



Boundless Energy




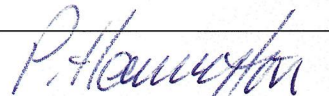
**LOWER CHURCHILL PROJECT**

**MONTHLY PROGRESS REPORT**

**PERIOD ENDING: 31-JULY-2015**

**RECORD NO.: 200-160641-00130**

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## Section 1. EXECUTIVE SUMMARY

### Scope and Purpose

This report covers the progress and associated cost pertaining to the Lower Churchill Project – Phase I (LCP) up to period end 31-July-15. The scope includes all of the ongoing Engineering, Procurement, Construction and Project Management activities for Muskrat Falls Generation (MFG), Labrador Transmission Asset (LTA), and Labrador Island Transmission Link (LITL). Information pertaining to Newfoundland and Labrador Benefits and Aboriginal Affairs is excluded from this report and can be found at <http://muskratfalls.nalcorenergy.com> under Monthly Project Reports.

### Health and Safety

Statistics registered during the period include 1 Lost Time Incident; 21 Near Misses and 3 High Potential Near Misses; 33 First Aid Incidents; 2 Medical Aids; and 22 Property Damage claims. During the period, there was an occurrence of an LTI at the Muskrat Falls Site by a member of the CH0007 Team for Construction of the Intake, Powerhouse, Spillway and Transition Dams, involving a slip and fall incident while descending from a ladder. As a result of the LTI and the rise in modified work cases, LCP saw an Increase in TRIFR during the period. The Project is continuing with risk reduction strategies and focus on initiative to reduce incidents relative to slips, trips, and falls discussed on Page 4 under “Key Priorities/Issues & Opportunities”. Incident classification scale model was rolled out to the various components as part of a pilot test process, and LCP are working with contractor health and safety personnel using the model to classify incidents; expectation that new process will enhance accuracy of incident reporting. Updated Field Level Risk Assessment (FLRA) Card has been finalized and will be presented at the next IMT safety meeting.

### Environmental and Regulatory Compliance

All project Components were within regulatory compliance during the period, and environmental assessment commitments showed 385 completed, 47 on hold and 34 proposed. There were 35 recordable hazardous material spills (>2 liters) during the period, along with 2 reportable incidents, one which occurred in Labrador under the CH0008 scope of work for Construction of the North Spur involving the release of diesel from a damaged fuel pump; the other occurred at the SOBI site under the LC-SB-011 scope of work for Subsea Rock Placement Design, Supply and Install involving the release of oil to water during a launch. Both incidents were reported to the Environmental Emergencies Line.

### Quality

Quality performance during the period showed 125 non-conformances, 1 quality audit, 1 corrective action and 0 preventive actions. 9 Internal Corrective Actions Reports issued in 2014 remain outstanding, with efforts refocused in August to close out. 100 + Overland Transmission Foundations were subsequently determined to be outside dimensional tolerances, with reverse engineering and rework ongoing. Use of materials from unapproved sources continues to be an area of concern resulting in increased focus to ensure all materials meet specifications.

### Progress Highlights

Overall construction progress is at 30.9% versus a plan of 40.7%. Construction of the Intake, Powerhouse, Spillway, and Transition Dams under Contract CH0007 continued with concrete placements during the period, with 27 spillway pier placements, 10

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placements at the center transition dam; 8 separation wall placements, 5 north, and 2 south transition dam placements; 11 intake placements, 4 south service bay placements, and 9 draft tube placements. Ongoing maintenance of curing, hoarding and heating of placed concrete continued, along with the commencement of field testing for curtain grouting operations. Installation of the spillway downstream temporary and permanent bridges commenced, along with the installation of tower cranes in support of construction of the powerhouse and intake Units 3 & 4. Manufacturing of Supply and Install Turbines and Generators under CH0030 is proceeding on schedule. Shipment of the stay ring and draft tube components on route from China has now arrived in Goose Bay, with delivery to the site laydown area in progress; packaging and preservation activities are ongoing in preparation for the next shipment of components scheduled for August 2015. Manufacturing of primary anchor materials for the intake, powerhouse and spillway continued under Contract CH0032 for Supply and Installation of the Powerhouse Hydro-mechanical Equipment. Painting and packaging of the spillway guides is near completion, with intake and draft tube embedded parts and draft tube crane fabrication, along with primary anchor installation, ongoing. Construction activities at the North Spur continued under CH0008 for Construction of North Spur Stabilization Works with excavation activities on the access road and upstream embankment area, along with completion of the concrete pad for the cement bentonite plant and temporary work platform for the upstream cement cut-off wall.

