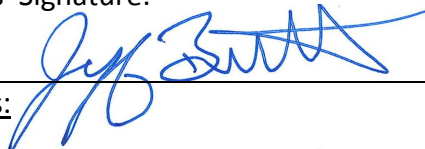




Document Front Sheet

| | | | | | |
|-----------------------------------|---|--|---|---|--|
| NE-LCP Contractor/Supplier | Contract or Purchase Number and Description: CH0031 | | Contractor/Supplier Name: Cahill-Ganotec Partnership | | |
| | Document Title: Monthly Progress Report (February 2018) | | | Total Number of Pages Incl. Front Sheet 132 | |
| | Contractor Document Number: N/A | | | Revision Number: - | |
| | Supplier Document Number: N/A | | | Revision Number: - | |
| | NE-LCP Document Number: MFA-CG-SD-3440-PM-A06-0008-01 | | | NE-LCP Issue Number: A1 | |
| | Approver's Signature:  | | Date (dd-mmm-yyyy): 06-Mar-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: Michael O'Keefe | Date (dd-mmm-yyyy): 27-Mar-2018 | Project Manager: | Date (dd-mmm-yyyy): |
| NE-LCP Management: | Date (dd-mmm-yyyy): | | | |
| <u>General Comments:</u> Please see comments as per attached comment sheet. | | | | |



Monthly Progress Report (February 2018) MFA-CG-SD-3440-PM-A06-0008-01 A06



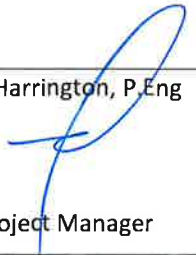
Client Reference:

CH0031-001

Supply and Install Mechanical & Electrical Auxiliaries MF

Project Reference:

TC006

| A1 | 06-Mar-18 | Review | Simon Lambert, P. Tech  Quantity Surveyor | Jeff Butler, GSC, CET  Deputy Project Controls Manager | Tim Harrington, P.Eng  Project Manager |
|------|-----------|------------|--|--|---|
| Rev. | Date | Issued for | Revised by | Checked by | Approval by |



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| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

Revision History

| Rev. | Location of Change | Date of Rev. | Brief Description of Change |
|------|--------------------|--------------|--------------------------------|
| A1 | N/A | 06-Mar-2018 | Issued for Review and Approval |



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|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

Table of Contents

| | |
|--|-----------|
| 1. EXECUTIVE SUMMARY | 5 |
| 2. SIGNIFICANT ACCOMPLISHMENTS | 5 |
| 3. CHALLENGES, DELAYS AND MITIGATION MEASURES | 6 |
| 4. HEALTH AND SAFETY | 9 |
| 4.1 SAFETY STATISTIC | 9 |
| 5. PROJECT PROGRESS AND SCHEDULE | 10 |
| 5.1 PROGRESS UPDATE | 10 |
| 5.2 PROGRESS CURVES | 11 |
| 5.3 DISCIPLINE HISTOGRAMS | 11 |
| 5.4 COMMODITY REPORTING | 11 |
| 5.5 PERFORMANCE REPORTING | 11 |
| 5.6 CRITICAL PATH / LONGEST PATH ANALYSIS | 11 |
| 5.7 P6 CONTROL SCHEDULE | 11 |
| 6. QUALITY STATISTICS | 12 |
| 6.1 QUALITY ASSURANCE / QUALITY CONTROL UPDATE | 12 |
| 6.2 QUALITY STATISTICS | 12 |
| 6.3 TESTING AND HOLD POINTS | 13 |
| 6.4 FACTORY ACCEPTANCE TESTING | 13 |
| 7. ENGINEERING | 14 |
| 7.1 ENGINEERING UPDATE | 14 |
| 7.2 INTERFACE MANAGEMENT | 14 |
| 7.3 SITE QUERIES | 15 |
| 7.4 ECN | 16 |
| 7.5 CONCESSIONS | 16 |
| 7.6 SDRL DOCUMENTS | 17 |
| 8. CHANGE REQUEST STATUS | 17 |
| 9. PROCUREMENT STATUS | 21 |
| 9.1 AWARD STATUS OF SUBCONTRACTOR OR SUPPLIES | 21 |
| 9.1.1 <i>Current EOI's</i> | 21 |
| 9.1.2 <i>Current RFP's</i> | 21 |
| 9.1.3 <i>Package Awards</i> | 22 |
| 10. ENVIRONMENTAL AND REGULATORY | 22 |
| 10.1 STATUS | 22 |
| 10.2 ENVIRONMENTAL REPORTING | 22 |
| 10.3 PERMITS | 23 |
| 10.3.1 KEY UPCOMING PERMIT | 23 |
| 11. PROVINCIAL BENEFITS REPORT (EXHIBIT 13) | 24 |
| 12. MONTHLY RISK REPORT | 24 |



| | |
|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

12.1 MAJOR RISK ACTIVITIES AND EVENTS 24

12.2 RISK REGISTER 25

13. ATTACHMENT 1 – DISCIPLINE HISTOGRAMS 26

14. ATTACHMENT 2 – COMMODITY REPORTING 26

15. ATTACHMENT 3 – CRITICAL PATH / LONGEST PATH ANALYSIS..... 26

16. ATTACHMENT 4 – P6 CONTROL SCHEDULE 26

17. ATTACHMENT 5 – SUMMARY SCHEDULE 26

18. ATTACHMENT 6 – PROCUREMENT TRACKING..... 26

19. ATTACHMENT 7 – RISK & ACTION REGISTER..... 26

20. ATTACHMENT 8 – LDR 26

21. ATTACHMENT 9 – LISTING OF PERSONNEL..... 26



| | |
|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

1. Executive Summary

Cahill-Ganotec's winter 2018 construction campaign is in full swing with a productive outing in February. Crew sizes continue to grow with corresponding material deliveries to open more opportunities for progressive gains in open work fronts. Workforce production levels are consistently good for all disciplines and yet Cahill-Ganotec remains a leader in site safety performance. Cahill-Ganotec was honoured to be recognized with the inaugural monthly award for "Excellence in Safety" among the Muskrat Falls contractors for this period.

Active construction activities include:

- Cable tray and support installations in various locations (EL -20, EL 6.5, EL 15.5, EL 25, EL 34). Vertical runs in station electrical shaft now in progress.
- Cable tray grounding
- Masonry walls on EL 6.5 South Service Bay area (Stairwell 2) and Mezzanine 1 electrical room.
- Electrical, telecoms rough-in (JBs and raceway) through Mezzanine 1 and Mezzanine 2.
- Lighting system installations in the tailrace gallery EL 6.5 and stairwells.
- Duct work assembly and erection on elevations 6.5 and 15.5 (South Service Bay). Plenum deck level is now an active HVAC work area.
- Gypsum wall erection throughout Mezz 1 and Mezz 2. Stud framing and gypsum board installations.
- Wall insulation on mezzanine 1 and wall closures as well as ceiling hangers.
- Piping system installations throughout dewatering gallery sump and shaft, EL 15.5 and EL 6.5. Installations now progressing through the tailrace gallery.
- Support hangers being installed for mezzanine 1 HVAC, electrical, piping and drop ceiling in preparation for fireproofing coating early next period.
- Fireproofing removal from structural members at EL 15.5 (extra work).
- Construction support for elevator vendor TKE.

Mobilization update:

- Permitting approved for additional laydown space for outdoor material storage.
- Trailer set-up at the powerhouse and construction power infrastructure continued through February 2018.

Refer to Section 2 for notable achievements. The content of this document outlines the achievements, activities, and challenges experienced during this reporting period.

2. Significant Accomplishments

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



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|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

- Continuation of project team assignments including;
- Site mobilization of project staff including Deputy Completions Lead.
- Additional cost control staff added to Contractor's offsite team.
- Full time project assignments to date: 33 site staff, 6 off-site staff
- Mobilization progressed to 81.8% as of Feb 24th 2018.
- Construction productivity continues to trend well; overall reported of 1.24 as of Feb 24th week ending.
- Workforce ramp up continues. Workforce has increased to 113 union workers deployed by the end of this period with 20 employees progressing through the hiring process.
- Key procurement package awards completed this month including generator room leak detection system, eyewash system, 125VDC / 48VDC system, oil storage tanks.
- Procurement packages are nearing award including tagged field instruments, diesel generating unit, paint, and various architectural finishes.
- Cahill-Ganotec approved for self-performance of non-destructive examination / testing (NDE / NDT) for on-site welding.
- 3rd party design:
- Several joint design reviews completed with Company engineering reps and Contractor design vendors.
- Cable tray support structural design report has been resubmitted to Company.
- ATS / Load management system data sheets and drawings submitted for approval.
- ECMS design documentation submitted to company.
- First fire protection and detection layouts submitted to Company.
- Structural platform design for the mechanical shaft is submitted for first platforms. Electrical shaft platforms have been fabricated and will be delivered to site mid-March.
- SDRL has been approved Code 1.
- Monthly mass safety meeting held with all Contractor management and trade personnel in attendance – Topic "Risk Tolerance". Project senior management sponsors were in attendance and addressed the work force with a positive message.
- Cahill-Ganotec awarded "Excellence in Safety" award among Muskrat Falls contractors for February 2018.

3. Challenges, Delays and Mitigation Measures

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



| | |
|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

| # | CHALLENGE / DELAY | MITIGATION MEASURE | UPDATE / RESOLUTION |
|----|---|--|--|
| 1. | 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 35T Crane mobilized and Contractor crane operator. | 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. |
| 2. | 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 issues have finally been addressed with remaining package components. CHR is being finalized for submission to Company next period. |
| 3. | 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 and SIMOPS coordination meetings. | Ongoing. Dates for area access are changing and Contractor is doing its best to plan its work efficiently. |
| 4. | 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 | Interface process procedure has been issued to Contractor. Updated CHR has been issued to Company with finalized cost impact. CLOSED |
| 5. | 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. | Change order has been issued for open CHR. CLOSED |
| 6. | RFI-0039 Response: Anti-condensation heaters requested for all electrical and mechanical equipment cabinets / panels. | <ul style="list-style-type: none"> Issue has been communicated to Company. Contractor has met with Company and Engineer to | Contractor to draft a list of panels / equipment for Engineer consideration to eliminate heaters in temperature controlled |



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| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

| # | CHALLENGE / DELAY | MITIGATION MEASURE | UPDATE / RESOLUTION |
|-----|---|---|--|
| | Could result in scope / cost growth, equipment delays, certification issues. | highlight concerns. | environments. Concessions are been drafted and submitted for Company consideration. |
| 7. | 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. | Updated CHR submitted for Company approval. Fireproofing removal continues in this area. |
| 8. | 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 | <p>Technical challenge has been identified; Mezz floor section not yet complete to allow erection of walls. Site query has been issued and a letter to clarify path forward and risk on schedule milestone.</p> <p>Site query response provided including significant new work to allow wall connection points. CHR to be issued by Company. Milestone "M-SSB-1" likely compromised.</p> |
| 9. | Company advised Contractor that it has suspended neutral funding for PLA labour until it is satisfied with payroll back-up | <ul style="list-style-type: none"> Contractor has raised significant concerns on impacts on cash flow. Sponsors have met to discuss the issue. Contractor exhausting significant resources to implement programming for new payroll report formats requested by Company. Contractor has recommended interim invoice back-up paperwork as a solution. | <p>Contractor and Company sponsors met to resolve. Follow-up meeting held with finance reps present to review and confirm invoice back-up. Neutral funding expected to resume in February 2018.</p> <p>CLOSED</p> |
| 10. | Company and Contractor not aligned on definition of Disallowed Items for field modification work. | <ul style="list-style-type: none"> Contractor has issued a letter to clarify its position on the subject. | Discussions continuing. Definition of Disallowed Items remains unclear and one of contention. |
| 11. | <p>Cable tray support designs have become more complex than originally anticipated and will require more effort to complete;</p> <ul style="list-style-type: none"> Beam connection point elevations vary at locations. Type 2 supports need to be constructed from reinforced 4 x 4 angle. | <ul style="list-style-type: none"> Issue communicated to Company. CHRs to follow to quantify issue. | CHR's have been issued to Company detailing cost impacts. Company to prioritize review / approvals. |



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| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

| # | CHALLENGE / DELAY | MITIGATION MEASURE | UPDATE / RESOLUTION |
|-----|--|---|--|
| | Contractor will provide information to Company through change management process. | | |
| 12. | Company and Contractor structural engineers not yet aligned on tray support design assumptions / approach. | Meeting to be held between management and engineering groups to discuss / clarify. Structural design calcs to be resubmitted next period. | Updated design report issued for Company review. |

4. Health and Safety

4.1 Safety Statistic

| | | | |
|--|----------------|---------------------|--------------------------------------|
| BUSINESS UNIT/PROJECT: Lower Churchill Project | | | WEEK ENDING: Jan 27 2018 |
| LOCATION: Muskrat Falls (Not on site) / St. John's Office | | | CONTRACTOR: Cahill Ganotec |
| MANHOURS | Monthly | YEAR TO DATE | PROJECT TO DATE |
| | 24,259 | 39,720 | 67,473 |
| LEADING INDICATORS | Monthly | YEAR TO DATE | PROJECT TO DATE |
| High Potential Near Miss* | 0 | 0 | 0 |
| Near Miss Incidents | 0 | 0 | 0 |
| Orientations Completed | 15 | 39 | 124 |
| FLRA's Completed | 874 | 1,466 | 2,292 |
| TSAs Completed | 2 | 2 | 12 |
| Worksite Inspections | 4 | 23 | 31 |

| | | | |
|---------------------------|----------------|---------------------|------------------------|
| LAGGING INDICATORS | Monthly | YEAR TO DATE | PROJECT TO DATE |
| First Aid Cases | 0 | 0 | 0 |



| | |
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| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

| LAGGING INDICATORS | Monthly | YEAR TO DATE | PROJECT TO DATE |
|--------------------------------|---------------|--------------|-----------------|
| 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 |
| 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 | 67,473 | | |

5. Project Progress and Schedule

5.1 Progress Update

- Contractor re-submitted CSBD, SDCP and CS to company on January 25th, incorporating Company’s Comments. CSBD returned to contractor as Code 1. SDCP & CS review with company still ongoing.
- Metal Stud Wall erection continued @ Elevation 25, continuing through Units 1-2 and Elevation 34.47 SSB. Metal Stud Wall Erection commenced @ Elevation 29.50 (Plenum), SSB & Unit 1.
- Gypsum paneling continued @ Elevation 25 in South Service bay, continuing through Units 1 & 2.
- Cable tray & supports continued @ :
 - Elevation 6.5 Tailrace area (Unit 1 through Unit 4)
 - Mezz 1 (El 25) between grid lines C-E, Lines 1-21.



| | |
|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

- Elevation -20.3 from SSB through Unit 4.
- Elevation 6.5 SSB
- Elevation 15.5 SSB – Unit 4
- Concealed conduit and boxes for electrical services continued @ Elevation 25 between grid lines 1-16.
- Lighting rough-in started on Mezz 1 (SSB – Unit 1) and Elevation 6.5 Tailrace area.
- Concrete block wall erection completed @ Stairwell 2 on Elevation 6.5. Concrete block wall erection commenced at Mezz 1, Electrical room area.
- Piping installation continued @ Elevations -20.3, 6.5 (SSB & Tailrace area), and Elevation 15.5 Piperack area and is progressing well.
- HVAC continued on Elevation 15.5, with duct assembly & installation in the South Service Bay, and Units 1-4. Duct assembly & installation started in the plenum area for both SSB & U1. Duct assembly also started on Elevation 6.5 tailrace area, ready for install.

