				
730	27.14	27.45	1554.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1554.46		1581.59				0.812																				
740	25.81	27.14	1581.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1581.59		1607.41				0.812																				
750	22.92	25.81	1607.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1607.41		1630.33				0.812																				
750	22.92	0.73	1608.13		SEAMLESS	MILL FAULT	EXT MFG	103	3	34	14	274	1608.13	271	1608.20	278	0.77	274	0.812	0.83	1.26	0.187	23							External									
750	22.92	5.30	1612.70		SEAMLESS	MILL FAULT	EXT MFG	103	3	35	15	54	1612.70	46	1612.91	62	5.48	49	0.812	2.44	2.76	0.194	24							External									
760	27.10	22.92	1630.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1630.33		1657.43				0.812																				
770	27.87	27.10	1657.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1657.43		1685.29				0.812																				
770	27.87	15.48	1672.90		SEAMLESS	MILL FAULT	*INT MFG	103	3	36	16	148	1672.90	146	1672.94	150	15.50	148	0.812	0.51	0.71	0.170	21							Internal									
770	27.87	16.14	1673.56		SEAMLESS	MILL FAULT	INT MFG	103	3	37	17	131	1673.56	126	1673.87	136	16.43	128	0.812	3.78	1.69	0.170	21							Internal									
770	27.87	16.90	1674.32		SEAMLESS	MILL FAULT	INT MFG	103	3	38	18	122	1674.32	120	1674.36	124	16.92	122	0.812	0.43	0.63	0.146	18							Internal									
770	27.87	20.64	1678.07		SEAMLESS	MILL FAULT	INT MFG	103	3	39	19	215	1678.07	209	1678.29	220	20.85	212	0.812	2.68	1.97	0.178	22							Internal									
770	27.87	24.56	1681.99		SEAMLESS	MILL FAULT	INT MFG	103	3	40	20	29	1681.99	27	1682.03	31	24.58	29	0.812	0.47	0.63	0.170	21							Internal									
770	27.87	27.39	1684.82		SEAMLESS	MILL FAULT	*INT MFG	103	3	41	21	37	1684.82	35	1684.93	40	27.45	37	0.812	1.42	0.87	0.113	14							Internal									
780	26.78	27.87	1685.29		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1685.29		1712.07				0.812																				
780	26.78	21.62	1706.92		SEAMLESS	MILL FAULT	INT MFG	103	3	42	22	313	1706.92	311	1707.01	314	21.67	313	0.812	1.18	0.55	0.187	23							Internal									
790	18.74	26.78	1712.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1712.07		1730.82				0.812																				
800	26.36	18.74	1730.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1730.82		1757.18				0.812																				
800	26.36	2.25	1733.07		SEAMLESS	MILL FAULT	INT MFG	103	3	43	23	52	1733.07	49	1733.12	55	2.27	52	0.812	0.63	1.10	0.170	21							Internal									
810	27.40	26.36	1757.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1757.18		1784.57				0.812																				
810	27.40	0.85	1758.02		SEAMLESS	MILL FAULT	*EXT MFG	103	3	44	24	225	1758.02	223	1758.10	228	0.89	225	0.812	0.94	0.94	0.252	31							External									
820	28.21	27.40	1784.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1784.57		1812.77				0.812																				
830	27.68	28.21	1812.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1812.77		1840.45				0.812																				
840	21.12	27.68	1840.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1840.46		1861.57				0.812																				
850	26.46	21.12	1861.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1861.57		1888.03				0.812																				
860	27.99	26.45	1888.03		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1888.03		1916.01				0.812																				
860	27.99	26.89	1914.91		SEAMLESS	MILL FAULT	INT MFG	103	3	45	25	35	1914.91	28	1915.16	42	26.91	40	0.812	3.07	2.36	0.122	15							Internal									
860	27.99	27.67	1915.70		SEAMLESS	MILL FAULT	INT MFG	103	3	46	26	226	1915.70	224	1915.78	228	27.71	226	0.812	0.98	0.67	0.106	13							Internal									
860	27.99	27.70	1915.73		SEAMLESS	MILL FAULT	INT MFG	103	3	47	27	126	1915.73	119	1915.82	134	27.75	126	0.812	1.10	2.56	0.097	12							Internal									
860	27.99	27.76	1915.79		SEAMLESS	MILL FAULT	INT MFG	103	3	48	28	84	1915.79	81	1915.86	87	27.80	84	0.812	0.87	1.06	0.089	11							Internal									
870	27.73	27.99	1916.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1916.01		1943.74				0.812																				
880	23.66	27.73	1943.74		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1943.74		1967.40				0.812																				
890	25.51	23.66	1967.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1967.40		1992.91				0.812																				
900	26.90	25.51	1992.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					1992.91		2019.82				0.812																				
900	26.90	19.41	2012.32		SEAMLESS	MILL FAULT	EXT MFG	103	3	49	29	121	2012.32	120	2012.37	121	19.43	121	0.812	0.63	0.20	0.162	20							External									
900	26.90	19.62	2012.53		SEAMLESS	MILL FAULT	EXT MFG	103	3	50	30	161	2012.53	160	2012.62	161	19.66	161	0.812	1.02	0.20	0.243	30							External									
900	26.90	19.89	2012.81		SEAMLESS	MILL FAULT	*EXT MFG	103	3	51	31	51	2012.81	42	2013.09	60	20.07	51	0.812	3.43	3.07	0.252	31							External									
900	26.90	20.43	2013.34		SEAMLESS	MILL FAULT	EXT MFG	103	3	52	32	349	2013.34	349	2013.38	350	20.45	349	0.812	0.47	0.20	0.187	23							External									

ENBDNR0001266

436881_20B Issue 1
Enbridge Energy Limited Partnership
MFL 20in Inspection

Line 5: 20" Straits of Mackinac - West Leg
Run Date: 27 August 2013
Issue Date: 29 November 2013

Upstream Girth Weld	Joint Length (feet)	Relative Distance (feet)	Absolute Distance (feet)	Long Seam Orientation (Deg)	Weld Type	Feature Type	Comment	Feature Code	Feature Subtype	Feature ID	Cluster ID	Orient. (Deg)	Start Absolute Distance (feet)	Start Orient (Deg)	End Absolute Distance (feet)	End Orient. (Deg)	MSP Relative Distance (feet)	MSP Orient. (Deg)	Nominal Wall Thickness (in)	Length (in)	Width (in)	Peak Depth (in)	Peak Depth (%WallWT)	MSP Rel to LSW (Deg)	0.05 DL RPR	Effective Length (in)	Effective Depth (in)	Effective Depth (%WallWT)	Effective Area RPR	Radial Position	Data Degradation	Dent Depth (%OD)	Dent Depth (in)	Ovality (%OD)	Min ID (in)	Dent in Close Proximity	Dent Association	Top/Bottom Dent	Relative Position
910	25.30	26.90	2019.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2019.82		2045.11				0.812																				
910	25.30	19.96	2039.78		SEAMLESS	MILL FAULT	EXT MFG	103	3	53	33	294	2039.78	293	2039.84	294	19.99	294	0.812	0.71	0.20	0.178	22							External									
920	26.27	25.30	2045.11		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2045.11		2071.38				0.812																				
930	27.72	26.27	2071.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2071.38		2099.10				0.812																				
930	27.72	26.41	2097.79		SEAMLESS	MILL FAULT	EXT MFG	103	3	54	34	326	2097.79	303	2098.21	348	26.43	304	0.812	5.12	7.91	0.187	23							External									
930	27.72	26.52	2097.90		SEAMLESS	MILL FAULT	EXT MFG	103	3	55	35	84	2097.90	81	2097.94	86	26.54	84	0.812	0.43	0.79	0.203	25							External									
940	25.22	27.72	2099.10		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2099.10		2124.32				0.812																				
950	27.89	25.22	2124.32		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2124.32		2152.21				0.812																				
960	28.16	27.89	2152.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2152.21		2180.37				0.812																				
970	27.88	28.16	2180.37		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2180.37		2208.25				0.812																				
980	20.20	27.88	2208.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2208.25		2228.45				0.812																				
990	27.43	20.20	2228.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2228.46		2255.87				0.812																				
1000	27.90	27.43	2255.87		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2255.87		2283.77				0.812																				
1010	27.80	27.90	2283.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2283.77		2311.57				0.812																				
1020	27.89	27.80	2311.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2311.57		2339.46				0.812																				
1020	27.89	27.55	2339.12		SEAMLESS	MILL FAULT	INT MFG	103	3	56	36	195	2339.12	192	2339.22	198	27.60	195	0.812	1.26	0.98	0.146	18							Internal									
1030	27.64	27.89	2339.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2339.46		2367.09				0.812																				
1040	26.55	27.64	2367.09		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2367.09		2393.65				0.812																				
1040	26.55	0.32	2367.41		SEAMLESS	MILL FAULT	INT MFG	103	3	57	37	137	2367.41	134	2367.50	141	0.36	137	0.812	1.10	1.30	0.130	16							Internal									
1050	27.27	26.55	2393.65		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2393.65		2420.92				0.812																				
1050	27.27	0.14	2393.79		SEAMLESS	MILL FAULT	INT MFG	103	3	58	38	205	2393.79	194	2394.00	216	0.70	196	0.812	9.80	3.78	0.138	17							Internal									
1060	27.59	27.27	2420.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2420.92		2448.51				0.812																				
1060	27.59	25.81	2446.73		SEAMLESS	MILL FAULT	INT MFG	103	3	59	39	45	2446.73	42	2446.84	47	25.87	46	0.812	1.38	0.94	0.146	18							Internal									
1060	27.59	26.34	2447.26		SEAMLESS	MILL FAULT	INT MFG	103	3	60	40	59	2447.26	43	2447.98	76	26.38	57	0.812	8.58	5.83	0.162	20							Internal									
1060	27.59	26.45	2447.37		SEAMLESS	MILL FAULT	INT MFG	103	3	61	41	159	2447.37	157	2447.44	161	26.49	159	0.812	0.87	0.63	0.227	28							Internal									
1060	27.59	27.06	2447.98		SEAMLESS	MILL FAULT	INT MFG	103	3	62	42	195	2447.98	193	2448.02	197	27.08	195	0.812	0.43	0.63	0.138	17							Internal									
1070	23.51	27.59	2448.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2448.51		2472.02				0.812																				
1080	25.37	23.51	2472.02		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2472.02		2497.40				0.812																				
1090	26.20	25.37	2497.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2497.40		2523.60				0.812																				
1100	27.53	26.20	2523.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2523.60		2551.13				0.812																				
1100	27.53	26.98	2550.58		SEAMLESS	MILL FAULT	EXT MFG	103	3	63	43	356	2550.58	346	2550.80	6	27.17	347	0.812	2.64	3.43	0.211	26							External									
1110	27.04	27.53	2551.13		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2551.13		2578.17				0.812																				
1120	27.08	27.04	2578.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2578.17		2605.25				0.812																				
1130	22.29	27.08	2605.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2605.25		2627.54				0.812																				
1140	24.02	22.29	2627.54		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2627.54		2651.55				0.812																				
1150	22.92	24.02	2651.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2651.55		2674.48				0.812																				
1160	25.01	22.92	2674.48		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2674.48		2699.49				0.812																				
1170	25.27	25.01	2699.49		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2699.49		2724.76				0.812																				
1180	24.22	25.27	2724.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2724.76		2748.98				0.812																				
1190	23.71	24.22	2748.98		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2748.98		2772.69				0.812																				
1190	23.71	1.91	2750.89		SEAMLESS	MILL FAULT	INT MFG	103	3	64	44	345	2750.89	343	2750.95	348	1.94	345	0.812	0.75	0.79	0.113	14							Internal									
1190	23.71	2.42	2751.40		SEAMLESS	MILL FAULT	INT MFG	103	3	65	45	11	2751.40	9	2751.47	13	2.45	11	0.812	0.79	0.71	0.097	12							Internal									
1190	23.71	3.04	2752.02		SEAMLESS	MILL FAULT	INT MFG	103	3	66	46	6	2752.02	4	2752.07	9	3.06	6	0.812	0.51	0.91	0.113	14							Internal									
1190	23.71	4.06	2753.04		SEAMLESS	MILL FAULT	INT MFG	103	3	67	47	348	2753.04	345	2753.11	352	4.09	348	0.812	0.87	1.30	0.106	13							Internal									
1190	23.71	4.59	2753.57		SEAMLESS	MILL FAULT	INT MFG	103	3	68	48	6	2753.57	359	2753.66	12	4.62	10	0.812	1.10	2.24	0.057	7							Internal									
1190	23.71	7.67	2756.65		SEAMLESS	MILL FAULT	INT MFG	103	3	69	49	11	2756.65	8	2756.71	13	7.70	11	0.812	0.71	0.79	0.089	11							Internal									
1190	23.71	8.44	2757.43		SEAMLESS	MILL FAULT	INT MFG	103	3	70	50	329	2757.43	324	2757.49	334	8.48	329	0.812	0.83	1.69	0.073	9							Internal									
1190	23.71	20.21	2769.19		SEAMLESS	MILL FAULT	INT MFG	103	3	71	51	214	2769.19	212	2769.24	216	20.23	214	0.812	0.55	0.63	0.146	18							Internal									
1190	23.71	22.77	2771.75		SEAMLESS	MILL FAULT	INT MFG	103	3	72	52	331	2771.75	329	2771.79	332	22.79	331	0.812	0.51	0.47	0.130	16							Internal									
1190	23.71	23.31	2772.29		SEAMLESS	MILL FAULT	INT MFG	103	3	73	53	319	2772.29	317	2772.35	321	23.34	319	0.812	0.63	0.63	0.130	16							Internal									
1200	26.73	23.71	2772.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2772.69		2799.42				0.812																				
1210	26.72	26.73	2799.42		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2799.42		2826.14				0.812																				
1220	19.59	26.72	2826.14		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2826.14		2845.72				0.812																				
1220	19.59	0.70	2826.84		SEAMLESS	MILL FAULT	INT MFG	103	3	74	54	169	2826.84	160	2827.63	178	1.33	176	0.812	9.49	3.19	0.162	20							Internal									
1230	22.83	19.59	2845.72		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2845.72		2868.55				0.812																				
1240	26.94	22.83	2868.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2868.55		2895.48				0.812																				
1240	26.94	0.48	2869.02		SEAMLESS	MILL FAULT	INT MFG	103	3	75	55	339	2869.02	328	2869.25	351	0.55	333	0.812	2.72	4.02	0.089	11							Internal									
1250	22.47	26.94	2895.48		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2895.48		2917.96				0.812																				
1260	26.08	22.47	2917.96		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2917.96		2944.04				0.812																				
1270	27.26	26.08	2944.04		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2944.04		2971.30				0.812																				
1280	26.52	27.26	2971.30		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2971.30		2997.83				0.812																				
1280	26.52	11.32	2982.62		SEAMLESS	MILL FAULT	*EXT MFG	103	3	76	56	125	2982.62	124	2982.66	125	11.34	125	0.812	0.51	0.20	0.252	31							External									
1290	21.56	26.52	2997.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					2997.83		3019.38				0.812																				
1300	25.81	21.56	3019.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3019.38		3045.19				0.812																				
1310	27.31	25.81	3045.19		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3045.19		3072.49				0.812																				
1320	25.70	27.31	3072.49		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3072.49		3098.20				0.812																				
1330	27.80	25.70	3098.20		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3098.20		3125.99				0.812																				
1340	26.86	27.80	3125.99		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3125.99		3152.85				0.812																				
1350	25.78	26.86	3152.85		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3152.85		3178.63				0.812																				
1360	28.12	25.78	3178.63		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3178.63		3206.75				0.812																				
1370	26.83	28.12	3206.75		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3206.75		3233.57				0.812																				
1370	26.83	25.74	3232.49		SEAMLESS	MILL FAULT	EXT MFG	103	3	77	57	263	3232.49	263	3232.52	264	25.76	263	0.812	0.39	0.20	0.227	28							External									
1380	24.61	26.83	3233.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3233.57		3258.18				0.812																				
1380	24.61	23.11	3256.69		SEAMLESS	MILL FAULT	EXT MFG	103	3	78	58	214	3256.69	213	3256.75	214	23.14	214	0.812	0.71	0.20	0.252	31							External									
1390	24.64	24.61	3258.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3258.18		3282.82				0.812																				
1390	24.64	2.85	3261.03		SEAMLESS	MILL FAULT	EXT MFG	103	3	79	59	358	3261.03	352	3261.06	4	2.86	358	0.812	0.39	2.01	0.130	16							External									
1400	26.89	24.64	3282.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3282.82		3309.71				0.812																				
1410	26.80	26.89	3309.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3309.71		3336.51				0.812																				
1420	25.29	26.80	3336.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3336.51		3361.79				0.812																				
1430	28.39	25.29	3361.79		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3361.79		3390.18				0.812																				
1440	24.58	28.39	3390.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3390.18		3414.76				0.812																				
1440	24.58	24.31	3414.49		SEAMLESS	MILL FAULT	INT MFG	103	3	80	60	173	3414.49	170	3414.63	176	24.38	173	0.812	1.65	1.10	0.219	27							Internal									
1450	26.78	24.58	3414.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3414.76		3441.55				0.812																				
1460	22.12	26.78	3441.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3441.55		3463.67				0.812																				
1470	24.39	22.12	3463.67		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3463.67		3488.06				0.812																				
1480	25.83	24.39	3488.06		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3488.06		3513.89				0.812																				
1490	27.96	25.83	3513.89		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3513.89		3541.85				0.812																				
1500	24.22	27.96	3541.85		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3541.85		3566.08				0.812																				
1510	27.02	24.22	3566.08		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3566.08		3593.10				0.812																				
1520	19.72	27.02	3593.10		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3593.10		3612.82				0.812																				
1530	24.90	19.72	3612.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3612.82		3637.72				0.812																				
1540	27.72	24.90	3637.72		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3637.72		3665.44				0.812																				
1540	27.72	1.34	3639.06		SEAMLESS	MILL FAULT	EXT MFG	103	3	81	61	351	3639.06	349	3639.26	354	1.36	353	0.812	2.48	0.94	0.243	30							External									
1550	27.54	27.72	3665.44		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3665.44		3692.98				0.812																				
1560	27.90	27.54	3692.98		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3692.98		3720.88				0.812																				
1570	26.95	27.90	3720.88		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3720.88		3747.83				0.812																				
1580	26.30	26.95	3747.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3747.83		3774.12				0.812																				
1590	25.30	26.30	3774.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3774.12		3799.42				0.812																				
1600	22.97	25.30	3799.42		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3799.42		3822.39				0.812																				
1610	22.23	22.97	3822.39		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3822.39		3844.62				0.812																				
1620	28.39	22.23	3844.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3844.62		3873.01				0.812																				
1630	25.81	28.39	3873.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3873.01		3898.82				0.812																				
1640	22.67	25.81	3898.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3898.82		3921.49				0.812																				
1650	26.15	22.67	3921.49		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3921.49		3947.64				0.812																				
1660	23.94	26.15	3947.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3947.64		3971.58				0.812																				
1670	26.67	23.94	3971.58		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3971.58		3998.25				0.812																				
1680	26.63	26.67	3998.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					3998.25		4024.88				0.812																				
1690	26.99	26.63	4024.88		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4024.88		4051.87				0.812																				
1700	19.38	26.99	4051.87		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4051.87		4071.25				0.812																				
1710	25.77	19.38	4071.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4071.25		4097.01				0.812																				
1720	26.30	25.77	4097.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4097.01		4123.31				0.812																				
1730	27.84	26.30	4123.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4123.31		4151.16				0.812																				
1740	28.32	27.84	4151.16		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4151.16		4179.49				0.812																				
1750	26.73	28.32	4179.49		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4179.49		4206.21				0.812																				
1760	26.71	26.73	4206.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4206.21		4232.92				0.812																				
1770	27.34	26.71	4232.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4232.92		4260.26				0.812																				
1780	25.38	27.34	4260.26		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4260.26		4285.64				0.812																				
1790	26.68	25.38	4285.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4285.64		4312.32				0.812																				
1790	26.68	0.45	4286.09		SEAMLESS	MILL FAULT	EXT MFG	103	3	82	62	333	4286.09	333	4286.13	334	0.47	333	0.812	0.59	0.20	0.243	30							External									
1790	26.68	1.61	4287.25		SEAMLESS	MILL FAULT	EXT MFG	103	3	83	63	159	4287.25	159	4287.35	160	1.66	159	0.812	1.14	0.24	0.227	28							External									
1800	27.53	26.68	4312.32		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4312.32		4339.85				0.812																				
1800	27.53	20.88	4333.20		SEAMLESS	MILL FAULT	INT MFG	103	3	84	64	333	4333.20	330	4333.25	336	20.90	333	0.812	0.59	1.06	0.170	21							Internal									
1810	25.22	27.53	4339.85		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4339.85		4365.07				0.812																				
1820	25.94	25.22	4365.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4365.07		4391.01				0.812																				
1830	25.39	25.94	4391.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4391.01		4416.40				0.812																				
1840	20.83	25.39	4416.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4416.40		4437.24				0.812																				
1850	24.60	20.83	4437.24		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4437.24		4461.83				0.812																				
1860	26.39	24.60	4461.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4461.83		4488.22				0.812																				
1870	26.81	26.39	4488.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4488.22		4515.04				0.812																				
1880	27.32	26.81	4515.04		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4515.04		4542.36				0.812																				
1890	21.63	27.32	4542.36		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4542.36		4563.99				0.812																				
1900	27.65	21.63	4563.99		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4563.99		4591.63				0.812																				
1910	27.31	27.65	4591.63		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4591.63		4618.94				0.812																				
1920	27.39	27.31	4618.94		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4618.94		4646.33				0.812																				
1930	27.20	27.39	4646.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4646.33		4673.52				0.812																				
1940	28.12	27.20	4673.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4673.52		4701.64				0.812																				
1950	26.39	28.12	4701.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4701.64		4728.03				0.812																				
1950	26.39	2.48	4704.12		SEAMLESS	MILL FAULT	INT MFG	103	3	85	65	171	4704.12	164	4704.21	178	2.51	176	0.812	1.10	2.36	0.106	13							Internal									
1960	26.40	26.39	4728.03		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4728.03		4754.43				0.812																				
1970	25.49	26.40	4754.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4754.43		4779.92				0.812																				
1980	27.02	25.49	4779.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4779.92		4806.95				0.812																				

