

Document Front Sheet



NE-LCP Contractor/Supplier	Contract or Purchase Number and Description: CH0031		Contractor/Supplier Name: Cahill-Ganotec Partnership		
	Document Title: Monthly Progress Report (November 2017)			Total Number of Pages Incl. Front Sheet 114	
	Contractor Document Number: N/A			Revision Number: -	
	Supplier Document Number: N/A			Revision Number: -	
	NE-LCP Document Number: MFA-CG-SD-3440-PM-A06-0005-01			NE-LCP Issue Number: A1	
	Approver's Signature: 		Date (dd-mmm-yyyy): 11-Jan-2018		Review Class:
Comments:			Equipment Tag or Model Number: N/A		

NE-LCP	REVIEW DOES NOT CONSTITUTE APPROVAL OF DESIGN DETAILS, CALCULATIONS, TEST METHODS OR MATERIAL DEVELOPED AND/OR SELECTED BY THE CONTRACTOR, NOR DOES IT RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH CONTRACTUAL OR OTHER OBLIGATIONS. <input type="checkbox"/> 01 – REVIEWED AND ACCEPTED – NO COMMENTS <input type="checkbox"/> 02 – REVIEWED – INCORPORATE COMMENTS, REVISE AND RESUBMIT <input type="checkbox"/> 03 – REVIEWED - NOT ACCEPTED <input checked="" type="checkbox"/> 04 – INFORMATION ONLY <input type="checkbox"/> 05 – NOT REVIEWED			
	This document has been reviewed & coded electronically via Aconex.			
	Lead Reviewer: David Wright	Date (dd-mmm-yyyy): 23-Jan-2018	Project Manager:	Date (dd-mmm-yyyy):
	NE-LCP Management:	Date (dd-mmm-yyyy):		
<u>General Comments:</u> 				



**DOCUMENT REVIEW
Comment Sheet**

Completed by LCP Representative				Completed by LCPDCC	
Document Title:				Record Number:	
Monthly Progress Report (November 2017)					
NE-LCP Document Number:	Revision:	3 RD Party Document Number:	Revision:	Transmittal Number:	
MFA-CG-SD-3440-PM-A06-0005-01	A1	MFA-CG-SD-3440-PM-A06-0005-01	A1		
LCP Department of Origin:		Purchase Order/Contract Number:		Transmittal Date:	
CH0031		CH0031-001			
Distribute Comment Sheet to:		Date returned to LCPDCC			

LCP Representative: David Wright	Lead Reviewer: David Wright
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Comments:

Item No.	Section/Paragraph /Page/Sheet	Comment	Response	Status
1.	Page 16, Section 7.1	As of 23Jan2017 the cable tray support hangers design scope is ongoing and should not be indicated as 100% complete. As an example, the calculations are currently Code 3 and associated support drawings are being revised.		
2.	Page 17, Section 7.3	Update column heading from "Reply Required" to "Reply Requested". Typical for matrix within Section 7.4 and 7.5 & 10.3.1,		
3.	Attachment 2	Monthly report indicates progress deviations from baseline schedule but does not include recommendations for recovery actions. Include in future monthly reports.		
4.	General	Report does not include earned value management analysis within monthly report as per Exhibit 3, Section		



**DOCUMENT REVIEW
Comment Sheet (Cont'd)**

Comments:

Item No.	Section/Paragraph /Page/Sheet	Comment	Response	Status
		7.2, c). Include in future monthly reports.		
5.	Page 30, Commodity Curve - Cable Tray	Curve indicates more forecasted cable tray than baseline, please explain.		
6.	Attachment 6	Include action register in future monthly reports.		
7.	General	It is noted that this November 2017 monthly report was not formally submitted until January 11, 2018. Please ensure timely formal submission going forward.		
8.	Page 7, Section 2, 13 th bullet	Delete the term "onerous", this is speculative on the part of Contractor.		
9.	General	Include LOP (Listing of personnel)		
10.				
11.				
12.				
13.				
14.				
15.				
16.				
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19.				
20.				
21.				



**DOCUMENT REVIEW
Comment Sheet (Cont'd)**

Comments:

Item No.	Section/Paragraph /Page/Sheet	Comment	Response	Status
22.				
23.				
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27.				
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29.				
30.				

NE-LCP Lead Reviewer: David Wright

Date: 23Jan2017

For Contractor: _____


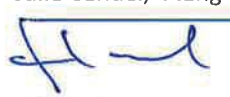

Date: _____



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Client Reference:
CH0031-001
Supply and Install Mechanical & Electrical Auxiliaries MF

Project Reference:
TC006

A1	05-Dec-17	Review	Simon Lambert, P.Tech  Project Controls	Julie Canuel, P.Eng  Project Controls	Tim Harrington, P.Eng  Project Manager
Rev.	Date	Issued for	Revised by	Checked by	Approval by



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1. Executive Summary

November 2017 has been a fruitful period for Contractor as momentum continues to be gained with permanent installations continuing for various construction disciplines. Contractor's footprint inside the station powerhouse has expanded with Contractor's growing workforce mobilizing to new areas as they become available. Current powerhouse work fronts now include the following:

- Wall rough-in installations in the South Service Bay EL 25 and EL 34.47.
- Masonry wall enclosure for the South stairwell SW-10.
- Cable tray supports in various areas including tailrace / turbine floor area (EL 6.5), dewatering gallery (EL -20.3), and mezzanine areas EL 25 and EL 34.47. Tray installations will begin next period.
- First piping work has begun included installations in the dewatering gallery corridor.

Material movement to work areas remains Contractor's biggest challenge. Contractor is an active participant in the daily SIMOPS coordination meetings, however our workforce continues to grow a more reliable and robust means to feed material to work areas is needed to ensure efficient production flow.

Mobilization efforts continue in the following locations:

- Contractor admin office mobilization is complete with permanent power and fibre optic networking now established.
- Lunchroom and office trailers are in place and occupied at the Contractor's warehouse.
- Contractor trailer layout near the powerhouse has been finalized and will include three trailer locations; permitting has been approved.
 - First lunch room trailer stacked multiplex located on the South Service Bay road has been erected and is occupied.
 - The second location is situated on the road hill-top and will include four 40 foot trailers for field staff and supervision it will also act as a scaffolding laydown. Trailers are in place and construction power is being established.
 - The final location closer to the end of the SSB road is in early stages of mobilization. It will be occupied by a washcar facility (now in place), storage containers and additional lunch room facilities.

Activity in the St. John's back office remains busy with the package engineering staff and procurement team making big strides this period securing vendors for several large procurement packages. 3rd party design efforts continue with progress made on the station tray support details / layouts (now complete), controls systems, fire protection system, HVAC seismic supports, and equipment housekeeping pads.

The content of this document outlines the achievements, activities, and challenges experienced during this reporting period.



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2. Significant Accomplishments

Contractor's noteworthy accomplishments achieved during this reporting period have been provided below for reference:

- Continuation of project team assignments including;
 - Site mobilization of Project Manager, Deputy Construction Manager, additional HSE advisors, quality staff, and field engineering.
 - Full time project assignments to date: 21 site staff, 14 off-site staff
- Contractor admin permanent power and network in place. Mobilization outside the powerhouse continues with trailer placement and construction power set-up. Mobilization progressed to 60.8% as of December 2nd 2017.
- Workforce ramp up continues. Workforce has increased to 63 union workers deployed by the end of this period with 25 new hires in process.
- Cable tray support work now active in several work areas.
- First piping and masonry work has officially started.
- Key procurement package awards completed this month including fire protection, compressors, transformers, pumps, lighting, doors / windows, cables, cable glands, fire detection.
- Critical procurement packages are nearing award including Distribution, HVAC Fans, HVAC Dampers, Insulation, Fireproofing.
- Contractor and Company completed its first offsite surveillance audit of pipe manufacturer Mugafab. No significant were identified and observations were very positive.
- First pipe and ductwork deliveries have arrived on site.
- Cable tray support details and layouts are complete for all areas. Only final structural calculation report remains to be reviewed and approved (next period).
- 3rd party design of the fire protection system, housekeeping pads, HVAC seismic supports has begun.
- Contractor Control Schedule resubmission and updated Execution Plan has been issued to Company. Approval pending.
- Engineering "streamlining" workshop held in Montreal with SNC Lavalin design team and Company representatives. The session included a constructive discussion to expedite and reduce documentation review / approvals, relaxation of onerous spec requirements (i.e. potential concessions) as well as a presentation by the Engineer regarding the path to first power.
- Contractor has rolled out its emergency response / rescue plan for its early work areas. Mock rescue exercises have been performed by Contractor's team with Company HSE representation present.



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3. Challenges, Delays and Mitigation Measures

A summary of project challenges and delays identified and updated for this period has been provided below:

#	CHALLENGE / DELAY	MITIGATION MEASURE	UPDATE / RESOLUTION
1.	Contractor's Work Area adjacent to the powerhouse is partially obstructed by other contractor facilities / equipment occupying the area. Area will need to be cleared prior to Contractor's mobilization effort.	Issue has been communicated to Company.	Issue is ongoing; working with Company to resolve. Permit for land use has been reissued to include three trailer locations. Trailer location 1 is in progress. Location 2 on top of the hill has been cleared by Company for Contractor to start mobilizing trailers. Trailer location 3 is still occupied by others. CLOSED: Permit has been approved and mobilization plan in this area has been finalized. Some production loss is expected as mobilization is now taking place in the winter months.
2.	South Service Bay is currently fully occupied by Company Other Contractor which could prevent/delay Contractor materials movement and installation scope of work.	<ul style="list-style-type: none"> Issue has been communicated to Company. Continue to work with Company through SIMOPS and construction interface program. Material movement has been an early struggle. Access hatch being provided for Contractor between U3 and U4 GSUs. 	Challenges continue. Material movement to Contractor work areas has been a struggle this period. More opportunities need to be given to Contractor to deliver and off-load material.
3.	ECN-0004 includes changes to electrical equipment and distribution. Will result in revisions necessary to supplier proposals and delay procurement.	<ul style="list-style-type: none"> Contractor reviewing changes within the package and have advised Company. Planning joint technical review sessions with Company / Engineers once shop drawings are released. 	Technical review continues with the vendor to finalize package award which should be early next period. Joint shop drawing reviews will be planned for January 2017.
4.	Readiness of area handover for early work areas per Exhibit 9	<ul style="list-style-type: none"> Issue has been communicated to Company. Contractor is active in Company's interface process 	Ongoing. Dates for area access are changing and Contractor is doing its best to plan its work efficiently.



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#	CHALLENGE / DELAY	MITIGATION MEASURE	UPDATE / RESOLUTION
		and SIMOPS coordination meetings.	
5.	New Construction Interface Procedure requires new requirements for area access and handover. Process rolled out after Exhibit 9 area access dates. Requested areas not yet transferred to Contractor. New HSE requirements being outlined to Contractor	<ul style="list-style-type: none"> Issue has been communicated to Company. Contractor to meet with Company to highlight concerns 	Company to coordinate meeting to review interface process concerns.
6.	Lighting parts spec is obsolete for various fixtures. Query to be issued for approval of fixture alternatives. Will delay vendor / PO award and delivery.	<ul style="list-style-type: none"> Issue has been communicated to Company. Site query with new fixture styles has been submitted and approved. Contractor is submitted CHR to cover new fixtures. 	Company to review and respond to CHR.
7.	RFI-0039 Response: Anti-condensation heaters requested for all electrical and mechanical equipment cabinets / panels. Could result in scope / cost growth, equipment delays, certification issues.	<ul style="list-style-type: none"> Issue has been communicated to Company. Contractor has met with Company and Engineer to highlight concerns. 	Contractor to draft a list of panels / equipment for Engineer consideration to eliminate heaters in temperature controlled environments.
8.	Cable tray installation on EL 15.5 delayed by fireproofing defect (by others)	<ul style="list-style-type: none"> FWO-0002 issued to Contractor to remediate some of the areas. CHR to follow for the remaining work areas. 	Company to review and respond to CHR once received.
9.	Perimeter wall erection at SSB area EL 25 delayed due to restricted access.	<ul style="list-style-type: none"> Issue has been communicated to Company. Access has been requested through SIMOPS and interface meetings 	Company to help coordinate access for Contractor.