5.2 Progress Curves

See Attachment 1

5.3 Discipline Histograms

See Attachment 1

5.4 Commodity Reporting

See Attachment 2

5.5 Performance Reporting

See Attachment 8

5.6 Critical Path / Longest Path Analysis

See Attachment 3

5.7 P6 Control Schedule

See Attachment 4



| | |
|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

6. Quality Statistics

6.1 Quality Assurance / Quality Control Update

Key activities in progress for this period include:

- Inspection and Test Plan review and submission for the following:
 - Offsite - Telecom Panel Fabrication MFA-CG-SD-3340-QA-Q04-0005-01 Rev A1
 - Offsite - High Pressure Compressor MFA-CG-SD-3442-QA-Q04-0001-01 Rev A1
 - Offsite - Low Pressure Compressor MFA-CG-SD-3441-QA-Q04-0001-01 Rev A1
 - Offsite - Structural Steel Fabrication MFA-CG-SD-3310-QA-Q04-0002-01 Rev A1
- Develop and submission of Onsite NDE Test Procedures: MFA-CG-SD-3400-ME-K03-0001-01 Rev 01
- Submission of Onsite Piping Pressure Testing Procedure: MFA-CG-SD-3440-ME-K06-0001-01
- Onsite R04 (Table of Contents) developed for the following, document numbers requested:
 - Architectural
 - Electrical Installation
 - Piping
- Company and Contractor acceptance of Electrical conduit installation, Mezzanine 1, South Service bay area.
- Company and Contractor acceptance of Architectural works, various areas throughout Power House.

Upcoming activities planned for next period include:

- Develop offsite surveillance plan
- Develop onsite housekeeping pad ITP
- Company acceptance of Electrical Tray and Support Installation
- Develop and submission of Hydro static Test Package

6.2 Quality Statistics

Non-Conformance Reports summary.

| This Period | | | | To Date | | | |
|-------------|------|--------|------|---------|------|--------|------|
| Total | Open | Closed | Void | Total | Open | Closed | Void |
| 3 | 3 | 1 | 0 | 7 | 5 | 2 | 0 |



| | |
|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

6.3 Testing and Hold Points

- N/A

6.4 Factory Acceptance Testing

Preliminary FAT Dates - 06-Mar-2018

| Package # | DESCRIPTION OF PACKAGE | Vendor | Preliminary FAT Test Dates** | Site ETA |
|-----------|---|--------------------|------------------------------|-----------|
| E5204 | Medium Voltage Transformers | Wesco/Delta | 31/May/18 | 14-Jun-18 |
| E5204 | Station Service Transformers | Wesco/Delta | 31/May/18 | 14-Jun-18 |
| E5204 | Low Voltage Transformers | Wesco/Delta | 09/Apr/18 | 23-Apr-18 |
| E5205 | 3340-SWG-82-0001 - Spillway Feeder Switchgear | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3433-SWG-82-A001 - Station Service Switchgear | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3433-SWG-82-A002 - Station Service Switchgear | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3433-SWG-82-B001 - Station Service Switchgear | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3433-SWG-82-B002 - Station Service Switchgear | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3433-MCC-82-1001 - Unit Motor Control Centre | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3433-MCC-82-2001 - Unit Motor Control Centre | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3433-MCC-82-3001 - Unit Motor Control Centre | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3433-MCC-82-4001 - Unit Motor Control Centre | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3290-MCC-82-A001 - Intake MCC | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3290-MCC-82-B001 - Intake MCC | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3340-MCC-82-E001 - Essential MCC | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3340-MCC-82-A001 - Common Station Service MCC | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3340-MCC-82-B001 - Common Station Service MCC | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3340-MCC-82-C001 - Common Station Service MCC | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5205 | 3340-MCC-82-D001 - Common Station Service MCC | Eaton | 02/Aug/18 | 16-Aug-18 |
| E5206 | UPS Systems & Batteries | Mcloughlans | 06/Aug/18 | 20-Aug-18 |
| H5304 | HVAC Terminal Units & Duct Heaters | PRO-SAG | 14/Apr/18 | 28-Apr-18 |
| M5600 | Diesel Generating Unit | Cummins | 18/Jun/18 | 2-Jul-18 |
| M5602 | Filters & Strainers | General Filtration | 26/Jun/18 | 10-Jul-18 |
| M5605 | Compressors | Kaeser | 20/Aug/18 | 3-Sep-18 |
| M5606 | Domestic Water Treatment Plant | Magnor | 11/Sep/18 | 25-Sep-18 |



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|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

7. Engineering

7.1 Engineering Update

Engineering is ongoing for all packages, summary below.

| Package | % Complete | Completion Date | | | |
|---------------------------|------------|-----------------|----------------|----------------|----------|
| | | Plan | Prev. Forecast | Curr. Forecast | Actual |
| Fire Protection | 49% | 01-03-18 | 01-03-18 | 26-03-18 | |
| Fire Detection | 49% | 01-03-18 | 01-03-18 | 15-03-18 | |
| EMCS (HVAC Control) | 45% | 01-04-18 | 01-04-18 | 28-07-18 | |
| ATS & Load Management | 54% | 01-05-18 | 01-05-18 | 01-05-18 | |
| Lighting Control Panels | 72% | 30-01-18 | 30-01-18 | 11-03-18 | |
| Mechanical Control Panels | 19% | 28-02-18 | 28-02-18 | 31-05-18 | |
| Structural Platforms | 69% | 01-03-18 | 01-03-18 | 10-03-18 | |
| Leak Detection | 15% | 30-03-18 | 30-03-18 | 01-05-18 | |
| Fuel Monitoring | 15% | 30-03-18 | 30-03-18 | 01-05-18 | |
| HouseKeeping Pads | 100% | 20-01-18 | 20-01-18 | 07-02-18 | 05-02-18 |
| Temp Power | 100% | 25-09-17 | 25-09-17 | 15-10-17 | 12-10-17 |
| HVAC Restraints | 29% | 28-02-18 | 28-02-18 | 31-03-18 | |
| Tray Supports | 95% | 15-10-17 | 15-10-17 | 05-03-18 | |

7.2 Interface Management

One new interface has been opened, 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 | Closed | 26-Oct-2017 | J. Curlew | 30-Nov-2017 | 15-Dec-2017 | A. Mitchelmore |
| 0003 | TIC-CGP-MFL-003 | Details for piping supplied by others for system 3448 | Hard Interface | Closed | 27-Oct-2017 | J. Curlew | 20-Nov-2017 | 06-Dec-2017 | A. Mitchelmore |
| 0004 | TIC-MFL-CGP-0001 | Powerhouse Connection to 315kv Hvac Line sSlack Span | Soft Interface | Open | 14-Feb-2018 | K. Kandaswamy | | | J. Curlew |



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|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

7.3 Site Queries

The table below outlines the status of queries for this period. 19 queries are now open.

| CAHILL RFI NO. | Ref Sub Query | NALCOR Site Query # | TRANSMITTAL DATE | DISCIPLINE | Prepared By | DESCRIPTION | REPLY REQUESTED | REPLY DATE |
|------------------------------|---------------|--------------------------------|----------------------|-----------------|---------------------------|---|----------------------|----------------------|
| TC-006-RFI-G-0107 | 1 | SQY-CH00310001-0107 | 5-Feb-18 | ARCH | Justin Gibbons | Mortar/grout Testing | 8-Feb-18 | 22-Feb-18 |
| TC-006-RFI-G-0108 | 1 | SQY-CH00310001-0108 | 5-Feb-18 | ELEC | Brandon Hynes | CCTV & Public Announcement Details | 10-Feb-18 | 16-Feb-18 |
| TC-006-RFI-G-0109 | 4 | SQY-CH00310001-0109 | 5-Feb-18 | PIPE | Daniel Parsons | Testing Requirements - 3444 PVC-VOID | 10-Feb-18 | 16-Feb-18 |
| TC-006-RFI-G-0110 | 1 | SQY-CH00310001-0110 | 5-Feb-18 | PIPE | Daniel Parsons | 3445-2-SB11-0001 Installation | 10-Feb-18 | 16-Feb-18 |
| TC-006-RFI-G-0111 | 1 | SQY-CH00310001-0111 | 5-Feb-18 | ELEC | Brandon Hynes | Convection Heater and Receptacle Discrepancy | 10-Feb-18 | 16-Feb-18 |
| TC-006-RFI-G-0112 | 1 | SQY-CH00310001-0112 | 6-Feb-18 | PIPE | Daniel Parsons | 3353-3/4-PA02-5013 Location | 10-Feb-18 | 15-Feb-18 |
| TC-006-RFI-G-0113 | 1 | SQY-CH00310001-0113 | 6-Feb-18 | MECH | Justin Curlew | Compressor Panel Base paint | 10-Feb-18 | 15-Feb-18 |
| TC-006-RFI-G-0114 | 1 | SQY-CH00310001-0114 | 7-Feb-18 | ELEC | Justin Curlew | ATS Breakers | 12-Feb-18 | 15-Feb-18 |
| TC-006-RFI-G-0115 | 1 | SQY-CH00310001-0115 | 9-Feb-18 | ELEC | David Bartlett | Double armour fiberoptic cable unavailable | 14-Feb-18 | 16-Feb-18 |
| TC-006-RFI-G-0116 | 1 | SQY-CH00310001-0116 | 10-Feb-18 | PIPE | Daniel Parsons | 3449-4-CB11-6025 to 3352-2-NB11-6000 | 15-Feb-18 | 16-Feb-18 |
| TC-006-RFI-G-0117 | 1 | SQY-CH00310001-0117 | 10-Feb-18 | ELEC | Justin Curlew | Exit Light Installation Control Room | 16-Feb-18 | 16-Feb-18 |
| TC-006-RFI-G-0118 | 4 | SQY-CH00310001-0118 | 13-Feb-18 | ELEC | David Bartlett | HEATHER SIZES, COLOR, THERMOSTAT QUERY VOID | 16-Feb-18 | 28-Feb-18 |
| TC-006-RFI-G-0119 | 1 | SQY-CH00310001-0119 | 12-Feb-18 | PIPE | Daniel Parsons | Copper Lines Clashing with Cable Tray | 16-Feb-18 | 16-Feb-18 |
| TC-006-RFI-G-0120 | 1 | SQY-CH00310001-0120 | 20-Feb-18 | ELEC | David Bartlett | Diesel Generator - Explosion relief valve location | 27-Feb-18 | 22-Feb-18 |
| TC-006-RFI-G-0121 | 1 | SQY-CH00310001-0121 | 17-Feb-18 | ARCH | Curtis Doyle | Missing Bracket for W7a Wall on Plenum (EL 29.50) | 24-Feb-18 | 24-Feb-18 |
| TC-006-RFI-G-0122 | 1 | SQY-CH00310001-0122 | 17-Feb-18 | ARCH | Curtis Doyle | Fireproofing Requirements for Expansion Joints | 24-Feb-18 | 27-Feb-18 |
| TC-006-RFI-G-0123 | 1 | SQY-CH00310001-0123 | 18-Feb-18 | ARCH | Curtis Doyle | Wall and Corner Guard Requirements | 25-Feb-18 | |
| TC-006-RFI-G-0124 | 1 | SQY-CH00310001-0124 | 18-Feb-18 | ELEC | Brandon Hynes | Hilti Pinning for Small Power and Lighting | 25-Feb-18 | |
| TC-006-RFI-G-0125 | 1 | SQY-CH00310001-0125 | 21-Feb-18 | ARCH | Curtis Doyle | Thickness of Cementitious Fireproofing Material | 26-Feb-18 | |
| TC-006-RFI-G-0126 | 1 | SQY-CH00310001-0126 | 22-Feb-18 | ARCH | Curtis Doyle | Confirmation of Cement Board Walkway Substitution | 27-Feb-18 | |
| TC-006-RFI-G-0127 | 1 | SQY-CH00310001-0127 | 23-Feb-18 | ELEC | David Bartlett | Substitution of single conductor TECK for building wire. | 28-Feb-18 | |
| TC-006-RFI-G-0128 | 1 | SQY-CH00310001-0128 | 23-Feb-18 | PIPE | Daniel Parsons | Victaulic Coupling Coating for CB11 | 28-Feb-18 | |
| TC-006-RFI-G-0129 | 1 | SQY-CH00310001-0129 | 26-Feb-18 | ELEC | Justin Curlew | EMCS North Dam Controllers | 1-Mar-18 | |
| TC-006-RFI-G-0130 | 1 | SQY-CH00310001-0130 | 26-Feb-18 | ELEC | Justin Curlew | EMCS PDT Repeated Tags | 1-Mar-18 | |
| TC-006-RFI-G-0131 | 1 | SQY-CH00310001-0131 | 26-Feb-18 | MECH | Justin Curlew | Septic Pumping Station size | 1-Mar-18 | |
| TC-006-RFI-G-0132 | 1 | SQY-CH00310001-0132 | 26-Feb-18 | ARCH | Curtis Doyle | Detail 9 Variance | 1-Mar-18 | |
| TC-006-RFI-G-0133 | 1 | SQY-CH00310001-0133 | 26-Feb-18 | ARCH | Curtis Doyle | Accent Panel Details | 1-Mar-18 | |
| TC-006-RFI-G-0134 | 1 | SQY-CH00310001-0134 | 26-Feb-18 | ARCH | Curtis Doyle | Plenum Wall Finish | 1-Mar-18 | |
| TC-006-RFI-G-0135 | 1 | SQY-CH00310001-0135 | 25-Feb-18 | ELEC | Jeremie Bertin | Installation and Operation Manual for equipment supplied by Company | 4-Mar-18 | |
| TC-006-RFI-G-0136 | 1 | SQY-CH00310001-0136 | 26-Feb-18 | ELEC | Justin Curlew | CSA/CUL rating for Tramont Daytank Controller | 1-Mar-18 | |
| TC-006-RFI-G-0137 | 1 | SQY-CH00310001-0137 | 26-Feb-18 | PIPE | Daniel Parsons | Long Tangent U-Bolts | 1-Mar-18 | |
| TC-006-RFI-G-0138 | 1 | SQY-CH00310001-0138 | 27-Feb-18 | PIPE | Daniel Parsons | Kamlok Quick Connect Alternative | 2-Mar-18 | |
| TC-006-RFI-G-0139 | 1 | SQY-CH00310001-0139 | 27-Feb-18 | PIPE | Daniel Parsons | Piping Clearance Above Cable Tray | 2-Mar-18 | |
| TC-006-RFI-G-0140 | 1 | SQY-CH00310001-0140 | 27-Feb-18 | PIPE | Daniel Parsons | Trap Seal Primer | 2-Mar-18 | |
| TC-006-RFI-G-0141 | 1 | SQY-CH00310001-0141 | 28-Feb-18 | MECH | Justin Curlew | Air release valve for 3449-P-6000/6001/6002 | 3-Mar-18 | |
| TC-006-RFI-G-0142 | 1 | SQY-CH00310001-0142 | 1-Mar-18 | MECH | Justin Curlew | Fire Protection painting | 5-Mar-18 | |



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|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

