

EXECUTIVE SUMMARY

HGC Engineering was retained by Union Gas Limited to prepare an updated Acoustic Assessment Report (“AAR”) for their gate station Facilities in Ontario, to document the results of noise mitigation and subsequent field measurements at various stations. This report has been prepared to satisfy condition 5.2 of Province-Wide Environmental Compliance Approval (“PWECA”) number 3973-BD5N7U, issued by the Ontario Ministry of the Environment, Conservation and Parks (“MECP”), which requires that a current AAR be maintained.

Due to the large number of gate stations, the initial assessment was conducted utilizing a progressive screening methodology to identify stations with sound emissions that may exceed the limits stipulated in MECP publications NPC-205 [1] and NPC-232 [2]. The screening process identified 11 gate stations requiring further study in order to determine any requirements for mitigation, as detailed in the original AAR [3]. Field measurements were conducted at those stations and, where warranted, remedial measures were implemented in the form of equipment replacement and noise control measures such as pipe lagging. Follow-up audit measurements confirmed that the sound emissions of all but one of those stations met the applicable sound level limits of the MECP. The updated measurements were also incorporated into the screening tool, which subsequently identified two additional gate stations requiring further study; 11 other stations were also identified as high priority in an Amended PWECA issued by the MECP in 2014. Six of those stations were found to comply with the applicable limits, with the other seven requiring some degree of noise control or further study, recommendations for which were provided by HGC Engineering, and subsequently implemented by Union Gas. Follow-up measurements were conducted at six stations in February/March 2019, the results of which indicate sound level exceedances remain at two of the stations, noise control recommendations for which are detailed herein. Union Gas will implement mitigation measures, and follow-up measurements will be conducted to confirm that compliance with MECP limits has been achieved.

Given the absence of any sources of ground-borne vibration at the sites, each facility complies with the applicable vibration limits of MECP publication NPC-207 [4].

Union Gas Gate Station Acoustic Assessment Summary Table, October 2019
Consolidated Table A1, A2 & A3