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4. Health and Safety

4.1 Safety Statistic

BUSINESS UNIT/PROJECT: Lower Churchill Project			WEEK ENDING: November 25 2017
LOCATION: Muskrat Falls (Not on site) / St. John's Office			CONTRACTOR: Cahill Ganotec
MANHOURS	WEEKLY	YEAR TO DATE	PROJECT TO DATE
	2239	9263	3129
LEADING INDICATORS	WEEKLY	YEAR TO DATE	PROJECT TO DATE
High Potential Near Miss*	0	0	0
Near Miss Incidents	0	0	0
Orientations Completed	0	19	19
FLRA's Completed	0	151	151
TSAs Completed	0	4	4
Worksite Inspections	0	13	13

LAGGING INDICATORS	WEEKLY	YEAR TO DATE	PROJECT TO DATE
First Aid Cases	0	0	0
Medical Aid Cases *	0	0	0
Modified Work Injury Cases *	0	0	0
Lost Time Incidents (LTI) *	0	0	0
Fatalities *	0	0	0
Modified Work Days	0	0	0
Lost Time Days	0	0	0



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LAGGING INDICATORS	WEEKLY	YEAR TO DATE	PROJECT TO DATE
Medical Aid Frequency	0.00	0.00	0.00
Modified Work Injury Frequency	0.00	0.00	0.00
LTI Frequency	0.00	0.00	0.00
*Recordable Incident Frequency	0	0	0
Property/Equipment Damage	0	0	0
Vehicle Incidents	0	0	0
Safety Absolute Incidents	0	0	0
Security Incidents	0	0	0
Hours since LTI	0		

5. Project Progress and Schedule

5.1 Progress Update

- Contractor resubmitted Control Schedule, Control Schedule Baseline Document & Schedule Development & Control Plan to company on November 6th, 2017. Company comments from formal review have been incorporated into document submittal.
- Metal Stud Wall erection continued at Elevation 25.
- Cable tray supports continued at Elevation 6.5 downstream of column A (Unit 1 through Unit 4). Cable tray supports commenced on Mezz 1 (El 25) between grid lines C-E, Lines 1-5.
- Concrete block wall erection commenced @ Stairwell 10 in the SSB, on elevations 15.5 and Mezz 1 (El 25)



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SDRL Code	Document Status	Document #	Document Title	Rev
A01	Code 02	MFA-CG-SD-3440-AD-A01-0001-01	Supplier Document Register (SDR)	A1
A02	Code 03	MFA-CG-SD-3440-PC-A02-0001-01	Control Schedule	A1
A04	Code 02	MFA-CG-SD-3440-RI-A04-0001-01	Risk Management Plan	A3
A04	Code 03	MFA-CG-SD-3440-RI-A04-0002-01	Risk Register	A1
A07	Code 02	MFA-CG-SD-3440-PM-A07-0001-01	Project Execution Plan	A1
A07	Code 02	MFA-CG-SD-3440-PM-A07-0002-01	Project Organization Chart	A3
A28	Code 01	MFA-CG-SD-3440-HS-A28-0001-01	Health and Safety Plan	C1
A28	Pending	MFA-CG-SD-3440-HS-A28-0002-01	Emergency Response Plan	A1
A35	Code 01	MFA-CG-SD-3440-EV-A35-0001-01	Environmental Protection Plan (C- SEPP)	C1
A42	Code 02	MFA-CG-SD-3440-PC-A42-0001-01	Schedule Development and Control Plan	A1
A42	Code 01	MFA-CG-SD-3440-PC-A42-0002-01	Cost Control Plan	C1
A42	Code 02	MFA-CG-SD-3440-PC-A42-0003-01	Schedule of Values	A3
A44	Code 02	MFA-CG-SD-3440-PC-A44-0001-01	Control Schedule Baseline Schedule	A1
A98	Code 02	MFA-CG-SD-3440-PM-A98-0001-01	Interface Register	A1
A98	Code 02	MFA-CG-SD-3440-PM-A98-0002-01	Interface Management Plan	A1
A99	Code 02	MFA-CG-SD-3000-EP-A99-0001-01	90 Day Mobilization Schedule	A2
A99	Code 02	MFA-CG-SD-3440-PC-A99-0001-01	Labour Productivity Management Plan	A1
A99	To Issue	MFA-CG-SD-3440-PM-A99-0002-01	Completions Plan	A1
Q03	Code 02	MFA-CG-SD-3440-QA-Q03-0001-01	Quality Plan	C1

5.2 Progress Curves

See Attachment 2

5.3 Discipline Histograms

See Attachment 1

5.4 Commodity Reporting

See Attachment 3

5.5 Performance Reporting

See Attachment 9



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5.6 Critical Path / Longest Path Analysis

See Attachment 3

5.7 P6 Control Schedule

See Attachment 4



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6. Quality Statistics

6.1 Quality Assurance / Quality Control Update

Key activities in progress for this period include:

- Project Quality Plan Returned Code 01
- Fabrication Surveillance and Turnover Plan submitted for internal review
- Onsite Welding Procedures - MFA-CG-SD-3440-ME-K01-0002-01 Returned Code 01
- Architectural ITP - MFA-CG-SD-3320-QA-Q04-0001-01 Returned Code 01
- HVAC Duct Fabrication ITP - MFA-CG-SD-3351-QA-Q04-0001-01 Returned Code 01
- On-Site Piping ITP - MFA-CG-SD-3440-QA-Q04-0003-01 Returned Code 01
- Off-Site Piping Fabrication ITP - MFA-CG-SD-3440-QA-Q04-0001-01 - Returned Code 01
- On-Site Electrical ITP - MFA-CG-SD-3340-QA-Q04-0001-01 - Returned Code 01
- SC005 - Fire Protection Package - Kick off Meeting
- Supplier Visits / Surveillance Completed;
 - Support Group Limited – Piping Supports
 - Atlantica – HVAC Duct Fabrication
- Client Audit Completed of Mugafab – Piping Fabrication
 - No Findings noted
 - Contractor authorized to release shipments without Company approval

Upcoming activities planned for next period include:

- Submit HVAC Duct Installation ITP- Document no. requested – Ready for submission
- Define SDRL turnovers of each required supplier
- Develop quality presentation for new hires

6.2 Quality Statistics

The following table shows the Non-Conformity Reports summary for the project.

This Period				To Date			
Total	Open	Closed	Void	Total	Open	Closed	Void
2	2	0	0	2	2	0	0

6.3 Testing and Hold Points

- Mock-up of Masonry Wall. Stairwell 10 – Hold Point



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- Piping and Piping Support Installation - Surveillance Point:
- HVAC Duct Installation - Surveillance Point:



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7. Engineering

7.1 Engineering Update

Engineering design is complete for temporary construction power and tray supports. Engineering has commenced for all packages except detection/leak monitoring and structural platforms. These two remaining engineering design packages are not critical and will be awarded in the new year.

Package	% Complete	Completion Date			
		Plan	Prev. Forecast	Curr. Forecast	Actual
Fire Protection	1%	1-03-2018	1-03-2018	1-03-2018	
Fire Detection	0%	1-03-2018	1-03-2018	1-03-2018	
EMCS (HVAC Control)	5%	1-04-2018	1-04-2018	1-04-2018	
ATS & Load Management	38%	1-05-2018	1-05-2018	1-05-2018	
Lighting Control Panels	37%	01-30-2018	01-30-2018	01-30-2018	
Mechanical Control Panels	16%	28-02-2018	28-02-2018	28-02-2018	
Structural Platforms	0%	1-03-2018	1-03-2018	1-03-2018	
Leak Detection	0%	30-03-2018	30-03-2018	30-03-2018	
Fuel Monitoring	0%	30-03-2018	30-03-2018	30-03-2018	
HouseKeeping Pads	25%	20-01-2018	20-01-2018	20-01-2018	
Temp Power	100%	25-09-2017	25-09-2017	15-10-2018	12-10-2017
HVAC Restraints	5%	28-02-2018	28-02-2018	28-02-2018	
Tray Supports	100%	15-10-2018	15-10-2018	15-11-2017	20-11-2017

7.2 Interface Management

There are two open interfaces for this period. Interface 002 is critical as the information is required for the design on ATS system. See Details below:

CH0031-001 INTERFACE REGISTER					REQUEST		RESPONSE		
ITEM	INTERFACE NUMBER (TIC-CGP-MFL-####)	INTERFACE DESCRIPTION	INTERFACE TYPE	STATUS	REQUEST DATE	REQUESTING TECHNICAL CONTACT	REQUIRED BY DATE	RESPONSE DATE	RESPONSE TECHNICAL CONTACT
0001	TIC-CGP-MFL-001	HVAC Unit Install-Portion of roof to remain open	Hard Interface	Closed	04-Aug-2017	J. Curlew	18-Aug-2017	14-Aug-2017	A. Mitchelmore
0002	TIC-CGP-MFL-002	Connections from ATS/Load Management System to Unit Hoist MCCs	Hard Interface	Interface Submitted	26-Oct-2017	J. Curlew	07-Nov-2017		A. Mitchelmore
0003	TIC-CGP-MFL-003	Details for piping supplied by others for system 3448	Hard Interface	Interface Submitted	27-Oct-2017	J. Curlew	20-Nov-2017		A. Mitchelmore



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7.3 Site Queries

The table below outlines the status of queries for this period. Query 0007 and 0027 are open and responses are overdue. Query 39 (heater requirement) has requested to be revisited. Query #35 was cancelled and concession is ongoing.