7.4 ECN

There are 8 ECN's in the system. ECN-0001 is closed. ECN's 0002 through 0006 s are in various stages of the change process. 2 new ECN's were received. Summary below:

| NALCOR Engineering Change Notice # | RECEPTION DATE | DISCIPLINE | DESCRIPTION | STATUS | IMPLEMENTED |
|---------------------------------------|-------------------|------------|--|--------|-------------|
| ECN-CH0031001-0001 | 1-Sep-17 | ARCH | Revised Architectural Technical Specification (cementitious fireproofing) | CLOSED | 7-Dec-17 |
| ECN-CH0031001-0002 | 19-Sep-17 | PIPE | Revised Mechanical Technical Specification (Ball Valve VBA10) | OPEN | |
| ECN-CH0031001-0003 | 29-Sep-17 | PIPE | Revised Isometric Drawing (Addition of Butterfly Valve - VBU01) | OPEN | |
| ECN-CH0031001-0004 | 29-Sep-17 | ELEC | Revised Electrical Drawing Submissions | OPEN | |
| ECN-CH0031001-0005 | 20-Oct-17 | ARCH | Elevator Masonry Walls - Architectural Drawing | OPEN | |
| ECN-CH0031001-0006 | 2-Jan-18 | PIPE | 3443-3-SB12-5007 added to CH0031's scope | OPEN | |
| ECN-CH0031001-0007 | 23-Feb-18 | MECH | CAN 301 and 302 for Mechanical Technical Specification | OPEN | |
| ECN-CH0031001-0008 | 23-Feb-18 | ARCH | Interior Insulation Details for Stair No.1 and 7 | OPEN | |

7.5 Concessions

There are 40 Concessions in the system. 8 are open. See details in below table from last period.

| CAHILL CON NO. | TRANSMITTAL DATE | DISCIPLINE | Prepared By | DESCRIPTION | REPLY REQUESTED | REPLY DATE |
|-------------------|---------------------|-----------------|-----------------|--|--------------------|---------------|
| TC-006-CON-G-0029 | 6-Feb-18 | HVAC | Justin Curlew | Condensor Unit Availability | 13-Feb-18 | 16-Feb-18 |
| TC-006-CON-G-0030 | 7-Feb-18 | Electrical | Justin Curlew | Substitute for Digital Input Card | 13-Feb-18 | 16-Feb-18 |
| TC-006-CON-G-0031 | 7-Feb-18 | HVAC | Justin Curlew | Backdraft damper AWV | 13-Feb-18 | 19-Feb-18 |
| TC-006-CON-G-0032 | 14-Feb-18 | Mechanical | Jennifer Careen | Water Treatment Plant Pump | 20-Feb-18 | |
| TC-006-CON-G-0033 | 13-Feb-18 | Electrical | David Bartlett | Generator Load Test Duration and Loading | 20-Feb-18 | 19-Feb-18 |
| TC-006-CON-G-0034 | 14-Feb-18 | Mechanical | Justin Curlew | Oil Tank Floating arm | 21-Feb-18 | |
| TC-006-CON-G-0035 | 14-Feb-18 | Mechanical | Etienne Fortin | Surface Mounted vs. Recessed Mounted Single hose cabinet | 3-Mar-18 | 22-Feb-18 |
| TC-006-CON-G-0036 | 17-Feb-18 | Preservation | Jeremie Bertin | Preservation Space Heater Energization | 24-Feb-18 | 26-Feb-18 |
| TC-006-CON-G-0037 | 24-Feb-18 | Fire protection | Justin Curlew | Pressure gauge Substitution | 3-Mar-18 | |
| TC-006-CON-G-0038 | 24-Feb-18 | Fire protection | Justin Curlew | Deluge Valve Cabinet | 3-Mar-18 | |
| TC-006-CON-G-0039 | 26-Feb-18 | Mechanical | Justin Curlew | Magnor shaft seal system- Valve substitution | 3-Mar-18 | |
| TC-006-CON-G-0040 | 28-Feb-18 | Mechanical | Justin Curlew | 3449-P-6000/6001/6002 Seal substitution | 5-Mar-18 | |



| | |
|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

7.6 SDRL Documents

The following documentation has been submitted for ongoing work scopes. Documentation being submitted to support construction scopes. 103 documents with company. Full Summary below:

| SDRL Code | QTY Submitted | With CG to incorporate comments | Remarks |
|-----------|---------------|---------------------------------|---|
| A | 34 | 8 | 9 with Company for review |
| B | 38 | 14 | 11 are Code 3. 11 with company for review |
| C | 7 | 4 | 3 with Company for review |
| D | 38 | 12 | 7 with Company for review |
| E | 52 | 26 | 26 with company for review. 26 Code 3 |
| F | 110 | 30 | 37 with Company for review |
| G | 9 | 1 | 6 With Company for review |
| H | 3 | 0 | 2 with Company for review |
| K | 8 | 2 | 2 with Company for review |
| M | 2 | 0 | Code 1 |
| Q | 15 | 2 | |
| R | 1 | 0 | Code 1 |

8. Change Request Status

Change Orders

CHO-CH0031001-0001 – Draft Tube Temporary Shelter. Change Order was cancelled by Company.

CHO-CH0031001-0002 – Revision to Architectural Specification – Cementitious Fireproofing. Change Order CHO-CH0031001-0002 was issued for -\$140,000 and was executed on December 7, 2017.

CHO-CH0031001-0003 – ECN-0002 & ECN-0003 Additional Valves. Change Order not executed and is pending resolution of the Site Installation/Staff costs issue.

CHO-CH0031001-0004 – ECN-0005 Elevator Masonry Walls. Change Order not executed and is pending resolution of the Site Installation/Staff costs issue.

CHO-CH0031001-0005 – Temporary Guardrails and TKE Support (Staff costs). Change Order not executed and is pending resolution of the Site Installation/Staff costs issue.



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|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

Change Requests

CHR-CH0031001-0001 – Draft Tube Temporary Shelter. Change Request CHR-CH0031001-0001 has been cancelled by Company.

CHR-CH0031001-0002 – Structural Member Enclosures. Change Request CHR-CH0031001-0002 has been cancelled by Company.

CHR-CH0031001-0003 – Revision to Architectural Specification – Cementitious Fireproofing. Change Request CHR-CH0031001-0003 was valued at -\$140,000. Change Order CHO-CH0031001-0002 was issued for same value and was executed on December 7, 2017.

CHR-CH0031001-0004 – Temporary Power Supply to Powerhouse Elevator Machine Room. Change Request CHR-CH0031001-0004 has been cancelled by Company.

CHR-CH0031001-0005 – Relocation of Site Trailers near Powerhouse. Rejected by Company. Contractor resubmitted this Change Request on January 12, 2017 valued at \$190,444.83. Company has since rejected the revised submission via letter LTR-0148 dated 26-Feb-18.

CHR-CH0031001-0006 – ECN-0002 & ECN-0003 Additional Valves. Company issued Change Order CHO-CH0031001-0003 at a value of \$1,266.69. CO not executed and is pending resolution of the Site Installation/Staff costs issue.

CHR-CH0031001-0007 – ECN-0004 Revised Electrical Drawings. 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 outstanding information. Company rejected the initial submission citing lack of detailed information.

CHR-CH0031001-0008 – ECN-0005 Elevator Masonry Wall. Company issued Change Order CHO-CH0031001-004 approving \$76,863.18 of the requested \$102,479.67. Company omitted Site Installation, and Staff Labour costs. CO not executed.

CHR-CH0031001-0009 – Schedule 9 Update and Associated Delays. Change Request CHR-CH0031001-0009 has been submitted to Company. Company rejected Change Request via letter LTR-0066.

CHR-CH0031001-0010 – Exhibit 11 Revisions. Change Request CHR-CH0031001-0010 submitted by Contractor on November 2, 2017. Company has denied Change Request citing lack of detailed information. Contractor revised and resubmitted. Company has since rejected the revised submission via letter LTR-0147 dated 26-Feb-18.

CHR-CH0031001-0011 – Unit 4 Tailrace Deck Hatch – Temporary Guardrails. Company issued Change Order CHO-CH0031001-005 approving \$10,740.32 of the requested \$12,278.05. Company omitted Site Installation, Staff Labour and Travel Estimate for Trades Labour. CO not executed.



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|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

CHR-CH0031001-0012 – Elevator Temporary Services. Change Request CHR-CH0031001-0012 has been submitted to Company. Budgetary price has been proposed. Company has since cancelled this Change Request. Contractor to submit separate Change Request for tasks that are still required such as general support to TKE and warehousing costs for TKE materials.

CHR-CH0031001-0013 – Installation of Powerhouse Elevator. Change Request CHR-CH0031001-0013 has been cancelled by Company.

CHR-CH0031001-0014 – Powerhouse Emergency Lighting. Change Request CHR-CH0031001-0014 has been cancelled by Company.

CHR-CH0031001-0015 – Light Fixture Quantity Variations. Change Request CHR-CH0031001-0015 has been submitted to Company. Company rejected initial submission. Contractor has revised and resubmitted.

CHR-CH0031001-0016 – Force Majeure Event – Closure of Goose Bay Airport. Multiple revisions of Change Request CHR-CH0031001-0016 has been submitted to Company. Company has accepted the additional cost for the airline charter but refuses all other costs. Refer to Company letter LTR-0144 for latest correspondence.

CHR-CH0031001-0017 – Removal of Existing Fireproofing (Site Installation and Staff Labour omitted here to expedite approval). Change Request CHR-CH0031001-0017 has been submitted to Company. Company verbally advised that estimated manhours to complete the scope appeared high and requested that Contractor revisit the estimate. Contractor has revised and resubmitted based upon a new estimate. However, Company has requested that the Change Request be based on actual costs incurred once the scope is complete.

CHR-CH0031001-0018 – Removal of existing fireproofing (Site Installation and Staff Labour only). This Change Request covers the components previously omitted from CHR-CH0031001-0017. Change Request CHR-CH0031001-0018 has been submitted to Company. Company has rejected via letter LTR-0126 dated 23-Jan-18.

CHR-CH0031001-0019 – Update to Change Order form found in Exhibit 3, Appendix B. Company rejected this submission via letter 110. Contractor has proposed other alternatives to progress the issue. Company has rejected via letter LTR-0110 dated 11-Jan-18.

CHR-CH0031001-0020 – Exhibit 11 Updated Forms – SQY, CON and Work Permit. Company has issued Change Request as void.

CHR-CH0031001-0021 – Airline Charter on December 22, 2017. Company has approved Change Request. Company to issue Change Order.

CHR-CH0031001-0022 – Not used



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|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

CHR-CH0031001-0023– Light Fixture Quantity Variations (Site Installation and Staff Labour omitted here to expedite approval). This is a resubmission of Change Request CHR-CH0031001-0015. Company has verbally approved. Company to issue Change Order.

CHR-CH0031001-0024 – Light Fixture Quantity Variations (Site Installation and Staff Labour only). This Change Request covers the components previously omitted from CHR-CH0031001-0023. Change Request CHR-CH0031001-0024 has been submitted to Company. Change Request has been rejected via letter LTR-0133 dated 30-Jan-18.

CHR-CH0031001-0025 – Modification of Cable Tray Supports on El 6.5. The cable tray supports on EL 6.5 need an auxiliary support added to accommodate the difference in elevation of the structural beams from which the support is hung. This will result in additional material costs and labour to install. Change Request has been submitted. Company has rejected this Change Request via letter LTR-0143 dated 26-Feb-18.

CHR-CH0031001-0026 – Temporary Smoke Detectors in Powerhouse Elevator Shaft. Contractor has submitted a proposal for the installation of two temporary smoke detectors. Company has verbally approved. Company to issue a Change Order.

CHR-CH0031001-0027 – Engineered Scaffold Design for SSB. This Change Request is for engineering design costs for a hanging scaffold required in the south service bay (SSB). Company has verbally approved. Company to issue Change Order.

CHR-CH0031001-0028 – Revision to Personnel Rate Schedule for Non PLA Labour for 2018. This Change Request updates the rate table in Exhibit 2, Appendix D. Company has verbally approved. Company to issue Change Order.

CHR-CH0031001-0029 – Type 2 Cable Tray Supports. The typical detail for type 2 cable tray supports show them being fabricated from unistrut whereas current design requires galvanized angle. This will result in additional material costs and labour to install. Change Request has been submitted. Company has rejected this Change Request via letter LTR-0143 dated 26-Feb-18.

CHR-CH0031001-0030 – ECN-0006 Addition of Pipe Line 3443-3-SB12-5007. ECN-0006 added one fire protection line at Stair No. 6 to CH0031 scope. Change Request has been submitted. Awaiting Company response.

CHR-CH0031001-0031 – Pipe Support Modifications EL-20. Site Query 106 directed Contractor to modify the purchased pipe supports to suit field conditions. Change Request has been submitted. Company has rejected this Change Request via letter LTR-0146 dated 26-Feb-2018.

CHR-CH0031001-0032 – Not used

CHR-CH0031001-0033 – Site Installation and Staff Labour Costs for Misc Change Requests. This Change Request was submitted to cover Site Installation and Staff Costs previously omitted from various Change Requests. Company rejected this Change Request via letter LTR-0145 dated 26-Feb-18.



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|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

CHR-CH0031001-0034 – Mobilization Milestone Payment Revisions. This Change Request updates the payment criteria found in Exhibit 2, Appendix B. Company has verbally approved. Company to issue Change Order.

Field Work Orders

FWO-CH0031001-0001 – General construction support for elevator installation contractor (CH0034). Change Request CHR-CH0031001-0012 was submitted to Company to cover this scope however, Company has since cancelled this Change Request. Contractor to submit a separate Change Request.

FWO-CH0031001-0002 – Removal of existing fireproofing from 28 support locations. Change Requests CHR-CH0031001-0017 & 0018 have been submitted to Company to cover this scope.

FWO-CH0031001-0003 – Supply and installation of infrastructure to provide permanent power to the enclosed staircase at powerhouse access road. FWO value = \$20,000.

FWO-CH0031001-0004 – Supply and installation of missing J Support for Wall W7a on plenum (EI 29.5). FWO value = \$6,000.

9. Procurement Status

9.1 Award Status of Subcontractor or Supplies

9.1.1 Current EOI's

- None

9.1.2 Current RFP's

- None

Under Technical Review

- C5503 Flooring Materials (Vinyl, Ceramic, etc...)
- C5509A Bathroom Accessories, Plumbing Fixtures
- J5600 Tubing, Fittings and Manifolds
- J5601 Tagged Field Instruments
- M5600 DOUBLE WALL DAY TANK
- M5600 Diesel Electric Generating Unit



| | |
|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

- M5607 Waste Water Treatment
- M5609 Hoist in Dewatering Gallery
- M5610 MOBILE PUMP-FILTERING UNIT

9.1.3 Package Awards

Main package awarded last month are listed below. See attachment #6 for procurement tracking sheet.