PII Pipeline Solutions

436881_20B Issue 1
Enbridge Energy Limited Partnership
MFL 20in Inspection

Line 5: 20" Straits of Mackinac - West Leg
Run Date: 27 August 2013
Issue Date: 29 November 2013

Upstream Girth Weld	Joint Length (feet)	Relative Distance (feet)	Absolute Distance (feet)	Long Seam Orientation (Deg)	Weld Type	Feature Type	Comment	Feature Code	Feature Subtype	Feature ID	Cluster ID	Orient. (Deg)	Start Absolute Distance (feet)	Start Orient (Deg)	End Absolute Distance (feet)	End Orient (Deg)	MSIP Relative Distance (feet)	MSIP Orient (Deg)	Nominal Wall Thickness (in)	Length (in)	Width (in)	Peak Depth (in)	Peak Depth (%NomWT)	MSIP Rel to LSW (Deg)	0.85 DL RPR	Effective Length (in)	Effective Depth (in)	Effective Depth (%NomWT)	Effective Area RPR	Radial Position	Data Degradation	Dent Depth (%OD)	Dent Depth (in)	Ovality (%OD)	Min ID (in)	Dent In Close Proximity	Dent Association	Top/Bottom Dent	Relative Position
1990	21.77	27.02	4806.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4806.95		4828.71				0.812																				
2000	26.18	21.77	4828.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4828.71		4854.89				0.812																				
2010	27.29	26.18	4854.89		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4854.89		4882.18				0.812																				
2020	26.54	27.29	4882.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4882.18		4908.71				0.812																				
2020	26.54	21.91	4904.09		SEAMLESS	MILL FAULT	INT MFG	103	3	86	66	225	4904.09	188	4904.54	262	21.95	191	0.812	5.43	12.83	0.089	11							Internal									
2020	26.54	23.44	4905.61		SEAMLESS	MILL FAULT	INT MFG	103	3	87	67	225	4905.61	223	4905.66	228	23.46	225	0.812	0.55	0.91	0.073	9							Internal									
2020	26.54	24.63	4906.80		SEAMLESS	MILL FAULT	INT MFG	103	3	88	68	221	4906.80	202	4907.22	240	24.82	206	0.812	5.00	6.65	0.081	10							Internal									
2020	26.54	25.34	4907.52		SEAMLESS	MILL FAULT	INT MFG	103	3	89	69	298	4907.52	271	4908.27	324	25.72	308	0.812	9.02	9.21	0.113	14							Internal									
2030	22.92	26.54	4908.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4908.71		4931.64				0.812																				
2040	27.58	22.92	4931.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4931.64		4959.22				0.812																				
2050	26.19	27.58	4959.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4959.22		4985.41				0.812																				
2060	27.68	26.19	4985.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					4985.41		5013.09				0.812																				
2070	27.32	27.68	5013.09		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5013.09		5040.41				0.812																				
2080	26.93	27.32	5040.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5040.41		5067.33				0.812																				
2080	26.93	24.48	5064.89		SEAMLESS	MILL FAULT	INT MFG	103	3	90	70	169	5064.89	165	5064.95	172	24.51	169	0.812	0.71	1.22	0.081	10							Internal									
2090	20.69	26.93	5067.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5067.33		5088.03				0.812																				
2100	27.78	20.69	5088.03		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5088.03		5115.80				0.812																				
2100	27.78	4.20	5092.22		SEAMLESS	MILL FAULT	INT MFG	103	3	91	71	266	5092.22	260	5092.32	273	4.24	266	0.812	1.14	2.28	0.041	5							Internal									
2110	25.70	27.78	5115.80		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5115.80		5141.50				0.812																				
2120	25.24	25.70	5141.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5141.50		5166.74				0.812																				
2120	25.24	18.86	5160.36		SEAMLESS	MILL FAULT	EXT MFG	103	3	92	72	253	5160.36	252	5160.42	253	18.89	253	0.812	0.71	0.20	0.203	25							External									
2120	25.24	19.54	5161.04		SEAMLESS	MILL FAULT	EXT MFG	103	3	93	73	251	5161.04	250	5161.07	252	19.55	251	0.812	0.31	0.28	0.187	23							External									
2120	25.24	19.87	5161.38		SEAMLESS	MILL FAULT	EXT MFG	103	3	94	74	283	5161.38	282	5161.39	283	19.88	283	0.812	0.20	0.24	0.162	20							External									
2120	25.24	22.27	5163.78		SEAMLESS	MILL FAULT	EXT MFG	103	3	95	75	243	5163.78	242	5163.83	243	22.30	243	0.812	0.59	0.20	0.219	27							External									
2120	25.24	23.10	5164.61		SEAMLESS	MILL FAULT	EXT MFG	103	3	96	76	255	5164.61	249	5164.90	261	23.37	253	0.812	3.54	2.05	0.170	21							External									
2130	26.20	25.24	5166.74		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5166.74		5192.95				0.812																				
2140	23.99	26.20	5192.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5192.95		5216.94				0.812																				
2150	27.66	23.99	5216.94		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5216.94		5244.60				0.812																				
2150	27.66	24.69	5241.63		SEAMLESS	MILL FAULT	EXT MFG	103	3	97	77	164	5241.63	144	5241.94	185	24.93	149	0.812	3.70	7.20	0.170	21							External									
2160	26.90	27.66	5244.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5244.60		5271.50				0.812																				
2170	25.88	26.90	5271.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5271.50		5297.38				0.812																				
2180	25.32	25.88	5297.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5297.38		5322.69				0.812																				
2190	25.53	25.32	5322.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5322.69		5348.22				0.812																				
2200	27.25	25.53	5348.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5348.22		5375.47				0.812																				
2210	27.53	27.25	5375.47		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5375.47		5403.00				0.812																				
2220	27.07	27.53	5403.00		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5403.00		5430.06				0.812																				
2230	23.82	27.07	5430.06		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5430.06		5453.88				0.812																				
2240	26.96	23.82	5453.88		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5453.88		5480.84				0.812																				
2250	27.14	26.96	5480.84		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5480.84		5507.98				0.812																				
2250	27.14	26.20	5507.04		SEAMLESS	MILL FAULT	EXT MFG	103	3	98	78	267	5507.04	259	5507.20	275	26.24	259	0.812	1.89	2.80	0.235	29							External									
2260	21.66	27.14	5507.98		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5507.98		5529.64				0.812																				
2270	26.11	21.66	5529.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5529.64		5555.74				0.812																				
2280	27.66	26.11	5555.74		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5555.74		5583.40				0.812																				
2290	25.65	27.66	5583.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5583.40		5609.05				0.812																				
2300	27.46	25.65	5609.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5609.05		5636.51				0.812																				
2310	26.02	27.46	5636.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5636.51		5662.52				0.812																				
2320	27.04	26.02	5662.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5662.52		5689.56				0.812																				
2330	27.55	27.04	5689.56		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5689.56		5717.10				0.812																				
2340	26.98	27.55	5717.10		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5717.10		5744.08				0.812																				
2340	26.98	14.00	5731.11		SEAMLESS	MILL FAULT	EXT MFG	103	3	99	79	300	5731.11	300	5731.14	301	14.02	300	0.812	0.39	0.20	0.227	28							External									
2350	25.66	26.98	5744.08		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5744.08		5769.74				0.812																				
2360	27.33	25.66	5769.74		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5769.74		5797.07				0.812																				
2370	24.28	27.33	5797.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5797.07		5821.35				0.812																				
2380	27.02	24.28	5821.35		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5821.35		5848.37				0.812																				
2390	20.46	27.02	5848.37		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5848.37		5868.83				0.812																				
2400	24.72	20.46	5868.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5868.83		5893.55				0.812																				
2410	25.74	24.72	5893.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5893.55		5919.29				0.812																				
2420	25.33	25.74	5919.29		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5919.29		5944.62				0.812																				
2430	21.65	25.33	5944.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5944.62		5966.27				0.812																				
2440	27.13	21.65	5966.27		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5966.27		5993.41				0.812																				
2450	26.52	27.13	5993.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					5993.41		6019.93				0.812																				
2460	27.50	26.52	6019.93		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6019.93		6047.43				0.812																				
2470	26.25	27.50	6047.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6047.43		6073.68				0.812																				
2480	27.86	26.25	6073.68		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6073.68		6101.54				0.812																				
2490	26.28	27.86	6101.54		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6101.54		6127.82				0.812																				
2500	25.48	26.28	6127.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6127.82		6153.30				0.812																				
2510	22.47	25.48	6153.30		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6153.30		6175.77				0.812																				
2520	27.46	22.47	6175.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6175.77		6203.23				0.812																				
2530	26.47	27.45	6203.23		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6203.23		6229.69				0.812																				
2540	27.24	26.47	6229.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6229.69		6256.93				0.812																				
2550	27.68	27.24	6256.93		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6256.93		6284.61				0.812																				
2560	26.01	27.68	6284.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6284.61		6310.62				0.812																				
2560	26.01	21.76	6306.37		SEAMLESS	MILL FAULT	EXT MFG	103	3	100	80	56	6306.37	55	6306.47	57	21.81	56	0.812	1.14	0.31	0.235	29							External									
2560	26.01	22.64	6307.25		SEAMLESS	MILL FAULT	EXT MFG	103	3	101	81	124	6307.25	119	6307.37	129	22.69	124	0.812	1.42	1.81	0.138	17							External									
2570	28.26	26.01	6310.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6310.62		6338.88				0.812																				
2580	27.90	28.26	6338.88		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6338.88		6366.78				0.812																				
2590	21.02	27.90	6366.78		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6366.78		6387.80				0.812																				
2600	26.53	21.02	6387.80		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6387.80		6414.33				0.812																				
2610	26.63	26.53	6414.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6414.33		6440.96				0.812																				
2620	23.36	26.63	6440.96		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6440.96		6464.31				0.812																				
2630	27.08	23.36	6464.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6464.31		6491.39				0.812																				
2640	26.19	27.08	6491.39		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6491.39		6517.59				0.812																				
2650	26.67	26.19	6517.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6517.59		6544.26				0.812																				
2660	27.16	26.67	6544.26		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6544.26		6571.41				0.812																				
2670	27.48	27.16	6571.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6571.41		6598.89				0.812																				
2680	26.43	27.48	6598.89		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6598.89		6625.33				0.812																				
2680	26.43	0.13	6599.02		SEAMLESS	MILL FAULT	INT MFG	103	3	102	82	142	6599.02	138	6599.09	146	0.16	142	0.812	0.87	1.18	0.106	13							Internal									
2690	27.27	26.43	6625.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6625.33		6652.60				0.812																				
2700	27.96	27.27	6652.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6652.60		6680.56				0.812																				
2710	27.78	27.96	6680.56		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6680.56		6708.34				0.812																				
2720	25.59	27.78	6708.34		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6708.34		6733.93				0.812																				
2730	25.98	25.59	6733.93		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6733.93		6759.92				0.812																				
2730	25.98	21.39	6755.33		SEAMLESS	MILL FAULT	EXT MFG	103	3	103	83	146	6755.33	145	6755.50	148	21.54	146	0.812	2.01	0.20	0.243	30							External									
2730	25.98	21.95	6755.89		SEAMLESS	MILL FAULT	*EXT MFG	103	3	104	84	48	6755.89	35	6756.31	60	21.98	58	0.812	5.00	4.29	0.292	36							External									
2730	25.98	22.05	6755.98		SEAMLESS	MILL FAULT	EXT MFG	103	3	105	85	104	6755.98	103	6756.04	105	22.08	104	0.812	0.71	0.31	0.211	26							External									
2730	25.98	23.09	6757.03		SEAMLESS	MILL FAULT	EXT MFG	103	3	106	86	348	6757.03	346	6757.06	349	23.11	348	0.812	0.39	0.47	0.211	26							External									
2730	25.98	24.51	6758.44		SEAMLESS	MILL FAULT	EXT MFG	103	3	107	87	140	6758.44	137	6758.58	142	24.61	138	0.812	1.65	0.79	0.227	28							External									
2740	20.81	25.98	6759.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6759.92		6780.73				0.812																				
2750	28.28	20.81	6780.73		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6780.73		6809.01				0.812																				
2750	28.28	1.11	6781.84		SEAMLESS	MILL FAULT	EXT MFG	103	3	108	88	171	6781.84	171	6781.87	172	1.13	171	0.812	0.39	0.20	0.227	28							External									
2760	27.85	28.28	6809.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6809.01		6836.86				0.812																				
2760	27.85	1.18	6810.20		SEAMLESS	MILL FAULT	EXT MFG	103	3	109	89	238	6810.20	236	6810.23	241	1.20	238	0.812	0.43	0.87	0.194	24							External									
2770	26.54	27.85	6836.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6836.86		6863.41				0.812																				
2780	25.31	26.54	6863.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6863.41		6888.71				0.812																				
2790	26.26	25.31	6888.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6888.71		6914.97				0.812																				
2800	23.34	26.26	6914.97		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6914.97		6938.31				0.812																				
2810	24.97	23.34	6938.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6938.31		6963.27				0.812																				
2820	27.17	24.97	6963.27		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6963.27		6990.44				0.812																				
2830	27.40	27.17	6990.44		SEAMLESS	GIRTH WELD	GIRTH WELD	1					6990.44		7017.84				0.812																				
2840	24.52	27.40	7017.84		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7017.84		7042.36				0.812																				
2850	27.19	24.52	7042.36		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7042.36		7069.54				0.812																				
2860	25.44	27.19	7069.54		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7069.54		7094.98				0.812																				
2870	25.96	25.44	7094.98		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7094.98		7120.94				0.812																				
2880	26.55	25.96	7120.94		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7120.94		7147.50				0.812																				
2890	26.35	26.55	7147.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7147.50		7173.84				0.812																				
2890	26.35	4.66	7152.16		SEAMLESS	MILL FAULT	*EXT MFG	103	3	110	90	313	7152.16	299	7152.50	326	4.94	301	0.812	4.09	4.69	0.235	29							External									
2890	26.35	25.58	7173.07		SEAMLESS	MILL FAULT	EXT MFG	103	3	111	91	288	7173.07	285	7173.14	291	25.61	288	0.812	0.83	1.02	0.170	21							External									
2900	26.07	26.35	7173.84		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7173.84		7199.91				0.812																				
2910	24.43	26.07	7199.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7199.91		7224.34				0.812																				
2920	28.00	24.43	7224.34		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7224.34		7252.34				0.812																				
2920	28.00	25.61	7249.95		SEAMLESS	MILL FAULT	*EXT MFG	103	3	112	92	52	7249.95	49	7250.03	55	25.65	52	0.812	0.91	0.98	0.243	30							External									
2930	26.41	28.00	7252.34		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7252.34		7278.75				0.812																				
2930	26.41	24.20	7276.54		SEAMLESS	MILL FAULT	EXT MFG	103	3	113	93	12	7276.54	359	7277.05	26	24.44	1	0.812	6.14	4.72	0.235	29							External									
2930	26.41	24.73	7277.07		SEAMLESS	MILL FAULT	EXT MFG	103	3	114	94	175	7277.07	175	7277.09	176	24.74	175	0.812	0.20	0.20	0.243	30							External									
2940	26.51	26.41	7278.75		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7278.75		7305.26				0.812																				
2950	27.94	26.51	7305.26		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7305.26		7333.20				0.812																				
2960	27.46	27.94	7333.20		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7333.20		7360.66				0.812																				
2970	26.89	27.46	7360.66		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7360.66		7387.56				0.812																				
2980	27.69	26.89	7387.56		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7387.56		7415.25				0.812																				
2990	27.19	27.69	7415.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7415.25		7442.43				0.812																				
2990	27.19	3.83	7419.08		SEAMLESS	MILL FAULT	INT MFG	103	3	115	95	190	7419.08	174	7419.21	205	3.85	204	0.812	1.61	5.43	0.130	16							Internal									
2990	27.19	4.22	7419.47		SEAMLESS	MILL FAULT	INT MFG	103	3	116	96	326	7419.47	324	7419.51	328	4.24	326	0.812	0.55	0.63	0.106	13							Internal									
2990	27.19	4.62	7419.86		SEAMLESS	MILL FAULT	INT MFG	103	3	117	97	60	7419.86	48	7419.99	72	4.68	60	0.812	1.50	4.13	0.016	2							Internal									
2990	27.19	4.68	7419.93		SEAMLESS	MILL FAULT	INT MFG	103	3	118	98	304	7419.93	301	7420.01	306	4.72	304	0.812	1.06	0.87	0.130	16							Internal									
2990	27.19	5.25	7420.50		SEAMLESS	MILL FAULT	INT MFG	103	3	119	99	307	7420.50	293	7420.58	321	5.28	318	0.812	0.94	4.88	0.113	14							Internal									
2990	27.19	5.76	7421.01		SEAMLESS	MILL FAULT	INT MFG	103	3	120	100	282	7421.01	273	7421.15	292	5.80	276	0.812	1.65	3.31	0.041	5							Internal									
2990	27.19	5.90	7421.15		SEAMLESS	MILL FAULT	INT MFG	103	3	121	101	142	7421.15	140	7421.20	145	5.93	142	0.812	0.67	0.79	0.081	10							Internal									
2990	27.19	6.50	7421.75		SEAMLESS	MILL FAULT	INT MFG	103	3	122	102	104	7421.75	101	7421.82	108	6.54	104	0.812	0.87	1.30	0.081	10							Internal									
3000	22.78	27.19	7442.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7442.43		7465.21				0.812																				
3010	26.16	22.78	7465.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7465.21		7491.37				0.812																				
3020	26.40	26.16	7491.37		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7491.37		7517.77				0.812																				