CAHILL RFI NO.	Ref Sub Query	NALCOR Site Query #	TRANSMITTAL DATE	DISCIPLINE	Prepared By	DESCRIPTION	REPLY REQUIRED	REPLY DATE
TC-006-RFI-G-0007	1	SQY-CH00310001-0007	24-Aug-17	ARCH	Justin Curlew	SSB earlier completion of block walls	7-Sep-17	
TC-006-RFI-G-0027	1	SQY-CH00310001-0027	16-Oct-17	ALL	Justin Curlew	Identified Method Statements and Critical Lifts	26-Oct-17	
TC-006-RFI-G-0015	1	SQY-CH00310001-0015	21-Sep-17	PIPE	Daniel Parsons	Accepted Valve for VBA12. System 3442	05-Oct-17	26-Sep-17
TC-006-RFI-G-0028	1	SQY-CH00310001-0028	17-Oct-17	ELEC	Justin Curlew	Alternate/Obsolete Lighting Types	26-Oct-17	01-Nov-17
TC-006-RFI-G-0029	1	SQY-CH00310001-0029	18-Oct-17	EMCS	Justin Curlew	Distech products for EMCS	27-Oct-17	26-Oct-17
TC-006-RFI-G-0030	1	SQY-CH00310001-0030	18-Oct-17	PIPE	Daniel Parsons	Painting Pipe	01-Nov-17	26-Oct-17
TC-006-RFI-G-0031	1	SQY-CH00310001-0031	18-Oct-17	PIPE	Daniel Parsons	Location of 3352-DF-7000	01-Nov-17	01-Nov-17
TC-006-RFI-G-0032	1	SQY-CH00310001-0032	18-Oct-17	ARCH	Etienne Fortin	Securing Stud Track to Ceiling (Q-Decking)	01-Nov-17	01-Nov-17
TC-006-RFI-G-0033	1	SQY-CH00310001-0033	18-Oct-17	PIPE	Etienne Fortin	Onsite RT Clarification	01-Nov-17	30-Oct-17
TC-006-RFI-G-0034	1	SQY-CH00310001-0034	20-Oct-17	PIPE	Justin Curlew	Drawing CAD files	03-Nov-17	16-Nov-17
TC-006-RFI-G-0035	4	SQY-CH00310001-0035	23-Oct-17	PIPE	Etienne Fortin	Substitution for 390 high intel block	04-Nov-17	04-Nov-17
TC-006-RFI-G-0036	1	SQY-CH00310001-0036	27-Oct-17	QA	Justin Curlew	Supplier Manuals	07-Nov-17	
TC-006-RFI-G-0037	1	SQY-CH00310001-0037	30-Oct-17	QA	Justin Curlew	Shop drawing Submittal	10-Nov-17	
TC-006-RFI-G-0038	1	SQY-CH00310001-0038	01-Nov-17	ARCH	Etienne Fortin	Relocation North wall room 2032 and Structural bracing	11-Nov-17	09-Nov-17
TC-006-RFI-G-0039	1	SQY-CH00310001-0039	01-Nov-17	ELEC	Justin Curlew	Anti-condensation Heater requirements	11-Nov-17	22-Nov-17
TC-006-RFI-G-0040	1	SQY-CH00310001-0040	01-Nov-17	PIPE	Daniel Parsons	Copper Brazing or Soldering	11-Nov-17	16-Nov-17
TC-006-RFI-G-0041	1	SQY-CH00310001-0041	08-Nov-17	ARCH	Curtis Doyle	Grout Interference with Masonry Install	14-Nov-17	22-Nov-17
TC-006-RFI-G-0042	1	SQY-CH00310001-0042	03-Nov-17	PIPE	Sebastien Iavergne	PVC Construction Joint	14-Nov-17	17-Nov-17
TC-006-RFI-G-0043	1	SQY-CH00310001-0043	08-Nov-17	PIPE	Daniel Parsons	Bolt Details S-A52 to S-A55	16-Nov-17	17-Nov-17
TC-006-RFI-G-0044	1	SQY-CH00310001-0044	08-Nov-17	ARCH	Jessica Foley	Duct Sizing - IFC versus CAD Files	22-Nov-17	16-Nov-17
TC-006-RFI-G-0045	1	SQY-CH00310001-0045	08-Nov-17	PIPE	Justin Curlew	Fuel Piping NDE Requirements	22-Nov-17	
TC-006-RFI-G-0046	1	SQY-CH00310001-0046	08-Nov-17	PIPE	Justin Curlew	MPI of Carbon Steel Weld	22-Nov-17	17-Nov-17
TC-006-RFI-G-0047	1	SQY-CH00310001-0047	16-Nov-17	ARCH	Jessica Foley	Dampers	30-Nov-17	
TC-006-RFI-G-0048	1	SQY-CH00310001-0048	20-Nov-17	PIPE	Curtis Doyle	Draining Connections and Cut-Outs	23-Nov-17	
TC-006-RFI-G-0049	1	SQY-CH00310001-0049	22-Nov-17	ELEC	David Bartlett	Location of ground bus in Telecom Room	05-Dec-17	
TC-006-RFI-G-0050	1	SQY-CH00310001-0050	22-Nov-17	ELEC	Justin Curlew	Chipping of fireproofing	05-Dec-17	
TC-006-RFI-G-0051	1	SQY-CH00310001-0051	24-Nov-17	PIPE	Daniel Parsons	PVC Couplings for PA02	07-Dec-17	



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7.4 ECN

There are 5 ECN's in the system. From a technical perspective, all have been acknowledged and priced. They are in various stages of the change process. :

NALCOR Engineering Change Notice #	RECEPTION DATE	DISCIPLINE	DESCRIPTION	REPLY REQUIRED	REPLY DATE
ECN-CH0031001-0001	1-Sep-17	ARCH	Revised Architectural Technical Specification (cementitious fireproofing)	15-Sep-17	
ECN-CH0031001-0002	19-Sep-17	PIPE	Revised Mechanical Technical Specification (Ball Valve VBA10)	3-Oct-17	
ECN-CH0031001-0003	29-Sep-17	PIPE	Revised Isometric Drawing (Addition of Butterfly Valve - VBU01)	13-Oct-17	
ECN-CH0031001-0004	29-Sep-17	ELEC	Revised Electrical Drawing Submissions	13-Oct-17	
ECN-CH0031001-0005	20-Oct-17	ARCH	Elevator Masonry Walls - Architectural Drawing	3-Nov-17	

7.5 Concessions

There are 7 Concessions in the system. See details in below table:

CAHILL CON NO.	TRANSMITTAL DATE	DISCIPLINE	Prepared By	DESCRIPTION	REPLY REQUIRED	REPLY DATE
TC-006-CON-G-001	11-14-2017	Civil / Architectural	Justin Curlew	Manufacturer (bailey systems) cannot supply 16 Gauge C-H Studs for certain wall types called out in the MFA-SN-CD-3320-AR-DD-0027-01. See datasheet attached.		
TC-006-CON-G-002	11-14-2017	Mechanical	Justin Curlew	Section 23 05 23 of specification MFA-SN-CD-3300-EN-TS-0001-01 specifies several ball valve types. In order to shorten lead times contractor proposes to use an equivalent for VBA01.		
TC-006-CON-G-003	11-14-2017	Electrical	Justin Curlew	There is a very long lead time for a cast iron junction box. Contractor proposes to use an off-the-shelf type box for most general applications. Exceptions listed below: - to be wall and ceiling installed only from the turbine floor (El. 6.50) to mezzanine 2 (El. 34.47) - not to be used for rigid conduit, lights which will be suspended from a box, any equipment suspensions, battery room installation - to be used for lighting, receptacles and general small power. Areas above 34.47 and below 6.5, contractor will continue to use the heavy duty cast iron junction box.		
TC-006-CON-G-004	11-14-2017	Civil / Architectural	Justin Curlew	Contractor has been unable to secure 390mm high lintel block from various concrete/block suppliers. Contracture proposes alternate as outlined in the attached.		
TC-006-CON-G-005	11-18-2017	Structural	Perry Snook	Contracture proposes alternate Cold Spray Galvanization product as outlined in the attached.		
TC-006-CON-G-006	11-22-2017	Electrical	Brad Guy	Substitute the Xenon strobe with a LED strobe for the Weatherproof Notification Appliances.		
TC-006-CON-G-007	2017-11-24	Arch	Justin Curlew	Substitute for cementitious fireproofing		



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7.6 SDRL Documents

The following documentation has been submitted for ongoing work scopes. Datasheets (F01) for block, steel stud, tray, strut, grounding, termination devices, ductwork consumables, and Telecom panels. Design details (D99) are approved for temp power and tray supports. Design layouts (B01) have been approved for tray supports. Dossiers (R05) have been submitted for the first shipments of duct and pipe. Full Summary below:

SDRL Code	Qty Submitted	With CG to incorporate comments	Remarks
A	27	3	12 docs with Company for review
B	12	0	All Accepted Code 1
D	17	0	All Accepted Code 1
F	9	1	Only Grounding remains
G	1	0	Subsystem listing . With Company.
H	1	1	Tray Structural report. Code 3. Will resubmit.
K	3	0	All Accepted Code 1
M	1	0	Accepted Code 1
Q	8	0	Accepted Code 1
R	1	0	Accepted Code 1

8. Change Request Status

CHO-0002 – Execution of this Change Order is pending discussion with Company on changes to the form. Change Order is for a credit of \$140,000.

CHR-CH0031001-0005 – Rejected by Company. Contractor is preparing additional information for submission.

CHR-CH0031001-0006 – Change Order 0003 was received and is pending resolution of the Site Installation/Staff costs issue.

CHR-CH0031001-0007 – Contractor provided a Change Request Response proposal for the majority of the work in Change Request on ECN 0004 on November 16, 2017. Contractor will submit a subsequent revision to the Change Request Response upon receipt of the remaining information.

CHR-CH0031001-0008 – Contractor provided Change Request Response proposal for ECN 0005 on November 2, 2017.

CHR-CH0031001-0010 – Change Request for Exhibit 11 Revisions submitted by Contractor on November 2, 2017. Awaiting Company response.



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CHR-CH0031001-0011 – Unit 4 Tailrace Deck Hatch – Temporary Guardrails. Contractor submitted Change Request Response proposal on November 17, 2017 for \$12,278.05. Awaiting Company response.

CHR-CH0031001-0012 – Elevator temporary services – Field Work Order FWO-CH0031001-0001 issued for early work.

FWO-CH0031001-0002 – Removal of existing fireproofing from 28 support locations. Change Request for remaining scope will follow.

9. Procurement Status

9.1 Award Status of Subcontractor or Supplies

9.1.1 Current EOI's

- M5608 Diesel Fuel Oil System

9.1.2 Current RFP's

- E5206 UPS Systems and Batteries
- E5210 Electric Heat
- J5605 Generator Room Leak Detection System
- J5606 Fuel Storage Tank Electrical Monitoring System
- M5602 Strainers
- M5603 Water Heaters
- M5604 Eyewash System and Heaters
- M5609 Hoist in Dewatering Gallery
- M5611 Shaft Seal Water System

Under Technical Review

- C5507 Fire Stop Materials
- E5203 Lighting
- E5205 Distribution Package
- H5300 HVAC AHU's
- H5301 HVAC Fans
- H5302 Dampers
- H5304 Duct Heaters and Terminal Devices
- H5305 HVAC Condensers



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- H5307 Humidifiers
- M5606 DOMESTIC WATER TREATMENT PLANT
- SC015 Design of Housekeeping pads, Mech, Elec, HVAC

9.1.3 Package Awards

- C5508 Doors and Windows
- E5200 Electrical / Instrumentation / Telecom Cables
- E5204 Transformers
- E5207 Cable Connectors (Glands)
- E5208 Electrical Termination Devices
- M5601 Pumps
- M5605 Compressors
- L5101 Valves
- SC004 Powerhouse Fire Detection System
- SC005 Powerhouse Fire Protection System

10. Environmental and Regulatory

10.1 Status

Environmental plan has been approved on October 6.

10.2 Environmental Reporting

	MOE Reportable Spill											
	Total Spills - On Land (Liters)			On Land (Liters)			Total Spills - In Water (Liters)			Total Sediment Spills (Liters)		
	≤ 10	≥ 10	≥ 100	≤ 10	≥ 10	> 100	≤ 10	≥ 10	≥ 100	≤ 10	≥ 10	≥ 100
Period	0	0	-	-	-	0	-	-	-	-	-	-
Cumulative to-date	0	0	-	-	-	0	-	-	-	-	-	-

10.3 Permits



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10.3.1 Key upcoming permit

Full list of permits outlined in the below table.

PERMIT #	DOCUMENT TITLE	Date Required	STATUS
PE-2017 107596 00	Electrical Permit - Admin Area	Sept. 15/17	Approved
PE-2017 107602 00	Electrical Permit - Powerhouse Area	Sept. 15/17	Approved
TBD	GAP Registration - Double Wall Daytank 3437-TK-6002	Mar. 30/18	Not Submitted
TBD	GAP Registration - Above Ground Storage Tank 3437-TK-6001	Mar. 30/18	Not Submitted
TBD	GAP Registration - Oil Storage Tank 3446-TK-6000	Mar. 30/18	Not Submitted
TBD	GAP Registration - Oil Storage Tank 3446-TK-6001	Mar. 30/18	Not Submitted
TBD	GAP Registration - Oil Water Separator 3441-OWS-5000	Mar. 30/18	Not Submitted
TBD	GAP Registration - Oil Water Separator 3442-OWS-5000	Mar. 30/18	Not Submitted
TBD	GAP Registration - Oil Water Separator 344A-OWS-5000	Mar. 30/18	Not Submitted
TBD	Diesel Generator Registration Form	June 30/18	Not Submitted
PP03799.0 and.0A	Design Registration of Pressure Piping System- low pressure compressed air 3441-Piping	Nov. 20/ 17	Approved
TBD	Design Registration of Pressure Piping System- low pressure compressed air 3441 - Equipment	Apr. 30/18	Not Submitted
TBD	Design Registration of Pressure Piping System- high pressure compressed air 3442 - Piping	Jan. 18/18	Submitted
TBD	Design Registration of Pressure Piping System- high pressure compressed air 3442 - Equipment	Apr. 30/18	Not Submitted
TBD	Design Registration of Pressure Piping System- air brake system -Piping	Jan. 18/18	Submitted
TBD	Design Registration of Pressure Piping System- air brake system - Equipment	Apr. 30/18	Not Submitted
4E-CON- 3000-0001	Building Accessibility Design Registration / Exemption Registration - Temporary Admin Trailer Complex	Sept. 15/17	Approved
4E-CON- 3000-0003	Building Accessibility Design Registration / Exemption Registration - Temporary Lunch Trailer Complex	Oct. 15/17	Approved
TBD	Building Accessibility Design Registration / Exemption Registration - Temporary Lunch/office Trailer-Warehouse Area	Nov. 20/ 17	Submitted
TBD	Building Accessibility Design Registration / Exemption Registration - Temporary Office Trailers E2 Area	Nov. 30/ 17	Submitted
TBD	Septic Systems less than 4,546 L/day flow - Admin Area Trailer Complex	Oct. 1/17	Submitted
TBD	Used Oil Storage Tank System Application	Dec. 30/ 17	Not Submitted
4E-CON- 2000-0105	Building Accessibility Design Registration / Exemption Registration - Astaldi warehouse	Oct. 15th	Approved
TBD	Building Accessibility Design Registration / Exemption Registration - Powerhouse washcart #1	Dec. 20/ 17	Not Submitted
TBD	Building Accessibility Design Registration / Exemption Registration - Powerhouse washcart #2	Dec. 20/ 17	Not Submitted

11. Provincial Benefits Report (Exhibit 13)

Contractor has implemented processes to facilitate monthly reporting requirements. First upload of Contractor data was processed November 3rd, 2017 for October reporting period.

