Page 1

From:Lemay, Paul <paul.lemay@snclavalin.com>Sent:Monday, October 6, 2014 11:05 AMTo:roylewis@nalcorenergy.comSubject:TR: CH-0009 CONFIDENTIALAttachments:Appendix A2.1 Schedule of Price Breakdown CH0009 rev-1.xlsx

Roy, I am re sending this, the first address was not good!

De : Lemay, Paul

Envoyé : 6 octobre 2014 09:31

À : 'roylewis@lowerchurchillproject.ca'

Objet : CH-0009 CONFIDENTIAL

Hi Roy,

As promised, here is the complete CH0009 estimate for your eyes only!

I am not sending this to anyone else, only you!

The day prior to the bid opening, I will send it to Ed Bush, in case there is other addenda until October 22nd the closing day!

If you have any question, give me a call.

Paul.

Paul Lemay, Ing./P.Eng.

Chef Estimateur - Projet Muskrat Falls /Lead Estimator, Muskrat Falls Project.

Energie/

Tél./Tel. : 514-393-8000 x 55707

SNC-Lavalin inc.

1801, avenue McGill College, 12e étage

Montréal | Québec | Canada | H3A 2N4



Page 4	4
--------	---

LOWER CHURCHILL PROJECT		ECT									APPENDIX A2.1					
MUSKRAT FALLS CH0009 - CONSTRUCTION OF NORTH AND				SCHEDULE OF PR	PRICE BREAKDOWN						Rev. B1					
	SOUTH D	AMS		ISSUED FOR: BID DATE: 31 - Jul - 2014	BIDDER'S NAME:											
PR No	ICE ITEM REFERENCE Exhibit 2 - ATT 1	WE	SUBCODE	PRICE ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY A	MAN HOURS AT SITE	MANPOWER COST/UNIT (\$ CAN)	MATERIALS COST/UNIT (\$ CAN)	EQUIPMENT COST/UNIT (\$ CAN)	PROFIT COST/UNIT (\$ CAN)	UNIT PRICE (\$ CAN) F= (B+C+D+E)	TOTAL PRICE (\$ CAN) G= A x F			
		CODE						В	C	D	E					
	2	0000	0000.01													
1	2.1		0000.01	Mobilization { including air travel for \$2M }												
2	2.2		0000.02	Site installation												
3	2.3		0000.03	Management, Starr, employees and Consultants												
4	2.4		0000.04	Realth and Salety, Environmental and Quality Requirements												
5	2.5		0000.05	Credit, Guarantee and Insurance												
7	2.6		0000.05	Warranty, per Arrupe 17 of the Agreement												
,	2.7		0000.07													
				Jana, Lot Martin (1991)												
	9	1100		ČENEDA I												
	3	1100	1110	GENERAL DEWATERING OF STRUCTURE AREAS												
	3.1		1110 01	Dewatering of Structure Areas												
•	3.1.1		1110.01													
•	3.2		1111 01	EXCAVATION OF EXISTING COFFERDAMIS												
7	3.2.1		1111.01	Excavation of Dawnstream sastion of DCC riverside softendam												
10	3.2.2		1111.02	Excavation of Downstream section of RCC riverside conertain												
11	3,3		1112.01	Overburden Excavation												
12	3 3 2		1112.01	Approved Compactable Material												
13	3 3 3		1112.02	Granular "B" Material												
14	3.3.4		1112.00	Granular "C" Material												
15	335		1112.04	Maintenance Grade 3 material												
16	336		1112.00	CSP culvert dia 900 mm												
17	3.3.7		1112.00	Guide Rails												
18	338		1112.07	Gate Type 1												
20	3.4		1113	ACCESS ROAD TO LAYDOWN AREA CI												
19	3,4.1		1113.01	Approved Compactable Material												
20	3,4.2		1113.07	Granular "C" Material												
	3.5		1114	DITCHES												
21	3,5.1		1114.01	Overburden Excavation												
22	3.5.2		1114.02	Non-woven Geotextile, min 300 g/m ²												
23	3,5.3		1114.03	Rockfill Protection, 100 - 250 mm												
	3.6		1115	SLOPE PROTECTION												
24	3.6.1		1115.01	Rockfill Protection, Zone 3E Material												
25	3.6.2		1115.02	Non-woven Geotextile, min 530 g/m ²												
	3.7		1116	CHAIN LINK FENCES AND GATES												
26	3,7.1		1116.01	Chain Link Fence and Gates												
	3.8		1150	TEMPORARY UPSTREAM BRIDGE OVER SPILLWAY APPROACH CHANNEL												
27	3,8.1		1150.01	Engineering of Temporary Upstream Bridge												
28	3.8.2		1150.02	Supply of Temporary Upstream Bridge												
29	3.8.3		1150.03	Installation, removal and handover of Temporary Upstream Bridge												
				SUB-TOTAL GENERAL												
_																