Construction activities continued for the HVac Transmission Line under CT0319 and by the end of July 1158 foundations were installed, 882 towers were assembled and 650 erected, out of a total of 1260; 804 of the 932 guy anchors installed have been tested, out of a grand total of 1088; and 167,005 metres of conductor stringing out of a total of 490,481 metres, was completed. Work continues on the development of access routes and distribution of materials along the transmission line ROW, and in support of HVac transmission line construction activities, the Labrador marshalling operation is ongoing receiving and issuing materials such as steel towers, foundations, and hardware as needed. The forecasted completion date for HVac line construction has been adjusted, but line construction activities continue to be forecasted to complete in advance of the ac switchyards. Resources and work priorities are being managed across both the LTA and the Labrador Island Transmission Link to optimize progress on both. Work is continuing on the preparation of management, technical, and commercial deliverables for Construction of AC Substations under CD0502, and the Contractor is mobilizing at both Muskrat Falls and Churchill Falls. Fabrication and factory acceptance testing of seven transformers for Churchill Falls has been completed under PD0537 for Supply of Power Transformers, AC Substations at facilities in Quebec, along with FAT of grounding reactors at facilities in Finland, all of which are scheduled for shipment to site in the Fall; one transformer for Muskrat Falls is pending testing at facilities in St. Louis. Activities in relation to civil works and building services at the Churchill Falls switchyard under CD0504 commenced during the period, and are scheduled to commence at Muskrat Falls in August.

Construction activities on the HVdc Transmission Line have resumed as road conditions improve and crews return to duties, and by the end of July, quantities produced were as follows: 313 foundations installed, 435 towers assembled and 57 erected, out of a total of 1284; and 75 guy anchors tested, out of 137 installed, of an overall total of 1147. Mass fabrication activities of material for the transmission line towers are continuing in Texas, Dubai and India, and activity at both the Argentia Marshalling Yard and the Labrador Marshalling Yard are ongoing to support HVdc construction activities. ROW Clearing and access development of the HVdc Transmission Line under multiple packages for CT0327 is proceeding well with approximately 1,571 hectares cleared to date in Labrador representing 66% complete of the clearing required for the region, and approximately 1,321 hectares cleared to date in Newfoundland representing 31% complete of the clearing required on the Island. Activities are progressing and work is ahead of schedule under Contract CD0508 for Supply and Install of Electrode Sites in support of construction of the two electrode stations. Installation of the electrode well was completed at the Dowden's Point site in Conception Bay South, Newfoundland; and drilling and





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blasting activities resumed at the L'Anse au Diable site in the Strait of Belle Isle area of Labrador, along with the continuation of placement of core material, filter and armour stone, along with sorting and hauling of armour stone following quarry blasting activities. Work is continuing on the preparation of management, technical, and commercial deliverables under contracts CD0501 for the Supply and Installation of Converters and Cable Transition Compounds, CD0502 for Construction of AC Substations and CD0534 for EPC Synchronous Condensers at Soldiers Pond. Civil works activity for the Soldier's Pond switchyard and converter station commenced under CD0504 during the period, including excavation activities, commencement of concrete foundations in the Valve Hall and Control Building areas, and footings and foundations for the gantries. Fabrication activities are ongoing under CD0534, and civil works activity at the Soldier's Pond site continued with excavation of building foundation and piling, along with preparations for drilling of the second water well; fabrication and FAT for three Soldier's Pond transformers are pending at facilities in St. Louis under PD0537 for Supply of Power Transformers, AC Substations. Manufacturing and testing of the submarine cable in Japan under contract LC-SB-003 continues to progress as planned, with the commencement of armouring protection manufacturing of Cable Batch No. 3 during the period; and FAT on schedule for completion by October 2015. All land cables for installation at the transition compounds are in Halifax with delivery to site scheduled for mid-August. Civil works for the land cable vault termination areas at Shoal Cove and Forteau Point reached substantial completion during the period, with land cable installation scheduled for August once LC-SB-003 personnel staff and equipment have mobilized. Marine termination construction and quayside construction activities continued.

### Cost

As of period end 31-July-2015, project to date incurred cost was \$3,083B, exclusive of all interest, project debt financing, and forex costs, while committed costs totalled \$5,904B. Incurred cost for the period was \$198M and lower than planned with a variance of \$2.6M, attributable to lower than anticipated progress under CH0030 (Manufacturing of the Turbines and Generators) and CH0032 (Supply and Installation of Hydro-Mechanical Equipment) respectively, as well as on the HVdc Transmission Line; offset by higher than anticipated progress on the HVac Transmission Line; at Muskrat Falls under CH0007 for Construction of the Intake, Powerhouse, Spillway and Transition Dams as part of recovery of previous missed progress; and the higher than planned cost of indirects. CCB changes this period resulted in a budget contingency drawdown of \$20M, mainly attributable to the requirement of \$17M under LIL to accommodate clearing cost increases, access road ballasting, and additional guy anchor bars, couplers and centralizers for the HVdc Transmission Line; along with \$2.1M for costs associated with mold remediation at the Muskrat Falls Camp under MF; and \$1.1M for alternative foundation types required to suit infield conditions for the HVac Transmission Line under LTA. The overall FFC change of \$19M (Pre-Contingency Capital) was mainly as a result of the budget adjustments described above; as well as the additional quantities & redesign of various HVdc Transmission Line zones due to maximum windload requirements, and increases in costs associated with the 735 kV line. The increase in commitment during the current period is aligned with the award of additional clearing sections of the HVdc Transmission Line under CT0327, the award of a major component under CD0504 for HVdc Specialties Civil Works and Building Services, as well as indirect costs.