Exhibit P-02347 Pages 26 to 102
have been fully redacted and
replaced with this page.



Discipline	POP No.	Long Lead	Description	EOI Posted Date Forecast (Green = Actual)	RFP Release Date Original Forecast	RFP Release Date Current Forecast	RFP Release Date Actual	Purchase Order Issue Date Planned	Purchase Order Issue Date Forecast	Purchase Order Issue Date Actual	Date of 1st Material Received Planned	Date of 1st Material Received Forecast	Date of 1st Material Received Actual
Architectural	C5501		Masonry Block Walls	24-Aug-17	25-Aug-17	31-Aug-17	1-Sep-17	22-Sep-17	6-Oct-17	5-Oct-17	22-Oct-17	16-Oct-17	13-Oct-17
Architectural	C5502		Drywall, Drop Ceiling and Accessories	24-Aug-17	25-Aug-17	31-Aug-17	1-Sep-17	22-Sep-17	2-Oct-17	2-Oct-17	6-Oct-17	9-Oct-17	9-Oct-17
Architectural	C5503		Flooring Materials (Vinyl, Ceramic, etc.)	1-Dec-17	29-Dec-17	19-Jan-18		21-Dec-17	9-Feb-18		23-Feb-18	8-Jun-18	
Architectural	C5504		Insulation and Vapour Barrier	23-Aug-17	6-Sep-17	15-Sep-17	15-Sep-17	6-Oct-17	1-Dec-17		22-Nov-17	2-Feb-18	
Architectural	C5504		Duct Insulation	23-Aug-17	6-Sep-17	13-Oct-17	15-Sep-17	1-Dec-17	1-Dec-17		15-Dec-17	29-Dec-17	
Architectural	C5504		Pipe Insulation	23-Aug-17	6-Sep-17	13-Oct-17	15-Sep-17	1-Dec-17	1-Dec-17		26-Jan-18	9-Feb-18	
Architectural	C5505		Signage	3-Mar-18	17-Mar-18	17-Mar-18		7-Apr-18	7-Apr-18		25-Mar-18	30-Jun-18	
Architectural	C5506		Cabinets	1-Dec-17	15-Dec-17	22-Jan-18		15-Jan-18	16-Feb-18		2-Mar-15	4-May-18	
Architectural	C5507		Fire Stop Materials	23-Aug-17	6-Sep-17	22-Sep-17	20-Sep-17	1-Dec-17	1-Dec-17		13-Dec-17	26-Jan-18	
Architectural	C5508		Doors and Windows	7-Sep-17	9-Oct-17	18-Sep-17	28-Sep-17	9-Oct-17	10-Nov-17	10-Nov-17	22-Jan-18	1-Jan-18	
Architectural	C5509		Bathroom Accessories and Toilet Partitions	4-Oct-17	30-Oct-17	12-Jan-18		9-Feb-18	2-Feb-18		9-Apr-18	22-Jun-18	
Architectural	C5510		Wall and Corner Guards	1-Dec-17	30-Oct-17	12-Jan-18		2-Feb-18	2-Feb-18		9-Apr-18	22-Jun-18	
Architectural	SC013		Specialty Floor Coatings (Epoxy / Urethane)	23-Aug-17	30-Oct-17	19-Jan-18		13-Dec-17	9-Feb-18		9-Apr-18	2-May-18	
Coatings	R5800		Paint	Direct Purchase	30-Oct-17	24-Nov-17	Direct Purchase	15-Dec-17	16-Jan-18		9-Apr-18	9-Apr-18	
Coatings	SC012		Cementitious Fireproofing Subcontract	22-Aug-17	12-Sep-17	15-Sep-17	22-Sep-17	6-Oct-17	1-Dec-17		12-Dec-17	15-Dec-17	
Completions	SC016		Transformer oil and Filling								28-Feb-18	0-Jan-00	
Completions	SC017		CAT 6 Testing								20-May-18	0-Jan-00	
Completions	SC019		FO Terminations								22-Jan-18	0-Jan-00	
Completions	SC020		MCC and Switchgear Commissioning								30-May-18	0-Jan-00	
Completions	SC021		Generator Commissioning								30-May-18	0-Jan-00	
Completions	SC022		Battery Bank Commissioning								30-May-18	0-Jan-00	
Completions	SC023		Installation / Assembly IPB								30-May-18	0-Jan-00	
Electrical	SC024		Trenching for Electrical Embedded work										
Electrical	E5200		Electrical / Instrumentation / Telecom Cables	16-Aug-17	30-Aug-17	20-Oct-17	19-Oct-17	24-Nov-17	24-Nov-17	23-Nov-17	13-Dec-17	29-Dec-17	
Electrical	E5200		POWER CABLE – 25 KV	16-Aug-17	30-Aug-17	20-Oct-17	19-Oct-17	24-Nov-17	24-Nov-17	23-Nov-17	13-Dec-17	12-Jan-18	
Electrical	E5200		Category 6 Data Tuff ACIC	16-Aug-17	30-Aug-17	20-Oct-17	19-Oct-17	24-Nov-17	24-Nov-17	23-Nov-17	13-Dec-17	12-Jan-18	
Electrical	E5201		Grounding	26-Jul-17	9-Aug-17	21-Aug-17	21-Aug-17	11-Sep-17	6-Oct-17	13-Oct-17	22-Nov-17	4-Dec-17	
Electrical	E5202		Cable Trays, Unistruts	21-Jul-17	4-Aug-17	11-Aug-17	11-Aug-17	8-Sep-17	8-Sep-17	15-Sep-17	6-Oct-17	5-Oct-17	5-Oct-17
Electrical	E5203		Interior Lighting	26-Jul-17	9-Aug-17	15-Sep-17	14-Sep-17	17-Nov-17	1-Dec-17		15-Nov-17	12-Jan-18	
Electrical	E5203		Exterior Lighting	26-Jul-17	9-Aug-17	15-Sep-17	14-Sep-17	17-Nov-17	1-Dec-17		15-Nov-17	12-Jan-18	
Electrical	E5203		Exit Signs	26-Jul-17	9-Aug-17	15-Sep-17	14-Sep-17	17-Nov-17	1-Dec-17		15-Nov-17	12-Jan-18	
Electrical	E5204	x	Station Service Transformers	1-Aug-17	15-Aug-17	22-Aug-17	23-Aug-17	12-Oct-17	10-Nov-17	10-Nov-17	24-Jul-18	16-Mar-18	
Electrical	E5204	x	Medium Voltage Transformers	1-Aug-17	15-Aug-17	22-Aug-17	23-Aug-17	12-Oct-17	10-Nov-17	10-Nov-17	24-Jul-18	16-Mar-18	
Electrical	E5204	x	Dry bType Transformers up to 600V Primary	1-Aug-17	15-Aug-17	22-Aug-17	23-Aug-17	12-Oct-17	10-Nov-17	10-Nov-17	12-Dec-17	16-Feb-18	
Electrical	E5205	x	Panel Boards	21-Jul-17	4-Aug-17	25-Aug-17	29-Aug-17	25-Nov-17	1-Dec-17		15-Dec-17	17-Jan-18	
Electrical	E5205	x	Disconnect Switches	21-Jul-17	4-Aug-17	25-Aug-17	29-Aug-17	25-Nov-17	1-Dec-17		17-Nov-17	10-Feb-18	
Electrical	E5205	x	LowVoltage Switchgear	21-Jul-17	4-Aug-17	25-Aug-17	29-Aug-17	25-Nov-17	1-Dec-17		21-Sep-17	15-Dec-17	
Electrical	E5205	x	Motor Starters	21-Jul-17	4-Aug-17	25-Aug-17	29-Aug-17	25-Nov-17	1-Dec-17		15-Dec-17	10-Mar-18	
Electrical	E5205	x	600 V MOTOR CONTROL CENTRES	21-Jul-17	4-Aug-17	25-Aug-17	29-Aug-17	25-Nov-17	1-Dec-17		6-Apr-18	30-Jun-18	
Electrical	E5205	x	Enclosed Bus Assemblies	21-Jul-17	4-Aug-17	25-Aug-17	29-Aug-17	25-Nov-17	1-Dec-17		9-Feb-18	12-May-18	
Electrical	E5206	x	UPS Systems	16-Aug-17	10-Oct-17	2-Nov-17	2-Nov-17	3-Nov-17	8-Dec-17		1-May-18	11-May-18	
Electrical	E5206	x	125VDC Batteries, Battery Racks and Chargers	16-Aug-17	10-Oct-17	2-Nov-17	2-Nov-17	3-Nov-17	8-Dec-17		1-May-18	11-May-18	
Electrical	E5206	x	48VDC Batteries, Battery Racks and Chargers	16-Aug-17	10-Oct-17	2-Nov-17	2-Nov-17	3-Nov-17	8-Dec-17		1-May-18	11-May-18	
Electrical	E5206	x	UPS Bypass Static Switch	16-Aug-17	10-Oct-17	2-Nov-17	2-Nov-17	3-Nov-17	8-Dec-17		1-May-18	11-May-18	
Electrical	E5207		Cable Connectors (Glands)	23-Aug-17	6-Sep-17	24-Oct-17	24-Oct-17	10-Nov-17	10-Nov-17	10-Nov-17	22-Nov-17	5-Jan-18	
Electrical	E5208		Electrical Junction Boxes and Splitters	24-Aug-17	7-Sep-17	13-Oct-17	12-Oct-17	3-Nov-17	3-Nov-17	1-Nov-17	23-Nov-17	24-Nov-17	
Electrical	E5208		Electrical Termination Devices	24-Aug-17	7-Sep-17	13-Oct-17	12-Oct-17	3-Nov-17	3-Nov-17	1-Nov-17	23-Nov-17	24-Nov-17	
Electrical	E5210		Electric Heat	16-Aug-17	1-Jan-18	24-Nov-17	23-Nov-17	29-Jan-18	22-Jan-18		14-May-18	14-May-18	
Electrical	SC009	x	Lighting Control Panel	Internal	N/A	N/A				5-Oct-17			
Electrical	SC009	x	Temporary Ground Cables (Operations)	Direct Purchase	N/A	N/A				5-Oct-17			
Electrical	SC009		Temporary construction power design	Internal	N/A	N/A				5-Oct-17	6-Oct-17	6-Oct-17	22-Sep-17
Electrical	SC009	x	ATS & Load Management System	Internal	N/A	N/A				5-Oct-17			
Electrical	SC009	x	Custom Built Control Panels (Mech Systems)	Internal	N/A	N/A				5-Oct-17			
HVAC	H5300	x	FILTER HOUSING	16-Aug-17	30-Aug-17	22-Sep-17	27-Sep-17	8-Nov-17	1-Dec-17		30-May-18	11-Jun-18	
HVAC	H5300	x	AIR CONDITIONING UNIT	16-Aug-17	30-Aug-17	22-Sep-17	27-Sep-17	8-Nov-17	1-Dec-17		30-May-18	11-Jun-18	
HVAC	H5300	x	AIR COOLING UNIT	16-Aug-17	30-Aug-17	22-Sep-17	27-Sep-17	8-Nov-17	1-Dec-17		30-May-18	11-Jun-18	
HVAC	H5300	x	Heating & Ventilation Units	16-Aug-17	30-Aug-17	22-Sep-17	27-Sep-17	8-Nov-17	1-Dec-17		30-May-18	11-Jun-18	
HVAC	H5301	x	HVAC Fans	26-Jul-17	9-Aug-17	25-Aug-17	29-Aug-17	2-Nov-17	8-Dec-17		28-Feb-18	26-Apr-18	
HVAC	H5301		CENTRIFUGAL FANS	26-Jul-17	9-Aug-17	25-Aug-17	29-Aug-17	2-Dec-17	8-Dec-17		28-Feb-18	26-May-18	
HVAC	H5301		HIGH PRESSURE BLOWER FANS	26-Jul-17	9-Aug-17	25-Aug-17	29-Aug-17	2-Dec-17	8-Dec-17		28-Feb-18	26-May-18	