436881_20B Issue 1
Enbridge Energy Limited Partnership
MFL 20in Inspection

Line 5: 20" Straits of Mackinac - West Leg
Run Date: 27 August 2013
Issue Date: 29 November 2013

Upstream Girth Weld	Joint Length (feet)	Relative Distance (feet)	Absolute Distance (feet)	Long Seam Orientation (Deg)	Weld Type	Feature Type	Comment	Feature Code	Feature Subtype	Feature ID	Cluster ID	Orient. (Deg)	Start Absolute Distance (feet)	Start Orient (Deg)	End Absolute Distance (feet)	End Orient. (Deg)	MSP Relative Distance (feet)	MSP Orient. (Deg)	Nominal Wall Thickness (in)	Length (in)	Width (in)	Peak Depth (in)	Peak Depth (%NomWT)	MSP Rel to LSW (Deg)	0.85 DL RPR	Effective Length (in)	Effective Depth (in)	Effective Depth (%NomWT)	Effective Area RPR	Radial Position	Data Degradation	Dent Depth (%OD)	Dent Depth (in)	Ovality (%OD)	Min ID (in)	Dent in Close Proximity	Dent Association	Top/Bottom Dent	Relative Position
3030	20.51	26.40	7517.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7517.77		7538.28				0.812																				
3040	25.33	20.51	7538.28		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7538.28		7563.61				0.812																				
3050	26.31	25.33	7563.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7563.61		7589.92				0.812																				
3060	24.34	26.31	7589.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7589.92		7614.26				0.812																				
3070	26.67	24.34	7614.26		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7614.26		7640.94				0.812																				
3080	26.74	26.67	7640.94		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7640.94		7667.67				0.812																				
3080	26.74	0.27	7641.20		SEAMLESS	MILL FAULT	EXT MFG	103	3	123	103	175	7641.20	174	7641.23	177	0.29	175	0.812	0.31	0.55	0.162	20							External									
3090	27.51	26.74	7667.67		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7667.67		7695.18				0.812																				
3090	27.51	4.70	7672.38		SEAMLESS	MILL FAULT	INT MFG	103	3	124	104	243	7672.38	241	7672.42	246	4.72	243	0.812	0.55	0.63	0.113	14							Internal									
3090	27.51	5.59	7673.27		SEAMLESS	MILL FAULT	INT MFG	103	3	125	105	256	7673.27	252	7673.32	261	5.62	256	0.812	0.63	1.50	0.041	5							Internal									
3090	27.51	5.69	7673.36		SEAMLESS	MILL FAULT	INT MFG	103	3	126	106	196	7673.36	190	7673.50	202	5.72	194	0.812	1.73	2.01	0.097	12							Internal									
3090	27.51	6.30	7673.97		SEAMLESS	MILL FAULT	INT MFG	103	3	127	107	112	7673.97	109	7674.06	115	6.34	112	0.812	1.06	1.02	0.106	13							Internal									
3090	27.51	6.69	7674.36		SEAMLESS	MILL FAULT	INT MFG	103	3	128	108	174	7674.36	172	7674.42	176	6.71	174	0.812	0.67	0.63	0.081	10							Internal									
3090	27.51	7.43	7675.11		SEAMLESS	MILL FAULT	INT MFG	103	3	129	109	14	7675.11	358	7675.20	30	7.49	0	0.812	1.14	5.51	0.170	21							Internal									
3090	27.51	7.53	7675.20		SEAMLESS	MILL FAULT	INT MFG	103	3	130	110	250	7675.20	245	7675.30	255	7.56	252	0.812	1.18	1.69	0.073	9							Internal									
3090	27.51	8.49	7676.16		SEAMLESS	MILL FAULT	INT MFG	103	3	131	111	207	7676.16	204	7676.20	209	8.51	207	0.812	0.51	0.83	0.089	11							Internal									
3090	27.51	8.51	7676.19		SEAMLESS	MILL FAULT	INT MFG	103	3	132	112	323	7676.19	321	7676.24	325	8.54	323	0.812	0.63	0.75	0.106	13							Internal									
3090	27.51	8.77	7676.44		SEAMLESS	MILL FAULT	INT MFG	103	3	133	113	77	7676.44	73	7676.51	80	8.80	77	0.812	0.87	1.18	0.048	6							Internal									
3090	27.51	9.01	7676.68		SEAMLESS	MILL FAULT	INT MFG	103	3	134	114	185	7676.68	173	7676.91	197	9.20	175	0.812	2.68	4.21	0.106	13							Internal									
3090	27.51	9.85	7677.52		SEAMLESS	MILL FAULT	INT MFG	103	3	135	115	33	7677.52	22	7677.62	45	9.92	43	0.812	1.26	3.98	0.146	18							Internal									
3090	27.51	10.57	7678.24		SEAMLESS	MILL FAULT	INT MFG	103	3	136	116	233	7678.24	228	7678.30	238	10.60	233	0.812	0.71	1.77	0.008	1							Internal									
3090	27.51	10.96	7678.63		SEAMLESS	MILL FAULT	INT MFG	103	3	137	117	293	7678.63	288	7678.69	297	10.99	293	0.812	0.75	1.50	0.122	15							Internal									
3090	27.51	11.35	7679.02		SEAMLESS	MILL FAULT	INT MFG	103	3	138	118	47	7679.02	46	7679.07	49	11.37	47	0.812	0.67	0.75	0.138	17							Internal									
3090	27.51	12.45	7680.13		SEAMLESS	MILL FAULT	INT MFG	103	3	139	119	207	7680.13	187	7680.50	227	12.53	203	0.812	4.53	6.97	0.130	16							Internal									
3100	27.03	27.51	7695.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7695.18		7722.21				0.812																				
3110	25.61	27.03	7722.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7722.21		7747.83				0.812																				
3120	25.54	25.61	7747.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7747.83		7773.36				0.812																				
3130	27.78	25.54	7773.36		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7773.36		7801.14				0.812																				
3140	26.64	27.78	7801.14		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7801.14		7827.78				0.812																				
3150	27.02	26.64	7827.78		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7827.78		7854.80				0.812																				
3160	27.58	27.02	7854.80		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7854.80		7882.38				0.812																				
3160	27.58	0.17	7854.97		SEAMLESS	MILL FAULT	EXT MFG	103	3	140	120	269	7854.97	257	7855.14	281	0.31	278	0.812	2.09	4.13	0.194	24							External									
3170	11.31	27.58	7882.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7882.38		7893.69				0.812																				
3180	27.36	11.31	7893.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7893.69		7921.05				0.812																				
3180	27.36	18.88	7912.57		SEAMLESS	MILL FAULT	EXT MFG	103	3	141	121	304	7912.57	303	7912.60	304	18.90	304	0.812	0.39	0.20	0.211	26							External									
3190	28.42	27.36	7921.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7921.05		7949.48				0.812																				
3200	26.38	28.42	7949.48		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7949.48		7975.85				0.812																				
3210	26.15	26.38	7975.85		SEAMLESS	GIRTH WELD	GIRTH WELD	1					7975.85		8002.00				0.812																				
3220	25.01	26.15	8002.00		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8002.00		8027.01				0.812																				
3230	27.09	25.01	8027.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8027.01		8054.10				0.812																				
3230	27.09	16.74	8043.75		SEAMLESS	MILL FAULT	*EXT MFG	103	3	142	122	167	8043.75	167	8043.80	168	16.77	167	0.812	0.63	0.20	0.243	30							External									
3230	27.09	17.70	8044.71		SEAMLESS	MILL FAULT	EXT MFG	103	3	143	123	78	8044.71	77	8044.75	79	17.72	78	0.812	0.43	0.35	0.154	19							External									
3230	27.09	17.85	8044.86		SEAMLESS	MILL FAULT	EXT MFG	103	3	144	124	152	8044.86	152	8044.90	153	17.87	152	0.812	0.51	0.20	0.203	25							External									
3240	21.94	27.09	8054.10		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8054.10		8076.04				0.812																				
3250	24.42	21.94	8076.04		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8076.04		8100.46				0.812																				
3260	24.66	24.42	8100.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8100.46		8125.12				0.812																				
3270	25.48	24.66	8125.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8125.12		8150.60				0.812																				
3280	25.31	25.48	8150.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8150.60		8175.91				0.812																				
3290	26.53	25.31	8175.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8175.91		8202.44				0.812																				
3300	26.19	26.53	8202.44		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8202.44		8228.63				0.812																				
3310	27.90	26.19	8228.63		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8228.63		8256.53				0.812																				
3320	25.76	27.90	8256.53		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8256.53		8282.28				0.812																				
3330	28.05	25.76	8282.28		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8282.28		8310.34				0.812																				
3340	26.22	28.05	8310.34		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8310.34		8336.56				0.812																				
3350	26.88	26.22	8336.56		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8336.56		8363.44				0.812																				
3360	27.23	26.88	8363.44		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8363.44		8390.67				0.812																				
3360	27.23	20.34	8383.78		SEAMLESS	MILL FAULT	EXT MFG	103	3	145	125	123	8383.78	122	8383.82	123	20.36	123	0.812	0.47	0.20	0.211	26							External									
3370	27.93	27.23	8390.67		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8390.67		8418.60				0.812																				
3380	26.70	27.93	8418.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8418.60		8445.30				0.812																				
3390	23.13	26.70	8445.30		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8445.30		8468.43				0.812																				
3400	26.83	23.13	8468.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8468.43		8495.25				0.812																				
3410	26.53	26.83	8495.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8495.25		8521.79				0.812																				
3420	26.39	26.53	8521.79		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8521.79		8548.17				0.812																				
3430	27.84	26.39	8548.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8548.17		8576.02				0.812																				
3430	27.84	23.45	8571.62		SEAMLESS	MILL FAULT	INT MFG	103	3	146	126	339	8571.62	335	8571.67	344	23.47	339	0.812	0.59	1.57	0.041	5							Internal									
3430	27.84	25.11	8573.28		SEAMLESS	MILL FAULT	INT MFG	103	3	147	127	229	8573.28	227	8573.33	231	25.13	229	0.812	0.67	0.71	0.113	14							Internal									
3430	27.84	25.62	8573.79		SEAMLESS	MILL FAULT	INT MFG	103	3	148	128	169	8573.79	135	8574.31	203	25.65	199	0.812	6.26	11.85	0.089	11							Internal									
3430	27.84	26.62	8574.80		SEAMLESS	MILL FAULT	INT MFG	103	3	149	129	70	8574.80	51	8575.08	90	26.89	53	0.812	3.46	6.81	0.122	15							Internal									
3440	27.90	27.84	8576.02		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8576.02		8603.91				0.812																				
3440	27.90	17.81	8593.83		SEAMLESS	MILL FAULT	EXT MFG	103	3	150	130	117	8593.83	115	8593.90	118	17.85	117	0.812	0.91	0.51	0.154	19							External									
3440	27.90	18.43	8594.44		SEAMLESS	MILL FAULT	EXT MFG	103	3	151	131	103	8594.44	102	8594.49	103	18.45	103	0.812	0.55	0.20	0.219	27							External									
3450	23.57	27.90	8603.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8603.91		8627.48				0.812																				
3460	24.33	23.57	8627.48		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8627.48		8651.81				0.812																				
3460	24.33	20.60	8648.08		SEAMLESS	MILL FAULT	EXT MFG	103	3	152	132	74	8648.08	73	8648.17	74	20.63	74	0.812	1.06	0.20	0.227	28							External									
3460	24.33	21.86	8649.34		SEAMLESS	MILL FAULT	EXT MFG	103	3	153	133	82	8649.34	81	8649.39	82	21.88	82	0.812	0.55	0.20	0.203	25							External									
3470	25.32	24.33	8651.81		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8651.81		8677.13				0.812																				
3480	24.77	25.32	8677.13		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8677.13		8701.90				0.812																				
3490	26.71	24.77	8701.90		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8701.90		8728.61				0.812																				
3500	25.88	26.71	8728.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8728.61		8754.49				0.812																				
3500	25.88	4.03	8732.64		SEAMLESS	MILL FAULT	EXT MFG	103	3	154	134	123	8732.64	122	8732.67	124	4.05	123	0.812	0.31	0.35	0.203	25							External									
3510	24.89	25.88	8754.49		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8754.49		8779.37				0.812																				
3520	26.67	24.89	8779.37		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8779.37		8806.05				0.812																				
3530	27.97	26.67	8806.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8806.05		8834.01				0.812																				
3540	24.63	27.97	8834.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8834.01		8858.64				0.812																				
3550	28.00	24.63	8858.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8858.64		8886.64				0.812																				
3560	27.18	28.00	8886.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8886.64		8913.81				0.812																				
3570	25.96	27.18	8913.81		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8913.81		8939.77				0.812																				
3580	27.64	25.96	8939.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8939.77		8967.41				0.812																				
3580	27.64	1.54	8941.31		SEAMLESS	MILL FAULT	*EXT MFG	103	3	155	135	201	8941.31	190	8941.64	212	1.84	209	0.812	3.98	3.82	0.252	31							External									
3580	27.64	1.58	8941.36		SEAMLESS	MILL FAULT	EXT MFG	103	3	156	136	285	8941.36	284	8941.39	285	1.60	285	0.812	0.39	0.20	0.211	26							External									
3580	27.64	2.39	8942.16		SEAMLESS	MILL FAULT	*EXT MFG	103	3	157	137	277	8942.16	276	8942.20	277	2.41	277	0.812	0.51	0.20	0.252	31							External									
3580	27.64	2.91	8942.69		SEAMLESS	MILL FAULT	EXT MFG	103	3	158	138	268	8942.69	268	8942.72	269	2.93	268	0.812	0.39	0.20	0.227	28							External									
3580	27.64	4.00	8943.77		SEAMLESS	MILL FAULT	EXT MFG	103	3	159	139	46	8943.77	45	8944.09	48	4.01	47	0.812	3.82	0.55	0.219	27							External									
3580	27.64	10.83	8950.61		SEAMLESS	MILL FAULT	EXT MFG	103	3	160	140	172	8950.61	171	8950.64	172	10.85	172	0.812	0.39	0.20	0.243	30							External									
3580	27.64	11.03	8950.80		SEAMLESS	MILL FAULT	EXT MFG	103	3	161	141	310	8950.80	309	8950.84	310	11.05	310	0.812	0.39	0.20	0.227	28							External									
3580	27.64	21.73	8961.50		SEAMLESS	MILL FAULT	*EXT MFG	103	3	162	142	158	8961.50	147	8961.61	170	21.76	167	0.812	1.34	4.02	0.276	34							External									
3580	27.64	26.26	8966.03		SEAMLESS	MILL FAULT	EXT MFG	103	3	163	143	350	8966.03	349	8966.05	351	26.27	350	0.812	0.24	0.28	0.187	23							External									
3590	25.89	27.64	8967.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8967.41		8993.30				0.812																				
3590	25.89	1.69	8969.10		SEAMLESS	MILL FAULT	*EXT MFG	103	3	164	144	6	8969.10	6	8969.15	7	1.72	6	0.812	0.55	0.20	0.243	30							External									
3600	25.92	25.89	8993.30		SEAMLESS	GIRTH WELD	GIRTH WELD	1					8993.30		9019.22				0.812																				
3610	27.37	25.92	9019.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9019.22		9046.59				0.812																				
3620	27.44	27.37	9046.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9046.59		9074.03				0.812																				
3630	27.73	27.44	9074.03		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9074.03		9101.76				0.812																				
3640	27.52	27.73	9101.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9101.76		9129.28				0.812																				
3650	27.55	27.52	9129.28		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9129.28		9156.82				0.812																				
3660	21.95	27.55	9156.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9156.82		9178.77				0.812																				
3670	26.86	21.95	9178.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9178.77		9205.63				0.812																				
3680	26.99	26.86	9205.63		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9205.63		9232.62				0.812																				
3690	25.27	26.99	9232.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9232.62		9257.89				0.812																				
3700	27.25	25.27	9257.89		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9257.89		9285.15				0.812																				
3710	27.81	27.25	9285.15		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9285.15		9312.96				0.812																				
3720	27.65	27.81	9312.96		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9312.96		9340.60				0.812																				
3720	27.65	20.91	9333.87		SEAMLESS	MILL FAULT	EXT MFG	103	3	165	145	76	9333.87	75	9333.89	76	20.92	76	0.812	0.20	0.20	0.170	21							External									
3720	27.65	24.71	9337.67		SEAMLESS	MILL FAULT	EXT MFG	103	3	166	146	289	9337.67	276	9338.02	302	25.03	276	0.812	4.21	4.61	0.203	25							External									
3720	27.65	24.78	9337.74		SEAMLESS	MILL FAULT	EXT MFG	103	3	167	147	122	9337.74	118	9338.13	126	25.15	124	0.812	4.72	1.42	0.227	28							External									
3720	27.65	25.32	9338.28		SEAMLESS	MILL FAULT	EXT MFG	103	3	168	148	226	9338.28	226	9338.32	227	25.34	226	0.812	0.43	0.20	0.243	30							External									
3730	26.27	27.65	9340.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9340.60		9366.87				0.812																				
3740	27.73	26.27	9366.87		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9366.87		9394.61				0.812																				
3750	26.89	27.73	9394.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9394.61		9421.50				0.812																				
3760	28.36	26.89	9421.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9421.50		9449.86				0.812																				
3770	27.58	28.36	9449.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9449.86		9477.44				0.812																				
3770	27.58	2.19	9452.04		SEAMLESS	MILL FAULT	EXT MFG	103	3	169	149	292	9452.04	283	9452.48	301	2.60	301	0.812	5.24	3.11	0.187	23							External									
3780	26.52	27.58	9477.44		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9477.44		9503.96				0.812																				
3790	27.82	26.52	9503.96		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9503.96		9531.78				0.812																				
3800	27.21	27.82	9531.78		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9531.78		9558.99				0.812																				
3810	26.88	27.21	9558.99		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9558.99		9585.87				0.812																				
3810	26.88	0.66	9559.65		SEAMLESS	MILL FAULT	EXT MFG	103	3	170	150	239	9559.65	239	9559.72	240	0.70	239	0.812	0.87	0.20	0.227	28							External									
3810	26.88	1.19	9560.18		SEAMLESS	MILL FAULT	EXT MFG	103	3	171	151	216	9560.18	207	9560.57	224	1.56	207	0.812	4.72	3.03	0.227	28							External									
3820	24.84	26.88	9585.87		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9585.87		9610.71				0.812																				
3830	24.61	24.84	9610.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9610.71		9635.31				0.812																				
3840	26.76	24.61	9635.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9635.31		9662.07				0.812																				
3850	27.43	26.76	9662.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9662.07		9689.50				0.812																				
3860	28.14	27.43	9689.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9689.50		9717.64				0.812																				
3870	22.65	28.14	9717.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9717.64		9740.29				0.812																				
3870	22.65	0.50	9718.14		SEAMLESS	MILL FAULT	EXT MFG	103	3	172	152	196	9718.14	195	9718.17	196	0.51	196	0.812	0.35	0.20	0.203	25							External									
3870	22.65	1.00	9718.64		SEAMLESS	MILL FAULT	EXT MFG	103	3	173	153	20	9718.64	19	9718.70	20	1.03	20	0.812	0.75	0.20	0.235	29							External									
3870	22.65	5.88	9723.52		SEAMLESS	MILL FAULT	EXT MFG	103	3	174	154	333	9723.52	329	9723.90	336	5.91	336	0.812	4.53	1.22	0.227	28							External									
3870	22.65	6.54	9724.18		SEAMLESS	MILL FAULT	EXT MFG	103	3	175	155	133	9724.18	132	9724.24	134	6.57	133	0.812	0.75	0.43	0.211	26							External									
3870	22.65	20.65	9738.28		SEAMLESS	MILL FAULT	EXT MFG	103	3	176	156	91	9738.28	82	9738.40	100	20.73	99	0.812	1.34	3.15	0.154	19							External									
3880	26.68	22.65	9740.29		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9740.29		9766.97				0.812																				
3890	27.52	26.68	9766.97		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9766.97		9794.49				0.812																				