- E5206 UPS Systems and Batteries
- M5600A CONCRETE ENCASED STEEL ABOVE GROUND TANK
- M5604 Eyewash System and Heaters
- M5608 Diesel Fuel Oil System
- L5103 Oil Storage Tanks

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 | - | - | - | - | - | - |



| | |
|------------|--|
| Doc. Name: | MONTHLY PROGRESS REPORT (FEBRUARY 2018) |
| Doc. No.: | MFA-CG-SD-3440-PM-A06-0008-01 |
| Rev: | A1 |

10.3 Permits

10.3.1 Key upcoming permit

Full list of permits outlined in the below table.

| PERMIT # | DOCUMENT TITLE | Date Required | STATUS | Date Approved |
|--------------------------|---|---------------|---------------|---------------|
| BAB 3960-11 | Fisheries Act | Dec. 23/ 17 | Approved | Dec. 23/ 17 |
| EA-30023 AAC | Building Accessibility Design Registration / Exemption Registration - Temporary Admin Trailer Complex | Sept. 15/17 | Approved | Sept. 06 /17 |
| EA-30023 AAE | Building Accessibility Design Registration / Exemption Registration - Temporary Lunch Trailer Complex | Oct. 15/17 | Approved | Oct. 20/17 |
| EA-30023 AAI/AAJ/AAK/AAL | Building Accessibility Design Registration / Exemption Registration - Temporary Office Trailers E2 Area | Nov. 30/ 17 | Approved | Dec. 10/17 |
| EA-30023 AAM/AAN/AAO/AAP | Building Accessibility Design Registration / Exemption Registration - Temporary Lunch/office Trailer-Warehouse Area | Nov. 20/ 17 | Approved | Dec. 10/17 |
| EA-30023 AAQ | Building Accessibility Design Registration / Exemption Registration - Powerhouse washcart #2 | Jan. 20/ 17 | Approved | Dec. 20 2017 |
| EA-30023 AAR | Building Accessibility Design Registration / Exemption Registration - Powerhouse washcart #1 | Jan. 20/ 17 | Approved | Dec. 20 2017 |
| EA30023HI | Building Accessibility Design Registration / Exemption Registration - Astaldi warehouse | Oct. 15th | Approved | Oct. 30/17 |
| PE-2017 107596 00 | Electrical Permit - Admin Area | Sept. 15/17 | Approved | Sept. 08/17 |
| PE-2017 107602 00 | Electrical Permit - Powerhouse Area | Sept. 15/17 | Approved | Sept. 12/17 |
| PP03799.0 and.0A | Design Registration of Pressure Piping System- low pressure compressed air 3441-Piping | Nov. 20/ 17 | Approved | Nov. 21/17 |
| PP03804.0 | Design Registration of Pressure Piping System- high pressure compressed air 3442 - Piping | Jan. 18/18 | Approved | Dec. 31/17 |
| PP03805.0 | Design Registration of Pressure Piping System- air brake system - Piping | Jan. 18/18 | Approved | Dec. 31/17 |
| TBD | Septic Systems less than 4,546 L/day flow - Admin Area Trailer Complex | Oct. 1/17 | Submitted | TBD |
| TBD | GAP Registration - Double Wall Daytank 3437-TK-6002 | Mar. 30/18 | Not Submitted | TBD |
| TBD | GAP Registration - Above Ground Storage Tank 3437-TK-6001 | Mar. 30/18 | Not Submitted | TBD |
| TBD | GAP Registration - Oil Storage Tank 3446-TK-6000 | May 30/18 | Not Submitted | TBD |
| TBD | GAP Registration - Oil Storage Tank 3446-TK-6001 | May 30/18 | Not Submitted | TBD |
| TBD | GAP Registration - Oil Water Separator 3441-OWS-5000 | May 30/18 | Not Submitted | TBD |
| TBD | GAP Registration - Oil Water Separator 3442-OWS-5000 | May 30/18 | Not Submitted | TBD |
| TBD | GAP Registration - Oil Water Separator 344A-OWS-5000 | May 30/18 | Not Submitted | TBD |
| TBD | Diesel Generator Registration Form | June 30/18 | Not Submitted | TBD |
| TBD | Elevator Permit | Apr. 30/ 18 | Not Submitted | TBD |
| TBD | Design Registration of Pressure Piping System- low pressure compressed air 3441 - Equipment | Apr. 30/18 | Not Submitted | TBD |
| TBD | Design Registration of Pressure Piping System- high pressure compressed air 3442 - Equipment | Apr. 30/18 | Not Submitted | TBD |
| TBD | Design Registration of Pressure Piping System- air brake system - Equipment | Apr. 30/18 | Not Submitted | TBD |

Exhibit P-02349 Pages 25 to 111
have been fully redacted and
replaced with this page.



| Discipline | POP No. | Description | Site Need Date | 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 | Variance Site Need vs Forcast Del Date (DAYS) |
|---------------|---------|--|----------------|---|------------------------------------|-----------------------------------|-------------------------|-----------------------------------|------------------------------------|----------------------------------|---------------------------------------|--|--------------------------------------|---|
| Architectural | C5501 | Masonry Block Walls | 21-Oct-17 | 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 | Onsite |
| Architectural | C5502 | Drywall, Drop Ceiling and Accessories | 1-Dec-17 | 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 | Onsite |
| Architectural | C5503 | Flooring Materials (Vinyl, Ceramic, etc...) | 25-May-18 | Direct Purchase | #VALUE! | 23-Feb-18 | 9-Feb-18 | 21-Dec-17 | 10-Mar-18 | | 23-Feb-18 | 20-May-18 | | 5 |
| Architectural | C5504 | Insulation and Vapour Barrier | 1-Dec-17 | 23-Aug-17 | 6-Sep-17 | 15-Sep-17 | 15-Sep-17 | 6-Oct-17 | 8-Dec-17 | 8-Dec-17 | 22-Nov-17 | 15-Jan-18 | 17-Jan-18 | Onsite |
| Architectural | C5504 | Duct Insulation | 1-Mar-18 | 23-Aug-17 | 6-Sep-17 | 13-Oct-17 | 15-Sep-17 | 8-Dec-17 | 8-Dec-17 | 8-Dec-17 | 15-Dec-17 | 1-Mar-18 | | 0 |
| Architectural | C5504 | Pipe Insulation | 1-Mar-18 | 23-Aug-17 | 6-Sep-17 | 13-Oct-17 | 15-Sep-17 | 8-Dec-17 | 8-Dec-17 | 8-Dec-17 | 26-Jan-18 | 1-Mar-18 | | 0 |
| Architectural | C5505 | Signage | 3-Dec-18 | 23-Mar-18 | 6-Apr-18 | 6-Apr-18 | | 7-Apr-18 | 27-Apr-18 | | 25-Mar-18 | 3-Dec-18 | | 0 |
| Architectural | C5506 | Cabinets | 30-Sep-18 | 23-Mar-18 | 6-Apr-18 | 6-Apr-18 | | 15-Jan-18 | 27-Apr-18 | | 2-Mar-18 | 30-Sep-18 | | 0 |
| Architectural | C5507 | Fire Stop Materials | 2-Jan-18 | 23-Aug-17 | 6-Sep-17 | 22-Sep-17 | 20-Sep-17 | 8-Dec-17 | 8-Dec-17 | 8-Dec-17 | 13-Dec-17 | 15-Jan-18 | 15-Jan-18 | Onsite |
| Architectural | C5508 | Doors and Windows | 1-Feb-18 | 7-Sep-17 | 9-Oct-17 | 18-Sep-17 | 28-Sep-17 | 9-Oct-17 | 10-Nov-17 | 10-Nov-17 | 22-Jan-18 | 5-Feb-18 | 5-Feb-18 | Onsite |
| Architectural | C5509 | Bathroom Accessories and Toilet Partitions | 31-Jul-18 | 4-Oct-17 | 30-Oct-17 | 6-Apr-18 | | 9-Feb-18 | 27-Apr-18 | | 31-Jul-18 | 22-Jun-18 | | 39 |
| Architectural | C5509A | Bathroom Accessories, Plumbing Fixtures | 31-Jul-18 | 4-Oct-17 | 30-Oct-17 | 23-Feb-18 | 5-Feb-18 | 9-Feb-18 | 10-Mar-18 | | 31-Jul-18 | 22-Jun-18 | | 39 |
| Architectural | C5510 | Wall and Corner Guards | 31-Jul-18 | 16-Mar-18 | 30-Oct-17 | 6-Apr-18 | | 2-Feb-18 | 27-Apr-18 | | 31-Jul-18 | 22-Jun-18 | | 39 |
| Architectural | SC013 | Specialty Floor Coatings (Epoxy / Urethane) | 4-May-18 | 23-Aug-17 | 30-Oct-17 | 2-Mar-18 | | 13-Dec-17 | 23-Mar-18 | | 9-Apr-18 | 4-May-18 | | 0 |
| Coatings | R5800 | Paint | 16-Mar-18 | Direct Purchase | 30-Oct-17 | 24-Nov-17 | Direct Purchase | 15-Dec-17 | 2-Mar-18 | | 9-Apr-18 | 16-Mar-18 | | 0 |
| Coatings | SC012 | Cementitious Fireproofing Materials | 1-Feb-18 | 22-Aug-17 | 12-Sep-17 | 15-Sep-17 | 22-Sep-17 | 6-Oct-17 | 8-Dec-17 | 8-Dec-17 | 12-Dec-17 | 15-Jan-18 | 15-Jan-18 | Onsite |
| Electrical | E5200 | Power Cables 1KV | 1-Feb-18 | 16-Aug-17 | 30-Aug-17 | 20-Oct-17 | 19-Oct-17 | 24-Nov-17 | 24-Nov-17 | 23-Nov-17 | 15-Jan-18 | 10-Feb-18 | 10-Feb | Onsite |
| Electrical | E5200 | Instrumentation / Telecom Cables 600V | 1-Feb-18 | 16-Aug-17 | 30-Aug-17 | 20-Oct-17 | 19-Oct-17 | 24-Nov-17 | 24-Nov-17 | 23-Nov-17 | 15-Jan-18 | 23-Feb-18 | | |
| Electrical | E5200 | POWER CABLE – 25 KV | 30-May-18 | 16-Aug-17 | 30-Aug-17 | 20-Oct-17 | 19-Oct-17 | 24-Nov-17 | 24-Nov-17 | 23-Nov-17 | 30-May-18 | 30-May-18 | | 0 |
| Electrical | E5200 | Category 6 Data Tuff ACIC | 1-Feb-18 | 16-Aug-17 | 30-Aug-17 | 20-Oct-17 | 19-Oct-17 | 24-Nov-17 | 24-Nov-17 | 23-Nov-17 | 1-Feb-18 | 23-Feb-18 | | -22 |
| Electrical | E5201 | Grounding | 1-Nov-17 | 26-Jul-17 | 9-Aug-17 | 21-Aug-17 | 21-Aug-17 | 11-Sep-17 | 6-Oct-17 | 13-Oct-17 | 22-Nov-17 | 3-Nov-17 | 3-Nov-17 | Onsite |
| Electrical | E5202 | Cable Trays, Unistruts | 24-Oct-17 | 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 | Onsite |
| Electrical | E5203 | Interior Lighting | 16-Feb-18 | 26-Jul-17 | 9-Aug-17 | 15-Sep-17 | 14-Sep-17 | 17-Nov-17 | 15-Dec-17 | 30-Nov-17 | 15-Nov-17 | 16-Feb-18 | 16-Feb | Onsite |
| Electrical | E5203 | Exterior Lighting | 1-Jul-18 | 26-Jul-17 | 9-Aug-17 | 15-Sep-17 | 14-Sep-17 | 17-Nov-17 | 15-Dec-17 | 30-Nov-17 | 15-Nov-17 | 1-Jul-18 | | 0 |
| Electrical | E5203 | Exit Signs | 16-Feb-18 | 26-Jul-17 | 9-Aug-17 | 15-Sep-17 | 14-Sep-17 | 17-Nov-17 | 15-Dec-17 | 30-Nov-17 | 15-Nov-17 | 19-Mar-18 | | -31 |
| Electrical | E5204 | Station Service Transformers | 1-Oct-18 | 1-Aug-17 | 15-Aug-17 | 22-Aug-17 | 23-Aug-17 | 12-Oct-17 | 10-Nov-17 | 10-Nov-17 | 24-Jul-18 | 1-Jul-18 | | 92 |
| Electrical | E5204 | Medium Voltage Transformers | 1-Oct-18 | 1-Aug-17 | 15-Aug-17 | 22-Aug-17 | 23-Aug-17 | 12-Oct-17 | 10-Nov-17 | 10-Nov-17 | 24-Jul-18 | 1-Jul-18 | | 92 |
| Electrical | E5204 | Dry bType Transformers up to 600V Primary | 1-Jun-18 | 1-Aug-17 | 15-Aug-17 | 22-Aug-17 | 23-Aug-17 | 12-Oct-17 | 10-Nov-17 | 10-Nov-17 | 12-Dec-17 | 11-May-18 | | 21 |
| Electrical | E5205 | Panel Boards | 1-Mar-18 | 21-Jul-17 | 4-Aug-17 | 25-Aug-17 | 29-Aug-17 | 25-Nov-17 | 20-Dec-17 | 21-Dec-17 | 15-Dec-17 | 23-Mar-18 | | -22 |
| Electrical | E5205 | Disconnect Switches | 1-Mar-18 | 21-Jul-17 | 4-Aug-17 | 25-Aug-17 | 29-Aug-17 | 25-Nov-17 | 20-Dec-17 | 21-Dec-17 | 17-Nov-17 | 9-Mar-18 | | -8 |
| Electrical | E5205 | LowVoltage Switchgear | 1-Sep-18 | 21-Jul-17 | 4-Aug-17 | 25-Aug-17 | 29-Aug-17 | 25-Nov-17 | 20-Dec-17 | 21-Dec-17 | 10-Aug-18 | 10-Aug-18 | | 22 |
| Electrical | E5205 | Motor Starters | 1-Jun-18 | 21-Jul-17 | 4-Aug-17 | 25-Aug-17 | 29-Aug-17 | 25-Nov-17 | 20-Dec-17 | 21-Dec-17 | 15-Dec-17 | 27-Apr-18 | | 35 |
| Electrical | E5205 | 600 V MOTOR CONTROL CENTRES | 1-Aug-18 | 21-Jul-17 | 4-Aug-17 | 25-Aug-17 | 29-Aug-17 | 25-Nov-17 | 20-Dec-17 | 21-Dec-17 | 6-Apr-18 | 30-Jun-18 | | 32 |
| Electrical | E5205 | Enclosed Bus Assemblies | 1-Aug-18 | 21-Jul-17 | 4-Aug-17 | 25-Aug-17 | 29-Aug-17 | 25-Nov-17 | 20-Dec-17 | 21-Dec-17 | 9-Feb-18 | 30-Jun-18 | | 32 |
| Electrical | E5206 | UPS Systems | 1-Jun-18 | 16-Aug-17 | 10-Oct-17 | 2-Nov-17 | 2-Nov-17 | 3-Nov-17 | 23-Feb-18 | 21-Feb-18 | 1-May-18 | 1-Jun-18 | | 0 |
| Electrical | E5206 | 125VDC Batteries, Battery Racks and Chargers | 1-Jun-18 | 16-Aug-17 | 10-Oct-17 | 2-Nov-17 | 2-Nov-17 | 3-Nov-17 | 23-Feb-18 | 21-Feb-18 | 1-May-18 | 11-May-18 | | 21 |
| Electrical | E5206 | 48VDC Batteries, Battery Racks and Chargers | 1-Jun-18 | 16-Aug-17 | 10-Oct-17 | 2-Nov-17 | 2-Nov-17 | 3-Nov-17 | 23-Feb-18 | 21-Feb-18 | 1-May-18 | 11-May-18 | | 21 |
| Electrical | E5206 | UPS Bypass Static Switch | 1-Jun-18 | 16-Aug-17 | 10-Oct-17 | 2-Nov-17 | 2-Nov-17 | 3-Nov-17 | 23-Feb-18 | 21-Feb-18 | 1-May-18 | 11-May-18 | | 21 |
| Electrical | E5207 | Cable Connectors (Glands) | 15-Jan-18 | 23-Aug-17 | 6-Sep-17 | 24-Oct-17 | 24-Oct-17 | 10-Nov-17 | 10-Nov-17 | 10-Nov-17 | 22-Nov-17 | 2-Dec-17 | 2-Dec-17 | Onsite |
| Electrical | E5208 | Electrical Termination Devices | 15-Nov-17 | 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 | 24-Nov-17 | Onsite |
| Electrical | E5208 | Instrumentation Junction Boxes | 1-Jun-18 | 24-Aug-17 | 7-Sep-17 | 13-Oct-17 | 12-Oct-17 | 3-Nov-17 | 3-Nov-17 | 1-Nov-17 | 18-May-18 | 18-May-18 | | 14 |
| Electrical | E5208A | Electrical Junction Boxes and Splitters | 15-Nov-17 | 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 | 24-Nov-17 | Onsite |
| Electrical | E5210 | Electric Heat | 1-Jun-18 | 16-Aug-17 | 1-Jan-18 | 24-Nov-17 | 23-Nov-17 | 29-Jan-18 | 16-Jan-18 | 16-Jan-18 | 14-May-18 | 14-May-18 | | 18 |
| Electrical | SC009 | Lighting Control Panel | 1-Jun-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | | | |
| Electrical | SC009 | Temporary Ground Cables (Operations) | | Direct Purchase | N/A | N/A | N/A | | | 5-Oct-17 | | | | 0 |
| Electrical | SC009 | Temporary construction power design | 14-Sep-17 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | 6-Oct-17 | 6-Oct-17 | 22-Sep-17 | Onsite |
| Electrical | SC009 | ATS & Load Management System | 1-Jun-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | | | |
| Electrical | SC009 | Custom Built Control Panels (Mech Systems) | 1-Dec-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | | | |
| Electrical | SC024 | Trenching for Electrical Embedded work | 1-Sep-18 | 6-Apr-18 | 20-Apr-18 | 20-Apr-18 | | 11-May-18 | | | 1-Sep-18 | | | |
| HVAC | H5300 | FILTER HOUSING | 1-Jul-18 | 16-Aug-17 | 30-Aug-17 | 22-Sep-17 | 27-Sep-17 | 8-Nov-17 | 20-Dec-17 | 22-Dec-17 | 30-May-18 | 28-Apr-18 | | 64 |
| HVAC | H5300 | AIR CONDITIONING UNIT | 1-Jul-18 | 16-Aug-17 | 30-Aug-17 | 22-Sep-17 | 27-Sep-17 | 8-Nov-17 | 20-Dec-17 | 22-Dec-17 | 30-May-18 | 23-Jun-18 | | 8 |
| HVAC | H5300 | AIR COOLING UNIT | 1-Sep-18 | 16-Aug-17 | 30-Aug-17 | 22-Sep-17 | 27-Sep-17 | 8-Nov-17 | 20-Dec-17 | 22-Dec-17 | 30-May-18 | 16-Sep-18 | | -15 |
| HVAC | H5300 | Air Handling Heating & Ventilation Units | 1-Jul-18 | 16-Aug-17 | 30-Aug-17 | 22-Sep-17 | 27-Sep-17 | 8-Nov-17 | 20-Dec-17 | 22-Dec-17 | 30-May-18 | 30-Jun-18 | | 1 |
| HVAC | H5300 | Silencers | 1-Jul-18 | 17-Aug-17 | 31-Aug-17 | 22-Sep-17 | 27-Sep-17 | 9-Nov-17 | 20-Dec-17 | 22-Dec-17 | | 28-Apr-18 | | 64 |
| HVAC | H5300 | ROOF MOUNTED EXHAUST HOOD | 1-Jul-18 | 18-Aug-17 | 1-Sep-17 | 22-Sep-17 | 27-Sep-17 | 10-Nov-17 | 20-Dec-17 | 22-Dec-17 | | 28-Apr-18 | | 64 |
| HVAC | H5300 | REMOVABLE INSECT SCREEN | 1-Jul-18 | 19-Aug-17 | 2-Sep-17 | 22-Sep-17 | 27-Sep-17 | 11-Nov-17 | 20-Dec-17 | 22-Dec-17 | | 28-Apr-18 | | 64 |
| HVAC | H5301 | HVAC Fans | 15-Jun-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 29-Aug-17 | 2-Nov-17 | 20-Dec-17 | 22-Dec-17 | 28-Feb-18 | 9-Jun-18 | | 6 |
| HVAC | H5301 | CENTRIFUGAL FANS | 15-Jun-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 29-Aug-17 | 2-Dec-17 | 20-Dec-17 | 22-Dec-17 | 28-Feb-18 | 9-Jun-18 | | 6 |