			IFCT			-						APPENDIX A2.1	
CHOO	LOWER CHURCHILL PROJECT SCHEDULE OF PRICE BREAKDOWN MUSKRAT FALLS P - CONSTRUCTION OF NORTH AND												
SOUTH DAMS				ISSUED FOR: BID DATE: 31 - Jul - 2014 BIDDER'S NAME:									
Pi No	REFERENCE Exhibit 2 - ATT 1	CODE	SUBCODE	PRICE ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY A	MAN HOURS AT SITE	MANPOWER COST/UNIT (\$ CAN) B	MATERIALS COST/UNIT (\$ CAN) C	EQUIPMENT COST/UNIT (\$ CAN) D	PROFIT COST/UNIT (\$ CAN) E	UNIT PRICE (\$ CAN) F= (B+C+D+E)	TOTAL PRICE (\$ CAN) G= A x F
	4	2300		DAMS AND COFFERDAMS - GENERAL									
	4.1	2340	2341	UPSTREAM COFFERDAM									
			2244.04										
50	4.1.1		2541.01	Exemption Preparation in dry condition									
31	4.1.2		2341.02	Foundation Cleaning (water/air jets and Vacuum trucks)									
32	41.3		2341.02	Bock Excavation including dental excavation and Scaling									
33	4.1.6		2341.04	Dental Concrete									
34	4.1.5		2341.05	Slush Grout									
35	41.6		2341.06	Dry Pack									
			2012/00	Embankment Materials									
36	4.1.7		2341.07	Compacted Till - Zones 1 and 1C Materials									
37	4.1.8		2341.08	Dumped Till - Zone 1A Material									
38	4.1.9		2341.09	Compacted Granular - Zone 2A Material									
39	4.1.10		2341.10	Compacted Granular - Zone 2C Material									
40	4.1.11		2341.11	Dumped Granular - Zone 2E Material									
41	4.1.12		2341.12	Dumped Rockfill- Zone 3 Material									
42	4.1.13		2341.13	Dumped Large Blocks (300-1000 mm) - Zone 3 Class 1									
43	4.1.14		2341.14	Dumped Large Blocks (≥1000 mm) - Zone 3 Class 2									
44	4.1.15		2341.15	Dumped Large Blocks (≥1300 mm) - Zone 3 Class 3									
45	4.1.16		2341.16	Compacted Crushed Stone - Zone 3A Material									
46	4.1.17		2341.17	Compacted Rockfill - Zone 3C Material									
47	4.1.18		2341.18	Compacted Rockfill - Zone 3D Material									
48	4.1.19		2341.19	Dumped Crushed Stone- Zone 3F Material									
				Investigation for Jet Grouted Cut-off Wall and Bedrock Grouting									
49	4.1.20		2341.20	Percussion Drill Holes in embankments, river sediments and bedrock									
50	4.1.21		2341.21	Verification Core Drilling in jet grouting cut-off wall and bedrock									
51	4.1.22		2341,22	Lore Diamond Drill Kig in Standby									
52	4.1.23		2341.23	Mobilization and demobilization									
53	4.1.24		2341.24	Drilling Holes for Jet Grouting in embankment, river sediments and bedrock									
54	4.1.25		2341.25	Jet Grouted Cut-off wall									
				Bedrock Grouting beneath the Jet Grouted Cut-off Wall, if required									
55	4.1.26		2341.26	Drilling Holes for Grouting in embankment, jet grouting cut-off wall and bedrock, if									
54	44 44		2241 17	required									
57	4.1.2/		2341.27	Grouting - Succesful connections, if required									
			104110	SUB-TOTAL UPSTREAM COFFERDAM									
	4.2	2340	2342	DOWNSTREAM COFFERDAM									
			3242.01	Excavation									
96	4.2.1		2342,01	Exercise Decaration									
59	4.7.7		2342.02	Foundation cleaning (water/ait jets and Vacuum trucks)									
60	423		2342.02	Rock excavation including dental excavation and scaling									
61	4.7.4		2342.03	Dental Concrete									
62	425		2342.05	Slush Grout									
63	4.2.6		2342.05	Dry Pack									
				Embankment Materials									
64	4.2.7		2342.07	Compacted Till - Zones 1 and 1C									
65	4.2.8		2342.08	Compacted Granular - Zone 2C									
66	4.2.9		2342.09	Compacted Rockfill - Zone 3C									
67	4.2.10		2342.10	Compacted Rockfill - Zone 3D									
				SUB-TOTAL DOWNSTREAM COFFERDAM									