Discipline	POP No.	Long Lead	Description	EOI Posted Date Forecast (Green = Actual)	RFP Release Date Original Forecast	RFP Release Date Current Forecast	RFP Release Date Actual	Purchase Order Issue Date Planned	Purchase Order Issue Date Forecast	Purchase Order Issue Date Actual	Date of 1st Material Received Planned	Date of 1st Material Received Forecast	Date of 1st Material Received Actual
HVAC	H5301		ELECTROSTATIC MIST COLLECTOR FANS	26-Jul-17	9-Aug-17	25-Aug-17	29-Aug-17	2-Nov-17	8-Dec-17		28-Feb-18	26-Apr-18	
HVAC	H5301		MIXED FLOW INLINE FANS	26-Jul-17	9-Aug-17	25-Aug-17	29-Aug-17	2-Nov-17	8-Dec-17		28-Feb-18	26-Apr-18	
HVAC	H5301		INLINE BIFURCATED FIBREGLASS CENTRIFUGAL BLOWERS	26-Jul-17	9-Aug-17	25-Aug-17	29-Aug-17	2-Dec-17	8-Dec-17		28-Feb-18	26-May-18	
HVAC	H5301		CENTRIFUGAL INLINE FANS	26-Jul-17	9-Aug-17	25-Aug-17	29-Aug-17	2-Nov-17	8-Dec-17		28-Feb-18	26-Apr-18	
HVAC	H5301		CENTRIFUGAL EXHAUST FANS	26-Jul-17	9-Aug-17	25-Aug-17	29-Aug-17	24-Nov-17	8-Dec-17		28-Feb-18	18-May-18	
HVAC	H5301		EMERGENCY GENERATOR ENGINE EXHAUST SYSTEM FANS	26-Jul-17	9-Aug-17	25-Aug-17	29-Aug-17	2-Dec-17	8-Dec-17		6-Oct-17	1-Jun-18	
HVAC	H5302	x	Dampers	26-Jul-17	9-Aug-17	25-Aug-17	1-Sep-17	20-Oct-17	1-Dec-17		22-Nov-17	5-Jan-18	
HVAC	H5302		OPERATING DAMPERS	26-Jul-17	9-Aug-17	25-Aug-17	1-Sep-17	20-Oct-17	1-Dec-17		22-Nov-17	5-Jan-18	
HVAC	H5302		HEAVY DUTY BI-DIRECTIONAL DAMPERS	26-Jul-17	9-Aug-17	25-Aug-17	1-Sep-17	20-Oct-17	1-Dec-17		22-Nov-17	5-Jan-18	
HVAC	H5302		FIRE DAMPERS	26-Jul-17	9-Aug-17	25-Aug-17	1-Sep-17	20-Oct-17	1-Dec-17		22-Nov-17	5-Jan-18	
HVAC	H5304	x	Duct Heaters	23-Aug-17	6-Sep-17	23-Sep-17	26-Sep-17	30-Oct-17	1-Dec-17		3-Jan-18	29-Jan-18	
HVAC	H5304	x	HVAC Terminal Units	23-Aug-17	6-Sep-17	23-Sep-17	26-Sep-17	18-Dec-17	1-Dec-17		3-Jan-18	2-Mar-18	
HVAC	H5305	x	HVAC Condensers	23-Aug-17	6-Sep-17	15-Sep-17	20-Sep-17	8-Dec-17	1-Dec-17		21-Feb-18	4-May-18	
HVAC	H5307	x	Humidifiers	23-Aug-17	6-Sep-17	15-Sep-17	20-Sep-17	9-Dec-17	8-Dec-17		21-Feb-18	18-May-18	
HVAC	H5310		Grilles, Registers and Diffusers	1-Dec-17	15-Dec-17	5-Jan-18		26-Jan-18	26-Jan-18		12-Jan-18	16-Mar-18	
HVAC	SC009		EMCS HVAC CONTROL SYSTEM	Internal	N/A	N/A				5-Oct-17			
HVAC	SC010		Silencers	Internal	N/A	N/A				5-Oct-17			
HVAC	SC010		ROOF MOUNTED EXHAUST HOOD	Internal	N/A	N/A				5-Oct-17			
HVAC	SC010		REMOVABLE INSECT SCREEN	Internal	N/A	N/A				5-Oct-17			
HVAC	SC010		Ducting	Internal	N/A	N/A				5-Oct-17			
Instrumentation	J5600		Tubing, Fittings and Manifolds	25-Oct-17	8-Nov-17	1-Dec-17		15-Jan-18	15-Jan-18		29-Dec-17	19-Jan-18	
Instrumentation	J5601		Tagged Field Instruments	11-Oct-17	1-Dec-17	1-Dec-17		5-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		TEMPERATURE TRANSMITTER	11-Oct-17	1-Dec-17	1-Dec-17		5-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		DIFFERENTIAL PRESSURE SWITCH	11-Oct-17	1-Dec-17	1-Dec-17		12-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		LEVEL SWITCH	11-Oct-17	1-Dec-17	1-Dec-17		12-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		PRESSURE SWITCH	11-Oct-17	1-Dec-17	1-Dec-17		12-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		CURRENT TRANSMITTER	11-Oct-17	1-Dec-17	1-Dec-17		5-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		LEVEL TRANSMITTER	11-Oct-17	1-Dec-17	1-Dec-17		5-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		LEVEL Switch	11-Oct-17	1-Dec-17	1-Dec-17		12-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		SWITCH	11-Oct-17	1-Dec-17	1-Dec-17		12-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		PRESSURE TRANSMITTER	11-Oct-17	1-Dec-17	1-Dec-17		5-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		OVERFILL ALARM ACKNOWLEDGEMENT SWITCH	11-Oct-17	1-Dec-17	1-Dec-17		12-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5601		PRESSURE GAUGES	11-Oct-17	1-Dec-17	1-Dec-17		25-Jan-18	12-Jan-18		18-May-18	18-May-18	
Instrumentation	J5605	x	Generator Room Leak Detection System	26-Sep-17	10-Oct-17	24-Nov-17	24-Nov-17	2-Dec-17	15-Dec-17		3-Jun-18	16-Jun-18	
Instrumentation	J5606	x	Fuel Storage Tank Electrical Monitoring System	26-Sep-17	10-Oct-17	24-Nov-17	24-Nov-17	29-Nov-17	15-Dec-17		28-May-18	15-Jun-18	
Instrumentation	SC009		Instrumentation Junction Boxes	Internal	N/A	N/A				5-Oct-17	18-May-18	18-May-18	
Mechanical	M5600	x	DOUBLE WALL DAY TANK	26-Sep-17	10-Oct-17	1-Dec-17		22-Nov-17	15-Dec-17		2-Jul-18	20-Jul-18	
Mechanical	M5600	x	Diesel Electric Generating Unit	26-Sep-17	10-Oct-17	1-Dec-17		16-Dec-17	15-Dec-17		12-Jan-18	21-Apr-18	
Mechanical	M5600	x	CONCRETE ENCASED STEEL ABOVE GROUND TANK	26-Sep-17	10-Oct-17	1-Dec-17		23-Dec-17	15-Dec-17		2-Jul-18	10-Aug-18	
Mechanical	M5601	x	DEWATERING PUMP	31-Jul-17	14-Aug-17	23-Aug-17	24-Aug-17	27-Oct-17	10-Nov-17	10-Nov-17	16-Apr-18	8-Jun-18	
Mechanical	M5601	x	SERVICE WATER PUMP	31-Jul-17	14-Aug-17	23-Aug-17	24-Aug-17	27-Oct-17	10-Nov-17	10-Nov-17	16-Apr-18	15-Jun-18	
Mechanical	M5601	x	LUBRICATION Water Pump	31-Jul-17	14-Aug-17	23-Aug-17	24-Aug-17	27-Oct-17	10-Nov-17	10-Nov-17	16-Apr-18	15-Jun-18	
Mechanical	M5601	x	SUBMERSIBLE PUMP	31-Jul-17	14-Aug-17	23-Aug-17	24-Aug-17	9-Dec-17	10-Nov-17	10-Nov-17	30-Oct-17	27-Jan-18	
Mechanical	M5601	x	PUMP (3352-P- 6000/6001)	31-Jul-17	14-Aug-17	23-Aug-17	24-Aug-17	27-Oct-17	10-Nov-17	10-Nov-17	16-Apr-18	1-Jun-18	
Mechanical	M5601	x	PUMP (3353-P- 5000/5001)	31-Jul-17	14-Aug-17	23-Aug-17	24-Aug-17	27-Oct-17	10-Nov-17	10-Nov-17	16-Apr-18	1-Jun-18	
Mechanical	M5602	x	SELF CLEANING STRAINER	11-Oct-17	25-Oct-17	17-Nov-17	17-Nov-17	13-Nov-17	16-Dec-17		3-Jun-18	16-Jun-18	
Mechanical	M5602	x	STRAINER	11-Oct-17	25-Oct-17	17-Nov-17	17-Nov-17	13-Nov-17	16-Dec-17		3-Jun-18	16-Jun-18	
Mechanical	M5602	x	Y-STRAINER	11-Oct-17	25-Oct-17	17-Nov-17	17-Nov-17	13-Nov-17	16-Dec-17		3-Jun-18	16-Jun-18	
Mechanical	M5602	x	FUEL OIL STRAINER	11-Oct-17	25-Oct-17	17-Nov-17	17-Nov-17	13-Nov-17	16-Dec-17		3-Jun-18	16-Jun-18	
Mechanical	M5603		CONTROL ROOM WATER HEATER	25-Oct-17	8-Nov-17	24-Nov-17	21-Nov-17	20-Nov-17	22-Jan-18		20-May-18	2-Jun-18	
Mechanical	M5603		MAIN WATER HEATER	25-Oct-17	8-Nov-17	24-Nov-17	21-Nov-17	20-Nov-17	22-Jan-18		20-May-18	2-Jun-18	
Mechanical	M5604		EYEWASH SYSTEM and HEATERS	31-Oct-17	14-Nov-17	24-Nov-17	24-Nov-17	9-Dec-17	22-Jan-18		6-May-18	26-May-18	
Mechanical	M5605	x	LOWPRESSURE COMPRESSOR	31-Jul-17	14-Aug-17	25-Aug-17	5-Sep-17	10-Oct-17	10-Nov-17	9-Nov-17	14-May-18	12-Jun-18	
Mechanical	M5605	x	HIGH PRESSURE COMPRESSOR	31-Jul-17	14-Aug-17	25-Aug-17	5-Sep-17	10-Oct-17	10-Nov-17	9-Nov-17	14-May-18	12-Jun-18	
Mechanical	M5606	x	DOMESTIC WATER TREATMENT PLANT	26-Sep-17	10-Oct-17	25-Oct-17	25-Oct-17	7-Jan-18	7-Jan-18		16-Sep-18	18-Nov-18	
Mechanical	M5607		Waste Water Treatment	25-Oct-17	8-Nov-17	8-Dec-17		16-Dec-17	5-Jan-18		27-May-18	26-May-18	
Mechanical	M5608		Diesel Fuel Oil System	24-Nov-17	8-Dec-17	1-Dec-17		19-Nov-17	22-Jan-18		27-May-18	1-Jun-18	
Mechanical	M5609		Hoist In Dewatering Gallery	4-Oct-17	18-Oct-17	24-Nov-17	21-Nov-17	8-Dec-17	22-Jan-18		22-Nov-17	9-Jul-18	
Mechanical	M5610		MOBILE PUMP-FILTERING UNIT	11-Oct-17	25-Oct-17	1-Dec-17		9-Dec-17	15-Jan-18		6-May-18	26-May-18	