Station ID	Station Name	Sound Power Level [dBA re 10 ⁻¹² W]		Distance to Point of Reception [m]	Sound Level at Point of Reception, L _{EQ} [dBA]	Performance Limit, L _{EQ} [dBA]	Compliance with Performance Limit	Predicted Excess, L _{EQ} [dBA]
		Heater	Piping, Valves, Regulators					
06A-605R	MATCHETTE AND PRINCE	Negl.	76	7	56 ^C	45	N ^A	11
130-206R	LONDON BASELINE REG. STATION	76	92	30	48 ^C	45	N ^A	3
43202019	BARRYDOWN PRS	75	89	40	48	45	N ^A	3
11V-101	PORT DOVER GATE STATION	74	86	50	43	40	N ^A	3
13L-601	STRATHROY GATE	76	94	98	43	40	N ^A	3
43202080	DOMTAR	77	93	50	48	45	N ^A	3
42501004	WOOD STREET TBS	76	92	20	48 ^C	45	N ^A	3
41902024	DALTON ROAD - MCBRIDE	77	83	25	48	45	N ^A	3
06E-502	STONE POINT STATION	73	82	25	48	45	N ^A	3
13P-401	LONDON EAST TRANSMISSION	76	94	112	47	45	N ^A	2
18X-101	LOWVILLE GATE STATION	74	91	85	42	40	N ^A	2
27601001	TRENTON TBS	78	98	150	42	40	N ^A	2
07J-301	RIDGETOWN NORTH TRANS STN	77	97	70	47	45	N ^A	2
19V-101	GUELPH GATE STATION	78	101	56	47	45	N ^A	2
07H-501	MAYNARD LINE TRANS STN	77	82	50	41	40	Y ^B	1
14R-102	INGERSOLL TRANSMISSION STN	82	105	125	46	45	Y ^B	1
160-301	ST MARYS 1ST STAGE STN	79	97	80	46	45	Y ^B	1
19S-601	WATERLOO GATE	78	95	45	46	45	Y ^B	1
06B-301	LAUZON RD	88	85	40	46 ^C	45	Y ^B	1
18700008	GREENFIELD ETHANOL PLANT	75	88	830	6	40	Y	--
27301001	COBOURG TBS	Negl.	83	56	41 ^C	45	Y	--
27401001	COLBORNE TBS	76	82	59	39	40	Y	--
27601030	SONOCO COGEN	76	89	154	32	40	Y	--
27602005	ST. HILAIRE DRS	62	79	59	41 ^C	45	Y	--
27802004	ELMWOOD TBS	78	95	60	42	45	Y	--
27804001	CORBYSVILLE TBS	Negl.	85	40	39 ^C	45	Y	--
27805088	MADOC DRS	76	80	80	34	45	Y	--
28102001	STRATHCONA TBS	76	88	50	44	45	Y	--
28103002	DESERONTO TBS	73	84	70	38	45	Y	--
28103003	ESSROC CEMENT	76	96	1310	2	40	Y	--
28103006	PICTON TBS	77	91	80	41	45	Y	--
28401229	CREEKFORD RD. TBS	75	91	130	36	40	Y	--
28403001	BARRIEFIELD CMS	73	0	70	26	45	Y	--
28403016	BARRIEFIELD TBS AND DRS	77	94	80	43	45	Y	--
28405001	ODESSA TBS	76	94	29	32 ^C	45	Y	--
28406006	LAFARGE	74	92	985	3	40	Y	--
28409001	JOYCEVILLE TBS	76	87	50	44	45	Y	--
28411001	SYDENHAM ROAD TBS	73	86	200	25	45	Y	--
28701001	PRESCOTT TBS	77	90	90	40	45	Y	--
28702012	MAITLAND TBS	73	79	65	35	45	Y	--
28901001	IROQUOIS T.B.S.	73	82	600	7	40	Y	--
29101001	MORRISBURG TBS	76	86	300	19	40	Y	--
29201002	INGLESIDE TBS	73	88	495	11	45	Y	--
29202002	LONG SAULT T.B.S.	76	84	300	18	45	Y	--
29301001	WINCHESTER TBS	78	92	115	38	45	Y	--
29501001	CORNWALL EAST T.B.S.	78	96	260	28	40	Y	--
30103001	IGNACE TBS	73	81	500	9	45	Y	--
30501093	NEW NIPIGON TBS	76	86	55	42	45	Y	--
30501093	NEW NIPIGON TBS	77	85	195	26	40	Y	--
30601002	GERALDTON TBS	74	85	85	36	40	Y	--
31002017	MCIRVINE TBS	74	86	455	12	40	Y	--
31002019	MOWAT TOWN BORDER STATION	Negl.	72	10	38 ^C	45	Y	--
31201001	KENORA TOWN BORBER STATION	76	92	110	38	45	Y	--