436881_20B Issue 1
Enbridge Energy Limited Partnership
MFL 20in Inspection

Line 5: 20" Straits of Mackinac - West Leg
Run Date: 27 August 2013
Issue Date: 29 November 2013

Upstream Girth Weld	Joint Length (feet)	Relative Distance (feet)	Absolute Distance (feet)	Long Seam Orientation (Deg)	Weld Type	Feature Type	Comment	Feature Code	Feature Subtype	Feature ID	Cluster ID	Orient. (Deg)	Start Absolute Distance (feet)	Start Orient. (Deg)	End Absolute Distance (feet)	End Orient. (Deg)	MSP Relative Distance (feet)	MSP Orient. (Deg)	Nominal Wall Thickness (in)	Length (in)	Width (in)	Peak Depth (in)	Peak Depth (%WbmWT)	MSP Rel to LSW (Deg)	0.85 DL RPR	Effective Length (in)	Effective Depth (in)	Effective Depth (%WbmWT)	Effective Area RPR	Radial Position	Data Degradation	Dent Depth (%OD)	Dent Depth (in)	Ovality (%OD)	Min ID (in)	Dent in Close Proximity	Dent Association	Top/Bottom Dent	Relative Position
3900	20.57	27.52	9794.49		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9794.49		9815.06				0.812																				
3910	27.85	20.57	9815.06		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9815.06		9842.91				0.812																				
3920	27.30	27.85	9842.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9842.91		9870.21				0.812																				
3930	27.57	27.30	9870.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9870.21		9897.78				0.812																				
3940	27.92	27.57	9897.78		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9897.78		9925.70				0.812																				
3950	24.96	27.92	9925.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9925.70		9950.66				0.812																				
3960	27.34	24.96	9950.66		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9950.66		9978.00				0.812																				
3970	26.39	27.34	9978.00		SEAMLESS	GIRTH WELD	GIRTH WELD	1					9978.00		10004.39				0.812																				
3980	27.82	26.39	10004.39		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10004.39		10032.21				0.812																				
3990	22.47	27.82	10032.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10032.21		10054.68				0.812																				
4000	27.65	22.47	10054.68		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10054.68		10082.33				0.812																				
4010	24.79	27.65	10082.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10082.33		10107.12				0.812																				
4020	26.05	24.79	10107.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10107.12		10133.17				0.812																				
4020	26.05	25.61	10132.73		SEAMLESS	MILL FAULT	*EXT MFG	103	3	177	157	232	10132.73	232	10132.75	233	25.62	232	0.812	0.24	0.20	0.268	33							External									
4030	23.61	26.05	10133.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10133.17		10156.78				0.812																				
4040	24.91	23.61	10156.78		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10156.78		10181.69				0.812																				
4050	22.67	24.91	10181.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10181.69		10204.36				0.812																				
4060	24.50	22.67	10204.36		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10204.36		10228.86				0.812																				
4070	27.16	24.50	10228.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10228.86		10256.01				0.812																				
4080	23.63	27.16	10256.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10256.01		10279.65				0.812																				
4090	26.80	23.63	10279.65		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10279.65		10306.45				0.812																				
4100	27.62	26.80	10306.45		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10306.45		10334.07				0.812																				
4110	27.51	27.62	10334.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10334.07		10361.57				0.812																				
4120	27.48	27.51	10361.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10361.57		10389.05				0.812																				
4130	26.86	27.48	10389.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10389.05		10415.91				0.812																				
4140	26.40	26.86	10415.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10415.91		10442.31				0.812																				
4140	26.40	19.98	10435.89		SEAMLESS	MILL FAULT	INT MFG	103	3	178	158	172	10435.89	165	10436.36	179	20.43	177	0.812	5.67	2.36	0.113	14							Internal									
4140	26.40	19.98	10435.90		SEAMLESS	MILL FAULT	INT MFG	103	3	179	159	123	10435.90	119	10435.95	127	20.01	123	0.812	0.67	1.42	0.057	7							Internal									
4140	26.40	20.49	10436.40		SEAMLESS	MILL FAULT	INT MFG	103	3	180	160	112	10436.40	99	10436.48	124	20.55	101	0.812	0.91	4.29	0.097	12							Internal									
4140	26.40	21.80	10437.72		SEAMLESS	MILL FAULT	INT MFG	103	3	181	161	259	10437.72	255	10437.77	264	21.83	259	0.812	0.59	1.61	0.016	2							Internal									
4140	26.40	22.46	10438.37		SEAMLESS	MILL FAULT	INT MFG	103	3	182	162	86	10438.37	71	10438.52	102	22.51	99	0.812	1.85	5.47	0.113	14							Internal									
4150	12.53	26.40	10442.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10442.31		10454.84				0.812																				
4160	19.84	12.53	10454.84		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10454.84		10474.68				0.812																				
4170	25.01	19.84	10474.68		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10474.68		10499.70				0.812																				
4180	26.72	25.01	10499.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10499.70		10526.41				0.812																				
4190	27.76	26.72	10526.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10526.41		10554.17				0.812																				
4200	26.05	27.76	10554.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10554.17		10580.22				0.812																				
4200	26.05	3.05	10557.22		SEAMLESS	MILL FAULT	EXT MFG	103	3	183	163	246	10557.22	245	10557.24	246	3.06	246	0.812	0.35	0.20	0.194	24							External									
4210	26.55	26.05	10580.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10580.22		10606.77				0.812																				
4210	26.55	0.31	10580.53		SEAMLESS	MILL FAULT	INT MFG	103	3	184	164	279	10580.53	260	10580.81	299	0.56	263	0.812	3.35	6.85	0.122	15							Internal									
4220	27.18	26.55	10606.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10606.77		10633.95				0.812																				
4220	27.18	9.47	10616.23		SEAMLESS	MILL FAULT	EXT MFG	103	3	185	165	0	10616.23	354	10616.59	6	9.51	355	0.812	4.33	2.09	0.227	28							External									
4230	21.20	27.18	10633.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10633.95		10655.15				0.812																				
4240	27.35	21.20	10655.15		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10655.15		10682.50				0.812																				
4250	20.08	27.35	10682.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10682.50		10702.58				0.812																				
4260	25.18	20.08	10702.58		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10702.58		10727.77				0.812																				
4270	27.45	25.18	10727.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10727.77		10755.22				0.812																				
4280	26.09	27.45	10755.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10755.22		10781.31				0.812																				
4290	28.12	26.09	10781.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10781.31		10809.43				0.812																				
4290	28.12	4.42	10785.73		SEAMLESS	MILL FAULT	EXT MFG	103	3	186	166	311	10785.73	309	10785.82	314	4.46	311	0.812	1.10	0.83	0.187	23							External									
4290	28.12	7.06	10788.37		SEAMLESS	MILL FAULT	EXT MFG	103	3	187	167	266	10788.37	264	10788.42	267	7.09	266	0.812	0.55	0.59	0.178	22							External									
4290	28.12	8.68	10789.99		SEAMLESS	MILL FAULT	*EXT MFG	103	3	188	168	228	10789.99	226	10790.06	230	8.72	228	0.812	0.94	0.71	0.308	38							External									
4290	28.12	9.50	10790.81		SEAMLESS	MILL FAULT	*EXT MFG	103	3	189	169	214	10790.81	211	10791.04	218	9.52	214	0.812	2.76	1.30	0.276	34							External									
4290	28.12	10.16	10791.47		SEAMLESS	MILL FAULT	EXT MFG	103	3	190	170	212	10791.47	209	10791.53	215	10.19	212	0.812	0.71	1.02	0.178	22							External									
4290	28.12	10.81	10792.12		SEAMLESS	MILL FAULT	*EXT MFG	103	3	191	171	210	10792.12	205	10792.55	215	11.21	206	0.812	5.24	1.81	0.243	30							External									
4300	27.70	28.12	10809.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10809.43		10837.13				0.812																				
4310	25.98	27.70	10837.13		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10837.13		10863.11				0.812																				
4320	27.24	25.98	10863.11		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10863.11		10890.35				0.812																				
4320	27.24	8.16	10871.27		SEAMLESS	MILL FAULT	EXT MFG	103	3	192	172	110	10871.27	106	10871.40	114	8.22	110	0.812	1.54	1.34	0.187	23							External									
4320	27.24	8.29	10871.40		SEAMLESS	MILL FAULT	EXT MFG	103	3	193	173	70	10871.40	65	10871.53	75	8.36	70	0.812	1.54	1.69	0.122	15							External									
4320	27.24	10.28	10873.40		SEAMLESS	MILL FAULT	EXT MFG	103	3	194	174	97	10873.40	93	10873.48	100	10.32	97	0.812	0.98	1.14	0.081	10							External									
4320	27.24	14.70	10877.81		SEAMLESS	MILL FAULT	*EXT MFG	103	3	195	175	321	10877.81	316	10878.04	326	14.89	318	0.812	2.76	1.69	0.252	31							External									
4330	23.24	27.24	10890.35		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10890.35		10913.59				0.812																				
4340	28.03	23.24	10913.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10913.59		10941.62				0.812																				
4340	28.03	0.42	10914.01		SEAMLESS	MILL FAULT	*EXT MFG	103	3	196	176	298	10914.01	298	10914.03	299	0.43	298	0.812	0.28	0.20	0.252	31							External									
4350	25.98	28.03	10941.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10941.62		10967.61				0.812																				
4360	26.58	25.98	10967.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10967.61		10994.18				0.812																				
4370	27.73	26.58	10994.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					10994.18		11021.92				0.812																				
4370	27.73	2.65	10996.83		SEAMLESS	MILL FAULT	EXT MFG	103	3	197	177	125	10996.83	123	10996.91	127	2.69	125	0.812	0.98	0.63	0.227	28							External									
4380	24.15	27.73	11021.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11021.92		11046.06				0.812																				
4390	23.63	24.15	11046.06		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11046.06		11069.70				0.812																				
4400	27.11	23.63	11069.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11069.70		11096.81				0.812																				
4410	26.72	27.11	11096.81		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11096.81		11123.52				0.812																				
4420	25.31	26.72	11123.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11123.52		11148.83				0.812																				
4420	25.31	2.41	11125.93		SEAMLESS	MILL FAULT	EXT MFG	103	3	198	178	9	11125.93	2	11126.56	16	2.77	7	0.812	7.60	2.52	0.243	30							External									
4420	25.31	4.12	11127.64		SEAMLESS	MILL FAULT	EXT MFG	103	3	199	179	248	11127.64	248	11127.67	249	4.13	248	0.812	0.39	0.20	0.211	26							External									
4430	27.77	25.31	11148.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11148.83		11176.60				0.812																				
4440	26.48	27.77	11176.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11176.60		11203.07				0.812																				
4450	27.58	26.48	11203.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11203.07		11230.65				0.812																				
4460	26.38	27.58	11230.65		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11230.65		11257.03				0.812																				
4470	24.30	26.38	11257.03		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11257.03		11281.33				0.812																				
4480	25.73	24.30	11281.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11281.33		11307.06				0.812																				
4490	23.79	25.73	11307.06		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11307.06		11330.85				0.812																				
4490	23.79	13.73	11320.79		SEAMLESS	MILL FAULT	EXT MFG	103	3	200	180	146	11320.79	145	11320.83	146	13.75	145	0.812	0.47	0.20	0.187	23							External									
4500	27.89	23.79	11330.85		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11330.85		11358.74				0.812																				
4510	19.36	27.89	11358.74		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11358.74		11378.09				0.812																				
4510	19.36	15.99	11374.73		SEAMLESS	MILL FAULT	INT MFG	103	3	201	181	160	11374.73	159	11374.77	161	16.01	160	0.812	0.47	0.43	0.211	26							Internal									
4510	19.36	19.07	11377.80		SEAMLESS	MILL FAULT	EXT MFG	103	3	202	182	20	11377.80	19	11377.82	20	19.07	20	0.812	0.20	0.20	0.178	22							External									
4520	27.55	19.36	11378.09		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11378.09		11405.64				0.812																				
4530	26.19	27.55	11405.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11405.64		11431.83				0.812																				
4530	26.19	23.47	11429.10		SEAMLESS	MILL FAULT	EXT MFG	103	3	203	183	48	11429.10	48	11429.14	49	23.48	48	0.812	0.39	0.20	0.243	30							External									
4540	26.87	26.19	11431.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11431.83		11458.70				0.812																				
4550	26.73	26.87	11458.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11458.70		11485.43				0.812																				
4560	23.20	26.73	11485.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11485.43		11508.63				0.812																				
4570	26.07	23.20	11508.63		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11508.63		11534.70				0.812																				
4580	24.81	26.07	11534.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11534.70		11559.51				0.812																				
4590	27.19	24.81	11559.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11559.51		11586.70				0.812																				
4600	27.67	27.19	11586.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11586.70		11614.37				0.812																				
4610	25.42	27.67	11614.37		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11614.37		11639.78				0.812																				
4620	27.42	25.42	11639.78		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11639.78		11667.20				0.812																				
4630	26.36	27.42	11667.20		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11667.20		11693.56				0.812																				
4640	27.02	26.36	11693.56		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11693.56		11720.58				0.812																				
4650	24.88	27.02	11720.58		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11720.58		11745.46				0.812																				
4660	23.43	24.88	11745.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11745.46		11768.89				0.812																				
4670	23.40	23.43	11768.89		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11768.89		11792.29				0.812																				
4680	25.83	23.40	11792.29		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11792.29		11818.12				0.812																				
4690	27.86	25.83	11818.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11818.12		11845.99				0.812																				
4700	25.43	27.86	11845.99		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11845.99		11871.41				0.812																				
4710	27.93	25.43	11871.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11871.41		11899.34				0.812																				
4720	23.24	27.93	11899.34		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11899.34		11922.58				0.812																				
4730	26.44	23.24	11922.58		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11922.58		11949.03				0.812																				
4740	26.74	26.44	11949.03		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11949.03		11975.76				0.812																				
4750	27.29	26.74	11975.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					11975.76		12003.05				0.812																				
4760	26.51	27.29	12003.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12003.05		12029.56				0.812																				
4760	26.51	25.54	12028.59		SEAMLESS	MILL FAULT	EXT MFG	103	3	204	184	194	12028.59	194	12028.63	195	25.56	194	0.812	0.43	0.20	0.227	28							External									
4760	26.51	25.62	12028.68		SEAMLESS	MILL FAULT	EXT MFG	103	3	205	185	124	12028.68	118	12028.81	131	25.64	130	0.812	1.65	2.28	0.219	27							External									
4770	27.63	26.51	12029.56		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12029.56		12057.19				0.812																				
4780	26.83	27.63	12057.19		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12057.19		12084.01				0.812																				
4780	26.83	0.21	12057.40		SEAMLESS	MILL FAULT	EXT MFG	103	3	206	186	173	12057.40	173	12057.44	174	0.23	173	0.812	0.51	0.20	0.203	25							External									
4790	26.30	26.83	12084.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12084.01		12110.31				0.812																				
4800	27.33	26.30	12110.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12110.31		12137.64				0.812																				
4810	27.01	27.33	12137.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12137.64		12164.66				0.812																				
4820	26.67	27.01	12164.66		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12164.66		12191.33				0.812																				
4830	27.84	26.67	12191.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12191.33		12219.16				0.812																				
4840	26.39	27.84	12219.16		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12219.16		12245.55				0.812																				
4850	26.06	26.39	12245.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12245.55		12271.61				0.812																				
4860	23.74	26.06	12271.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12271.61		12295.35				0.812																				
4870	21.16	23.74	12295.35		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12295.35		12316.51				0.812																				
4880	26.73	21.16	12316.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12316.51		12343.24				0.812																				
4890	27.58	26.73	12343.24		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12343.24		12370.82				0.812																				
4900	23.03	27.58	12370.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12370.82		12393.86				0.812																				
4910	27.01	23.03	12393.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12393.86		12420.87				0.812																				
4920	26.30	27.01	12420.87		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12420.87		12447.17				0.812																				
4930	27.65	26.30	12447.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12447.17		12474.81				0.812																				
4940	27.37	27.65	12474.81		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12474.81		12502.18				0.812																				
4950	27.19	27.37	12502.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12502.18		12529.36				0.812																				
4960	23.58	27.19	12529.36		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12529.36		12552.94				0.812																				
4970	26.97	23.58	12552.94		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12552.94		12579.91				0.812																				
4980	25.79	26.97	12579.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12579.91		12605.70				0.812																				
4990	27.58	25.79	12605.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12605.70		12633.28				0.812																				
5000	21.97	27.58	12633.28		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12633.28		12655.25				0.812																				