LOWER CHURCHILL PROJECT MUSKRAT FALLS CH0009 - CONSTRUCTION OF NORTH AND		IFCT		APPENDIX A2.1									
		ORTH AND	SCHEDULE OF PR	Rev. B1									
SOUTH DAMS				ISSUED FOR: BID DATE: 31 - Jul - 2014	BIDDER'S N	AME:							
No	RICE ITEM REFERENCE Exhibit 2 - ATT 1	w	SUBCODE	PRICE ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY A	MAN HOURS AT SITE	MANPOWER COST/UNIT (\$ CAN)	MATERIALS COST/UNIT (\$ CAN)	EQUIPMENT COST/UNIT (\$ CAN)	PROFIT COST/UNIT (\$ CAN)	UNIT PRICE (\$ CAN) F= (B+C+D+F)	TOTAL PRICE (\$ CAN) G= A × F
		CODE						В	c	D	E		
	4.3	2340	2343										
				Excavation									
68	4.3.1		2343.01	Overburden excavation									
				Foundation Preparation									
69	4.3.2		2343.02	Foundation cleaning (water/ait jets and Vacuum trucks)									
70	4.3.3		2343.03	Rock excavation including dental excavation and scaling									
71	4.3.4		2343.04	Dental Concrete									
72	4.3.5		2343.05	Slush Grout									
73	4.3.6		2343.06	Dry Pack									
	1			Embankment Materials									
74	4.3.7		2343.07	Compacted Till - Zones 1 and 1C									
75	4.3.8		2343.08	Compacted Granular - Zone 2C									
76	4.3.9		2343.09	Compacted Rockfill - Zone 3C									
77	4.3.10		2343.10	Compacted Rockfill - Zone 3D									
				SUB-TOTAL INTAKE CHANNEL COFFERDAM	1								
	4.4		2330	SOUTH DAM	T								
				CIVIL WORK									
				Excavation									
78	4.4.1		2330.01	Overburden excavation									
70			2220.02	Foundation Preparation									
	4.4.2		2330.02	Pock exervation including dental exervation and cooling									
91 91	4.4.3		2330.03	Dental Concrete									
82	445		2330.05	Shush Grout									
83	4.4.6		2330.06	Dry Pack									
84	4.4.7		2330.07	Drilling Holes for Grouting									
85	4.4.8		2330.08	Dry cement incorported in the grout									
86	4.4.9		2330.09	Cored Drill Check Holes									
87	4.4.10		2330.10	Percussion Drilling Check holes									
89	4.4.11		2330.11	Water pressure test (Lugeon - 5 Stages)									
90	4.4.13		2330.13	Water test - Successful connections									
91	4.4.14		2330.14	Uplift gauges									
92	4.4.15		2330.15	Thermistors (measure rock temperature in grout holes)									
	1			Embankment Materials									
93	4.4.16		2330.16	Compacted Till - Zones 1 and 1C									
94	4.4.17		2330.17	Compacted Granular - Zone 2A									
95	4.4.18		2330.18	Compacted Crushed Stone - Zone 3A									
96	4.4.19		2330.19	Compacted Crushed Stone - Zone 3B									
97	4.4.20		2330.20	Compacted Rockfill - Zone 3C									
	4.4.21		2330.21	Lompacted Kocktill - Zone 3D									
98			2330.22	Kiprap - Zone 4									
98 99	4.4.22		2330.21	ICompacted Crushed Stone - Zone 5									
98 99 100	4.4.22		2220.24	lerrey Barrier									
98 99 100 101	4.4.22 4.4.23 4.4.24		2330.24	Jersey Barrier Geotechnical Instrumentation	·								
98 99 100 101 102	4.4.22 4.4.23 4.4.24 4.4.25		2330.24	Jersey Barrier Geotechnical Instrumentation V-Notch Weirs, excluding Shelters	-								
98 99 100 101 102 103	4,4,22 4,4,23 4,4,24 4,4,25 4,4,25 4,4,26		2330.24 2330.25 2330.26	Jersey Barrier Geotechnical Instrumentation V-Notch Weirs, excluding Sheiters Sheiters for V-Notch Weirs									
98 99 100 101 102 103 104	4.4.22 4.4.23 4.4.24 4.4.25 4.4.25 4.4.26 4.4.27		2330.25 2330.25 2330.26 2330.27	Jersey Barrier Geotechnical Instrumentation V-Notch Weirs, excluding Shelters Shelters for V-Notch Weirs Survey Monuments at South Dam Crest									