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VIBRATION

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		Heater	Piping, Valves, Regulators					
31202001	AIRPORT ROAD TBS	76	85	500	11	40	Y	--
31203013	KEEWATIN TOWN BORDER STATION	73	85	52	37	40	Y	--
41601001	COCHRANE TBS	76	91	125	36	45	Y	--
41901010	XSTRATA MINE HWY 655	76	88	2000	--	45	Y	--
41901011	XSTRATA CONCENTRATOR	78	94	805	8	40	Y	--
41901032	XSTRATA SMELTER	78	94	500	15	40	Y	--
41902029	CRAWFORD ST.	76	86	50	43	45	Y	--
41902030	GOLDCORP MINE - PRS - 1ST CUT	73	80	2000	--	40	Y	--
41902031	SCHUMACHER GOLD CENTRE	76	0	45	32	45	Y	--
41903090	LAFORST TBS	77	90	220	27	45	Y	--
42301002	MATHESON TBS	74	84	260	20	40	Y	--
42601002	ENGLEHART TBS	78	88	150	31	40	Y	--
42701002	NEW LISKEARD TBS	76	86	60	41	45	Y	--
42801003	HAILEYBURY TBS	76	89	75	40	45	Y	--
43002001	WIDDIFIELD TBS	73	82	24	42	45	Y	--
43004002	WEST FERRIS TBS	76	85	1300	1	45	Y	--
43005001	CALLANDER TBS	74	85	95	35	40	Y	--
43201014	STURGEON FALLS TBS	78	89	150	32	45	Y	--
43201017	WARREN TBS	73	76	100	29	45	Y	--
43201029	CONISTON TBS	76	104	250	35	45	Y	--
43202034	MALEY TBS	77	90	250	24	45	Y	--
43202036	LASALLE TOWN BORDER STN	53	81	80	30 ^C	45	Y	--
43202039	FROOD TOWN BORDER STATION	76	94	280	25	45	Y	--
43202050	INCO NORTH MINE	76	77	1900	--	45	Y	--
43202054	INCO SMELTER SALES STATION	79	95	226	30	45	Y	--
43202060	COPPER CLIFF TBS	73	85	220	23	45	Y	--
43202065	KELLY LAKE TOWN BORDER STN	78	92	625	11	45	Y	--
43202071	INCO NICKEL REFINERY	80	90	2050	--	45	Y	--
43202073	WALDEN TBS	77	85	2635	--	45	Y	--
43601001	BALLS DR TBS	Negl.	76	30	33 ^C	45	Y	--
43602001	MUSKOKA FALLS TBS	77	90	180	30	40	Y	--
43702002	FERGUSON RD TBS DRS	74	85	8	41 ^C	45	Y	--
43801001	WEST ST. TBS	78	97	145	38	45	Y	--
43901001	RAVENSGLEN TBS	77	94	25	35 ^C	45	Y	--
43902001	MADILL TBS	73	90	200	28	40	Y	--
44001001	EARLTON TBS	73	80	40	41	45	Y	--
44301004	CHELMSFORD TBS DRS	76	94	215	30	45	Y	--
44601001	SOUTH RIVER TBS	73	84	60	40	40	Y	--
44602002	BURKS FALLS TBS	73	82	50	40	40	Y	--
44701001	MATTAWA TBS	73	83	500	9	40	Y	--
44801001	EMSDALE CMS	74	88	183	29	40	Y	--
44801002	PARRY SOUND TBS	76	86	95	35	45	Y	--
45103001	AIRPORT RD TBS AND DRS	77	82	1350	1	40	Y	--
45401004	BLIND RIVER TBS	77	88	365	17	40	Y	--
45401005	ELLIOT LAKE TBS	77	90	1000	4	40	Y	--
04E-102	CTY RD 14 GATE STATION	78	89	530	14	40	Y	--
05A-203	LASALLE BOISIMER AVE	66	75	5	44 ^C	45	Y	--
05A-304R	SPRUCEWOOD IP	78	92	860	7	45	Y	--
05B-205R	HOWARD & OUTER DISTRIBUTION	75	89	120	36	40	Y	--
05E-403	COMBER TRANSMISSION STN	66	80	5	45 ^C	40	Y	--
06B-404	BRUCE AVENUE	Negl.	84	32	41 ^C	45	Y	--
06B-502	WALKER RD TRANS STN	81	102	40	43 ^C	45	Y	--
06B-548I	CHRYSLER PAINT SHOP PLANT 3	74	88	170	29	45	Y	--
06B-607I	FORD ESSEX NEMAK	78	96	440	19	45	Y	--
06C-602	PUCE ROAD TRANSMISSION	74	87	170	29	45	Y	--
06D-401	BELLE RIVER STATION	77	89	52	45	45	Y	--
06J-103	BLENNHEIM NORTH GATE STN	76	90	150	33	45	Y	--
07H-601	BURKE LINE STATION	74	88	65	37	40	Y	--
07K-409	MCKINLAY ROAD STN	76	87	48	48 ^E	50 ^F	Y	--