### Key Priorities/Issues & Opportunities

- The LCP Team are continuing to look for opportunities to mitigate cost exposure throughout the project with the remaining Contracts to be placed.
- The performance of CH0007 Contractor, Astaldi Canada Inc. continues to trend behind plan. A review of the C1 work plan is underway, and implementation of an updated C1 schedule will remain on hold pending acceptance of agreed actions and mitigations plan.

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- In relation to other Contractor performance, a strong management focus is being applied to resolve issues experienced by Contractors to limit potential future cost/schedule exposure.
- As indicated in the Health & Safety section above, an Incident Classification Scale has been developed as a result of the high potential incidents and lagging frequencies, and is currently being field tested amongst all components. Development of a three point contact sticker and awareness package is also in process in order to increase awareness and reduce slip, trip and fall exposures.



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Section 2. HEALTH, SAFETY AND SECURITY

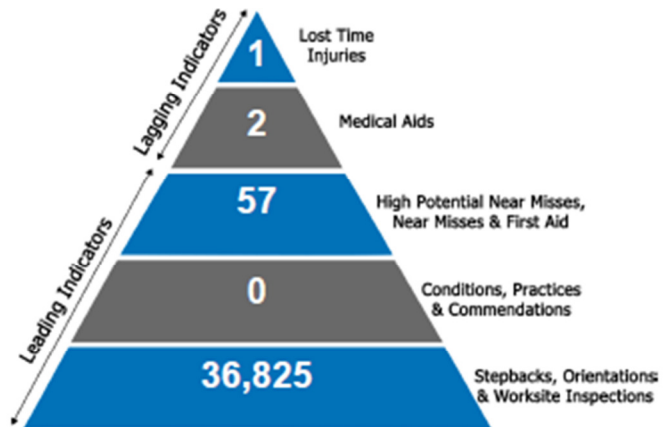
2.1 MONTHLY STATISTICS

Description	Month	Year to Date	Total to Date	Comments
Hours Worked	879,338	4,338,384	14,493,726	July Estimate
Lost Time Injuries (LTI)	1	2	6	
Medical Aids	2	21	46	
TRIFR	7.73	4.79	1.99	Target=1.0
LTIFR	0.23	0.09	0.08	Target=0.0
AIFR	0.68	1.06	0.72	Target=1.0
Note 1: Total to Date: From January 2008 to present.				

Project Overall (Delivery Team & Contractors)  
Current Period

Leading/Lagging Summary

Leading Total	36,882
Lagging Total	3
Ratio (leading/lagging)	12,294
Target Ratio	840:1



Note:

1. Monthly Statistic Overview reported under Section 2.1 is based on estimated hours at month end.
2. Reported Total to Date is based on a June 1, 2006 start date for data compilation.
3. Formula for TRIFR:  $((LTI + MA + MWC + OI) * 200000) / \text{Number of Hours Worked for the Period}$ .
4. Formula for AIFR:  $((LTI + MA) * 200000) / \text{Number of Hours Worked for the Period}$ .
5. "Other Contractors" include all Contractors other than the EPCM Contractor (SLI), but does include hours expended by SLI outside of the EPCM contract.

2.2 HIGHLIGHTS

- Incident log registered for period ending July 2015:
  - 1 Lost Time Injuries (LTI).
  - 2 Medical Aids.
  - 33 First Aid Incidents.
  - 24 Near Misses and High Potential Near Misses.
  - 31 Modified Work Cases (formerly labelled as "Restricted Work Cases").



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- Occurrence of the LCP's sixth LTI, along with an increase in Modified Work Cases as noted above have resulted in a higher than average Total Recordable Incident Frequency Rate (TRIFR) for period ending July 2015.
- Muskrat Falls Generation:
  - Developed and implemented lightning procedure for LCP staff.
  - Worked with contractor and site medical team to manage increased non-occupational visits to MF Medical Clinic.
  - Organized Arc-Flash Awareness training for LCP staff, in conjunction with LCP Electrical Team.
  - Worked with Senior Management to effectively manage planned protest for North Spur work site.
- HVdc Specialties:
  - Supported the mobilization of Contractors to both CF and MF Sites.
  - Completed RFP Review for CD0510.
  - Initiated the weekly H&S Coordination Meetings at all sites.
  - Completed drafts of Incident Communication Protocols for all sites.
  - Participated in C3 / IBEW Liaison Committee Meeting.
  - Participated in Management Inspections with both Alstom Grid and Alstom Power at Soldiers Pond.
- Overland Transmission Lines:
  - Concluded Interviews for three vacant HSSER positions; work offers in effect.
  - Safety Alerts generated for Lightning Protocols, Wildlife Encounters, Bear Awareness, Dust Masks vs. Respirators, and Berming of Roads and Quarries.
  - Piloted the Project's incident classification system.
  - Completed Medivac drill of remote rescue utilizing helicopters.
  - Finalized draft Project Work Standard for Blasting Operations.
- HSSER Management Team:
  - Conducted several interviews for Health and Safety Advisor positions with C1 and C4.
  - Reviewed modifications to the Drug and Alcohol Standard with Management.
  - Reviewed Current Safety Recognition Program with Management - recommended a more realistic approach with Communications Team and HSSER Team.
  - Revising Project Wide Emergency Response Plan (as required by stipulations of the Emergency Response Plan).
  - Conducted Emergency Response Training for two new Incident Commanders and General Emergency Operations Centre Team.
  - Attended and involved with Deputy Incident Commander and Human Resources Team to review roles and responsibilities and to respond to questions.
  - Reviewed and made numerous changes to the Wildfire Management Plan for Muskrat Falls.
- Security Status for the period:

VSO	598
Orientations/access cards printed	646
Foot patrols	740
Mobile patrols	271
Vehicle searches	241
Baggage searches	451
Fire calls/alarms	11
Radar checks	2251
Speeding warnings	13
Speeding/parking violations	7



- Attachment 14.1 includes the Safety Statistics; and attachment 14.2 the detailed Safety Incidents Log for the current reporting period.

### 2.3 ISSUES & OPPORTUNITIES

- Working at heights review being conducted at Muskrat Falls.
- Incident Classification Scale Model: New classification scale model is being used by HSSER field advisors as a pilot program.
- Stepback Cards: New version of the stepback card completed and with the Integrated Management Team for review; once approval granted, the new card will be implemented.
- Three point contact: Development of new sticker to highlight the three point contact protocol.
- Safety Forum: Commence preparations for LCP Safety Forum.
- Occurrence of an LTI at the Muskrat Falls Site during the period by a member of the CH0007 Team for Construction of the Intake, Powerhouse, Spillway and Transition Dams. Incident was logged as the worker descending from a ladder and misjudging the landing, causing the worker to slip and fall approximately 2-3 feet below the platform. The worker contacted the landing with their right side while still maintaining contact with the ladder.

### 2.4 ACTIVITIES PLANNED FOR THE UPCOMING PERIOD

- Muskrat Falls Generation:
  - Full implementation of the central dispatch system.
  - Completion of MF Site Security Management Plan, which will merge all current security plans/procedures/protocols into one master document.
  - Effectively manage the increased mobilization of Andritz material and manpower to site.
  - Revise scope of Weekly Contractors HS Meeting to include all contractors working at the Muskrat Falls site, regardless of Component.
  - Complete investigation of LTI.
- HVdc Specialties:
  - Roll out Incident Communication protocols at all C3 sites.
  - Roll out Security Restricted Access platform in LCP Benefits Database.
  - Provide Final Approval on Revised ER Plans from Alstom Grid.
  - Initiate direct email notifications in Safety Net.
  - Finalize H&S Reporting requirements with Alstom Grid.
  - Meet with Senior Representative from St. John's Regional Fire department to discuss continued support during construction and commissioning.
- Overland Transmission Lines:
  - Finalize the hiring and mobilization of three new HSSER field Advisors.
  - Implement a month long focus on three (3) point contact whenever accessing/egressing mobile equipment; awaiting production of stickers.
  - Seek management approval of draft Project Work Standard for Blasting Operations.
  - 60 day follow-up meeting stemming from assigned tasks at May month Contractor Safety Workshop, as well as monthly IMT action items.
  - Continued focus on FLRA specifics, 3 points of contact, dust suppression, and wildlife awareness.

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- HSSER Management Team:
  - Coordination of LCP Personnel to attend Nalcor Safety Summit scheduled for September 2015 in St. John's.
  - Work with Glen O'Neil to Develop and Finalize HSSER Audit Plan for 2015-2016.
  - Commence Preparations for Safety Forum in Happy Valley-Goose Bay.
  - Meeting with HSSER Personnel at Muskrat Falls, C3 and C4 to discuss various project and team related issues/initiatives.
  - Complete Revisions to Project Wide Emergency Response Plan and Drug and Alcohol Standard and Prepare for Final Sign Off.
  - Conclude/Review Presentation for IMT Safety Meeting for August.