| Discipline | POP No. | Description | Site Need Date | 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 | Variance Site Need vs Forcast Del Date (DAYS) |
|-----------------|---------|--|----------------|---|------------------------------------|-----------------------------------|-------------------------|-----------------------------------|------------------------------------|----------------------------------|---------------------------------------|--|--------------------------------------|---|
| HVAC | H5301 | HIGH PRESSURE BLOWER FANS | 15-Jun-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 29-Aug-17 | 2-Dec-17 | 20-Dec-17 | 22-Dec-17 | 28-Feb-18 | 9-Jun-18 | | 6 |
| HVAC | H5301 | ELECTROSTATIC MIST COLLECTOR FANS | 15-Jun-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 29-Aug-17 | 2-Nov-17 | 20-Dec-17 | 22-Dec-17 | 28-Feb-18 | 9-Jun-18 | | 6 |
| HVAC | H5301 | MIXED FLOW INLINE FANS | 15-Jun-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 29-Aug-17 | 2-Nov-17 | 20-Dec-17 | 22-Dec-17 | 28-Feb-18 | 9-Jun-18 | | 6 |
| HVAC | H5301 | INLINE BIFURCATED FIBREGLASS CENTRIFUGAL BLOWERS | 15-Jun-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 29-Aug-17 | 2-Dec-17 | 20-Dec-17 | 22-Dec-17 | 28-Feb-18 | 9-Jun-18 | | 6 |
| HVAC | H5301 | CENTRIFUGAL INLINE FANS | 15-Jun-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 29-Aug-17 | 2-Nov-17 | 20-Dec-17 | 22-Dec-17 | 28-Feb-18 | 9-Jun-18 | | 6 |
| HVAC | H5301 | CENTRIFUGAL EXHAUST FANS | 15-Jun-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 29-Aug-17 | 24-Nov-17 | 20-Dec-17 | 22-Dec-17 | 28-Feb-18 | 9-Jun-18 | | 6 |
| HVAC | H5301 | EMERGENCY GENERATOR ENGINE EXHAUST SYSTEM FANS | 15-Jun-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 29-Aug-17 | 2-Dec-17 | 20-Dec-17 | 22-Dec-17 | 6-Oct-17 | 9-Jun-18 | | 6 |
| HVAC | H5302 | Dampers | 1-May-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 1-Sep-17 | 20-Oct-17 | 20-Dec-17 | 22-Dec-17 | 22-Nov-17 | 28-Apr-18 | | 3 |
| HVAC | H5302 | OPERATING DAMPERS | 1-May-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 1-Sep-17 | 20-Oct-17 | 20-Dec-17 | 22-Dec-17 | 22-Nov-17 | 28-Apr-18 | | 3 |
| HVAC | H5302 | HEAVY DUTY BI-DIRECTIONAL DAMPERS | 1-May-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 1-Sep-17 | 20-Oct-17 | 20-Dec-17 | 22-Dec-17 | 22-Nov-17 | 9-Jun-18 | | -39 |
| HVAC | H5302 | FIRE DAMPERS | 1-May-18 | 26-Jul-17 | 9-Aug-17 | 25-Aug-17 | 1-Sep-17 | 20-Oct-17 | 20-Dec-17 | 22-Dec-17 | 22-Nov-17 | 28-Apr-18 | | 3 |
| HVAC | H5304 | Duct Heaters | 1-May-18 | 23-Aug-17 | 6-Sep-17 | 23-Sep-17 | 26-Sep-17 | 30-Oct-17 | 20-Dec-17 | 22-Dec-17 | 3-Jan-18 | 28-Apr-18 | | 3 |
| HVAC | H5304 | HVAC Terminal Units | 1-May-18 | 23-Aug-17 | 6-Sep-17 | 23-Sep-17 | 26-Sep-17 | 18-Dec-17 | 20-Dec-17 | 22-Dec-17 | 3-Jan-18 | 28-Apr-18 | | 3 |
| HVAC | H5305 | HVAC Condensers | 1-Jul-18 | 23-Aug-17 | 6-Sep-17 | 15-Sep-17 | 20-Sep-17 | 8-Dec-17 | 20-Dec-17 | 22-Dec-17 | 21-Feb-18 | 16-Sep-18 | | -77 |
| HVAC | H5307 | Humidifiers | 1-May-18 | 23-Aug-17 | 6-Sep-17 | 15-Sep-17 | 20-Sep-17 | 9-Dec-17 | 20-Dec-17 | 22-Dec-17 | 21-Feb-18 | 28-Apr-18 | | 3 |
| HVAC | H5310 | Grilles, Registers and Diffusers | | 8-Dec-17 | 22-Dec-17 | 8-Dec-17 | 8-Dec-17 | 22-Dec-17 | 22-Dec-17 | 22-Dec-17 | 12-Jan-18 | 28-Apr-18 | | |
| HVAC | SC009 | EMCS HVAC CONTROL SYSTEM | | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | | | |
| HVAC | SC010 | Ducting | 1-Nov-17 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Instrumentation | J5600 | Tubing, Fittings and Manifolds | 1-May-18 | 25-Oct-17 | 8-Nov-17 | 16-Feb-18 | 15-Feb-18 | 9-Feb-18 | 2-Mar-18 | | 29-Dec-17 | 1-May-18 | | 0 |
| Instrumentation | J5601 | Tagged Field Instruments | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 5-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | TEMPERATURE TRANSMITTER | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 5-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | DIFFERENTIAL PRESSURE SWITCH | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 12-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | LEVEL SWITCH | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 12-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | PRESSURE SWITCH | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 12-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | CURRENT TRANSMITTER | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 5-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | LEVEL TRANSMITTER | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 5-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | LEVEL Switch | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 12-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | SWITCH | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 12-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | PRESSURE TRANSMITTER | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 5-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | OVERFILL ALARM ACKNOWLEDGEMENT SWITCH | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 12-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5601 | PRESSURE GAUGES | 1-Jun-18 | 11-Oct-17 | 1-Dec-17 | 1-Dec-17 | 1-Dec-17 | 25-Jan-18 | 24-Mar-18 | | 18-May-18 | 18-May-18 | | 14 |
| Instrumentation | J5605 | Generator Room Leak Detection System | 1-Aug-18 | 26-Sep-17 | 10-Oct-17 | 24-Nov-17 | 24-Nov-17 | 2-Dec-17 | 16-Mar-18 | 2-Feb-18 | 3-Jun-18 | 16-Jun-18 | | 46 |
| Instrumentation | J5606 | Fuel Storage Tank Electrical Monitoring System | 1-Jul-18 | 26-Sep-17 | 10-Oct-17 | 24-Nov-17 | 24-Nov-17 | 29-Nov-17 | 20-Dec-17 | 20-Dec-17 | 28-May-18 | 15-Jun-18 | | 16 |
| Mechanical | M5600 | Diesel Electric Generating Unit | 15-Sep-18 | 26-Sep-17 | 10-Oct-17 | 15-Dec-17 | 13-Dec-17 | 16-Dec-17 | 2-Mar-18 | | 12-Mar-18 | 7-Jul-18 | | 70 |
| Mechanical | M5600A | DOUBLE WALL DAY TANK | 1-Aug-18 | 26-Sep-17 | 10-Oct-17 | 15-Dec-17 | 14-Dec-17 | 22-Nov-17 | 2-Mar-18 | | 2-Jul-18 | 20-Jul-18 | | 12 |
| Mechanical | M5600A | CONCRETE ENCASED STEEL ABOVE GROUND TANK | 1-Oct-18 | 26-Sep-17 | 10-Oct-17 | 15-Dec-17 | 14-Dec-17 | 23-Dec-17 | 26-Jan-18 | 26-Jan-18 | 2-Jul-18 | 29-Jun-18 | | 94 |
| Mechanical | M5601 | DEWATERING PUMP | 15-Jun-18 | 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 | | 7 |
| Mechanical | M5601 | SERVICE WATER PUMP | 15-Jun-18 | 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 | | 0 |
| Mechanical | M5601 | LUBRICATION Water Pump | 15-Jun-18 | 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 | | 0 |
| Mechanical | M5601 | SUBMERSIBLE PUMP | 15-Jun-18 | 31-Jul-17 | 14-Aug-17 | 23-Aug-17 | 24-Aug-17 | 9-Dec-17 | 10-Nov-17 | 10-Nov-17 | 30-Oct-17 | 15-Jun-18 | | 0 |
| Mechanical | M5601 | PUMP (3352-P- 6000/6001) | 15-Jun-18 | 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 | | 14 |
| Mechanical | M5601 | PUMP (3353-P- 5000/5001) | 15-Jun-18 | 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 | | 14 |
| Mechanical | M5602 | SELF CLEANING STRAINER | 1-Aug-18 | 11-Oct-17 | 25-Oct-17 | 17-Nov-17 | 17-Nov-17 | 13-Nov-17 | 20-Dec-17 | 20-Dec-17 | 3-Jun-18 | 16-Jun-18 | | 46 |
| Mechanical | M5602 | STRAINER | 1-Aug-18 | 11-Oct-17 | 25-Oct-17 | 17-Nov-17 | 17-Nov-17 | 13-Nov-17 | 20-Dec-17 | 20-Dec-17 | 3-Jun-18 | 16-Jun-18 | | 46 |
| Mechanical | M5602 | Y-STRAINER | 1-Aug-18 | 11-Oct-17 | 25-Oct-17 | 17-Nov-17 | 17-Nov-17 | 13-Nov-17 | 20-Dec-17 | 20-Dec-17 | 3-Jun-18 | 16-Jun-18 | | 46 |
| Mechanical | M5602 | FUEL OIL STRAINER | 1-Jun-18 | 11-Oct-17 | 25-Oct-17 | 17-Nov-17 | 17-Nov-17 | 13-Nov-17 | 20-Dec-17 | 20-Dec-17 | 3-Jun-18 | 20-May-18 | | 12 |
| Mechanical | M5603 | CONTROL ROOM WATER HEATER | 20-Jun-18 | 25-Oct-17 | 8-Nov-17 | 24-Nov-17 | 21-Nov-17 | 20-Nov-17 | 22-Jan-18 | 15-Jan-18 | 20-May-18 | 2-Jun-18 | | 18 |
| Mechanical | M5603 | MAIN WATER HEATER | 20-Jun-18 | 25-Oct-17 | 8-Nov-17 | 24-Nov-17 | 21-Nov-17 | 20-Nov-17 | 22-Jan-18 | 15-Jan-18 | 20-May-18 | 2-Jun-18 | | 18 |
| Mechanical | M5604 | EYEWASH SYSTEM | 1-Aug-18 | 31-Oct-17 | 14-Nov-17 | 24-Nov-17 | 24-Nov-17 | 9-Dec-17 | 9-Feb-18 | 9-Feb-18 | 6-May-18 | 26-May-18 | | 67 |
| Mechanical | M5605 | LOWPRESSURE COMPRESSOR | 27-Jul-18 | 31-Jul-17 | 14-Aug-17 | 25-Aug-17 | 5-Sep-17 | 10-Oct-17 | 10-Nov-17 | 9-Nov-17 | 14-May-18 | 15-Jul-18 | | 12 |
| Mechanical | M5605 | HIGH PRESSURE COMPRESS OR | 27-Jul-18 | 31-Jul-17 | 14-Aug-17 | 25-Aug-17 | 5-Sep-17 | 10-Oct-17 | 10-Nov-17 | 9-Nov-17 | 14-May-18 | 15-Jul-18 | | 12 |
| Mechanical | M5606 | DOMESTIC WATER TREATMENT PLANT | 1-Dec-18 | 26-Sep-17 | 10-Oct-17 | 25-Oct-17 | 25-Oct-17 | 7-Jan-18 | 12-Jan-18 | 12-Jan-18 | 16-Sep-18 | 18-Nov-18 | | 13 |
| Mechanical | M5607 | Waste Water Treatment | 1-Aug-18 | 25-Oct-17 | 8-Nov-17 | 15-Dec-17 | 14-Dec-17 | 16-Dec-17 | 9-Mar-18 | | 27-May-18 | 26-May-18 | | 67 |
| Mechanical | M5608 | Diesel Fuel Oil System | 1-Jun-18 | 8-Dec-17 | 22-Dec-17 | 15-Dec-17 | 13-Dec-17 | 19-Nov-17 | 26-Jan-18 | 25-Jan-18 | 27-May-18 | 1-Jun-18 | | 0 |
| Mechanical | M5609 | Hoist in Dewatering Gallery | 1-Jun-18 | 4-Oct-17 | 18-Oct-17 | 24-Nov-17 | 21-Nov-17 | 8-Dec-17 | 16-Mar-18 | | 22-Nov-17 | 20-May-18 | | 12 |
| Mechanical | M5610 | MOBILE PUMP-FILTERING UNIT | 1-Aug-18 | 11-Oct-17 | 25-Oct-17 | 15-Dec-17 | 12-Dec-17 | 9-Dec-17 | 2-Mar-18 | | 6-May-18 | 26-May-18 | | 67 |
| Mechanical | M5611 | Shaft Seal Water System | 1-Jun-18 | 11-Oct-17 | | 24-Nov-17 | 21-Nov-17 | | 12-Jan-18 | 12-Jan-18 | 3-Jun-18 | 15-May-18 | | 17 |
| Mechanical | M5612 | Maintenance Shop Equipment | 15-Dec-18 | 2-Mar-18 | 23-Feb-18 | 23-Mar-18 | | 28-Feb-18 | 20-Apr-18 | | 15-Dec-18 | 15-Dec-18 | | 0 |