LOWER CHURCHILL PROJECT		IFCT		APPENDIX A2.1									
MUSKRAT FALLS CH0009 - CONSTRUCTION OF NORTH AND			ORTH AND	SCHEDULE OF PF	Rev. B1								
	SOUTH D	OAMS		ISSUED FOR: BID DATE: 31 - Jul - 2014	BIDDER'S N	AME:							
P	RICE ITEM REFERENCE Exhibit 2 - ATT 1	w	SUBCODE	PRICE ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY A	MAN HOURS AT SITE	MANPOWER COST/UNIT (\$ CAN)	MATERIALS COST/UNIT (\$ CAN)	EQUIPMENT COST/UNIT (\$ CAN)	PROFIT COST/UNIT (\$ CAN)	UNIT PRICE (\$ CAN) F= (B+C+D+E)	TOTAL PRICE (\$ CAN) G= A x F
		CODE	2220	NORTH DAM				B	<u> </u>		-		
	4.3		2320										
				Clearing									
105	4.5.1		2320.01	Clearing of the North Abutment									
	-		•	Excavation									
106	4.5.2		2320.02	Overburden Excavation									
				Foundation Preparation									
107	4.5.3		2320.03	Foundation Cleaning (water/air jets and vacuum)									
108	4.5.4		2320.04	Rock Excavation including Dental Excavation and Scaling									
109	4.5.5		2320.05	Dental Concrete									
110	4.5.6		2320.06	Slush Grout									
111	4.5.7		2320.07	Dry Pack									
112	4.5.8		2320.08	Drilling Holes in RCC and Bedrock for Grouting									
113	4.5.9		2320.09	Grouting - Successful Connections									
114	4.5.10		2320.10	Dry Cement incorported in the grout									
115	4.5.11		2320.11	Percussion Drilling Check Holes									
117	4.5.13		2320.12	Water pressure test (lugeon - 5 Stages)									
118	4.5.14		2320.14	Water Pressure Test - Successful connections									
119	4.5.15		2320.15	Uplift gauges									
120	4.5.16		2320.16	Thermistor (measure temperature in grout holes)									
	T			Drainage Holes									
121	4.5.17		2320.17	Drilling Holes for Drainage in Foundation from Drainage Gallery, Ø76 mm									
172	4.5.18		2320.18	PVC Caps for Drainage Holes									
143	4.5.15		2320.13	Instrumentation									
124	4.5.20		2320.20	Drilling Holes for piezometers									
125	4.5.21		2320.21	Vibrating Wire and Standpipe Piezometers TYPE - 1, excluding Cables									
126	4.5.22		2320.22	Vibrating Wire and Standpipe Piezometers TYPE - 2, excluding Cables									
127	4.5.23		2320.23	Instrument Cable including PVC Conduits and Pull Boxes									
128	4.5.24		2320.24	V-notch Weirs									