ENBDNR0001270

PII Pipeline Solutions

436881_20B Issue 1
Enbridge Energy Limited Partnership
MFL 20in Inspection

Line 5: 20" Straits of Mackinac - West Leg
Run Date: 27 August 2013
Issue Date: 29 November 2013

Upstream Girth Weld	Joint Length (feet)	Relative Distance (feet)	Absolute Distance (feet)	Long Seam Orientation (Deg)	Weld Type	Feature Type	Comment	Feature Code	Feature Subtype	Feature ID	Cluster ID	Orient. (Deg)	Start Absolute Distance (feet)	Start Orient (Deg)	End Absolute Distance (feet)	End Orient. (Deg)	MSP Relative Distance (feet)	MSP Orient. (Deg)	Nominal Wall Thickness (in)	Length (in)	Width (in)	Peak Depth (in)	Peak Depth (%Nom WT)	MSP Rel to LSW (Deg)	0.85 DL RPR	Effective Length (in)	Effective Depth (in)	Effective Depth (%Nom WT)	Effective Area RPR	Radial Position	Data Degradation	Dent Depth (%OD)	Dent Depth (in)	Ovality (%OD)	Min ID (in)	Dent in Close Proximity	Dent Association	Top/Bottom Dent	Relative Position
5010	24.91	21.97	12655.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12655.25		12680.16				0.812																				
5020	26.30	24.91	12680.16		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12680.16		12706.46				0.812																				
5030	25.43	26.30	12706.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12706.46		12731.89				0.812																				
5040	24.44	25.43	12731.89		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12731.89		12756.33				0.812																				
5050	25.38	24.44	12756.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12756.33		12781.72				0.812																				
5060	25.39	25.38	12781.72		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12781.72		12807.11				0.812																				
5070	26.31	25.39	12807.11		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12807.11		12833.42				0.812																				
5080	26.50	26.31	12833.42		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12833.42		12859.92				0.812																				
5090	24.77	26.50	12859.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12859.92		12884.69				0.812																				
5100	26.01	24.77	12884.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12884.69		12910.70				0.812																				
5100	26.01	2.51	12887.20		SEAMLESS	MILL FAULT	INT MFG	103	3	207	187	3	12887.20	359	12887.27	7	2.55	3	0.812	0.87	1.42	0.089	11							Internal									
5100	26.01	11.14	12895.83		SEAMLESS	MILL FAULT	INT MFG	103	3	208	188	321	12895.83	317	12895.91	324	11.18	321	0.812	0.91	1.30	0.138	17							Internal									
5100	26.01	11.44	12896.13		SEAMLESS	MILL FAULT	INT MFG	103	3	209	189	51	12896.13	48	12896.20	55	11.47	51	0.812	0.87	1.22	0.113	14							Internal									
5110	27.55	26.01	12910.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12910.70		12938.25				0.812																				
5120	16.62	27.55	12938.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12938.25		12954.87				0.812																				
5130	25.97	16.62	12954.87		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12954.87		12980.84				0.812																				
5130	25.97	18.64	12973.51		SEAMLESS	MILL FAULT	*EXT MFG	103	3	210	190	283	12973.51	262	12974.11	304	19.06	269	0.812	7.24	7.32	0.300	37							External									
5140	25.73	25.97	12980.84		SEAMLESS	GIRTH WELD	GIRTH WELD	1					12980.84		13006.57				0.812																				
5150	24.81	25.73	13006.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13006.57		13031.39				0.812																				
5160	27.68	24.81	13031.39		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13031.39		13059.07				0.812																				
5170	26.65	27.68	13059.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13059.07		13085.72				0.812																				
5180	19.92	26.65	13085.72		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13085.72		13105.63				0.812																				
5190	26.96	19.92	13105.63		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13105.63		13132.59				0.812																				
5200	24.21	26.96	13132.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13132.59		13156.80				0.812																				
5210	26.46	24.21	13156.80		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13156.80		13183.26				0.812																				
5220	28.24	26.46	13183.26		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13183.26		13211.50				0.812																				
5230	27.02	28.24	13211.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13211.50		13238.52				0.812																				
5230	27.02	25.97	13237.47		SEAMLESS	MILL FAULT	INT MFG	103	3	211	191	341	13237.47	339	13237.53	343	26.01	341	0.812	0.75	0.71	0.154	19							Internal									
5240	24.85	27.02	13238.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13238.52		13263.36				0.812																				
5250	26.37	24.85	13263.36		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13263.36		13289.73				0.812																				
5260	21.52	26.37	13289.73		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13289.73		13311.25				0.812																				
5270	25.15	21.52	13311.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13311.25		13336.40				0.812																				
5280	25.08	25.15	13336.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13336.40		13361.48				0.812																				
5290	24.09	25.08	13361.48		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13361.48		13385.57				0.812																				
5290	24.09	5.64	13367.13		SEAMLESS	MILL FAULT	INT MFG	103	3	212	192	256	13367.13	250	13367.23	261	5.70	256	0.812	1.30	1.85	0.008	1							Internal									
5290	24.09	6.34	13367.82		SEAMLESS	MILL FAULT	INT MFG	103	3	213	193	244	13367.82	235	13367.87	252	6.36	244	0.812	0.67	2.91	0.041	5							Internal									
5290	24.09	6.80	13368.28		SEAMLESS	MILL FAULT	INT MFG	103	3	214	194	228	13368.28	223	13368.33	233	6.83	228	0.812	0.59	1.77	0.041	5							Internal									
5290	24.09	19.65	13381.13		SEAMLESS	MILL FAULT	INT MFG	103	3	215	195	60	13381.13	38	13381.52	81	19.70	50	0.812	4.72	7.56	0.081	10							Internal									
5300	26.09	24.09	13385.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13385.57		13411.67				0.812																				
5300	26.09	25.77	13411.35		SEAMLESS	MILL FAULT	EXT MFG	103	3	216	196	222	13411.35	217	13411.46	226	25.83	222	0.812	1.34	1.61	0.130	16							External									
5310	27.11	26.09	13411.67		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13411.67		13438.78				0.812																				
5310	27.11	7.98	13419.65		SEAMLESS	MILL FAULT	INT MFG	103	3	217	197	105	13419.65	85	13420.16	126	8.45	121	0.812	6.14	7.09	0.106	13							Internal									
5310	27.11	9.38	13421.05		SEAMLESS	MILL FAULT	INT MFG	103	3	218	198	166	13421.05	161	13421.12	171	9.42	166	0.812	0.94	1.77	0.113	14							Internal									
5310	27.11	10.34	13422.01		SEAMLESS	MILL FAULT	INT MFG	103	3	219	199	204	13422.01	201	13422.05	206	10.36	204	0.812	0.51	0.87	0.065	8							Internal									
5320	25.45	27.11	13438.78		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13438.78		13464.23				0.812																				
5330	26.94	25.45	13464.23		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13464.23		13491.17				0.812																				
5340	28.45	26.94	13491.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13491.17		13519.62				0.812																				
5350	25.45	28.45	13519.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13519.62		13545.07				0.812																				
5360	26.54	25.45	13545.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13545.07		13571.61				0.812																				
5370	27.25	26.54	13571.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13571.61		13598.86				0.812																				
5380	19.14	27.25	13598.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13598.86		13618.00				0.812																				
5390	21.64	19.14	13618.00		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13618.00		13639.64				0.812																				
5400	23.09	21.64	13639.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13639.64		13662.73				0.812																				
5410	26.36	23.09	13662.73		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13662.73		13689.09				0.812																				
5420	27.58	26.36	13689.09		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13689.09		13716.67				0.812																				
5430	24.26	27.58	13716.67		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13716.67		13740.92				0.812																				
5440	25.09	24.26	13740.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13740.92		13766.01				0.812																				
5450	27.08	25.09	13766.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13766.01		13793.09				0.812																				
5460	23.54	27.08	13793.09		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13793.09		13816.62				0.812																				
5470	22.50	23.54	13816.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13816.62		13839.12				0.812																				
5480	26.47	22.50	13839.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13839.12		13865.58				0.812																				
5490	27.89	26.47	13865.58		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13865.58		13893.47				0.812																				
5500	27.18	27.89	13893.47		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13893.47		13920.65				0.812																				
5510	26.61	27.18	13920.65		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13920.65		13947.25				0.812																				
5520	24.70	26.61	13947.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13947.25		13971.95				0.812																				
5530	27.85	24.70	13971.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13971.95		13999.80				0.812																				
5530	27.85	4.79	13976.74		SEAMLESS	MILL FAULT	INT MFG	103	3	220	200	338	13976.74	334	13976.83	341	4.83	338	0.812	1.06	1.22	0.081	10							Internal									
5530	27.85	5.43	13977.38		SEAMLESS	MILL FAULT	INT MFG	103	3	221	201	3	13977.38	335	13977.91	32	5.93	338	0.812	6.42	10.00	0.097	12							Internal									
5540	27.66	27.85	13999.80		SEAMLESS	GIRTH WELD	GIRTH WELD	1					13999.80		14027.46				0.812																				
5540	27.66	0.96	14000.76		SEAMLESS	MILL FAULT	EXT MFG	103	3	222	202	180	14000.76	179	14000.79	180	0.97	180	0.812	0.39	0.20	0.235	29							External									
5550	20.78	27.66	14027.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14027.46		14048.24				0.812																				
5560	25.99	20.78	14048.24		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14048.24		14074.24				0.812																				
5570	25.69	25.99	14074.24		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14074.24		14099.93				0.812																				
5580	25.47	25.69	14099.93		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14099.93		14125.39				0.812																				
5580	25.47	3.04	14102.97		SEAMLESS	MILL FAULT	EXT MFG	103	3	223	203	208	14102.97	181	14103.25	236	3.07	217	0.812	3.43	9.69	0.219	27							External									
5580	25.47	18.94	14118.87		SEAMLESS	MILL FAULT	EXT MFG	103	3	224	204	109	14118.87	108	14119.20	111	18.96	108	0.812	4.02	0.55	0.194	24							External									
5580	25.47	20.45	14120.38		SEAMLESS	MILL FAULT	EXT MFG	103	3	225	205	10	14120.38	10	14120.46	11	20.49	10	0.812	0.98	0.20	0.227	28							External									
5590	26.36	25.47	14125.39		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14125.39		14151.75				0.812																				
5600	21.29	26.36	14151.75		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14151.75		14173.04				0.812																				
5610	27.08	21.29	14173.04		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14173.04		14200.12				0.812																				
5620	25.11	27.08	14200.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14200.12		14225.23				0.812																				
5630	27.62	25.11	14225.23		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14225.23		14252.84				0.812																				
5640	25.66	27.62	14252.84		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14252.84		14278.50				0.812																				
5650	27.31	25.66	14278.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14278.50		14305.81				0.812																				
5660	26.52	27.31	14305.81		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14305.81		14332.33				0.812																				
5670	27.18	26.52	14332.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14332.33		14359.51				0.812																				
5680	27.19	27.18	14359.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14359.51		14386.69				0.812																				
5690	27.86	27.19	14386.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14386.69		14414.56				0.812																				
5700	26.84	27.86	14414.56		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14414.56		14441.39				0.812																				
5710	21.93	26.84	14441.39		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14441.39		14463.32				0.812																				
5710	21.93	1.83	14443.23		SEAMLESS	MILL FAULT	*EXT MFG	103	3	226	206	15	14443.23	14	14443.28	15	1.86	15	0.812	0.59	0.20	0.292	36							External									
5720	25.79	21.93	14463.32		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14463.32		14489.11				0.812																				
5730	26.22	25.79	14489.11		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14489.11		14515.33				0.812																				
5740	25.82	26.22	14515.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14515.33		14541.15				0.812																				
5740	25.82	18.91	14534.24		SEAMLESS	MILL FAULT	EXT MFG	103	3	227	207	70	14534.24	70	14534.28	71	18.93	70	0.812	0.47	0.20	0.211	26							External									
5750	22.46	25.82	14541.15		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14541.15		14563.62				0.812																				
5760	26.98	22.46	14563.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14563.62		14590.59				0.812																				
5770	21.37	26.98	14590.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14590.59		14611.96				0.812																				
5780	27.35	21.37	14611.96		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14611.96		14639.32				0.812																				
5790	26.04	27.35	14639.32		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14639.32		14665.35				0.812																				
5800	25.35	26.04	14665.35		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14665.35		14690.70				0.812																				
5810	28.25	25.35	14690.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14690.70		14718.95				0.812																				
5820	24.78	28.25	14718.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14718.95		14743.73				0.812																				
5830	25.43	24.78	14743.73		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14743.73		14769.16				0.812																				
5840	26.53	25.43	14769.16		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14769.16		14795.69				0.812																				
5850	26.88	26.53	14795.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14795.69		14822.57				0.812																				
5860	27.47	26.88	14822.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14822.57		14850.04				0.812																				
5870	26.36	27.47	14850.04		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14850.04		14876.40				0.812																				
5880	28.55	26.36	14876.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14876.40		14904.95				0.812																				
5890	27.95	28.55	14904.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14904.95		14932.91				0.812																				
5890	27.95	26.07	14931.02		SEAMLESS	MILL FAULT	*EXT MFG	103	3	228	208	124	14931.02	123	14931.09	126	26.10	124	0.812	0.83	0.59	0.276	34							External									
5900	27.98	27.95	14932.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14932.91		14960.88				0.812																				
5900	27.98	3.46	14936.36		SEAMLESS	MILL FAULT	INT MFG	103	3	229	209	61	14936.36	58	14936.41	63	3.48	61	0.812	0.55	0.83	0.162	20							Internal									
5910	26.35	27.98	14960.88		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14960.88		14987.23				0.812																				
5920	27.82	26.35	14987.23		SEAMLESS	GIRTH WELD	GIRTH WELD	1					14987.23		15015.05				0.812																				
5920	27.82	25.99	15013.22		SEAMLESS	MILL FAULT	EXT MFG	103	3	230	210	216	15013.22	216	15013.26	217	26.02	216	0.812	0.51	0.20	0.178	22							External									
5920	27.82	26.73	15013.96		SEAMLESS	MILL FAULT	EXT MFG	103	3	231	211	172	15013.96	172	15013.97	173	26.74	172	0.812	0.20	0.20	0.162	20							External									
5930	27.48	27.82	15015.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15015.05		15042.53				0.812																				
5930	27.48	0.73	15015.78		SEAMLESS	MILL FAULT	*EXT MFG	103	3	232	212	248	15015.78	246	15015.82	250	0.76	248	0.812	0.55	0.67	0.268	33							External									
5930	27.48	25.60	15040.65		SEAMLESS	MILL FAULT	EXT MFG	103	3	233	213	319	15040.65	318	15040.67	319	25.61	319	0.812	0.20	0.20	0.203	25							External									
5930	27.48	26.58	15041.62		SEAMLESS	MILL FAULT	EXT MFG	103	3	234	214	344	15041.62	343	15041.64	344	26.59	344	0.812	0.20	0.20	0.203	25							External									
5940	21.58	27.48	15042.53		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15042.53		15064.11				0.812																				
5950	25.25	21.58	15064.11		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15064.11		15089.36				0.812																				
5950	25.25	0.49	15064.59		SEAMLESS	MILL FAULT	EXT MFG	103	3	235	215	31	15064.59	30	15064.63	31	0.50	31	0.812	0.39	0.20	0.211	26							External									
5960	19.70	25.25	15089.36		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15089.36		15109.06				0.812																				
5960	19.70	6.90	15096.26		SEAMLESS	MILL FAULT	EXT MFG	103	3	236	216	88	15096.26	88	15096.32	89	6.93	88	0.812	0.79	0.24	0.194	24							External									
5960	19.70	8.06	15097.42		SEAMLESS	MILL FAULT	*EXT MFG	103	3	237	217	39	15097.42	35	15097.67	44	8.30	35	0.812	3.03	1.57	0.259	32							External									
5970	26.50	19.70	15109.06		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15109.06		15135.55				0.812																				
5980	27.82	26.50	15135.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15135.55		15163.38				0.812																				
5980	27.82	2.09	15137.64		SEAMLESS	MILL FAULT	*EXT MFG	103	3	238	218	341	15137.64	340	15137.83	343	2.24	340	0.812	2.32	0.59	0.243	30							External									
5990	27.16	27.82	15163.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15163.38		15190.53				0.812																				
6000	22.87	27.16	15190.53		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15190.53		15213.40				0.812																				
6000	22.87	2.33	15192.86		SEAMLESS	MILL FAULT	EXT MFG	103	3	239	219	185	15192.86	182	15192.94	188	2.37	185	0.812	0.91	0.98	0.146	18							External									
6010	27.42	22.87	15213.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15213.40		15240.81				0.812																				
6020	27.12	27.42	15240.81		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15240.81		15267.94				0.812																				
6030	27.39	27.12	15267.94		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15267.94		15295.32				0.812																				
6040	27.60	27.39	15295.32		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15295.32		15322.92				0.812																				
6050	26.62	27.60	15322.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15322.92		15349.54				0.812																				
6060	22.46	26.62	15349.54		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15349.54		15372.00				0.812																				
6070	22.31	22.46	15372.00		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15372.00		15394.31				0.812																				
6070	22.31	20.36	15392.37		SEAMLESS	MILL FAULT	EXT MFG	103	3	240	220	137	15392.37	136	15392.43	137	20.40	137	0.812	0.83	0.20	0.227	28							External									