## Section 3. ENVIRONMENT – REGULATORY COMPLIANCE

### 3.1 HIGHLIGHTS

- Environmental Engineering and Technical Support:
  - Conducted weekly sampling of outlet ditches at Generation Site. Various TSS exceedances reported in outlet ditch from Diversion Channel.
  - Diversion channel permanently routed to Sedimentation Pond No. 2.
  - Sedimentation Pond constructed at North Spur - to date, no issues with water management on site.
  - Ongoing segregation of excess wood at Generation has created obvious reduction in amount of waste transported to landfill.
  - Drainage ditches constructed at Soldiers Pond and Churchill Falls Sites functioning adequately.
  - Reviewed various detailed work plans for North Spur scope at Generation Site.
  - Signage installed at North Spur portage route.
  - Successful in-water blast completed at the L'Anse au Diable electrode site.
  - Ongoing development of the Wetland Compensation Plan.
    - Ducks Unlimited reconnaissance visit scheduled for 12-Aug-2015.
  - Ongoing environmental monitoring at various construction sites.
- Regulatory Compliance:
  - Water Resources:
    - Updating the Water withdrawal spreadsheet (volumes used under each WUL).
    - Outstanding completion reports.
  - Building applications for CH0007-Construction of the Intake, Powerhouse, Spillway and Transition Dams.
  - Building and used oil applications for CD0534-Supply and Install Synchronous Condensers.
  - Valard camp permits and JCL site setup permits under CT0327-Construction of HVdc Transmission Line.
  - Site setup permits for Pennecon and Nexans under LC-SB-003-Submarine Cable Design, Supply and Install.
  - Working with Alstom Grid to retrieve the information required for CD0504 (Civil Works and Building Services for HVdc Specialties) applications from Pomerlau.
  - Quarry permits:
    - Updating the quarry spreadsheet (volume of material removed).
- Historic Resources Management:
  - 2015 field season:
    - Excavation continues at Sandy Banks Hudson's Bay Company Outpost - FgCg-01.
    - Excavation started at location FfCi-02.
    - Anticipated upcoming work:
      - Completion of recovery Work at FgCg-01 Locus A.
      - Continuation of recovery work at FgCg-01 Locus B.
      - Completion of tree, brush and mulch clearing at Locus D.
      - Testing of the midden area of FgCg-01 Locus C, in accordance with directive from the PAO.
      - Photography and mapping at FfCi-02 Locus B, and commencement of excavation to sterile.
      - Continued expansion of excavation at FfCi-02 Locus C in order to define the limits of this locus.

- Aquatic:
  - 2015 Field Program:
    - Primary Productivity and plankton survey conducted 15-July 28-31.
    - Installed turbidity sensor units on Blackrock Bridge (downstream of Muskrat Falls).
  - Anticipated upcoming work:
    - Begin EEM sampling within Goose Bay and Lake Melville-scheduled for early August 2015.
- Avifauna Management:
  - Completed helicopter survey of raptor nests on island transmission right-of-way.
  - Initiated directed surveys at select areas including quarry development, access road extension, clearing fronts, etc. on the HVac line and the HVdc line (CT0327-010, CT0327-011, CT0327-013, CT0327-014 and CT0327-015) in Labrador and on the Island.
  - Multiple nest buffers implemented at work fronts.
- Environmental Effects Monitoring:
  - Annual report preparation and review for several aspects of the environmental effects monitoring program.
  - Review of environmental effects monitoring reports from 2014.
  - Ongoing monitoring and mitigation for the Labrador caribou herds and Island caribou for the environmental effects monitoring program.
  - Weekly Threatened Labrador Caribou Report prepared and submitted to Wildlife Division.
  - Review and updating of the LCP Commitments/Requirements Management Plan and the associated commitments.
- Attachment 14.3 includes a detailed listing of Environmental Incidents for the current reporting period as well as a summary of occurrences ≥2L since January 2014.

### 3.2 ISSUES & OPPORTUNITIES

- Investigation of wetland compensation by LCP into the site restoration/rehabilitation program.

### 3.3 ACTIVITIES PLANNED FOR THE UPCOMING PERIOD

- Continue environmental construction monitoring and reporting at all sites.
- EMC AGM to be held in September; preparations ongoing.
- Updating of environmental assessment commitments; and complete revisions to the Wetland Compensation Plan.
- Finalize various C-SEPPs for CH0008, CH0030, CH0032, CD0501 and CD0502.
- Work with provincial regulators on obtaining potential landfill for excess wood waste.
- Complete environmental audit on CD0508 at Dowden's Point.
- Complete Environmental Audit for CT0327-015 on the Northern Peninsula.
- Various regulatory site visits from DFO (05-Aug-2015), and DOEC WRMD (11-Aug-2015); and site visit from Ducks Unlimited (12-Aug-2015).
- Continue quarry and borrow bit rehabilitation on the AC/DC transmission lines.
- Continue to support and provide guidance to various Contractors and LCP Construction Groups.