129	4.5.25		2320.25	Vibrating wire weir monitors. Data logger, Terminal Box, Barometer Box including Grounding									
130	4.5.27		2320.20	Crest Survey Monuments									
		•		Concrete and RCC operations									
132	4.5.28		2320.28	Roller Compacted Concrete (RCC)									
133	4.5.29		2320.29	Conventional Vibrated Concrete (CVC) (Crest and Flip Bucket)									
134	4.5.30		2320.30	Facing Concrete									
135	4.5.31		2320.31	GERCC or GEVR - Formed Faces									
136	4.5.32		2320.32	Conventional Vibrated Concrete (North Abutment Crest Surface)									
137	4.5.33		2320.33	Increase or decrease in quantity of cement - Bid Mix (rate only)									
138	4.5.34		2320.34	Increase or decrease in quantity of flyash - Bid Mix (rate only)									
139	4.5.35		2320.35	Increase or decrease in quantity of cement - Source B (rate only)									
140	4.5.36	<u> </u>	2320.36	Increase or decrease in quantity of flyash - Source B (rate only)									
141	4.5.37		2320.37	Precast Concrete									
142	4.5.38		2320.38	Steel Keinforcement									
1/2			2320.59	Waterstop									
143	4.5.39			Trate stop									
143 144	4.5.39		2320.40	NORTH DAM - Auxiliary Services									
143 144	4.5.39 4.5.40 4.6		2370	NORTH DAM - Auxiliary Services ELECTRICAL WORK									
143 144 145	4.5.39		2370.01	NORTH DAM - Auxiliary Services ELECTRICAL WORK Exothermic Connections.									
143 144 145 145	4.5.39 4.5.40 4.6 4.6.1 4.6.1		2370.01 2370.02	NORTH DAM - Auxiliary Services ELECTRICAL WORK Exothermic Connections. Bare, Stranded, Medium Hard-Drawn Copper Conductor, size 500 kcmil									
143 144 145 145 146 147	4.5.39 4.5.40 4.6 4.6.1 4.6.2 4.6.2 4.6.3		2370.01 2370.02 2370.03	NORTH DAM - Auxiliary Services ELECTRICAL WORK Exothermic Connections. Bare, Stranded, Medium Hard-Drawn Copper Conductor, size 500 kcmil Bare, Stranded, Medium Hard-Drawn Copper Conductor, size 4/0 AWG									
143 144 145 146 147 148	4.5.39 4.5.40 4.6 4.6.1 4.6.2 4.6.3 4.6.3		2370.01 2370.02 2370.03 2370.04	NORTH DAM - Auxiliary Services ELECTRICAL WORK Exothermic Connections. Bare, Stranded, Medium Hard-Drawn Copper Conductor, size 500 kcmil Bare, Stranded, Medium Hard-Drawn Copper Conductor, size 4/0 AWG Embedded Copper Grounding Plates									