436881_20B Issue 1
Enbridge Energy Limited Partnership
MFL 20in Inspection

Line 5: 20" Straits of Mackinac - West Leg
Run Date: 27 August 2013
Issue Date: 29 November 2013

Upstream Girth Weld	Joint Length (feet)	Relative Distance (feet)	Absolute Distance (feet)	Long Seam Orientation (Deg)	Weld Type	Feature Type	Comment	Feature Code	Feature Subtype	Feature ID	Cluster ID	Orient. (Deg)	Start Absolute Distance (feet)	Start Orient. (Deg)	End Absolute Distance (feet)	End Orient. (Deg)	MSP Relative Distance (feet)	MSP Orient. (Deg)	Nominal Wall Thickness (in)	Length (in)	Width (in)	Peak Depth (in)	Peak Depth (%WallWT)	MSP Rel to LSW (Deg)	0.85 DL RPR	Effective Length (in)	Effective Depth (in)	Effective Depth (%WallWT)	Effective Area RPR	Radial Position	Data Degradation	Dent Depth (%OD)	Dent Depth (in)	Ovality (%OD)	Min ID (in)	Dent in Close Proximity	Dent Association	Top/Bottom Dent	Relative Position
6080	21.14	22.31	15394.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15394.31		15415.46				0.812																				
6080	21.14	0.70	15395.01		SEAMLESS	MILL FAULT	EXT MFG	103	3	241	221	71	15395.01	71	15395.04	72	0.71	71	0.812	0.39	0.20	0.211	26							External									
6080	21.14	15.07	15409.38		SEAMLESS	BEND	10 DEG BEND-COLD UNDER	11	2	242			15409.38		15409.38				0.812																				
6090	26.21	21.14	15415.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15415.46		15441.67				0.812																				
6100	20.53	26.21	15441.67		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15441.67		15462.20				0.812																				
6100	20.53	16.86	15458.52		SEAMLESS	BEND	5 DEG BEND-COLD OVER	11	2	243			15458.52		15458.52				0.812																				
6110	19.56	20.53	15462.20		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15462.20		15481.76				0.812																				
6120	26.01	19.56	15481.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15481.76		15507.77				0.812																				
6130	26.36	26.01	15507.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15507.77		15534.12				0.812																				
6140	25.14	26.36	15534.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15534.12		15559.26				0.812																				
6150	26.86	25.14	15559.26		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15559.26		15586.12				0.812																				
6160	26.60	26.86	15586.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15586.12		15612.72				0.812																				
6170	26.60	26.60	15612.72		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15612.72		15639.31				0.812																				
6180	26.49	26.60	15639.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15639.31		15665.80				0.812																				
6190	26.12	26.49	15665.80		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15665.80		15691.92				0.812																				
6200	25.46	26.12	15691.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15691.92		15717.38				0.812																				
6210	27.78	25.46	15717.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15717.38		15745.15				0.812																				
6220	27.97	27.78	15745.15		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15745.15		15773.12				0.812																				
6220	27.97	25.04	15770.20		SEAMLESS	MILL FAULT	EXT MFG	103	3	244	222	20	15770.20	16	15770.49	24	25.05	16	0.812	3.58	1.34	0.211	26							External									
6230	25.88	27.97	15773.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15773.12		15798.99				0.812																				
6240	27.26	25.88	15798.99		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15798.99		15826.26				0.812																				
6250	28.38	27.26	15826.26		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15826.26		15854.64				0.812																				
6260	27.84	28.38	15854.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15854.64		15882.48				0.812																				
6270	26.47	27.84	15882.48		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15882.48		15908.95				0.812																				
6280	26.91	26.47	15908.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15908.95		15935.86				0.812																				
6280	26.91	0.41	15909.36		SEAMLESS	MILL FAULT	INT MFG	103	3	245	223	313	15909.36	309	15909.41	316	0.44	313	0.812	0.63	1.22	0.032	4							Internal									
6280	26.91	0.88	15909.82		SEAMLESS	MILL FAULT	INT MFG	103	3	246	224	294	15909.82	279	15910.23	308	1.24	303	0.812	4.92	5.08	0.113	14							Internal									
6290	24.33	26.91	15935.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15935.86		15960.19				0.812																				
6300	27.00	24.33	15960.19		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15960.19		15987.19				0.812																				
6310	28.42	27.00	15987.19		SEAMLESS	GIRTH WELD	GIRTH WELD	1					15987.19		16015.62				0.812																				
6320	26.64	28.42	16015.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16015.62		16042.26				0.812																				
6330	26.28	26.64	16042.26		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16042.26		16068.54				0.812																				
6340	26.22	26.28	16068.54		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16068.54		16094.76				0.812																				
6350	27.32	26.22	16094.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16094.76		16122.08				0.812																				
6350	27.32	0.46	16095.22		SEAMLESS	MILL FAULT	*EXT MFG	103	3	247	225	101	16095.22	100	16095.25	101	0.47	101	0.812	0.35	0.20	0.259	32							External									
6360	26.07	27.32	16122.08		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16122.08		16148.15				0.812																				
6370	19.61	26.07	16148.15		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16148.15		16167.76				0.812																				
6380	26.20	19.61	16167.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16167.76		16193.96				0.812																				
6390	25.42	26.20	16193.96		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16193.96		16219.38				0.812																				
6400	26.99	25.42	16219.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16219.38		16246.37				0.812																				
6410	25.90	26.99	16246.37		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16246.37		16272.27				0.812																				
6420	27.74	25.90	16272.27		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16272.27		16300.01				0.812																				
6430	27.81	27.74	16300.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16300.01		16327.82				0.812																				
6440	27.20	27.81	16327.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16327.82		16355.02				0.812																				
6450	27.80	27.20	16355.02		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16355.02		16382.82				0.812																				
6450	27.80	1.08	16356.10		SEAMLESS	MILL FAULT	*EXT MFG	103	3	248	226	99	16356.10	88	16356.80	110	1.24	97	0.812	8.39	3.82	0.259	32							External									
6460	23.75	27.80	16382.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16382.82		16406.57				0.812																				
6470	24.22	23.75	16406.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16406.57		16430.79				0.812																				
6480	27.57	24.22	16430.79		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16430.79		16458.35				0.812																				
6490	21.84	27.57	16458.35		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16458.35		16480.19				0.812																				
6500	24.21	21.84	16480.19		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16480.19		16504.41				0.812																				
6510	25.19	24.21	16504.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16504.41		16529.59				0.812																				
6520	19.53	25.19	16529.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16529.59		16549.12				0.812																				
6530	26.47	19.53	16549.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16549.12		16575.59				0.812																				
6540	25.04	26.47	16575.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16575.59		16600.63				0.812																				
6550	24.79	25.04	16600.63		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16600.63		16625.43				0.812																				
6560	28.09	24.79	16625.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16625.43		16653.52				0.812																				
6570	24.42	28.09	16653.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16653.52		16677.94				0.812																				
6580	26.37	24.42	16677.94		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16677.94		16704.31				0.812																				
6590	27.13	26.37	16704.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16704.31		16731.44				0.812																				
6600	26.15	27.13	16731.44		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16731.44		16757.59				0.812																				
6610	24.57	26.15	16757.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16757.59		16782.16				0.812																				
6620	27.82	24.57	16782.16		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16782.16		16809.98				0.812																				
6630	26.08	27.82	16809.98		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16809.98		16836.07				0.812																				
6640	23.91	26.08	16836.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16836.07		16859.97				0.812																				
6650	21.46	23.91	16859.97		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16859.97		16881.43				0.812																				
6660	22.39	21.46	16881.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16881.43		16903.82				0.812																				
6670	22.53	22.39	16903.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16903.82		16926.35				0.812																				
6680	24.07	22.53	16926.35		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16926.35		16950.41				0.812																				
6690	27.60	24.07	16950.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16950.41		16978.02				0.812																				
6700	26.59	27.60	16978.02		SEAMLESS	GIRTH WELD	GIRTH WELD	1					16978.02		17004.60				0.812																				
6710	24.02	26.59	17004.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17004.60		17028.62				0.812																				
6720	21.35	24.02	17028.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17028.62		17049.97				0.812																				
6730	27.09	21.35	17049.97		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17049.97		17077.05				0.812																				
6740	27.95	27.09	17077.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17077.05		17105.01				0.812																				
6740	27.95	1.40	17078.46		SEAMLESS	MILL FAULT	EXT MFG	103	3	249	227	111	17078.46	111	17078.50	112	1.42	111	0.812	0.47	0.20	0.235	29							External									
6750	25.83	27.95	17105.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17105.01		17130.84				0.812																				
6760	28.04	25.83	17130.84		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17130.84		17158.88				0.812																				
6760	28.04	5.55	17136.39		SEAMLESS	MILL FAULT	EXT MFG	103	3	250	228	357	17136.39	354	17136.51	0	5.61	357	0.812	1.50	1.10	0.162	20							External									
6770	27.64	28.04	17158.88		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17158.88		17186.52				0.812																				
6780	26.68	27.64	17186.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17186.52		17213.20				0.812																				
6790	26.01	26.68	17213.20		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17213.20		17239.21				0.812																				
6800	27.21	26.01	17239.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17239.21		17266.41				0.812																				
6800	27.21	0.38	17239.59		SEAMLESS	MILL FAULT	EXT MFG	103	3	251	229	322	17239.59	321	17239.63	322	0.41	322	0.812	0.51	0.20	0.243	30							External									
6810	27.49	27.21	17266.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17266.41		17293.91				0.812																				
6820	26.15	27.49	17293.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17293.91		17320.06				0.812																				
6830	26.32	26.15	17320.06		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17320.06		17346.38				0.812																				
6840	27.01	26.32	17346.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17346.38		17373.39				0.812																				
6850	25.70	27.01	17373.39		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17373.39		17399.09				0.812																				
6860	26.56	25.70	17399.09		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17399.09		17425.66				0.812																				
6860	26.56	0.40	17399.49		SEAMLESS	MILL FAULT	EXT MFG	103	3	252	230	192	17399.49	191	17399.52	192	0.42	192	0.812	0.39	0.20	0.243	30							External									
6870	27.10	26.56	17425.66		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17425.66		17452.76				0.812																				
6880	28.07	27.10	17452.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17452.76		17480.83				0.812																				
6890	27.16	28.07	17480.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17480.83		17507.98				0.812																				
6900	26.65	27.16	17507.98		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17507.98		17534.64				0.812																				
6910	27.12	26.65	17534.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17534.64		17561.76				0.812																				
6920	26.64	27.12	17561.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17561.76		17588.40				0.812																				
6930	27.31	26.64	17588.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17588.40		17615.71				0.812																				
6930	27.31	1.26	17589.66		SEAMLESS	MILL FAULT	EXT MFG	103	3	253	231	95	17589.66	95	17589.69	96	1.28	95	0.812	0.39	0.20	0.211	26							External									
6940	26.76	27.31	17615.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17615.71		17642.46				0.812																				
6940	26.76	6.88	17622.58		SEAMLESS	MILL FAULT	EXT MFG	103	3	254	232	230	17622.58	228	17622.65	232	6.91	230	0.812	0.87	0.67	0.243	30							External									
6950	26.44	26.76	17642.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17642.46		17668.91				0.812																				
6960	26.97	26.44	17668.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17668.91		17695.88				0.812																				
6970	27.45	26.97	17695.88		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17695.88		17723.33				0.812																				
6980	26.73	27.45	17723.33		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17723.33		17750.05				0.812																				
6990	27.42	26.73	17750.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17750.05		17777.47				0.812																				
7000	26.36	27.42	17777.47		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17777.47		17803.83				0.812																				
7010	26.02	26.36	17803.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17803.83		17829.85				0.812																				
7020	27.60	26.02	17829.85		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17829.85		17857.45				0.812																				
7030	25.46	27.60	17857.45		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17857.45		17882.91				0.812																				
7040	26.52	25.46	17882.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17882.91		17909.43				0.812																				
7040	26.52	25.65	17908.56		SEAMLESS	MILL FAULT	EXT MFG	103	3	255	233	190	17908.56	180	17909.21	201	26.25	194	0.812	7.76	3.70	0.235	29							External									
7050	24.44	26.52	17909.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17909.43		17933.87				0.812																				
7060	26.31	24.44	17933.87		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17933.87		17960.18				0.812																				
7070	23.12	26.31	17960.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17960.18		17983.30				0.812																				
7080	26.25	23.12	17983.30		SEAMLESS	GIRTH WELD	GIRTH WELD	1					17983.30		18009.55				0.812																				
7090	27.00	26.25	18009.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18009.55		18036.55				0.812																				
7090	27.00	0.25	18009.79		SEAMLESS	MILL FAULT	EXT MFG	103	3	256	234	51	18009.79	49	18010.06	54	0.26	49	0.812	3.23	0.91	0.227	28							External									
7090	27.00	0.76	18010.31		SEAMLESS	MILL FAULT	EXT MFG	103	3	257	235	154	18010.31	153	18010.49	156	0.87	155	0.812	2.20	0.55	0.194	24							External									
7100	24.93	27.00	18036.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18036.55		18061.48				0.812																				
7100	24.93	24.04	18060.59		SEAMLESS	MILL FAULT	EXT MFG	103	3	258	236	16	18060.59	14	18060.62	19	24.06	16	0.812	0.39	0.91	0.194	24							External									
7110	27.13	24.93	18061.48		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18061.48		18088.62				0.812																				
7120	27.85	27.13	18088.62		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18088.62		18116.47				0.812																				
7130	25.05	27.85	18116.47		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18116.47		18141.51				0.812																				
7140	26.66	25.05	18141.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18141.51		18168.18				0.812																				
7140	26.66	1.38	18142.89		SEAMLESS	MILL FAULT	EXT MFG	103	3	259	237	18	18142.89	17	18142.92	18	1.39	18	0.812	0.35	0.20	0.227	28							External									
7140	26.66	21.69	18163.21		SEAMLESS	MILL FAULT	EXT MFG	103	3	260	238	156	18163.21	155	18163.26	157	21.72	156	0.812	0.67	0.43	0.187	23							External									
7140	26.66	26.29	18167.80		SEAMLESS	MILL FAULT	EXT MFG	103	3	261	239	336	18167.80	336	18167.83	337	26.30	336	0.812	0.39	0.20	0.211	26							External									
7150	26.84	26.66	18168.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18168.18		18195.01				0.812																				
7150	26.84	0.59	18168.77		SEAMLESS	MILL FAULT	EXT MFG	103	3	262	240	132	18168.77	125	18169.22	139	0.97	135	0.812	5.43	2.40	0.219	27							External									
7150	26.84	0.95	18169.12		SEAMLESS	MILL FAULT	EXT MFG	103	3	263	241	325	18169.12	321	18169.29	328	0.96	323	0.812	2.01	1.30	0.219	27							External									
7150	26.84	1.45	18169.62		SEAMLESS	MILL FAULT	EXT MFG	103	3	264	242	83	18169.62	82	18169.68	85	1.48	83	0.812	0.71	0.51	0.227	28							External									
7150	26.84	2.29	18170.46		SEAMLESS	MILL FAULT	EXT MFG	103	3	265	243	121	18170.46	121	18170.50	122	2.31	121	0.812	0.47	0.20	0.203	25							External									
7160	26.68	26.84	18195.01		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18195.01		18221.70				0.812																				
7170	21.52	26.68	18221.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18221.70		18243.22				0.812																				
7180	25.49	21.52	18243.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18243.22		18268.71				0.812																				
7190	23.34	25.49	18268.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18268.71		18292.05				0.812																				
7200	27.08	23.34	18292.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18292.05		18319.13				0.812																				
7210	25.45	27.08	18319.13		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18319.13		18344.58				0.812																				
7220	28.02	25.45	18344.58		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18344.58		18372.60				0.812																				
7230	25.82	28.02	18372.60		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18372.60		18398.42				0.812																				