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		Heater	Piping, Valves, Regulators					
08F-601	DOVER CENTRE	79	102	305	29	40	Y	--
11F-111	TRILLIUM TRANSMISSION STATION	74	89	1081	3	40	Y	--
12F-101	NOVACOR ST. CLAIR 1ST STAGE	78	94	860	7	45	Y	--
12F-501	PAYNE KIMBALL STN	81	108	100	39 ^C	45	Y	--
12K-401	WATFORD TRANSMISSION STATION	76	89	110	36	40	Y	--
12S-101	TILLSONBURG POTTERS RD STATION	78	90	100	38	40	Y	--
13F-502	SUNCOR	81	101	660	14	45	Y	--
13N-501	BYRON TRANS STN	83	106	185	41	45	Y	--
13O-401	LONDON WHITE OAKS	78	95	520	15	45	Y	--
13O-402	LONDON WESTMOUNT	77	91	100	38	45	Y	--
14N-302	HENSALL TRANSMISSION STATION	80	99	260	30	40	Y	--
14N-603R	SUNNINGDALE & WONDERLAND RD	77	94	140	38	45	Y	--
14O-201	LONDON NORTH GATE STATION	83	107	115	44	45	Y	--
14R-104	BEACHVILLE DOMTAR TRANS	80	100	170	38	45	Y	--
14S-601	NORWICH BRICK GATE STATION	74	82 ^D	46	36 ^C	40	Y	--
15J-401	FOREST GATE STATION	78	82	54	40	45	Y	--
15Q-603	CANADA CEMENT TRANSMISSION STN	79	95	275	27	45	Y	--
15R-605	WOODSTOCK BEARDS LANE TRANS	75	91	164	33	40	Y	--
16S-201	PLATTSVILLE TRANS STATION	76	85	225	23	40	Y	--
16S-503	INNERKIP TRANS STATION	74	87	100	36	40	Y	--
16U-601	BRANTFORD PROPANE PLANT	81	110 ^D	67	45 ^{C,D}	45	Y	--
17T-201	NEW DUNDEE H P GATE STATION	71	80	390	11	40	Y	--
17T-202	NTH.DUMFRIES TRANSMISSION STN.	71	85	70	38	40	Y	--
17T-502	AYR STATION	73	80	110	30	40	Y	--
18T-501	STRAUSBURG TRANSMISSION STN	83	102	200	37	40	Y	--
18U-504	CAMBRIDGE EAST	78	95	635	11	45	Y	--
18Y-202R	OAKVILLE TOWN BORDER STN	79	93	460	16	45	Y	--
19S-201	HEIDLEBURG STATION	74	83	40	38	40	Y	--
19O-601	MITCHELL GATE STN	76	87	80	39	45	Y	--
19S-602	WATERLOO ERBSVILLE STATION	78	96	110	41	45	Y	--
19U-201	GUELPH WEST STN	79	102	220	35	45	Y	--
19V-401	PUSLINCH TRANS STATION	80	101	260	36	40	Y	--
19X-301	MILTON GATE STN	81	104	180	40	45	Y	--
20M-201	CLINTON GATE STN	Negl.	71	18	40 ^C	45	Y	--
20N-501	SEAFORTH GATE STN	76	88	110	35	45	Y	--
20S-603	ELMIRA SOUTH	74	88	292	21	40	Y	--
21L-201	GODERICH GATE STN	76	91	240	26	45	Y	--
21X-502R	HALL ROAD DISTRIBUTION STATION	75	88	280	22	40	Y	--
23R-602	ROTHSAY TRANS	76	86	166	28	40	Y	--
29N-101	PORT ELGIN	74	86	125	32	45	Y	--
30N-501	SOUTHAMPTON	74	84	140	29	45	Y	--
32Q-501R	BALMY BEACH	74	84	60	39	40	Y	--

^A See Section 6 of Acoustic Assessment Report for an outline of the Noise Mitigation Programme.

^B Within outdoor measurement/prediction error.

^C Sound level established through site measurements and/or modelling.

^D Excludes the benefit of acoustical lagging installed subsequent to site measurements/modelling.

^E Includes +5 dBA adjustment for tonality in accordance with [7].

^F Includes +5 dBA adjustment for proximity to a regional roadway in accordance with [8].

Notes:

1. All sources are located outdoors, and are steady in nature.
2. Gate Stations where piping, valves and regulators have a reported sound power level of 0 dBA either have no gas flow regulation on site, or regulation is located within a building, yielding negligible sound emissions.