| Discipline | POP No. | Description | Site Need Date | 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 | Variance Site Need vs Forcast Del Date (DAYS) |
|---------------|---------|--|----------------|---|------------------------------------|-----------------------------------|-------------------------|-----------------------------------|------------------------------------|----------------------------------|---------------------------------------|--|--------------------------------------|---|
| Piping | L5100 | Piping and Fittings | 1-Nov-17 | N/A | N/A | N/A | | | | 25-Oct-17 | 30-Jan-18 | 24-Nov-17 | 24-Nov-17 | Onsite |
| Piping | L5101 | BALL VALVES | 28-Feb-18 | 31-Aug-17 | 14-Sep-17 | 20-Oct-17 | 13-Oct-17 | 14-Nov-17 | 10-Nov-17 | 10-Nov-17 | 30-Jan-18 | 15-Jan-18 | 15-Jan-18 | Onsite |
| Piping | L5101 | AUTOMATIC CLOSING BALL VALVE | 28-Feb-18 | 31-Aug-17 | 14-Sep-17 | 20-Oct-17 | 13-Oct-17 | 14-Nov-17 | 10-Nov-17 | 10-Nov-17 | 30-Jan-18 | 15-Jan-18 | 15-Jan-18 | Onsite |
| Piping | L5101 | FOOT VALVES | 28-Feb-18 | 31-Aug-17 | 14-Sep-17 | 20-Oct-17 | 13-Oct-17 | 14-Nov-17 | 10-Nov-17 | 10-Nov-17 | 30-Jan-18 | 15-Jan-18 | 15-Jan-18 | Onsite |
| Piping | L5101 | SOLENOID VALVES | 28-Feb-18 | 31-Aug-17 | 14-Sep-17 | 20-Oct-17 | 13-Oct-17 | 14-Nov-17 | 10-Nov-17 | 10-Nov-17 | 30-Jan-18 | 15-Jan-18 | 15-Jan-18 | Onsite |
| Piping | L5101 | CHECK VALVES | 28-Feb-18 | 31-Aug-17 | 14-Sep-17 | 20-Oct-17 | 13-Oct-17 | 14-Nov-17 | 10-Nov-17 | 10-Nov-17 | 30-Jan-18 | 15-Jan-18 | 15-Jan-18 | Onsite |
| Piping | L5101 | ANTI-SYPHON VALVES | 28-Feb-18 | 31-Aug-17 | 14-Sep-17 | 20-Oct-17 | 13-Oct-17 | 14-Nov-17 | 10-Nov-17 | 10-Nov-17 | 30-Jan-18 | 15-Jan-18 | 15-Jan-18 | Onsite |
| Piping | L5101 | BACKFLOW PREVENTER | 28-Feb-18 | 31-Aug-17 | 14-Sep-17 | 20-Oct-17 | 13-Oct-17 | 14-Nov-17 | 10-Nov-17 | 10-Nov-17 | 30-Jan-18 | 15-Jan-18 | 15-Jan-18 | Onsite |
| Piping | L5103 | Oil Storage Tanks | 1-Oct-18 | 31-Jul-17 | 1-Dec-17 | 5-Dec-17 | 5-Dec-17 | 19-Jan-18 | 14-Feb-18 | 14-Feb-18 | 3-Aug-18 | 28-Jul-18 | | 65 |
| Piping | L5110 | Misc Piping Materials And Accessories | 1-Nov-17 | 11-Oct-17 | 25-Oct-17 | 17-Nov-17 | Direct Purchase | 8-Dec-17 | 8-Dec-17 | 25-Oct-17 | 9-Feb-18 | 24-Nov-17 | 24-Nov-17 | Onsite |
| Piping | SC006 | Service Water System | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Shaft Seal Water System | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Dewatering System | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Drainage System | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Oil Water Drainage | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Domestic Water System | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Wastewater System | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Lubricating/Hydraulic Oil System | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Low Pressure Compressed Air System | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Hi Pressure Compressed Air System | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Piping | SC006 | Raw and Cooling Water Systems | 28-Feb-18 | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 1-Dec-17 | 29-Nov-17 | Onsite |
| Risk and Loss | SC004 | 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. | 1-May-18 | 11-Aug-17 | 25-Aug-17 | 24-Oct-17 | 24-Oct-17 | 3-Nov-17 | 21-Nov-17 | 23-Nov-17 | 13-Apr-18 | 30-Apr-18 | | 1 |
| Risk and Loss | SC005 | FLOW METER | 1-May-18 | 11-Aug-17 | 25-Aug-17 | 15-Sep-17 | 15-Sep-17 | 27-Oct-17 | 6-Nov-17 | 6-Nov-17 | 16-Feb-18 | 1-May-18 | | 0 |
| Risk and Loss | SC005 | FIRE PUMP | 24-Aug-18 | 11-Aug-17 | 25-Aug-17 | 15-Sep-17 | 15-Sep-17 | 27-Oct-17 | 6-Nov-17 | 6-Nov-17 | 27-Apr-18 | 24-Aug-18 | | 0 |
| Risk and Loss | SC005 | JOCKEY PUMP | 1-May-18 | 11-Aug-17 | 25-Aug-17 | 15-Sep-17 | 15-Sep-17 | 27-Oct-17 | 6-Nov-17 | 6-Nov-17 | 16-Feb-18 | 1-May-18 | | 0 |
| Risk and Loss | SC005 | JOCKEY PUMP CONTROLLER | 1-May-18 | 11-Aug-17 | 25-Aug-17 | 15-Sep-17 | 15-Sep-17 | 27-Oct-17 | 6-Nov-17 | 6-Nov-17 | 16-Feb-18 | 1-May-18 | | 0 |
| Risk and Loss | SC005 | Hydropneumatic Tank | 1-May-18 | 11-Aug-17 | 25-Aug-17 | 15-Sep-17 | 15-Sep-17 | 27-Oct-17 | 6-Nov-17 | 6-Nov-17 | 16-Feb-18 | 1-May-18 | | 0 |
| Risk and Loss | SC005 | 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. | 1-May-18 | 11-Aug-17 | 25-Aug-17 | 15-Sep-17 | 15-Sep-17 | 19-Oct-17 | 6-Nov-17 | 6-Nov-17 | 16-Feb-18 | 30-Apr-18 | | 1 |
| Risk and Loss | SC005 | INERGEN SYSTEM | 1-May-18 | 11-Aug-17 | 25-Aug-17 | 15-Sep-17 | 15-Sep-17 | 27-Oct-17 | 6-Nov-17 | 6-Nov-17 | 16-Feb-18 | 1-May-18 | | 0 |
| Risk and Loss | SC005 | DELUGE VALVE CABINET | 1-May-18 | 11-Aug-17 | 25-Aug-17 | 15-Sep-17 | 15-Sep-17 | 27-Oct-17 | 6-Nov-17 | 6-Nov-17 | 16-Feb-18 | 1-May-18 | | 0 |
| Structural | SC011 | Vibration and Seismic Control | 3-Oct-17 | 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 | Onsite |
| Structural | SC011 | Cable Tray Structural supports | 6-Nov-17 | 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 | Onsite |
| 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 | | | | |
| Structural | SC015 | Design of House keeping pads, Mech, Elec, HVAC | | Direct Purchase | | | 3-Nov-17 | | 28-Nov-17 | 28-Nov-17 | | | | Onsite |
| Telecoms | SC009 | Telecoms Panels | | Internal | N/A | N/A | N/A | | | 5-Oct-17 | | 6-Apr-18 | | |
| | | | | | | | | | | | | | | 0 |



| Project Risk Management Register | |
|--------------------------------------|--|
| Risk Register | MFA-CG-SD-3440-RI-A04-0002-01 |
| Rev: | Date: 28-Feb-2018 |
| Client: | Muskrat 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 |
| PRO | Procurement |
| HSE | Health, Safety & Environment |
| QUA | Quality |
| SCH | Schedule |
| CON | Construction |
| MC&C | Mechanical Completion & Commissioning |
| COM | Commercial |

| Likelihood | Consequences | | | |
|-----------------|--------------|---------|----------|---------|
| | Very Low | Low | Moderate | High |
| 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 | |

| No. | 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 | Date Action Req'd |
| 1 | COM | If the Neutral Funding forecast isn't accurate, then there is the risk that Contractor could be cash negative. | 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 | If quantity variations are not tracked accurately, then Contractor may not be paid for all quantities installed. | 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 | If there is a Protest, it could result in a Site Shutdown | If there is a protest there is a risk of 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 | | Highly Unlikely | Moderate | Level 2 | No action required | Tim Harrington | Work with Company to minimize impacts and evacuate the site if needed. Ensure any incoming workers have a delayed arrival. | |
| 4 | CON | If critical and heavy lift plans are not in place, then it could result in schedule delays. | If there are no Accepted lift plans then Contractor will be unable to install equipment and result in potential delay to the 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. Add activities for these lifts in the Schedule. Utilize a qualified third party to assist with preparation/review. | Ongoing. No issue this period. Contractor is reviewing vendors for engineering services. | Open | | | | | | Robert Mercer Mike Moriarty | | |
| 5 | CON | Concern that clashes may occur when routing small bore and PVC piping in the field as not all small bore piping has isometrics. | Potential clashes in the field for small bore and PVC as they are field run, resulting in schedule delay and cost impacts. | 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 | If there is a labour shortage then Contractor may not be able to achieve the required craft levels to meet schedule. | 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 | | Highly Unlikely | Low | Level 2 | No action required | Carol Ann Molloy | Labour relations manager in place. No hiring issues reported to date. | |



| Project Risk Management Register | |
|--------------------------------------|--|
| Risk Register | MFA-CG-SD-3440-RI-A04-0002-01 |
| Rev: | Date: 28-Feb-2018 |
| Client: | Muskrat 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 |
| PRO | Procurement |
| HSE | Health, Safety & Environment |
| QUA | Quality |
| SCH | Schedule |
| CON | Construction |
| MC&C | 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 |
| | Highly Likely | Level 4 | Level 5 | Level 6 | Level 7 |

| Legend | |
|----------------------------|--|
| Requires Input Information | |
| Automatically Formulated | |

| No. | 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 |
| 7 | CON | Coordination of the Overhead Crane for schedule critical lifts to avoid delays | Potential for delays if crane is not available when required. | Unlikely | High | Level 5 | Plan for action | Contractor will define critical lifts in execution plan and schedule. Contractor will work with Company counterparts and other contractors to coordinate usage. Critical lifts are included in the schedule and Contractor will notify Company when schedule critical lifts are upcoming. Company to coordinate with other contractors to ensure crane availability when needed. Coordinate upcoming lifts through SIMOPS and raise at Interface meetings. | > No OH crane lifts needed to date. Request Company to assist and reinforce/manage usage priority. | Open | | Unlikely | Low | Level 3 | Monitor | Robert Mercer Mike Moriarty | No issues this period |
| 8 | CON | Congested Area - Interface with other Company contractors which could impact Contractor Work and Schedule. | Potential for 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, and update schedule for proper notice to Company and planning. Contractor will work with Company counterparts and other contractors to coordinate work on a daily basis. Review possibility of moving materials on Night shift or an off shift. Contractor is regularly attending SIMOPS meetings and construction interface 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 | | Unlikely | Low | Level 3 | Monitor | Robert Mercer Mike Moriarty | No issues this period |
| 9 | CON | Installation of HVAC unit via north service bay in accordance with current schedule may impact other contractors | 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 | Company confirmed that Contractor to use North Service Bay (NSB) and South Service Bay (SSB) for installation of the units. |
| 10 | CON | If the masonry wall in the south service bay is performed as scheduled, there may be a safety risk in working around energized cables. Request 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 deferred to a later date. Utility system installations will start without walls in place. Site Query was submitted and Company is still looking at opportunities for access. | 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 | If oil tanks are placed late (NSB) there is a potential for schedule delay and interruption to other contractors. | 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. | Company has stated that installation of oil tanks and construction of room to be deferred until air handling unit installation is complete. | 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. |



| Project Risk Management Register | |
|----------------------------------|--|
| Risk Register | MFA-CG-SD-3440-RI-A04-0002-01 |
| Rev: | Date: 28-Feb-2018 |
| 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 |
| PRO | Procurement |
| HSE | Health, Safety & Environment |
| QUA | Quality |
| SCH | Schedule |
| CON | Construction |
| MC&C | 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 |
| | Highly Likely | Level 4 | Level 5 | Level 6 | Level 7 |

| Legend | |
|----------------------------|--|
| Requires Input Information | |
| Automatically Formulated | |

| No. | 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 | Date Action Req'd |
| 12 | CON | Lack of lay down space for staging materials near the power house may result in reduced productivity. | 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 | Unlikely | Low | Level 3 | Monitor | Robert Mercer Mike Moriarty Frank Collins | > Secured warehouse closer to the building from Astaldi with additional laydown space. > Additional laydown approved. | |
| 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. | Closed | | | | | | 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 | Unlikely | Low | Level 3 | Monitor | Robert Mercer | Contractor to monitor craft productivity | |
| 15 | CON | If there is a delayed construction start date due to late turnover of areas, there may be impacts to schedule. | 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 if needed. Contractor to propose options to allow start of Work on early scope with minimal risk where possible. Contractor to work with Company on acceleration or additional resources if needed to reduce schedule impacts and maintain the Completion date. Update schedule for planning purposes. | 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 | If no clarity on the interface procedure/process & interface dates, there may be schedule impacts/delays. | > 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 need 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 | | Unlikely | Low | Level 3 | Monitor | Tim Harrington | Contractor working to gain early access to areas through SIMOPS and participate at the weekly Interface Management Meeting. Interface Mgmt procedure rolled out. No current issues | |
| 17 | ENG | Timeliness of 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 counterparts to meet reduced requested timeline. Contractor will review documents to ensure quality and compliance with Contract requirements. Schedule submission of documents where possible for sufficient review time. | 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. Perform design reviews on key packages and identify interfaces between packages. Have vendors in for site visits where necessary. Include LDs and performance guarantees in vendor contracts to provide performance certainty. | 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 | If Redline Procedure not followed, could result in schedule delays or backlog at the end of the project. | Changes missed or not documented in a timely fashion. | Likely | Low | Level 4 | Plan for action | Contractor implemented its redline procedures and rolled it out to the project team, 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. Coordinate with Company counterparts to review and agree on the process. | Ongoing. No issue this period. | Open | | Unlikely | Low | Level 3 | Monitor | Justin Curlew | | |
| 20 | ENG | If Seismic Design is not completed prior to installation then there may be schedule impacts. | 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) required to avoid potential clashes during installation. | 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. Company and Contractor engineering groups to perform design review and address potential clashes early on in the process. | Ongoing. | Open | | Unlikely | Moderate | Level 4 | Plan for action | Justin Curlew | Fire protection vendor has been engaged and design is ongoing. Clash checking underway. | |