## Section 4. QUALITY ASSURANCE

### 4.1 HIGHLIGHTS

- Receipt of Corporate Internal Audit report.
- Muskrat Falls Generation:
  - All ITPs submitted by CH0007 Contractor for Construction of Intake and Powerhouse, Spillway and Transition Dams for remaining 2015 work scope; spillway base slab turnover records review completed by LCP QA; surveillance and review of pre-pour signoffs is ongoing.
  - Quality Plan and Work Execution Plan of subcontractor, Inquip, for Construction of North Spur Stabilization Works under CH0008, has been reviewed and approved.
  - Documentation review and sign-off for Shipment No. 3 is progressing well under CH0030 for Supply and Install Turbines and Generators; Contractor has added additional QA resources to expedite QA document submittals; continued with review and sign-off of MRB for Shipment No. 2.
  - Finalized 35 material sample tests and logging of reports for Supply and Install Powerhouse and Spillway Hydro-Mechanical Equipment under CH0032; reviewed and commented on the dispatch dossiers for guide fabrications; continued with shop surveillance of the product quality of spillway stoplogs S1, S2, S3, S4 and Roller Gates, along with witnessing cutting and marking of test plate samples.
- HVDC Specialties:
  - Responses provided by Contractor and continued to be reviewed by LCP with respect to the audit report of CD0502 for Construction of AC Substations; Contractor to provide expanded ECR and QSL plan including scheduled hold points.
  - Project Inspection and Test Program received from CD0534 Contractor for Supply and Install Soldiers Pond Synchronous Condensers, including tracking for CARE (Customer Acceptance and Review Evaluations); preparation of quality assurance surveillance plan, and review of Contractor POs and inspection and test plans for both equipment purchases and civil works activities is ongoing.
- Overland Transmission Lines:
  - Completed quality audit checklist for the Valard audit under both CT0319 and CT0327 scheduled for August/September 2015.
  - Quality deliverables received from India up to June-2015; QS Release from India issued for shipment from Oct-2014 to June-2015.
- Strait of Belle Isle (SOBI):
  - Participated in supplier audits conducted by LC-SB-003 Contractor for SOBI Submarine Cable Design, Supply and Install; review of outstanding documentation/ITP's and NCRs is ongoing.

### 4.2 ISSUES & OPPORTUNITIES

- Internal Corrective Actions outstanding for an extensive period of time.
- Muskrat Falls Generation:
  - Quality issues related to galvanization and welding being documented by CH0007 Contractor for Construction of the Intake and Powerhouse, Spillway and Transition Dams, and rework monitored.
  - Competency and experience of lab technicians currently on site prompting search of more suitable candidates under CH0008 for Construction of North Spur Stabilization Works; LCP will be proceeding with audit as scope prepared by Contractor deemed inappropriate.

- Increased efforts required by Contractor to implement approved disposition and close NCRs under CH0032 for Supply and Install Powerhouse and Spillway Hydro-Mechanical Equipment, deal with backlog of documentation, and avoid recurrence of ongoing fabrication.
- Availability of truck transportation for Laboratory under SM0705 for Provision of Laboratory Services.
- HVdc Specialties:
  - Continued search for suitable candidate to fill the position of Quality Coordinator for HVdc Specialties remains a challenge.
  - Misalignment within civil works engineering activities under CD0502 for Construction of AC Substations.
  - Ensuring transfer of LCP quality requirements to subcontractors continues to be a challenge under CD0534 for Supply and Install Solder's Pond Synchronous Condensers.
- Overland Transmission Lines:
  - NCR's raised on 100+ tower foundations under CT0319/CT0327 which do not meet dimensional tolerances; rework and reverse engineering ongoing.
  - Material from unapproved supplier included in various shipments under PT0308 for Supply of Steel Tower Foundations.
  - Production quality issues continue to be a concern under PT0330 for Supply of Steel Towers-350 kV HVdc; and lab testing being performed without official approval.
- Strait of Belle Isle (SOBI):
  - Multiple non-conformance's ongoing regarding cable production under LC-SB-003 for SOBI Submarine Cable, Design, Supply and Install.

#### 4.3 ACTIVITIES PLANNED FOR THE UPCOMING PERIOD

- Procedure revision for use of LCMC professional engineering seal and permit to practice.
- Close out of issues from audit of Supply Chain and QA by Corporate Internal Audit.
- Follow up on closure of internal open CARs and PARs.
- CH0007-Construction of Intake and Powerhouse, Spillway and Transition Dams: Attention on formwork surfaces and embedment installation in Powerhouse; turnover review by LCP QA team; monitor bridge welding and galvanization touch-ups; review spillway lifts 13 & 14.
- CH0032-Supply and Install Powerhouse and Spillway Hydro-Mechanical Equipment: Shop surveillance of the product quality of stoplogs and roller gates; preparations for audit of the guide fabrications.
- CD0502-Construction of AC Substations: Contractor to provide expanded ECR and QSL plan including scheduled Hold Points.
- PT0330-Supply of Steel Towers-350 kV HVdc: Receive quality deliverables from Jyoti structures in Nashik, India and Jyoti Americas in Conroe, Texas.
- LC-SB-003-SOBI Submarine Cable Design, Supply and Install: Continue to work on and close out NCR's and PAR's; continue processes for all cables.
- LC-SB-011-Subsea Rock Protection Design Supply and Installation: Continue evaluation of WTO's submitted for marine survey.
- Attachment 14.4 includes the LCP Quality Performance Statistics as at 31-July-2015.