Discipline	POP No.	Long Lead	Description	EOI Posted Date Forecast (Green = Actual)	RFP Release Date Original Forecast	RFP Release Date Current Forecast	RFP Release Date Actual	Purchase Order Issue Date Planned	Purchase Order Issue Date Forecast	Purchase Order Issue Date Actual	Date of 1st Material Received Planned	Date of 1st Material Received Forecast	Date of 1st Material Received Actual
Mechanical	M5611	x	Shaft Seal Water System	11-Oct-17		24-Nov-17	21-Nov-17		12-Jan-18				
Mechanical	M5612		Maintenance Shop Equipment	15-Jan-18	29-Jan-18	29-Jan-18		28-Feb-18					
Piping	L5100		Piping and Fittings	N/A	N/A	N/A			25-Oct-17		30-Jan-18	27-Feb-18	
Piping	L5101		BALL VALVES	31-Aug-17	14-Sep-17	20-Oct-17	13-Oct-17	14-Nov-17	10-Nov-17	10-Nov-17	30-Jan-18	27-Feb-18	
Piping	L5101		AUTOMATIC CLOSING BALL VALVE	31-Aug-17	14-Sep-17	20-Oct-17	13-Oct-17	14-Nov-17	10-Nov-17	10-Nov-17	30-Jan-18	27-Feb-18	
Piping	L5101		FOOT VALVES	31-Aug-17	14-Sep-17	20-Oct-17	13-Oct-17	14-Nov-17	10-Nov-17	10-Nov-17	30-Jan-18	27-Feb-18	
Piping	L5101		SOLENOID VALVES	31-Aug-17	14-Sep-17	20-Oct-17	13-Oct-17	14-Nov-17	10-Nov-17	10-Nov-17	30-Jan-18	27-Feb-18	
Piping	L5101		CHECK VALVES	31-Aug-17	14-Sep-17	20-Oct-17	13-Oct-17	14-Nov-17	10-Nov-17	10-Nov-17	30-Jan-18	27-Feb-18	
Piping	L5101		ANTI-SYPHON VALVES	31-Aug-17	14-Sep-17	20-Oct-17	13-Oct-17	14-Nov-17	10-Nov-17	10-Nov-17	30-Jan-18	27-Feb-18	
Piping	L5101		BACKFLOW PREVENTER	31-Aug-17	14-Sep-17	20-Oct-17	13-Oct-17	14-Nov-17	10-Nov-17	10-Nov-17	30-Jan-18	27-Feb-18	
Piping	L5103		Oil Storage Tanks	31-Jul-17	1-Dec-17	8-Jan-18		19-Jan-18	9-Feb-18		3-Aug-18	28-Jul-18	
Piping	L5110		FLEXIBLE BRAIDED HOSES	11-Oct-17	25-Oct-17	17-Nov-17	Direct Purchase	8-Dec-17	8-Dec-17	25-Oct-17	9-Feb-18	16-Mar-18	
Piping	L5110		Misc Piping Materials And Accessories	11-Oct-17	25-Oct-17	17-Nov-17	Direct Purchase	8-Dec-17	8-Dec-17	25-Oct-17	9-Feb-18	16-Mar-18	
Piping	SC006	x	Service Water System	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Shaft Seal Water System	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Dewatering System	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Drainage System	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Oil Water Drainage	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Domestic Water System	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Wastewater System	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Lubricating/Hydraulic Oil System	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Low Pressure Compressed Air System	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Hi Pressure Compressed Air System	Internal	N/A	N/A				5-Oct-17			
Piping	SC006	x	Raw and Cooling Water Systems	Internal	N/A	N/A				5-Oct-17			
Risk and Loss	SC004	x	Powerhouse Fire Detection System –including the design, fabrication, supply, installation (where specialists are required), programming, testing, warranty and performance guarantee of the fire detection system.	11-Aug-17	25-Aug-17	24-Oct-17	24-Oct-17	3-Nov-17	21-Nov-17	23-Nov-17	13-Apr-18	29-May-18	
Risk and Loss	SC005	x	FLOW METER	11-Aug-17	25-Aug-17	15-Sep-17	15-Sep-17	27-Oct-17	6-Nov-17	6-Nov-17	16-Feb-18	2-Apr-18	
Risk and Loss	SC005	x	FIRE PUMP	11-Aug-17	25-Aug-17	15-Sep-17	15-Sep-17	27-Oct-17	6-Nov-17	6-Nov-17	16-Feb-18	2-Apr-18	
Risk and Loss	SC005	x	JOCKEY PUMP	11-Aug-17	25-Aug-17	15-Sep-17	15-Sep-17	27-Oct-17	6-Nov-17	6-Nov-17	16-Feb-18	2-Apr-18	
Risk and Loss	SC005	x	JOCKEY PUMP CONTROLLER	11-Aug-17	25-Aug-17	15-Sep-17	15-Sep-17	27-Oct-17	6-Nov-17	6-Nov-17	16-Feb-18	2-Apr-18	
Risk and Loss	SC005	x	Hydropneumatic Tank	11-Aug-17	25-Aug-17	15-Sep-17	15-Sep-17	27-Oct-17	6-Nov-17	6-Nov-17	16-Feb-18	2-Apr-18	
Risk and Loss	SC005	x	Powerhouse Fire Protection System – The work of this contract includes the design, fabrication, supply, installation (where specialists are required), programming, testing, warranty and performance guarantee of the fire protection system.	11-Aug-17	25-Aug-17	15-Sep-17	15-Sep-17	19-Oct-17	6-Nov-17	6-Nov-17	16-Feb-18	8-Mar-18	
Risk and Loss	SC005	x	INERGEN SYSTEM	11-Aug-17	25-Aug-17	15-Sep-17	15-Sep-17	27-Oct-17	6-Nov-17	6-Nov-17	16-Feb-18	2-Apr-18	
Risk and Loss	SC005	x	DELUGE VALVE CABINET	11-Aug-17	25-Aug-17	15-Sep-17	15-Sep-17	27-Oct-17	6-Nov-17	6-Nov-17	16-Feb-18	2-Apr-18	
Structural	SC011		Vibration and Seismic Control	26-Jul-17	9-Aug-17	11-Aug-17	11-Aug-17	31-Aug-17	31-Aug-17	1-Sep-17	5-Oct-17	13-Oct-17	22-Sep-17
Structural	SC011		Cable Tray Structural supports	26-Jul-17	9-Aug-17	11-Aug-17	11-Aug-17	31-Aug-17	31-Aug-17	1-Sep-17	26-Oct-17	27-Oct-17	22-Sep-17
Structural	SC011		Maintenance Access Electrical Shaft Platforms	26-Jul-17	9-Aug-17	11-Aug-17	11-Aug-17	8-Sep-17	8-Sep-17	1-Sep-17			
Structural	SC011		Maintenance Access Mechanical Shaft Platforms	26-Jul-17	9-Aug-17	11-Aug-17	11-Aug-17	8-Sep-17	8-Sep-17	1-Sep-17			
Telecoms	SC009	x	Telecoms Panels	Internal	N/A	N/A				5-Oct-17			
Structural	SC014		NDE										
Structural	SC015		Design of House keeping pads, Mech, Elec, HVAC	Direct Purchase			3-Nov-17		28-Nov-17				



Supply and Install Mechanical & Electrical Auxiliaries MF
 Client Reference: CH0031-001
 Project Reference: TC006

Project Risk Management Register	
Risk Register	MFA-CG-SD-3440-RI-A04-0002-01
Rev: 2	Date: 06-Dec-2017
Client:	Muskat Falls Corporation ("Company")
Project Name:	Supply and Install Mechanical & Electrical Auxiliaries MF
Contract Number / Project Ref	CH0031-001 / TC0006
Project Manager / Deputy:	Tim Harrington, P.Eng / Charles Lavigne
Project Sponsors:	Cahill - John J Henley, Ganotec - Mike Buckle
Risk Management Team:	Tim Harrington, Charles Lavigne, Laurie Hildebrand, Brad Burse

Category Legend	
ENG	Engineering
PRD	Procurement
HSE	Health, Safety & Environment
QUR	Quality
SCR	Schedule
CON	Construction
MCC	Mechanical Completion & Commissioning
COM	Commercial

		Consequences			
		Very Low	Low	Moderate	High
Likelihood	Highly Unlikely	Level 1	Level 2	Level 3	Level 4
	Unlikely	Level 2	Level 3	Level 4	Level 5
	Likely	Level 3	Level 4	Level 5	Level 6
		Level 4	Level 5	Level 6	Level 7

Legend	
Requires Input Information	
Automatically Formulated	

		Initial Assessment						Revised Assessment						Residual Action				
0	Cat.	Risk Definition	Description of Consequences	Likelihood	Consequence	Risk Level	Response	Mitigation/Safeguard	Comments	Status	Date Resolved	Likelihood	Consequence	Risk Level	Response	Risk Owner	Action Plan	Date Action Req'd
1	COM	Neutral Funding - Forecast Accuracy	Contractor would be Cash Negative.	Unlikely	Low	Level 3	Monitor	Progress will be managed on a weekly basis with input from ops. Schedule accuracy, manage actual percentage progress to get an accurate forecast for the upcoming month. Regularly reassess area accessibility and upcoming work fronts.	Monitoring effort continues. Workforce forecast for 2017 has changed and neutral funding requests will need to be adjusted. No issues to date.	Open						Tim Harrington	Project Controls and Finance team have been advised. Upcoming neutral funding invoices to be adjusted to account for new labour forecasts.	
2	COM	Quantity variation tracking	Not being paid for the quantity installed.	Unlikely	Moderate	Level 4	Plan for action	Proper quantity tracking, train staff and craft on systems at time of mobilization and regularly through the project. Contractor will perform a full take off and track revised take off quantities in ops. Quantities will be tracked at time of material purchase. Full time quantity surveyor will be at Site.	Ongoing. Company and Contractor agree to update quantities in Schedule A every 3 months.	Open						Julie Canuel	> Quantity Surveyor mobilized. > Tracking of quantities during procurement ongoing. > Quantity reconciliation has started for various disciplines.	
3	COM	Protest Delay - Site Shutdown	Productivity loss and schedule delay.	Likely	Low	Level 4	Plan for action	Notify the Company of delays. Work with Company and follow security plans in the event of an incident and evacuate as needed. Minimize cost impacts by Contractor working with Company to delay arrival of new workers. Secure equipment when needed.	Ongoing. No issue this period.	Open		Likely	Moderate	Level 5	Plan for action	Tim Harrington	Work with Company to minimize impacts and evacuate the site if needed. Ensure any incoming workers have a delayed arrival.	
4	CON	Lift plans	Unable to install equipment. Delay in schedule	Likely	Low	Level 4	Plan for action	Ensure all lift plans are in place before equipment arrives. Ensure all gear and certifications are in place prior to lift.	Ongoing. No issue this period. Contractor is reviewing vendors for engineering services.	Open						Robert Mercer Mike Moriarty		
5	CON	Routing of small bore and PVC piping	Not all small bore piping have isometrics may lead to clashes in the field. PVC is also field run.	Likely	Low	Level 4	Plan for action	Validate isometrics that are developed. Utilize 3D model for reference purposes. Model shots are included in work packs for reference.	Ongoing. No issue this period.	Open						Etienne Fortin		
6	CON	Labour shortage	Cost, schedule and productivity impacts.	Highly Unlikely	Moderate	Level 3	Monitor	Follow labour collective agreement and explore outside labour if required. Measure the impact on the project and notify Company to minimize potential impacts.	Ongoing. No issue this period.	Open		Unlikely	Low	Level 3	Monitor	Carol Ann Molloy	Labour relations manager in place. No hiring issues reported to date.	
7	CON	Coordination of the Overhead Crane for Critical lifts	Delays.	Unlikely	High	Level 5	Plan for action	Contractor will define critical lifts in execution plan. Company to coordinate with other contractors to ensure crane availability when needed.	> No OH crane lifts needed to date.	Open						Robert Mercer Mike Moriarty	Coordinate upcoming lifts through SIMOPS and interface meetings.	
8	CON	Congested Area - Interface with other Company contractors	Delays, reduced productivity.	Likely	High	Level 6	Immediate action	Company to coordinate between Contractor and other Company contractors to ensure maximum efficiency. Contractor to attend coordination meetings.	Issues encountered when trying to move first material deliveries into the Powerhouse due to congestion in SSB. This issue remains a risk. Company to ensure Contractor has access when required.	Open						Robert Mercer Mike Moriarty	Contractor is regularly attending SIMOPS meetings and construction interface meetings.	
9	CON	Installation of HVAC unit via south service bay.	Increased installation costs. Potential interruption for other contractors.	Unlikely	High	Level 5	Plan for action	Contractor requested Company to provide another solution as access through the roof was denied.	Discussions ongoing. No solution confirmed. Contractor submitted proposal to Company. Company to advise if new proposal is acceptable.	Open		Unlikely	Low	Level 3	Monitor	Robert Mercer Mike Moriarty	Site query response indicates a means of temporary access will be provided.	