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| 22 | ENG | If there are unapproved vendor data sheet work may be delayed causing schedule impacts and increased costs. | Contractor procuring and installing material at risk without Company approved vendor documents. Potential additional work to address issues. | Highly Likely | Low | Level 5 | Plan for action | Contractor to assume risk for off the shelf bulk items to prevent schedule delay. Where necessary to progress work, try to lower 3 week review cycle. Work with Company counterparts to meet reduced requested timeline. Contractor will review documents to ensure quality and compliance with Contract requirements. Schedule submission of documents where possible for sufficient review time. Provide Company with a list of critical items for review. Engage vendor for reviews early. Request Company perform batch reviews where possible. | Contractor working with Company to expedite review of documents. | Open | | Likely | Low | Level 4 | Plan for action | Justin Curlew | Process is ongoing. Have engaged Company for expedited reviews on early bulk materials. Meeting held with Design Consultant to discuss ways to reduce documentation reviews for low risk items (i.e. spec compliant). Weekly package reviews ongoing. | |
| 23 | HSE | If there is no Emergency Rescue Plan / Team developed and in place, then this puts workers at risk. | 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 | | Highly Unlikely | Moderate | Level 3 | Monitor | 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. Company to provide supplemental emergency response support. | |
| 24 | HSE | Confined space work can pose safety risk. | 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. | | Closed | | Highly Unlikely | Moderate | Level 3 | Monitor | Chris Kieley | Equipment has been sourced and is in place. Contractor crew has personnel with confined space training. | |
| 25 | HSE | If permits are not in place there will be delays in the applicable activity. If there is a delay in the submission/approval of permits, this will impact schedule. | Timeline for approval of permit may result in delays. | Unlikely | Moderate | Level 4 | Plan for action | Early establishment of permit projections (A08 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 addressed. | |



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| 26 | HSE | Winter Temperature and weather may pose additional risks to workers. | Workers in outdoor environment are at greater risk for slips/falls than during other seasons. Also at risk for frostbite. | 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. Material preservation plans put in place, follow vendor recommendations. | Ongoing. | Open | | Unlikely | Low | Level 3 | Monitor | Chris Kieley | PPE for winter weather work was procured along with snow removal equipment, all now on site. |
| 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 | MC&C | If there is a high volume of check sheets/completions paperwork and requirements, there may be delays or productivity impacts. | 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. |
| 29 | MC&C | If there are issues/complications with using Company completion platform (PCS) it may result in inefficiencies with the completions program. | 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 | If the third party experts required for specialized equipment are not available there may be delays. | 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 | By using temporary supply (electrical or water) during commissioning activities, testing may need to be redone with permanent supply. | Requirement to redo tests with permanent supply which leads to inefficiency and potential delays. | 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 | Delays 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 / Perry Snook | |



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| | | | | Likelihood | Consequence | Risk Level | Response | | | | | Likelihood | Consequence | Risk Level | Response | Risk Owner | Action Plan |
| 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. Perform pre-shipping inspection if/when required. 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 | | Likely | Low | Level 4 | Plan for action | Frank Collins | |
| 34 | PRO | If Equipment not properly preserved may result in damage. | 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. Design review on critical equipment expedited where possible. Progress reports and tracking inspections on these items will be done by the procurement team. | Ongoing. | Open | | | | | | Frank Collins/Bill Atkinson | 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. |
| 36 | PRO | If Bulks/Consumables are not readily available off the shelf it may result in delays. | 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 | | Unlikely | Low | Level 3 | Monitor | Frank Collins | |
| 37 | PRO | Management of Warehouse space. If there is limited space available, then deliveries may need to be delayed. | Limitation for on-site storage may lead to productivity or schedule impacts. | 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. Add additional on-site storage if required. | Ongoing. | Open | | Unlikely | Low | Level 3 | Monitor | Frank Collins | No issues this period |



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| 38 | PRO | If there are not qualified Innu Business Group as the first option for supply or work package, Contractor may not meet Project Benefits Guidelines. | Capability of interested Innu Businesses to perform scope of Work in accordance with Project specifications. Potential to not meet project Benefit Guidelines. May cause public relations issue. | 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. Transfer information on various packages, post packages on bids.ca and provide any updates. Continue to communicate with the Innu Business Group. | No issues to report this period. | Open | | | | | | Frank Collins | |
| 39 | QUA | If there are issues with the welding of the IPB, it may result in potential additional work. | Additional cost, schedule impact | Unlikely | Moderate | Level 4 | Plan for action | Contractor to communicate with Company when work is to be performed 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. Coordinate with Company and Company's other contractors as needed. | Contractor requested Installation and Operation manuals via SQY-0135. | Open | | | | | | Perry Snook | |
| 40 | QUA | If welding inspections are not performed at required frequencies, then Contractor may not discover welding deficiencies or meet project inspection requirements. | Additional cost, 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, ITPs etc. in advance of inspection. | No update this period. | Open | | | | | | Perry Snook | |
| 41 | QUA | If Off-site QA inspections are not performed, it may result in the delivery of non-compliant products. | Receiving non-compliant product. Delays. | 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. Off site inspections requirements are listed in the quality plan. | 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 | Certain night shift work may experience reduced productivity, less supervision. | 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 tentatively planned for Spring 2018. | Open | | | | | | Stephane Lacasse | |
| 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 | Closed | 18-Dec-2017 | | | | | Stephane Lacasse | New interface process between site contractors to coordinate work areas. Contractor being integrated into the process. Closed as this risk is already identified above in #15. |



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|-----|------|--|--|--------------------|-------------|------------|------------------|---|--|--------|---------------|--------------------|-------------|------------|-----------------|------------------|---|-------------------|
| | | | | Likelihood | Consequence | Risk Level | Response | | | | | Likelihood | Consequence | Risk Level | Response | Risk Owner | Action Plan | Date Action Req'd |
| 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. | | 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 | | Likely | Low | Level 4 | Plan for action | Justin Curlew | Review meeting with design engineers occurred. Company agreed that off the shelf items do not require same level of scrutiny. Address concerns on a case by case basis with a concession request. Justin to prepare a preliminary list of items this will apply to. | |
| 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 | Unlikely | Low | Level 3 | Monitor | Expedite CHR submission and approval process. | Ongoing. Site Query was processed and a Change Request submitted. Change Request verbally approved. | Closed | 28-Feb-2018 | | | | | Brad Burse | | |
| 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. Discussions ongoing at the Sponsor level. | Open | | | | | | Tim Harrington | | |
| 50 | COM | Site Disallowed Items - 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 provided a proposal for quantification / defining of Disallowed Items in letter LTR-CH0031001-0098. Discussions ongoing. | Open | | | | | | Tim Harrington | | |



| Project Risk Management Register | |
|--------------------------------------|--|
| Risk Register | MFA-CG-SD-3440-RI-A04-0002-01 |
| Rev: | Date: 28-Feb-2018 |
| 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 |
| PRO | Procurement |
| HSE | Health, Safety & Environment |
| QUA | Quality |
| SCH | Schedule |
| CON | Construction |
| MC&C | 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 |
| | Highly Likely | Level 4 | Level 5 | Level 6 | Level 7 |

| Legend | |
|----------------------------|--|
| Requires Input Information | |
| Automatically Formulated | |

| No. | 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 | Date Action Req'd |
| 51 | HSE | Site wide communications not reliable | 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. | Closed | 28-Feb-2018 | Highly Unlikely | Moderate | Level 3 | Monitor | Robert Mercer Mike Moriarty | Procedure has been finalized. | |
| 52 | COM | If Company and Contractor cannot agree on required backup (level of detail) for the reconciliation of Neutral Funding invoices, then company may stop payment. | Company may stop payment of Neutral Funding invoices if an agreement cannot be reached | Highly Likely | Moderate | Level 6 | Immediate action | Work with Company to ensure reconciliation process is agreed and implemented. Contractor to continue the process of programming its systems to provide an adequate level of detail for Company to assess PLA Labour costs. | Ongoing. To date, Contractor has had difficulty meeting Company expectations. Neutral funding is back on track as of the end of February. | Closed | 28-Feb-2018 | | | | | Julie Yarn / Julie Canuel | | |
| 53 | SCH | If the Unit 1 (UN1) Milestone Dates are delayed by Company's other contractors, specifically Andritz Hydro, then there will be cost and schedule impacts. | Schedule impact, cost impacts, reduced productivity | Unlikely | Low | Level 3 | Monitor | Contractor to Notify Company. Contractor to work with Company on acceleration or additional resources if needed to reduce schedule impacts and maintain the Completion date. Update schedule for planning purposes. | Ongoing - Contractor to monitor. | Open | | | | | | Stephane Lacasse | | |
| 54 | CON | If concrete coring for drain connections (performed by Others) isn't completed in a timely manner, then it will delay piping activities | Schedule impact, cost impacts, reduced productivity | Unlikely | Low | Level 3 | Monitor | Contractor will work with Company counterparts and other contractors to coordinate work on a daily basis. Contractor is regularly attending SIMOPS meetings and construction interface meetings. | Ongoing - Contractor to monitor. | Open | | | | | | Robert Mercer Mike Moriarty | | |
| 55 | CON | If control room north wall cannot be constructed due to incomplete structural work (by others), then milestone M-SSB-1 will be missed | Schedule impact, cost impacts to accelerate | Likely | High | Level 6 | Immediate action | Contractor has notified Company via letter. Site Query has also been raised to address the issue. | Company to issue Change Request for Contractor to complete the structural work omitted by Company's Other Contractors | Open | | | | | | Robert Mercer Mike Moriarty | | |
| 56 | CON | If replacement u-bolts are required for pipe supports per detail S-A54, then it may delay piping installation | Schedule impact, cost impacts, reduced productivity | Likely | Moderate | Level 5 | Plan for action | Raise SQ. Implement measures to mitigate schedule impact. Continue with piping installation using temporary supports until issue can be resolved. | Awaiting SQ response | Open | | | | | | Robert Mercer Mike Moriarty | | |
| 57 | CON | If dewatering hoist scope isn't clearly defined, then it may delay procurement and construction activities. | Schedule impact, cost impacts | Likely | Low | Level 4 | Plan for action | Raise SQ. Propose alternatives based on discussions with vendors. | Contractor to request ECN to detail requirements. Clarify if Contractor is to undertake design. | Open | | | | | | Justin Curlew | | |
| 58 | CON | If condensing units as specified are not available, then it may delay procurement and construction activities. | Schedule impact, cost impacts | Likely | Moderate | Level 5 | Plan for action | Raise SQ. Investigate alternatives with suppliers. | Potential cost impacts. Change Request required. | Open | | | | | | Justin Curlew | | |



Risk Management - Action Log

| Risk Details | | | | | | Action Details | | | | | |
|--------------|----------|--|---|----------------------------|--------|---|----------------------------------|--------------|---------------|----------------|---|
| Item No. | Category | Risk Definition | Description of Consequences | Current Consequence Rating | Status | Action | Responsible Person | Date Created | Date Required | Date Completed | Comments |
| 2 | COM | If quantity variations are not tracked accurately, then Contractor may not be paid for all quantities installed. | Not being paid for the quantity installed. | Moderate | Open | Train staff and craft on systems at time of mobilization and regularly through the project | Julie Canuel | 06-Dec-17 | Ongoing | | |
| 2 | COM | If quantity variations are not tracked accurately, then Contractor may not be paid for all quantities installed. | Not being paid for the quantity installed. | Moderate | Open | Full time Quantity Surveyor to be mobilized to site. | Tim Harrington / Charles Lavigne | 06-Dec-17 | 06-Dec-17 | 06-Dec-17 | Closed |
| 2 | COM | If quantity variations are not tracked accurately, then Contractor may not be paid for all quantities installed. | Not being paid for the quantity installed. | Moderate | Open | Track quantities during procurement process | Frank Collins / Julie Canuel | 06-Dec-17 | 30-Apr-18 | | |
| 2 | COM | If quantity variations are not tracked accurately, then Contractor may not be paid for all quantities installed. | Not being paid for the quantity installed. | Moderate | Open | Quantity reconciliation to be completed every 3 months | Julie Canuel | 06-Dec-17 | 31-Mar-17 | | Qty reconciliation required every quarter |
| 3 | COM | If there is a Protest, it could result in a Site Shutdown | If there is a protest there is a risk of productivity loss and schedule delay. | Moderate | Open | No current actions. Monitor Site work. Work with Company as necessary to minimize potential impacts. | Tim Harrington | 06-Dec-17 | Ongoing | | |
| 10 | CON | If the masonry wall in the south service bay is performed as scheduled, there may be a safety risk in working around energized cables. Request 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. | Moderate | Open | Contractor to look for future opportunities for wall installation prior to cable energization. | Robert Mercer / Mike Moriarity | 06-Dec-17 | 30-Mar-18 | | Item flagged in the Issues and Decisions Log. Reviewed in the Planning Integration Meeting. |
| 17 | ENG | Timeliness of document review cycle from Company | Unable to deliver docs in time to ensure equipment delivery and schedule is met. | Moderate | Open | Working with Company to expedite document reviews. All agree that 21 day timelines can be improved for most situations. | Justin Curlew | 06-Dec-17 | Ongoing | | |