## Section 5. CHANGE MANAGEMENT

### 5.1 HIGHLIGHTS

- Complete development of Change Analysis Team access to developing PCNs.
- Roll-out of Change Analysis Team access and refresher on roles for developing and prioritizing approval of PCNs to Component 4.

### 5.2 CURRENT PRIORITIES

- Resolve LCP Tracker development process.
- Change Management compliance audit underway.

### 5.3 ISSUES AND OPPORTUNITIES

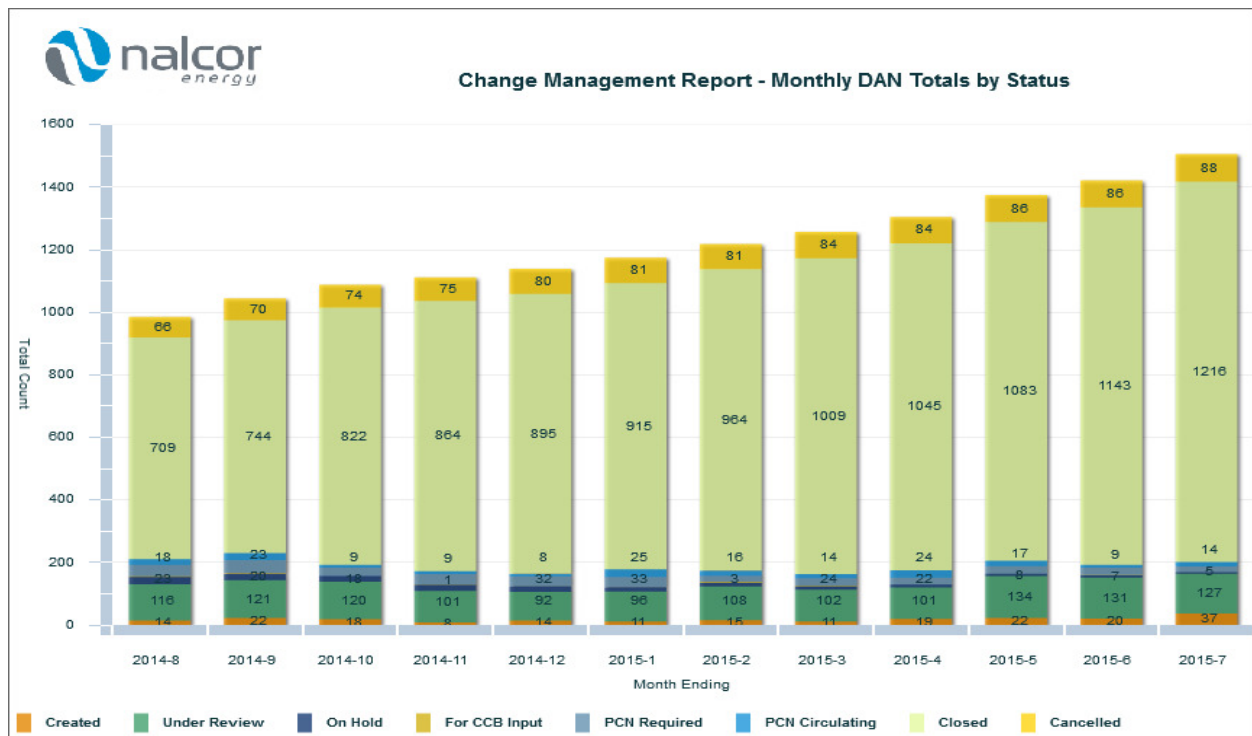
- Issues:
  - Completion of actions and reporting of completion of actions.
  - Delays in circulating PCNs.
- Opportunities:
  - Streamlining of PCN creation/review process.

### 5.4 ACTIVITIES FOR THE UPCOMING PERIOD

- Continued efforts to maintain and progress change management effectiveness.

### 5.5 DEVIATION ALERTS

Figure 5.1-1: Deviation Alert Notices (DANs) Monthly Totals (to date) by Status





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Figure 5.1-2: Deviation Alert Notices (DANs) Monthly Totals by Status