PII Pipeline Solutions

436881_20B Issue 1
Enbridge Energy Limited Partnership
MFL 20in Inspection

Line 5: 20" Straits of Mackinac - West Leg
Run Date: 27 August 2013
Issue Date: 29 November 2013

Upstream Girth Weld	Joint Length (feet)	Relative Distance (feet)	Absolute Distance (feet)	Long Seam Orientation (Deg)	Weld Type	Feature Type	Comment	Feature Code	Feature Subtype	Feature ID	Cluster ID	Orient. (Deg)	Start Absolute Distance (feet)	Start Orient (Deg)	End Absolute Distance (feet)	End Orient. (Deg)	MSP Relative Distance (feet)	MSP Orient. (Deg)	Nominal Wall Thickness (in)	Length (in)	Width (in)	Peak Depth (in)	Peak Depth (%NomWT)	MSP Rel to LSW (Deg)	0.85 DL RPR	Effective Length (in)	Effective Depth (in)	Effective Depth (%NomWT)	Effective Area RPR	Radial Position	Data Degradation	Dent Depth (%OD)	Dent Depth (in)	Ovality (%OD)	Min ID (in)	Dent in Close Proximity	Dent Association	Top/Bottom Dent	Relative Position
7240	27.36	26.82	18398.42		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18398.42		18425.78				0.812																				
7250	25.72	27.36	18425.78		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18425.78		18451.50				0.812																				
7260	26.61	25.72	18451.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18451.50		18478.11				0.812																				
7260	26.61	1.13	18452.63		SEAMLESS	MILL FAULT	EXT MFG	103	3	266	244	180	18452.63	174	18453.03	185	1.50	175	0.812	4.80	1.97	0.187	23							External									
7270	28.18	26.61	18478.11		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18478.11		18506.29				0.812																				
7280	27.64	28.18	18506.29		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18506.29		18533.92				0.812																				
7290	27.63	27.64	18533.92		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18533.92		18561.55				0.812																				
7300	24.03	27.63	18561.55		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18561.55		18585.57				0.812																				
7310	27.99	24.03	18585.57		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18585.57		18613.56				0.812																				
7320	24.88	27.99	18613.56		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18613.56		18638.44				0.812																				
7330	26.52	24.88	18638.44		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18638.44		18664.96				0.812																				
7340	27.54	26.52	18664.96		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18664.96		18692.50				0.812																				
7350	24.64	27.54	18692.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18692.50		18717.14				0.812																				
7360	25.02	24.64	18717.14		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18717.14		18742.16				0.812																				
7370	24.93	25.02	18742.16		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18742.16		18767.08				0.812																				
7380	25.19	24.93	18767.08		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18767.08		18792.27				0.812																				
7390	26.40	25.19	18792.27		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18792.27		18818.67				0.812																				
7400	22.56	26.40	18818.67		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18818.67		18841.23				0.812																				
7410	27.46	22.56	18841.23		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18841.23		18868.69				0.812																				
7420	26.21	27.46	18868.69		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18868.69		18894.91				0.812																				
7430	26.71	26.21	18894.91		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18894.91		18921.61				0.812																				
7440	24.06	26.71	18921.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18921.61		18945.67				0.812																				
7450	27.42	24.06	18945.67		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18945.67		18973.08				0.812																				
7450	27.42	0.47	18946.14		SEAMLESS	MILL FAULT	EXT MFG	103	3	267	245	352	18946.14	351	18946.17	352	0.48	352	0.812	0.39	0.20	0.219	27							External									
7450	27.42	0.59	18946.26		SEAMLESS	MILL FAULT	*EXT MFG	103	3	268	246	132	18946.26	129	18946.30	134	0.61	132	0.812	0.43	0.83	0.252	31							External									
7450	27.42	0.75	18946.42		SEAMLESS	MILL FAULT	EXT MFG	103	3	269	247	250	18946.42	249	18946.47	250	0.78	250	0.812	0.67	0.20	0.187	23							External									
7450	27.42	1.39	18947.05		SEAMLESS	MILL FAULT	EXT MFG	103	3	270	248	186	18947.05	185	18947.08	186	1.40	186	0.812	0.35	0.20	0.162	20							External									
7460	25.30	27.42	18973.08		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18973.08		18998.38				0.812																				
7470	26.22	25.30	18998.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					18998.38		19024.61				0.812																				
7480	25.67	26.22	19024.61		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19024.61		19050.27				0.812																				
7490	27.59	25.67	19050.27		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19050.27		19077.86				0.812																				
7490	27.59	27.34	19077.62		SEAMLESS	MILL FAULT	*EXT MFG	103	3	271	249	222	19077.62	220	19077.68	224	27.37	222	0.812	0.79	0.63	0.243	30							External									
7500	20.15	27.59	19077.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19077.86		19098.02				0.812																				
7510	26.85	20.15	19098.02		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19098.02		19124.87				0.812																				
7510	26.85	18.90	19116.92		SEAMLESS	MILL FAULT	EXT MFG	103	3	272	250	246	19116.92	243	19116.98	248	18.93	246	0.812	0.71	0.83	0.154	19							External									
7520	25.84	26.85	19124.87		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19124.87		19150.71				0.812																				
7530	26.95	25.84	19150.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19150.71		19177.66				0.812																				
7540	20.11	26.95	19177.66		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19177.66		19197.77				0.812																				
7540	20.11	4.58	19182.24		SEAMLESS	MILL FAULT	EXT MFG	103	3	273	251	53	19182.24	52	19182.28	53	4.61	53	0.812	0.51	0.20	0.211	26							External									
7550	27.55	20.11	19197.77		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19197.77		19225.32				0.812																				
7560	26.51	27.55	19225.32		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19225.32		19251.83				0.812																				
7570	25.03	26.51	19251.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19251.83		19276.86				0.812																				
7580	26.96	25.03	19276.86		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19276.86		19303.82				0.812																				
7590	24.41	26.96	19303.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19303.82		19328.23				0.812																				
7590	24.41	23.62	19327.44		SEAMLESS	MILL FAULT	*EXT MFG	103	3	274	252	287	19327.44	286	19327.48	287	23.65	287	0.812	0.55	0.20	0.219	27							External									
7600	26.24	24.41	19328.23		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19328.23		19354.46				0.812																				
7600	26.24	8.51	19336.74		SEAMLESS	MILL FAULT	EXT MFG	103	3	275	253	359	19336.74	358	19336.78	359	8.53	359	0.812	0.51	0.20	0.227	28							External									
7610	22.66	26.24	19354.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19354.46		19377.12				0.812																				
7620	28.63	22.66	19377.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19377.12		19405.76				0.812																				
7630	26.24	28.63	19405.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19405.76		19431.99				0.812																				
7640	27.89	26.24	19431.99		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19431.99		19459.88				0.812																				
7650	23.20	27.89	19459.88		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19459.88		19483.07				0.812																				
7660	23.98	23.20	19483.07		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19483.07		19507.05				0.812																				
7670	26.63	23.98	19507.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19507.05		19533.68				0.812																				
7680	20.58	26.63	19533.68		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19533.68		19554.27				0.812																				
7690	22.79	20.58	19554.27		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19554.27		19577.06				0.812																				
7700	23.25	22.79	19577.06		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19577.06		19600.31				0.812																				
7710	26.59	23.25	19600.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19600.31		19626.89				0.812																				
7710	26.59	24.65	19624.96		SEAMLESS	MILL FAULT	*EXT MFG	103	3	276	254	274	19624.96	264	19625.22	283	24.77	270	0.812	3.15	3.39	0.235	29							External									
7710	26.59	25.66	19625.97		SEAMLESS	MILL FAULT	*EXT MFG	103	3	277	255	274	19625.97	274	19626.00	275	25.68	274	0.812	0.39	0.20	0.227	28							External									
7720	27.29	26.59	19626.89		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19626.89		19654.18				0.812																				
7730	22.55	27.29	19654.18		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19654.18		19676.73				0.812																				
7740	27.55	22.55	19676.73		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19676.73		19704.28				0.812																				
7750	28.01	27.55	19704.28		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19704.28		19732.28				0.812																				
7760	25.43	28.01	19732.28		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19732.28		19757.71				0.812																				
7770	26.50	25.43	19757.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19757.71		19784.21				0.812																				
7780	24.48	26.50	19784.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19784.21		19808.68				0.812																				
7790	26.49	24.48	19808.68		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19808.68		19835.17				0.812																				
7790	26.49	13.64	19822.32		SEAMLESS	MILL FAULT	EXT MFG	103	3	278	256	330	19822.32	329	19822.36	332	13.66	330	0.812	0.43	0.47	0.219	27							External									
7800	26.20	26.49	19835.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19835.17		19861.38				0.812																				
7810	28.05	26.20	19861.38		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19861.38		19889.43				0.812																				
7820	24.79	28.05	19889.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19889.43		19914.22				0.812																				
7830	26.98	24.79	19914.22		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19914.22		19941.20				0.812																				
7840	25.30	26.98	19941.20		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19941.20		19966.49				0.812																				
7850	23.68	25.30	19966.49		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19966.49		19990.17				0.812																				
7860	26.81	23.68	19990.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					19990.17		20016.99				0.812																				
7870	23.21	26.81	20016.99		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20016.99		20040.19				0.812																				
7880	21.61	23.21	20040.19		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20040.19		20061.80				0.812																				
7890	26.48	21.61	20061.80		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20061.80		20088.28				0.812																				
7890	26.48	7.35	20069.15		SEAMLESS	MILL FAULT	*EXT MFG	103	3	279	257	62	20069.15	61	20069.19	63	7.37	62	0.812	0.43	0.39	0.268	33							External									
7900	23.40	26.48	20088.28		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20088.28		20111.68				0.812																				
7910	26.73	23.40	20111.68		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20111.68		20138.41				0.812																				
7920	26.75	26.73	20138.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20138.41		20165.16				0.812																				
7930	25.36	26.75	20165.16		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20165.16		20190.52				0.812																				
7940	27.57	25.36	20190.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20190.52		20218.09				0.812																				
7950	26.31	27.57	20218.09		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20218.09		20244.40				0.812																				
7960	27.12	26.31	20244.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20244.40		20271.52				0.812																				
7970	27.23	27.12	20271.52		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20271.52		20298.75				0.812																				
7980	27.94	27.23	20298.75		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20298.75		20326.70				0.812																				
7990	25.00	27.94	20326.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20326.70		20351.70				0.812																				
8000	27.35	25.00	20351.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20351.70		20379.05				0.812																				
8010	26.60	27.35	20379.05		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20379.05		20405.64				0.812																				
8020	27.85	26.60	20405.64		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20405.64		20433.50				0.812																				
8030	27.41	27.85	20433.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20433.50		20460.90				0.812																				
8040	26.80	27.41	20460.90		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20460.90		20487.71				0.812																				
8050	25.59	26.80	20487.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20487.71		20513.30				0.812																				
8060	25.72	25.59	20513.30		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20513.30		20539.02				0.812																				
8070	26.19	25.72	20539.02		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20539.02		20565.21				0.812																				
8080	27.58	26.19	20565.21		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20565.21		20592.79				0.812																				
8090	26.50	27.58	20592.79		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20592.79		20619.29				0.812																				
8100	27.50	26.50	20619.29		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20619.29		20646.80				0.812																				
8110	26.91	27.50	20646.80		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20646.80		20673.71				0.812																				
8120	26.46	26.91	20673.71		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20673.71		20700.17				0.812																				
8130	20.69	26.46	20700.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20700.17		20720.87				0.812																				
8140	23.44	20.69	20720.87		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20720.87		20744.30				0.812																				
8150	26.95	23.44	20744.30		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20744.30		20771.25				0.812																				
8150	26.95	26.02	20770.32		SEAMLESS	MILL FAULT	EXT MFG	103	3	280	258	317	20770.32	315	20770.40	319	26.06	317	0.812	0.98	0.71	0.178	22							External									
8160	21.48	26.95	20771.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20771.25		20792.73				0.812																				
8160	21.48	15.55	20786.80		SEAMLESS	MILL FAULT	EXT MFG	103	3	281	259	279	20786.80	279	20786.84	280	15.57	279	0.812	0.47	0.20	0.211	26							External									
8160	21.48	16.32	20787.57		SEAMLESS	MILL FAULT	*EXT MFG	103	3	282	260	241	20787.57	241	20787.58	242	16.33	241	0.812	0.24	0.20	0.252	31							External									
8170	27.76	21.48	20792.73		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20792.73		20820.48				0.812																				
8180	26.11	27.76	20820.48		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20820.48		20846.59				0.812																				
8190	26.85	26.11	20846.59		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20846.59		20873.44				0.812																				
8190	26.85	14.44	20861.03		SEAMLESS	BEND	10 DEG BEND-COLD OVER	11	2	283			20861.03		20861.03				0.812																				
8200	26.97	26.85	20873.44		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20873.44		20900.40				0.812																				
8210	27.41	26.97	20900.40		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20900.40		20927.81				0.812																				
8220	23.63	27.41	20927.81		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20927.81		20951.44				0.812																				
8220	23.63	17.49	20945.31		SEAMLESS	MILL FAULT	EXT MFG	103	3	284	261	83	20945.31	82	20945.35	83	17.52	83	0.812	0.59	0.20	0.235	29							External									
8230	24.51	23.63	20951.44		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20951.44		20975.95				0.812																				
8230	24.51	24.17	20975.62		SEAMLESS	MILL FAULT	EXT MFG	103	3	285	262	168	20975.62	161	20975.69	176	24.18	161	0.812	0.87	2.64	0.146	18							External									
8240	26.50	24.51	20975.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					20975.95		21002.45				0.812																				
8240	26.50	25.34	21001.29		SEAMLESS	MILL FAULT	INT MFG	103	3	286	263	44	21001.29	32	21001.71	56	25.73	34	0.812	5.08	4.13	0.130	16							Internal									
8250	22.24	26.50	21002.45		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21002.45		21024.70				0.812																				
8260	26.72	22.24	21024.70		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21024.70		21051.41				0.812																				
8270	27.35	26.72	21051.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21051.41		21078.76				0.812																				
8270	27.35	1.05	21052.46		SEAMLESS	MILL FAULT	*EXT MFG	103	3	287	264	44	21052.46	21	21052.86	67	1.11	27	0.812	4.72	8.03	0.219	27							External									
8270	27.35	1.78	21053.19		SEAMLESS	MILL FAULT	EXT MFG	103	3	288	265	265	21053.19	261	21053.24	269	1.80	265	0.812	0.55	1.42	0.187	23							External									
8270	27.35	2.81	21054.22		SEAMLESS	MILL FAULT	EXT MFG	103	3	289	266	157	21054.22	156	21054.25	157	2.82	157	0.812	0.39	0.20	0.211	26							External									
8270	27.35	5.97	21057.39		SEAMLESS	MILL FAULT	EXT MFG	103	3	290	267	341	21057.39	336	21057.48	347	6.00	337	0.812	1.10	1.93	0.194	24							External									
8270	27.35	6.45	21057.86		SEAMLESS	MILL FAULT	*EXT MFG	103	3	291	268	47	21057.86	33	21058.92	62	6.85	51	0.812	12.68	5.08	0.252	31							External									
8270	27.35	14.55	21065.97		SEAMLESS	MILL FAULT	EXT MFG	103	3	292	269	196	21065.97	196	21066.01	197	14.58	196	0.812	0.59	0.20	0.219	27							External									
8270	27.35	15.85	21067.26		SEAMLESS	MILL FAULT	EXT MFG	103	3	293	270	10	21067.26	10	21067.32	11	15.88	10	0.812	0.67	0.20	0.219	27							External									
8270	27.35	17.40	21068.81		SEAMLESS	MILL FAULT	EXT MFG	103	3	294	271	338	21068.81	338	21068.83	339	17.41	338	0.812	0.35	0.20	0.211	26							External									
8270	27.35	18.19	21069.60		SEAMLESS	MILL FAULT	EXT MFG	103	3	295	272	322	21069.60	320	21069.76	325	18.21	324	0.812	1.93	0.91	0.219	27							External									
8270	27.35	18.80	21070.20		SEAMLESS	MILL FAULT	EXT MFG	103	3	296	273	332	21070.20	332	21070.24	333	18.81	332	0.812	0.39	0.20	0.211	26							External									
8270	27.35	19.15	21070.56		SEAMLESS	MILL FAULT	EXT MFG	103	3	297	274	266	21070.56	254	21071.09	279	19.66	254	0.812	6.34	4.37	0.211	26							External									
8270	27.35	19.63	21071.04		SEAMLESS	MILL FAULT	*EXT MFG	103	3	298	275	340	21071.04	340	21071.07	341	19.64	340	0.812	0.31	0.20	0.243	30							External									
8270	27.35	20.10	21071.51		SEAMLESS	MILL FAULT	*EXT MFG	103	3	299	276	336	21071.51	335	21071.69	337	20.12	336	0.812	2.17	0.28	0.243	30							External									
8270	27.35	20.27	21071.68		SEAMLESS	MILL FAULT	*EXT MFG	103	3	300	277	236	21071.68	234	21071.89	237	20.30	234	0.812	2.52	0.59	0.235	29							External									
8270	27.35	24.59	21076.00		SEAMLESS	MILL FAULT	EXT MFG	103	3	301	278	62	21076.00	61	21076.03	62	24.61	62	0.812	0.39	0.20	0.243	30							External									
8270	27.35	25.41	21076.82		SEAMLESS	MILL FAULT	EXT MFG	103	3	302	279	18	21076.82	17	21076.87	18	25.44	18	0.812	0.55	0.20	0.235	29							External									