LOWER CHURCHILL PROJECT APPENDIX A2.1																
	MUSKRAT	T FALLS		SCHEDULE OF PRICE BREAKDOWN								Rev. B1				
Сно	OF - CONSTRUCT SOUTH I	DAMS	UKTH AND	ISSUED FOR: BID DATE: 31 - Jul - 2014	BIDDER'S N	IAME:				1						
No	REFERENCE Exhibit 2 - ATT 1	CODE	SUBCODE	PRICE ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY A	MAN HOURS AT SITE	COST/UNIT (\$ CAN) B	COST/UNIT (\$ CAN) C	COST/UNIT (\$ CAN) D	COST/UNIT (\$ CAN) E	UNIT PRICE (\$ CAN) F= (B+C+D+E)	TOTAL PRICE (\$ CAN) G= A x F			
	5	3100		Powerhouse Channels												
	5.1		3120.00	Tailrace												
	Civil WORK															
149	51.1	1	3120.01	Diverburden Excavation excluding excavation of Cofferdam 3 - Dry Conditions												
	1		Director	Tailrace Rock Plug - Rock Excavation												
150	5.1.2	2	3120.02	Tailrace Rock Plug Excavation including access ramp to powerhouse -Dry Conditions												
151	5.1.3	6	3120.03	Tailrace Rock Plug - Underwater Excavation												
				Tailrace Rock Plug - Stabilization and Rock Surface Protection												
152	5.1.4		3120.04	Grouted Rock Bolts Type A												
153	5.1.5		3120.05	Grouted Rock Bolts Type C												
154	5.1.6		3120.06	undin Link wire Mesh - Installation Chain Link Wire Mash - Removal												
156	5.1.8		3120.07	Existing Temporary Safety Fence - Removal												
				SUB-TOTAL TAILRACE												
				TOTAL MAN-HOURS												
⊢																
	=H14+H47+H86+H103+H120+ H155+H211+H227															
ROW		D TOTA	LOFLUMP	SUM AND UNIT PRICE ITEM (BASED ON APPROXIMATE QUANTITIES), AS D	ETAILED II	N ITEMS 1 T	O 169			\$			167,719,750.00			
ROW	S ESIMATE OF	TRAVE		CES - TRADES LABOUR						\$			-			
ROW	CALCULATE	D TOTA	LOFLUMP	SUM AND UNIT PRICE ITEMS (BASED ON APPROXIMATE QUANTITIES) PLU	IS ESTIMAT	TED TRAVE	L ALLOWANCES - TRADES	B LABOUR. (RC	OW C = ROW	\$			167,719,750.00			
NOTE	s															
<u>Note 1</u> prevail	If there has been	n an erro	r in the calcula	ation to establish the total of Column G (Total Price} or Column F (UNIT PRICE), then the f	igures of colu	ımn A (Estima	ted Quantity of Units), column	B (Man Hours), c	olumn C (Man	power), column	D	(Equipment) and	d column E (Profits) will			
Note 2	This Document is	s provideo	d to the bidde	rs in Native Excel File format. It is the bidders responsibility to verify cell formats and for	nulas.											
Note 3	Bidders shall not	t include :	any HST/GST f	rom any source (whether from Bidder, subcontractor, vendors or suppliers) in the unit an	d lumn sum	prices in this s	chedule of Price Breakdown, B	idders shall claim	input tax credi	ts on taxable s	unnlies receiver	from vendors	opliers and subcontractors			
and the	reof Bidders shall	exclude I	HST/GST payal	ble to the vendors, suppliers and subcontractors from the unit and lump sum prices in the	e Schedule. B	idders shall e	clude HST/GST on the total list	ed in Row A.	put tax treu				pp			
FOR TH	E LOWER CHURCH	HILL PRO	IECT - MUSKR	AT FALLS												
This Ap	pendix forms par	t of the P	roposal subm	itted by:												
Name	f Bidder:															
Reque	t For Proposal, Pa	ackage No	: CH0009													
Signati	re:															
Date of	Proposal: DD-MA	MM-YYYY	,													