| Risk Details | | | | | | Action Details | | | | | |
|--------------|----------|--|---|----------------------------|--------|--|-------------------------------|--------------|---------------|----------------|--|
| Item No. | Category | Risk Definition | Description of Consequences | Current Consequence Rating | Status | Action | Responsible Person | Date Created | Date Required | Date Completed | Comments |
| 18 | ENG | Design interface with different packages, especially controls, load transfer pkg and fire protection/detection | Unable to complete packages and deliver on time. | Moderate | Open | 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. | Justin Curlew / Frank Collins | 06-Dec-17 | 30-Apr-18 | | |
| 18 | ENG | Design interface with different packages, especially controls, load transfer pkg and fire protection/detection | Unable to complete packages and deliver on time. | Moderate | Open | Perform design reviews on key packages and identify interfaces between packages. | Justin Curlew | 06-Dec-17 | 30-Apr-18 | | |
| 18 | ENG | Design interface with different packages, especially controls, load transfer pkg and fire protection/detection | Unable to complete packages and deliver on time. | Moderate | Open | Include LDs and performance guarantees in vendor contracts to provide performance certainty. | Justin Curlew / Frank Collins | 06-Dec-17 | 30-Apr-18 | | |
| 18 | ENG | Design interface with different packages, especially controls, load transfer pkg and fire protection/detection | Unable to complete packages and deliver on time. | Moderate | Open | Submit fire protection and fire detection drawings to Company for submittal to Service NL for review | Justin Curlew | 17-Jan-18 | 31-Mar-18 | 28-Feb-18 | Closed. LCP to submit to Service NL. |
| 20 | ENG | If Seismic Design is not completed prior to installation then there may be schedule impacts. | Without design complete will be difficult to install and complete services. | Moderate | Open | Design vendors have been engaged. Monitor progress. | Justin Curlew | 06-Dec-17 | 31-Jan-18 | | Structural design calculations report to be returned Code 1 before closing item. |
| 21 | ENG | Clash checking (all disciplines) required to avoid potential clashes during installation. | Potential of clash between services. Re-Design & Re-installation would be required. | Moderate | Open | 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. | Justin Curlew / Frank Collins | 06-Dec-17 | 30-Apr-18 | | |


| Risk Details | | | | | | Action Details | | | | | |
|--------------|----------|---|---|----------------------------|--------|---|-----------------------------------|--------------|---------------|----------------|----------------------------|
| Item No. | Category | Risk Definition | Description of Consequences | Current Consequence Rating | Status | Action | Responsible Person | Date Created | Date Required | Date Completed | Comments |
| 21 | ENG | Clash checking (all disciplines) required to avoid potential clashes during installation. | Potential of clash between services. Re-Design & Re-installation would be required. | Moderate | Open | Company and Contractor engineering groups to perform design review and address potential clashes early on in the process. | Justin Curlew | 06-Dec-17 | 30-Apr-18 | | |
| 23 | HSE | If there is no Emergency Rescue Plan / Team developed and in place, then this puts workers at risk. | Workers at risk. | Moderate | Open | Emergency response plan developed and communicated to all Site Personnel. Develop and train emergency response team. | Chris Kieley | 06-Dec-17 | Ongoing | 28-Feb-18 | Closed. ERT team in place. |
| 23 | HSE | If there is no Emergency Rescue Plan / Team developed and in place, then this puts workers at risk. | Workers at risk. | Moderate | Open | Company's pending emergency rescue plan will be rolled out Dec 14, 2017 at the construction interface meeting. Company to provide supplemental emergency response support. Integrate with Contractor plan as necessary. | Chris Kieley | 06-Dec-17 | 22-Dec-17 | 22-Dec-17 | Closed |
| 27 | HSE | Spill & Waste Management | Environmental risk. Workers at risk. | Moderate | Open | Ensure equipment for spill and waste management is available on site. | Chris Kieley | 06-Dec-17 | 06-Dec-17 | 06-Dec-17 | Closed |
| 27 | HSE | Spill & Waste Management | Environmental risk. Workers at risk. | Moderate | Open | Confirm hazardous waste removal vendor is properly certified. | Chris Kieley | 06-Dec-17 | 06-Dec-17 | 06-Dec-17 | Closed |
| 30 | MC&C | If the third party experts required for specialized equipment are not available there may be delays. | Third party not available when required resulting in delays. | Moderate | Open | Proper planning and scheduling of required third party activities. | Jeremie Bertin / Stephane Lacasse | 06-Dec-17 | Ongoing | | |
| 30 | MC&C | If the third party experts required for specialized equipment are not available there may be delays. | Third party not available when required resulting in delays. | Moderate | Open | Include notification requirements in subcontract related to delay. | Jeremie Bertin / Frank Collins | 06-Dec-17 | 30-Jun-18 | | |
| 32 | MC&C | Delays in reception of regulatory approvals (pressure piping, fire protection, diesel tank and piping). | Delays in schedule, impact on major milestones. | High | Open | Proper planning, training, and scheduling to ensure documentation and authorization are requested on time. Tracking authorization response time and any delays after submittal. | Jeremie Bertin / Perry Snook | 06-Dec-17 | Ongoing | | |

| Risk Details | | | | | | Action Details | | | | | |
|--------------|----------|--|------------------------------------|----------------------------|--------|---|---------------------------------|--------------|---------------|----------------|--|
| Item No. | Category | Risk Definition | Description of Consequences | Current Consequence Rating | Status | Action | Responsible Person | Date Created | Date Required | Date Completed | Comments |
| 34 | PRO | If Equipment not properly preserved may result in damage. | Potential damage / Additional Cost | Moderate | Open | Develop preservation plan and communicate to responsible personnel. | Frank Collins | 06-Dec-17 | 30-Apr-18 | | |
| 34 | PRO | If Equipment not properly preserved may result in damage. | Potential damage / Additional Cost | Moderate | Open | Coordinate delivery schedule with Site installation to minimize preservation required at Site. Contractor to use preservation module within Company provided PCS system | Frank Collins | 06-Dec-17 | Ongoing | | |
| 35 | PRO | Late Delivery of Critical Equipment | Project Delay / Additional Cost | Moderate | Open | Ensure delivery dates are tied to critical defined milestones and monitored in the control schedule with milestones and need dates. | Frank Collins / Stefane Lacasse | 06-Dec-17 | 06-Dec-17 | 06-Dec-17 | Closed |
| 35 | PRO | Late Delivery of Critical Equipment | Project Delay / Additional Cost | Moderate | Open | Progress reports and tracking inspections on these items will be done by the procurement team. | Frank Collins | 06-Dec-17 | Ongoing | | |
| 35 | PRO | Late Delivery of Critical Equipment | Project Delay / Additional Cost | Moderate | Open | Vendor package awards are being issued with delivery sureties and penalties for late delivery. | Frank Collins | 06-Dec-17 | 30-Apr-18 | | |
| 39 | QUA | If there are issues with the welding of the IPB, it may result in potential additional work. | Additional cost, schedule impact | Moderate | Open | Contractor to communicate with Company when work is to be performed to ensure manufacturer representative to be onsite for erection of IPB. IPB manufacturer to provide welding procedures well in advance of work start. | Perry Snook | 06-Dec-17 | 31-Mar-18 | | Contractor requested Installation and Operation manuals via SQY-0135. Awaiting a response. |
| 39 | QUA | If there are issues with the welding of the IPB, it may result in potential additional work. | Additional cost, schedule impact | Moderate | Open | Training on IPB prior to installation. Leverage existing qualified welders. Coordinate with Company and Company's other contractors as needed. | Perry Snook | 06-Dec-17 | 30-Jun-18 | | |

| Risk Details | | | | | | Action Details | | | | | |
|--------------|----------|--|---|----------------------------|--------|--|----------------------------------|--------------|---------------|----------------|--|
| Item No. | Category | Risk Definition | Description of Consequences | Current Consequence Rating | Status | Action | Responsible Person | Date Created | Date Required | Date Completed | Comments |
| 40 | QUA | If welding inspections are not performed at required frequencies, then Contractor may not discover welding deficiencies or meet project inspection requirements. | Additional cost, schedule impact | Moderate | Open | Ensure qualified workers perform the tasks. Regular monitoring of ongoing work by supervisor and quality group. | Perry Snook | 06-Dec-17 | Ongoing | | |
| 40 | QUA | If welding inspections are not performed at required frequencies, then Contractor may not discover welding deficiencies or meet project inspection requirements. | Additional cost, schedule impact | Moderate | Open | Prepare documentation, plan, weld map, ITPs etc. in advance of inspection. | Perry Snook | 06-Dec-17 | Ongoing | | |
| 41 | QUA | If Off-site QA inspections are not performed, it may result in the delivery of non-compliant products. | Receiving non-compliant product. Delays. | Moderate | Open | Perform off site inspections as listed in the project quality plan. | Perry Snook | 06-Dec-17 | Ongoing | | |
| 42 | SCH | Certain night shift work may experience reduced productivity, less supervision. | Loss of productivity, safety | Moderate | Open | Proper supervision and turnover from day shift to night shift. Concentrate critical activities during day shift (where possible) where there is additional supervision available. Monitor productivity dayshift vs nightshift. | Robert Mercer / Stephane Lacasse | 06-Dec-17 | Ongoing | | |
| 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 | High | Open | Contractor to provide a proposal to quantify staff/site installation. | Tim Harrington / Brad Burse | 06-Dec-17 | 22-Dec-17 | 18-Dec-17 | Proposal submitted. Discussions ongoing at Sponsor level. |
| 50 | COM | Site Disallowed Items - Contractor and Company are not totally aligned on this item (tracking, threshold etc.) | Additional resources, cost impact | Moderate | Open | Contractor to provide a proposal for quantification / defining of Disallowed Items | Tim Harrington / Charles Lavigne | 06-Dec-17 | 15-Dec-17 | 14-Dec-17 | Contractor provided a proposal for quantification / defining of Disallowed Items in letter LTR-CH0031001-0098. Discussions ongoing at Sponsor level. |
| 55 | CON | If control room north wall cannot be constructed due to incomplete structural work (by others), then milestone M-SSB-1 will be missed | Schedule impact, cost impacts to accelerate | High | Open | Shoud Company require Contractor to perform structural work, Contractor to prepare a schedule and cost estimate for the work | Tim Harrington / Charles Lavigne | 28-Feb-18 | 18-May-18 | | Milestone M-SSB-1 |

| Risk Details | | | | | | Action Details | | | | | |
|--------------|----------|--|---|----------------------------|--------|--|----------------------------------|--------------|---------------|----------------|----------|
| Item No. | Category | Risk Definition | Description of Consequences | Current Consequence Rating | Status | Action | Responsible Person | Date Created | Date Required | Date Completed | Comments |
| 56 | CON | If replacement u-bolts are required for pipe supports per detail S-A54, then it may delay piping installation | Schedule impact, cost impacts, reduced productivity | Moderate | Open | Contractor to submit query. Continue with pipe installation to mitigate delays | Tim Harrington / Charles Lavigne | 28-Feb-18 | 07-Apr-18 | | |
| 58 | CON | If condensing units as specified are not available, then it may delay procurement and construction activities. | Schedule impact, cost impacts | Moderate | Open | Contractor to submit Change Request to get formal direction to proceed | Tim Harrington / Brad Burse | 28-Feb-18 | 07-Mar-18 | | |

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

|  | CURRENT BUDGET | PERIOD [02/24] | | | | 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 | 3,632 | 1,333 | 1.37 | 0.7% | 52,032 | 12,683 | 1.24 | 9.1% |
| Financial Results Analysis | 707,041 | 3,632 | 1,333 | 1.37 | 0.7% | 52,032 | 12,683 | 1.24 | 9.1% |
| PLA Labour - Support Crew | 176,787 | 1,723 | 0 | 1.00 | 1.0% | 22,464 | 6 | 1.00 | 12.7% |
| Labour Training | 3,380 | 9 | 0 | 1.00 | 0.3% | 886 | 6 | 1.01 | 26.4% |
| Labour Support Crew | 173,407 | 1,714 | 0 | 1.00 | 1.0% | 21,579 | (0) | 1.00 | 12.5% |
| PLA Labour - Mob/Demob & Direct Work | 530,255 | 1,910 | 1,333 | 1.70 | 0.6% | 29,568 | 12,677 | 1.43 | 7.9% |
| Mobilisation & Demobilisation | 9,826 | 24 | 0 | 1.00 | 0.2% | 4,060 | 945 | 1.23 | 50.9% |
| G002 - Mobilization | 6,117 | 24 | 0 | 1.00 | 0.4% | 4,060 | 945 | 1.23 | 81.8% |
| G005 - Demobilization | 3,709 | | 0 | | 0.0% | | 0 | | 0.0% |
| Direct Work | 520,428 | 1,886 | 1,333 | 1.71 | 0.6% | 25,400 | 11,840 | 1.47 | 7.1% |
| G010 - PIPING/MECHANICAL | 132,958 | 447 | 420 | 1.94 | 0.7% | 3,546 | 2,589 | 1.73 | 4.6% |
| G012 - HVAC SYSTEM | 68,535 | 300 | 24 | 1.08 | 0.4% | 3,511 | 165 | 1.05 | 5.0% |
| G014 - ELECTRICAL | 202,676 | 639 | 20 | 1.03 | 0.3% | 12,399 | (451) | 0.96 | 5.9% |
| G016 - ARCHITECTURAL | 114,505 | 501 | 868 | 2.74 | 1.2% | 5,945 | 9,538 | 2.60 | 13.4% |
| G018 - DIESEL GENERATOR SYSTEM | 1,755 | | 0 | | 0.0% | | 0 | | 0.0% |
| Field modifications | | | | | | 108 | (108) | | |
| Grand Total | 707,041 | 3,632 | 1,333 | 1.37 ↑ | 0.7% | 52,032 | 12,683 | 1.24 ↑ | 9.1% |

| Job to Date Column Legend | Comments/ Details |
|---------------------------|---|
| MH | Actual MH Worked |
| CE MH Var | Actual MH Gain or Loss Compare compare to MH Work |
| CE PF | = (MH+CE MH Var) / MH |
| % | % Completed = (MH+CE MH Var) / CB MH |



Muskrat Falls

| | | Name |
|--------------------------------|--------------------------------|-------------------|
| Management | Project Manager | Tim Harrington |
| | Deputy Project Manager | Charles Lavigne |
| | Construction Manager | Robert Mercer |
| | Deputy Construction Manager | Michael Moriarity |
| | Risk Manager / Contract Admin | Laurie Hildebrand |
| | Contract Admin | Brad Bursey |
| | Project Controls | Julie Canuel |
| | Deputy Project Controls | Jeff Butler |
| | Business Manager | Leah Pearson |
| Construction | Piping Superintendent | Tim Dicks |
| | E&I Superintendent | Jared Desrosiers |
| | Arch/HVAC/Sub Superintendent | Ross Stamp |
| Project Engineering / Controls | Project Engineer | Justin Curlew |
| | Deputy Project Engineer | Etienne Fortin |
| | Package Eng - Mech | Cutris Doyle |
| | Package Eng - Piping | Daniel Parsons |
| | Package Eng - Elect | Bradon Hynes |
| | Package Eng - Elect | Bartlett, David |
| | Package Eng - Arch/HVAC/Sub | Foley, Jessica |
| | Scheduler/Planner | Stéphane Lacasse |
| | Scheduler/Planner | Steve Walsh |
| | Cost Control | Julie Yarn |
| | Quantity Surveyor | Simon Lambert |
| Completions | Completions Manager | |
| | Deputy Completions Manager | Jeremie Bertin |
| Safety | HSE Lead | Chris Keiley |
| | HSE Advisor | Perry Murphy |
| | HSE Advisor | Ivan Brenton |
| Quality | QA/QC Lead | Snook, Perry |
| | Deputy QA/QC Lead | Justin Gibbons |
| | E&I Quality Advisor | Lee Onekeo |
| Procurement | Proc. / Material Controls Lead | Frank Collins |
| | Purchaser | Rochelle Fisher |
| | Purchaser | Bill Atkinson |
| | Material Control | Ferdanand, Thomas |
| Labour Relations / Logistics | Labour Relations | Carol Ann Molloy |
| | Travel Coordinator | Paula Acreman |
| Internship | Engineering Student | Rachel Tobin |
| | Engineering Student | Jennifer Careen |