ENBDNR0001273

PII Pipeline Solutions

436881_208 Issue 1
Enbridge Energy Limited Partnership
MFL 28in Inspection

Line 6: 20" Straits of Mackinac - West Leg
Run Date: 27 August 2013
Issue Date: 25 November 2013

Upstream Girth Weld	Joint Length (feet)	Relative Distance (feet)	Absolute Distance (feet)	Long Seam Orientation (Deg)	Weld Type	Feature Type	Comment	Feature Code	Feature Subtype	Feature ID	Cluster ID	Orient (Deg)	Start Absolute Distance (feet)	Start Orient (Deg)	End Absolute Distance (feet)	End Orient (Deg)	MSP Relative Distance (feet)	MSP Orient. (Deg)	Nominal Wall Thickness (in)	Length (in)	Width (in)	Peak Depth (in)	Peak Depth (%NominWT)	MSP Rel to LSW (Deg)	0.05 DL RPR	Effective Length (in)	Effective Depth (in)	Effective Depth (%NominWT)	Effective Area RPR	Radial Position	Data Degradation	Dent Depth (%OD)	Dent Depth (in)	Quality (%OD)	Min ID (in)	Dent In Close Proximity	Dent Association	Top/Bottom Dent	Relative Position
8270	27.36	28.10	21077.61		SEAMLESS	MILL FAULT	*EXT MFG	103	3	309	285	92	21077.61	91	21077.63	92	28.11	92	0.812	5.24	0.20	0.259	32						External								
8280	27.75	27.35	21105.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21105.51		21105.51				0.812																			
8280	27.75	28.68	21105.84		SEAMLESS	MILL FAULT	INT MFG	103	3	304	281	296	21103.84	296	21133.95	300	28.11	295	0.812	0.67	1.77	0.085	8						Internal								
8290	24.31	27.76	21106.51		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21106.51		21106.82				0.812																			
8290	24.31	8.66	21112.06		SEAMLESS	BEND	5 DEG BEND-COLD UNDER	11	2	306			21112.06		21112.06				0.812																			
8300	28.61	24.31	21130.82		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21130.82		21157.43				0.812																			
8300	28.61	11.79	21142.61		SEAMLESS	BEND	10 DEG BEND-COLD LEFT	11	2	306			21142.61		21142.61				0.812																			
8310	28.83	28.61	21157.43		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21157.43		21186.25				0.812																			
8310	28.83	1.04	21158.47		SEAMLESS	MILL FAULT	EXT MFG	103	3	307	282	13	21158.47	13	21188.49	14	1.05	13	0.812	0.24	0.20	0.187	23						External								
8310	28.83	1.60	21159.82		SEAMLESS	MILL FAULT	*EXT MFG	103	3	308	283	326	21158.82	315	21189.46	326	1.84	327	0.812	0.60	0.43	0.284	35						External								
8310	28.83	1.95	21159.37		SEAMLESS	MILL FAULT	*EXT MFG	103	3	309	284	167	21159.37	166	21189.44	160	1.98	167	0.812	0.67	0.67	0.259	32						External								
8310	28.83	16.42	21172.84		SEAMLESS	BEND	20 DEG BEND-COLD LEFT	11	2	310			21172.84		21172.84				0.812																			
8320	24.61	28.83	21198.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21198.25		21230.78				0.812																			
8320	24.61	10.98	21197.24		SEAMLESS	BEND	20 DEG BEND-COLD LEFT	11	2	311			21197.24		21197.24				0.812																			
8330	27.66	24.61	21210.76		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21210.76		21238.41				0.812																			
8330	27.66	13.49	21224.25		SEAMLESS	BEND	25 DEG BEND-COLD LEFT	11	2	312			21224.25		21224.25				0.812																			
8340	24.84	27.66	21238.41		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21238.41		21265.25				0.812																			
8340	24.84	10.99	21249.40		SEAMLESS	BEND	10 DEG BEND-COLD LEFT	11	2	313			21249.40		21249.40				0.812																			
8340	24.84	11.13	21249.54		SEAMLESS	MILL FAULT	*EXT MFG	103	3	314	286	238	21249.54	226	21249.69	252	11.47	251	0.812	6.35	4.72	0.276	34						External								
8340	24.84	16.79	21254.19		SEAMLESS	MILL FAULT	EXT MFG	103	3	315	286	60	21254.19	60	21254.25	61	16.81	60	0.812	0.79	0.20	0.211	26						External								
8350	27.49	24.84	21265.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21265.25		21290.74				0.812																			
8360	28.46	27.49	21290.74		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21290.74		21317.19				0.812																			
8370	23.93	28.46	21317.19		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21317.19		21341.12				0.812																			
8380	19.84	23.93	21341.12		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21341.12		21359.96				0.812																			
8390	28.01	18.84	21359.96		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21359.96		21387.97				0.812																			
8400	23.97	28.01	21387.97		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21387.97		21411.94				0.812																			
8410	26.31	23.97	21411.94		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21411.94		21437.25				0.812																			
8410	26.31	23.80	21436.74		SEAMLESS	MILL FAULT	EXT MFG	103	3	316	287	44	21436.74	36	21436.99	54	24.01	51	0.812	2.83	3.35	0.227	28						External								
8420	26.77	26.31	21437.25		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21437.25		21460.02				0.812																			
8420	26.77	26.17	21467.42		SEAMLESS	MILL FAULT	EXT MFG	103	3	317	288	32	21467.42	32	21467.46	33	26.20	32	0.812	0.71	0.20	0.227	28						External								
8430	23.02	26.77	21494.02		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21494.02		21497.04				0.812																			
8430	23.02	22.20	21488.22		SEAMLESS	MILL FAULT	EXT MFG	103	3	318	289	318	21488.22	318	21488.25	319	22.22	318	0.812	0.55	0.20	0.211	26						External								
8430	23.02	22.23	21488.25		SEAMLESS	MILL FAULT	EXT MFG	103	3	319	290	28	21488.25	27	21488.52	30	22.27	28	0.812	0.67	0.55	0.187	23						External								
8440	23.27	23.02	21497.04		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21497.04		21510.31				0.812																			
8450	27.40	23.27	21510.31		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21510.31		21537.74				0.812																			
8460	26.21	27.40	21537.74		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21537.74		21562.95				0.812																			
8470	25.00	26.21	21562.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21562.95		21587.95				0.812																			
8480	27.66	25.00	21587.95		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21587.95		21616.50				0.812																			
8490	26.77	27.66	21616.50		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21616.50		21643.27				0.812																			
8490	26.77	0.84	21616.34		SEAMLESS	MILL FAULT	EXT MFG	103	3	320	291	49	21616.34	36	21616.84	62	1.32	37	0.812	5.98	4.67	0.227	28						External								
8490	26.77	1.65	21617.35		SEAMLESS	MILL FAULT	EXT MFG	103	3	321	292	249	21617.35	242	21617.41	244	1.88	243	0.812	0.79	0.39	0.194	24						External								
8500	26.26	26.77	21643.27		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21643.27		21669.53				0.812																			
8510	28.25	26.26	21669.53		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21669.53		21695.75				0.812																			
8520	26.99	28.23	21696.75		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21696.75		21722.75				0.812																			
8530	3.09	26.99	21722.75		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21722.75		21725.83				0.812																			
8540	1.47	3.09	21725.83		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21725.83		21727.30				0.812																			
8545	1.16	1.47	21727.30		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21727.30		21728.46				0.812																			
8545	1.16	0.84	21727.83		SEAMLESS	JOINT INSULATED	JOINT INSULATED	81		322			21727.83		21727.83				0.812																			
8555	1.61	1.16	21728.46		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21728.46		21729.96				0.812																			
8560	21.17	1.61	21729.96		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21729.96		21751.14				0.812																			
8570	2.62	21.17	21751.14		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21751.14		21753.65				0.812																			
8570	2.62	1.21	21752.35		SEAMLESS	OFFTAKE	16 IN OFFTAKE-CORODED	40		323		90	21752.35	90	21752.35	90			0.812																			
8580	3.01	2.62	21753.65		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21753.65		21756.66				0.812																			
8590	3.48	3.01	21756.66		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21756.66		21760.14				0.812																			
8590	3.48	0.00	21756.66		SEAMLESS	LOCATION COMMENT	STRAITS OF MACKINAC - WEST LEG	102		324			21756.66		21756.66				0.812																			
8590	3.48	1.72	21758.38		SEAMLESS	VALVE	BALL VALVE MP 140'6.66	51		325			21758.38		21758.38				0.812																			
8600	22.88	3.48	21760.14		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21760.14		21783.02				0.812																			
8600	22.88	0.39	21760.53		SEAMLESS	BEND	90 DEG BEND-COLD UNDER	11	2	326			21760.53		21760.53				0.812																			
8600	10.16	22.88	21783.02		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21783.02		21793.17				0.812																			
8600	10.16	9.34	21792.36		SEAMLESS	MILL FAULT	EXT MFG	103	3	327	293	162	21792.36	162	21792.39	163	9.36	162	0.812	0.39	0.24	0.219	27						External								
8640	19.17	10.16	21793.17		SEAMLESS	GIRTH WELD	GIRTH WELD	1					21793.17		21812.34				0.812																			
8640	19.17	2.12	21795.29		SEAMLESS	OFFTAKE	2 IN OFFTAKE-WELDOLET	41		328		0	21795.29	0	21795.29	0			0.812																			
8640	19.17	11.64	21954.80		SEAMLESS	BEND	10 DEG BEND-LOG OVER	11	2	329			21954.80		21954.80				0.812																			
8640	19.17	17.84	21811.00		SEAMLESS	MILL FAULT	EXT MFG	103	3	330	294	228	21811.00	264	21811.06	282	17.88	266	0.812	0.71	0.43	0.162	20						External								
8641	3.65	19.17	21812.34	288	LONGNL SUB ARC WELD	GIRTH WELD	GIRTH WELD	1					21812.34		21812.34				0.812																			
8641	3.65	0.00	21812.34	288	LONGNL SUB ARC WELD	PIPE TYPE CHANGE	LONGNL SUB ARC WELD START	22		331			21812.34		21812.34				0.812																			
8641	3.65	0.00	21812.34	288	LONGNL SUB ARC WELD	JOINT FLAWED	JOINT FLAWED	80		332			21812.34		21812.34				0.812																			
8641	3.65	1.62	21813.96	288	LONGNL SUB ARC WELD	OFFTAKE	2 IN OFFTAKE-WELDOLET	41		333		0	21813.96	0	21813.96	0			0.812																			
8660		3.65	21815.99		LONGNL SUB ARC WELD	GIRTH WELD	GIRTH WELD	1					21815.99						0.812																			

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