Supply and Install Mechanical & Electrical Auxiliaries MF
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10	CON	Masonry wall early installation	Safety risk for performing wall erection due to interface with live cables. Increase installation costs. Potential damage to cables. Safety risk for workers as working around live cables. Productivity impacts.	Unlikely	Moderate	Level 4	Plan for action	Contractor requested Company allow for early erection of masonry wall. If early erection refused, Contractor to install mechanical protection around cable trays and wire.	Masonry walls expected to be differed to a later date. Utility system installations will start without walls in place.	Open		Likely	Moderate	Level 5	Plan for action	Robert Mercer Mike Moriarty	Need to look for future opportunities for wall installation prior to cable energization. More detailed risk and hazard assessments will be required for energized areas and LOTO.	
11	CON	Oil tanks late placement (NSB)	Increased installation costs. Potential interruption for other contractors.	Unlikely	Low	Level 3	Monitor	Contractor requested Company allow for early installation. Company stated tanks are not required for commissioning of Unit 1.	Discussions ongoing. No solution confirmed.	Open						Robert Mercer Mike Moriarty	Contractor met with Company to discuss execution. Company will need to defer erection of oil rooms (by others) until movement strategy for tanks is confirmed. Needs further review and attention.	
12	CON	Staging materials near the power house and lack of lay down space near the power house.	Additional transportation from Company lay down to the power house.	Likely	Low	Level 4	Plan for action	Contractor to plan delivery of materials when required for installation to minimize lay down space required and use available space in the warehouse. Store at vendor locations where possible.	Permit request submitted for additional laydown space outside the North Service Bay.	Closed	01-Dec-2017					Robert Mercer Mike Moriarty Frank Collins	> Secured warehouse closer to the building from Astaldi with additional laydown space. > Requested additional laydown space by permit.	
13	CON	Limited lay down for Contractor storage.	Insufficient space to store material.	Highly Unlikely	Low	Level 2	No action required	Contractor to plan delivery of materials when required for installation to minimize lay down space required. Contractor is investigating other space available with other contractors.	Contractor secured additional laydown space via permit.	Open						Robert Mercer Mike Moriarty Frank Collins	> Secured warehouse closer to the building from Astaldi with additional laydown space. > Requested additional laydown space by permit.	
14	CON	Lunch facility not in place in close proximity to the Power House	Reduced productivity	Highly Likely	Low	Level 5	Plan for action	Contractor to provide temporary lunch facility at Contractor Administration Complex. Teamster to drive craft labour between work area and lunch trailer. Contractor exploring other options with Company Other Contractors for temporary lunch room facilities closer to the Power House.	Final area for contractor trailers near PH not finalized yet. Land use permit with Company for approval. New area will be spread out over three locations. Update: Permit for land use approved by Company.	Closed	28-Nov-2017					Robert Mercer	Contractor and Company working collectively to find space in closer proximity to the building. Permit for land use has been approved and trailer mob is in progress.	
15	CON	Delayed construction start date due to late turnover of areas.	Schedule impact, cost impacts, reduced productivity	Highly Likely	Moderate	Level 6	Immediate action	Contractor to Notify Company. Contractor to work with Company on Control Schedule and revise Milestones. Contractor to propose options to allow start of Work on early scope with minimal risk where possible.	Ongoing - Contractor requesting work areas through Company's new interface process. Several interfaces turnovers in progress.	Open		Likely	Low	Level 4	Plan for action	Robert Mercer	Contractor working to gain early access to areas through SIMOPS.	
16	CON	Interface procedure/process & interface date	> Schedule impact, cost impacts, reduced productivity. > Safety liability / responsibility confusion	Highly Likely	Moderate	Level 6	Immediate action	Contractor to Notify Company. Contractor to work with Company to submit the required documentation in advance. Contractor to work with Company and Company Other Contractors to firm up the interface date and reduce the needs of having multiple Contractors working in the same area.	Contractor has presented comments to Company regarding the new interface process. Meeting was held to work through issues identified.	Open		Likely	Moderate	Level 5	Plan for action	Tim Harrington	Contractor working to gain early access to areas through SIMOPS and participate at the weekly Interface Management Meeting. Safety concerns need to be addressed. Company committed to revising the safety language in the document.	
17	ENG	Document Review cycle from Company	Unable to deliver docs in time to ensure equipment delivery and schedule is met.	Likely	Moderate	Level 5	Plan for action	Where necessary to progress work, try to lower 3 week review cycle. Work with Company to meet reduced requested timeline. Contractor will review documents to ensure quality and compliance with Contract requirements.	Ongoing.	Open						Justin Curlew	Working with Company to expedite document reviews. All agree that 21 day timelines can be improved for most situations.	



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18	ENG	Design interface with different packages, especially controls, load transfer pkg and fire protection/detection	Unable to complete packages and deliver on time.	Likely	Moderate	Level 5	Plan for action	Engage suppliers early to ensure they have all of the proper information for timely completion of packages. Ensure documents/drawings are transmitted in line with schedule requirements. Vendor's with design scope will be required to perform clash analysis. Contractor to provide drawings and all required information.	Ongoing. No issue this period.	Open						Justin Curlew	Information being provided to design vendors. Troy Life Safety have been awarded Fire Protection system package and have been provided with all drawings needed to perform interdisciplinary clash checking.
19	ENG	Redline Procedure	Changes missed or not documented in a timely fashion.	Likely	Low	Level 4	Plan for action	Contractor to implement its redline procedures, to be updated as needed, which will be applied throughout the project. All personnel involved in developing redline drawings will be trained on Contractor's procedure.	Ongoing. No issue this period.	Open						Justin Curlew	
20	ENG	Seismic Design	Without design complete will be difficult to install and complete services.	Unlikely	Moderate	Level 4	Plan for action	Contractor started Seismic design early. Seismic design includes where and how to install seismic supports.	Ongoing.	Open	Highly Unlikely	Moderate	Level 3	Monitor	Justin Curlew	Design vendors have been engaged. Tray support design is complete, HVAC support design has started.	
21	ENG	Clash checking (all disciplines)	Potential of clash between services. Re-Design & Re-installation would be required.	Likely	Moderate	Level 5	Plan for action	Ensure vendors have all required information and provide appropriate documentation ie to be included in RFP packages. Revision control of documents and supply to vendors. Vendor's with design scope will be required to perform clash analysis. Fire protection piping will be monitored by procurement and engineering, with regular follow up to ensure the vendor has all layouts for the plant to ensure proper routing.	Ongoing.	Open					Justin Curlew	Fire protection vendor has been engaged but design has not started at this time.	
22	ENG	Unapproved vendor data sheet by Company for early works.	Contractor procuring and installing material at risk without Company approved vendor documents. Potential rework.	Highly Likely	Low	Level 5	Plan for action	Contractor to assume risk for off the shelf bulk items to prevent schedule delay.	Contractor requests Company to expedite review of documents.	Open					Justin Curlew	Process is ongoing. Have engaged Company for expedited reviews on early bulk materials. Meeting to be held with Design Consultant to discuss ways to reduce documentation reviews for low risk items (i.e. spec compliant).	
23	HSE	Emergency Rescue Plan and Team to be developed	Workers at risk.	Likely	High	Level 6	Immediate action	Emergency response plan developed and communicated to all Site Personnel. Develop and train emergency response team. Hire people with previous experience and training. Separate job specific emergency response plans will be developed for the following: Fall Protection Plan, Working at heights, Confined Space. Site has ERT for fire response/medical.	Ongoing.	Open	Unlikely	High	Level 5	Plan for action	Chris Kieley	Emergency response plan has been completed for all early work areas. Emergency equipment is on site and mock rescue exercises are being performed to simulate emergency scenarios. May need further attention for upcoming work areas. Need visibility on Company's pending emergency rescue.	



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24	HSE	Confined space work	Workers at risk.	Likely	High	Level 6	Immediate action	Emergency response plan developed and communicated. JHA will be completed and entry permits obtained. Develop and train team so that all employees at Site have been trained on the safety procedure. Hiring people with previous experience and training. Contractor has access to confined space equipment on Site for use if /where required.		Open		Highly Unlikely	High	Level 4	Plan for action	Chris Kieley	Equipment has been sourced and is in place. Contractor crew has personnel with confined space training.	
25	HSE	Permits	Timeline for approval of permit, delays.	Unlikely	Moderate	Level 4	Plan for action	Early establishment of permit projections (ADB document in SDR) to be submitted September 29, 2017. Permit requirements included in the schedule which is reviewed and updated weekly. Assign permit responsibility and communication with regulatory representatives in the specific discipline and Company. Critical permits will be submitted to Company for urgent approval. Permit responsibility assigned to Justin Curlew. Other internal permits will be relayed through HSE for the project including internal isolation permit, confined space permit, and hot work.	Ongoing.	Open		Unlikely	Low	Level 3	Monitor	Justin Curlew Perry Snook	Most site infrastructure are in place. Permits for permanent works are already being looked at.	
26	HSE	Winter Temperature	Site shutdown, low productivity, material preservation	Likely	Low	Level 4	Plan for action	Reassign external work inside when necessary. Ensure workers are equipped with warm weather PPE. Follow SWI for work in inclement weather, cold stress and work execution SWI. Ensure areas provided which required Company heat and light as suitable prior to commencing work. Snow removal equipment and PPE is on site.	Ongoing.	Open						Chris Kieley	PPE for winter weather work is being procured along with snow removal equipment.	
27	HSE	Spill & Waste Management	Environmental risk. Workers at risk.	Unlikely	Moderate	Level 4	Plan for action	Clearly defined waste management and spill response. Hazardous material storage and training. All employees will receive Environmental Awareness training at orientation session. Equipment for spill and waste management to be available on site. Confirm hazardous waste removal vendor is properly certified.	Ongoing.	Open		Highly Unlikely	Moderate	Level 3	Monitor	Chris Kieley	Waste management agreement is in place with vendor; containment equipment is on site. Spill response equipment also on site.	
28	M&C	Excessive paperwork and requirements	Delays in schedule, reduced productivity.	Likely	Low	Level 4	Plan for action	Proper planning and scheduling. Coordinate with Company to gain alignment, ensure plan is communicated early and effectively, avoid duplicate reporting and redundant data. Utilization of electronic check sheets in PCS system if practical.	No update this period.	Open						Jeremie Bertin	Electronic check sheets are being utilized and already in early development.	



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29	MC&C	Using Company completion platform (PCS)	Inefficiency, learning curve	Unlikely	Low	Level 3	Monitor	Proper training of staff and setting an agreement with Company early to create efficient structure. Company to provide training to Contractor.	Ongoing.	Open					Jeremie Bertin	First training sessions have been completed. PCS population is in progress.	
30	MC&C	Third party experts required for specialized equipment	Third party not available when required resulting in delays.	Likely	Moderate	Level 5	Plan for action	Proper planning and scheduling. Include notification requirements in subcontract related to delay.	No update this period.	Open					Jeremie Bertin		
31	MC&C	Using temporary supply (electrical or water) during commissioning activities.	Temporary supply to be installed, tests to be redone on permanent supply.	Highly Likely	Low	Level 5	Plan for action	Proper training of staff and development of equipment specific energization procedures.	No update this period.	Open					Jeremie Bertin		
32	MC&C	Delay in reception of regulatory approvals (pressure piping, fire protection, diesel tank and piping).	Delays in schedule, impact on major milestones.	Unlikely	High	Level 5	Plan for action	Proper planning, training, and scheduling to ensure documentation and authorization are requested on time. Tracking authorization response time and any delays after submittal.	No update this period.	Open					Jeremie Bertin		
33	PRO	Product Loss / Damage in Transit	Project Delay / Additional Cost	Likely	Moderate	Level 5	Plan for action	OSD reports. Inspections will be performed on all materials at delivery to Site. Purchase agreement to include provisions to address shipping risk, including insurance, packaging requirements and timely replacement in the event of damage.	Ongoing. Purchase agreements are being issued with necessary protection.	Open					Frank Collins		
34	PRO	Equipment not properly preserved	Potential damage / Additional Cost	Unlikely	Moderate	Level 4	Plan for action	Develop preventative maintenance plan and communicate to responsible personnel. Ensure preservation requirements provided by vendors. Coordinate delivery schedule with Site installation to minimize preservation required at Site. Contractor to use preservation module within Company provided PCS system (ex. notices will be set up in the system for maintenance / preservation inspections).	No update this period.	Open					Frank Collins		
35	PRO	Late Delivery of Critical Equipment	Project Delay / Additional Cost	Likely	Moderate	Level 5	Plan for action	Ensure delivery dates are tied to critical defined milestones and monitored in the control schedule with milestones and need dates. Early procurement of critical items.	Ongoing.	Open					Frank Collins	Long lead packages have been identified, and RFPs issued. Package awards ongoing. ECN-0004 has delayed package award for distribution package. Working with vendor to confirm if delivery date will impact the schedule. Vendor package awards are being issued with delivery sureties and penalties for late delivery.	



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36	PRO	Bulks/Consumables	Off the shelf bulk items not readily available. Will stall work fronts without having proper quantities on-site.	Likely	Low	Level 4	Plan for action	During planning phase form a complete list of all mechanical, electrical and mounting items required. Engage vendors to have items readily available at nearest facility. Set up secure stations for PPE distribution. Inventory management at Site. Leverage existing corporate supplies and asset inventory. Obtain pricing for all potential bulks and consumables which may be needed over the course of the job to ensure quick turnaround for purchasing additional items.	Efforts ongoing. Bulk material orders in process and deliveries being received on site.	Open						Frank Collins		
37	PRO	Material Delivery and Storage Control	Limitation for on-site storage	Likely	Low	Level 4	Plan for action	Timing material delivery close to installation to minimize Site storage. Negotiate off-site storage with vendors where possible.	Ongoing.	Open						Frank Collins		
38	PRO	Innu Business Group first option for package.	Capability of interested Innu Businesses to perform scope of Work in accordance with Project specifications.	Unlikely	Low	Level 3	Monitor	Met with Innu business group up front and outline available packages. Issue EOI early to identify potential Innu businesses that can meet supply requirements.	No issues to report this period.	Open						Frank Collins		
39	QUA	Welding of the IPB & potential rework	Re-work, schedule impact	Unlikely	Moderate	Level 4	Plan for action	Owner to ensure manufacturer representative to be onsite for erection of IPB. IPB manufacturer to provide welding procedures well in advance of work start. Training on IPB prior to installation. Leverage existing qualified welders.	No update this period.	Open						Perry Snook		
40	QUA	Welding inspection & rework	Re-work, schedule impact	Unlikely	Moderate	Level 4	Plan for action	Ensure qualified workers perform the tasks. Regular monitoring of ongoing work by supervisor and quality group. Prepare documentation, plan, weld map etc. in advance of inspection.	No update this period.	Open						Perry Snook		
41	QUA	Off-site QA inspection	Not performing the inspection. Receiving non-compliant product.	Unlikely	Moderate	Level 4	Plan for action	Leveraging internal affiliates for fabrication of pipe, HVAC, controls and structural fabrication. Establishing vendor inspection/audit and FAT where appropriate.	First offsite audits performed this period at Mugafab and Atlantica. No immediate concerns were identified.	Open						Perry Snook	Offsite fabrication ITPs have been approved. Mugafab and Atlantica have been meeting with project quality to set expectations.	
42	SCH	Night Shift work	Loss of productivity, safety	Unlikely	Moderate	Level 4	Plan for action	Proper supervision and turnover from day shift to night shift. Concentrate critical activities during day shift (where possible) where there is additional supervision available. Night shift safety coverage will be required. Appropriate temporary lighting will be provided.	No update this period. Night shift planned for the New Year.	Open						Stephane Lacasse		



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43	SCH	Areas not turned over exactly when and where they are supposed to be, or in the condition stated.	Change of plan/sequence, reduced productivity	Likely	High	Level 6	Immediate action	Company to give notice in advance of any change to dates or potential delay. Contractor to notify Company in advance on critical dates and take action accordingly if there is a change.	Ongoing. Working through area handover / interface process	Open					Stephane Lacasse	New interface process between site contractors to coordinate work areas. Contractor being integrated into the process.	
44	SCH	Transfer of area to Contractor	Multiple contractors working in the same area, reduced productivity, potential damage, safety	Likely	Moderate	Level 5	Plan for action	Establish proper transfer of area procedure with Company and other contractors. Attend regular coordination meetings. Company to establish a formal documented handover process for work areas, including walk down of areas.	In process.	Closed	28-Nov-2017				Stephane Lacasse	Duplicate of item above.	
45	SCH	Approval of labour productivity management plan, health and safety plan and C-SEPP prior to start of permanent work.	Delayed start date for permanent work.	Unlikely	High	Level 5	Plan for action	Prioritize these documents for submission to Company. Informal submissions recommended by Company for streamlined approvals.	Complete. All three documents approved Code 1/2 in time for construction start.	Closed	01-Oct-2017				Tim Harrington		
46	SCH	A-Series documents not Approved Code 02 or better prior to start of the Work	Company has instructed Contractor to delay start of Work until all A-Series documents are Approved. Schedule delay and cost impacts.	Highly Likely	Moderate	Level 6	Immediate action	Contractor has submitted all documents. All A-Series documents required to start construction are currently Approved Code 02 or better. Any documents received with comments are being reviewed and updated as required. Contractor discussing streamlined Approval with Company.	Contractor approved to start construction.	Closed	20-Oct-2017				Tim Harrington	Finalize and revise remaining documents to achieve Code 1 where remaining.	
47	ENG	RFI-0039 Response: Anti-condensation heaters requested for all electrical and mechanical equipment cabinets / panels.	> Off the shelf items that are CSA certified will now have additional requirements, i.e. slowing procurement dramatically. > Has electrical distribution system within the powerhouse been sized to account for these heaters? Transformers / panels may need to be upsized. > Cabling hasn't been assigned in the current cable schedule for heaters in all this equipment. Likely result in numerous new cables throughout the powerhouse.	Likely	Moderate	Level 5	Plan for action	Contractor advised Company that a broad stroke approach to this heater issue is concerning. Meeting has been requested to review with design engineers.		Open					Justin Curlew	Review meeting to be scheduled with design engineers. May need senior management insight to guide discussions.	
48	ENG	Light fixture query has been responded to; Contractor evaluating pricing for fixture substitutes and will submit CHR to cover any change. Fixture order on hold until CHR can be approved and processed.	Late delivery of light fixtures	Likely	Moderate	Level 5	Plan for action	Expedite CHR submission and approval process.	Ongoing.	Open					Brad Bursey		



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		Very Low	Low	Moderate	High
Likelihood	Highly Unlikely	Level 1	Level 2	Level 3	Level 4
	Unlikely	Level 2	Level 3	Level 4	Level 5
	Likely	Level 3	Level 4	Level 5	Level 6
	Highly Likely	Level 4	Level 5	Level 6	Level 7

Legend	
Requires Input Information	
Automatically Formulated	

ID	Cat.	Risk Definition	Description of Consequences	Initial Assessment				Mitigation/Safeguard	Comments	Status	Date Resolved	Revised Assessment				Residual Action	
				Likelihood	Consequence	Risk Level	Response					Likelihood	Consequence	Risk Level	Response	Risk Owner	Action Plan
49	COM	Staff and Site Installation inclusion on change requests - Contractor and Company not aligned on entitlement.	> Compensation shortfall for Contractor > Delayed approval and processing of change orders	Likely	High	Level 6	Immediate action	Recommended that parties meet to work out a path forward.	Contractor met with Scott O'Brien 29-Nov-2017. Contractor to provide a proposal to quantify staff/site installation.	Open						Tim Harrington	
50	COM	Site rework - Contractor and Company are not totally aligned on this item (tracking, threshold etc.)	Additional resources, cost impact	Likely	Moderate	Level 5	Plan for action	Company and Contractor to work to clarify and resolve this item.	Contractor met with Scott O'Brien 29-Nov-2017. Contractor will provide a proposal for quantification / defining of rework.	Open						Tim Harrington	
51	HSE	Site wide communications	Work inefficiency, safety / emergency response	Highly Likely	Moderate	Level 6	Immediate action	Radio coverage deep within the powerhouse galleries is unreliable or not available.	Procedure being developed and formalized for work in the lower galleries. Will utilize Simplex radios in situations where regular radio coverage is not available.	Open		Unlikely	Moderate	Level 4	Plan for action	Robert Mercer Mike Moriarty	Procedure to be finalized. Process is in place just not formalized.

Ganotec Weekly Reporting: G - CH0031 - Muskrat - S&I Mech & Elec B

		CURRENT BUDGET	PERIOD [12/02]			JOB TO DATE			
Project Name	CB MH	MH	CE MH Var	CE PF	%	MH	CE MH Var	CE PF	%
G - CH0031 - Muskrat - S&I Mech & Elec B	707,041	2,449	(95)	0.96	0.3%	11,293	3,026	1.27	2.0%
Financial Results Analysis	707,041	2,449	(95)	0.96	0.3%	11,293	3,026	1.27	2.0%
PLA Labour - Support Crew	176,787	1,242	1	1.00	0.7%	6,034	11	1.00	3.4%
Labour Training	3,380	117	0	1.00	3.5%	389	7	1.02	11.7%
Labour Support Crew	173,407	1,125	1	1.00	0.6%	5,646	4	1.00	3.3%
PLA Labour - Mob/Demob & Direct Work	530,254	1,207	(95)	0.92	0.2%	5,259	3,015	1.57	1.6%
Mobilisation & Demobilisation	9,826	388	1	1.00	4.0%	2,794	924	1.33	37.8%
G002 - Mobilization	6,117	388	1	1.00	6.4%	2,794	924	1.33	60.8%
G005 - Demobilization	3,709		0		0.0%		0		0.0%
Direct Work	520,428	819	(96)	0.88	0.1%	2,466	2,091	1.85	0.9%
G010 - PIPING/MECHANICAL	132,958	60	34	1.57	0.1%	80	38	1.48	0.1%
G012 - HVAC SYSTEM	68,535		0		0.0%		0		0.0%
G014 - ELECTRICAL	202,676	471	(113)	0.76	0.2%	1,223	(201)	0.84	0.5%
G016 - ARCHITECTURAL	114,505	288	(18)	0.94	0.2%	1,163	2,254	2.94	3.0%
G018 - DIESEL GENERATOR SYSTEM	1,755		0		0.0%		0		0.0%
Field modifications									
G016 - ARCHITECTURAL									
G014 - ELECTRICAL									
Grand Total	707,041	2,449	(95)	0.96	0.3%	11,293	3,026	1.27	2.0%