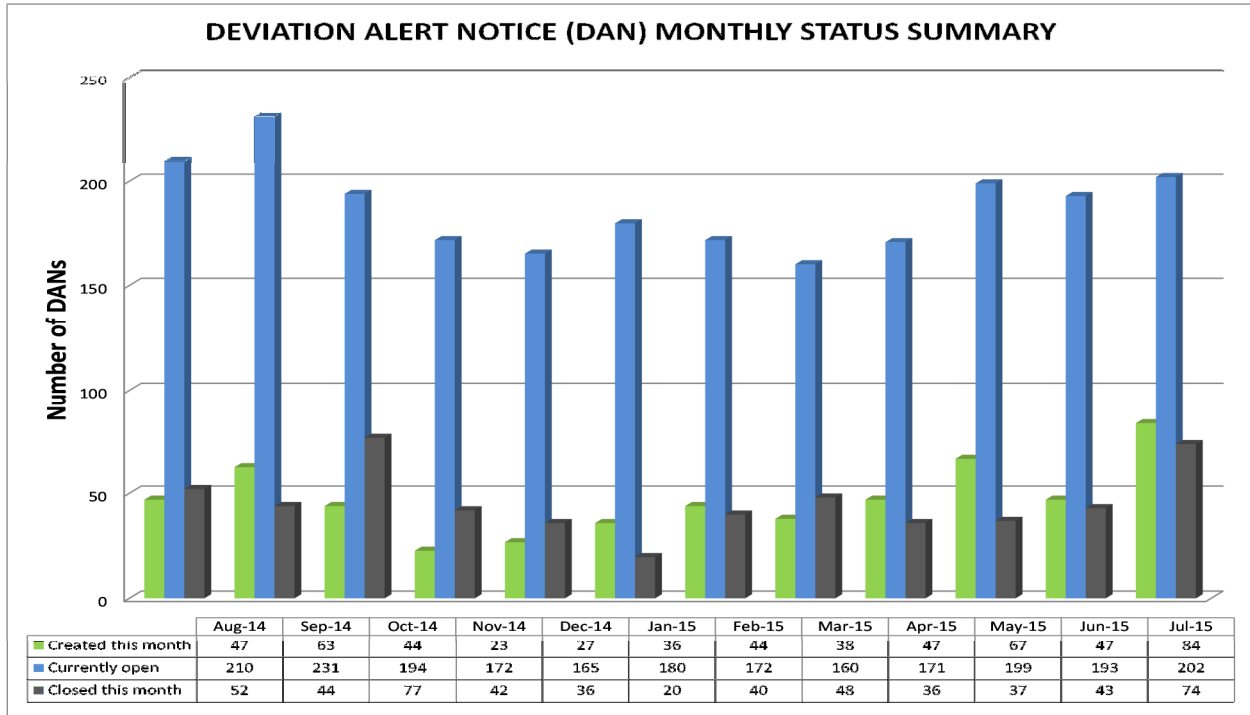
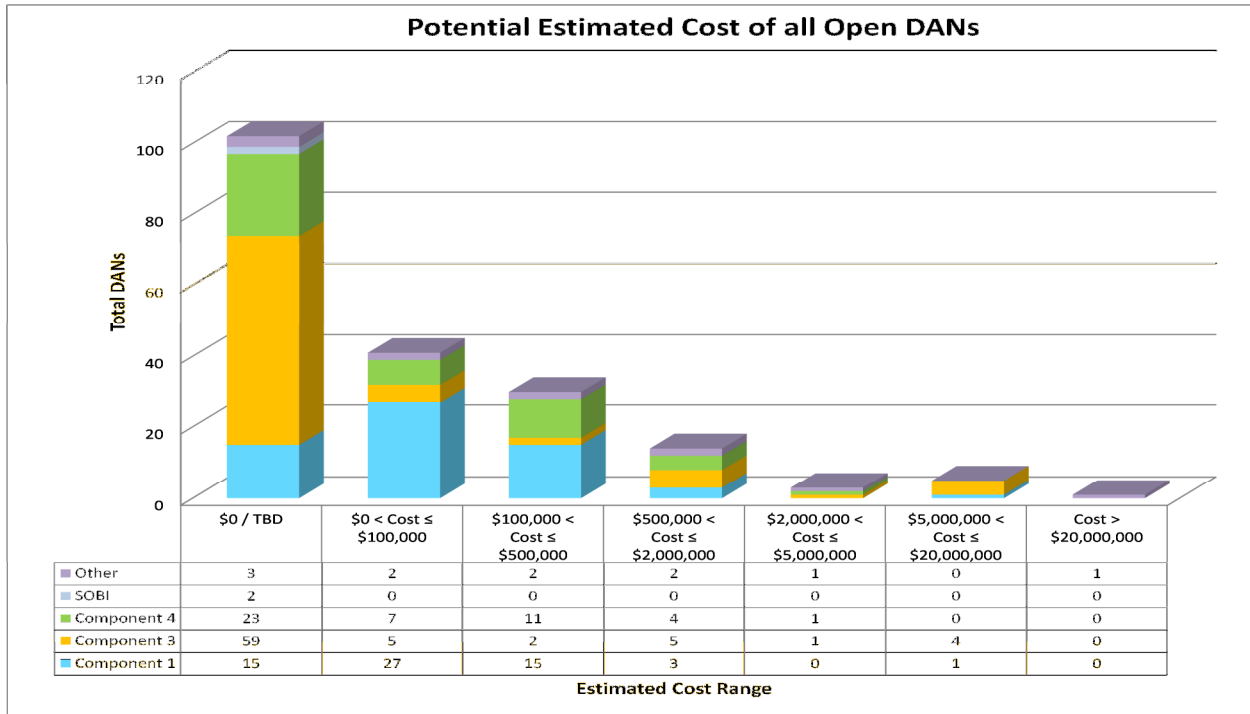


Figure 5.1-3: Deviation Alert Notices (DANs) – Potential Estimated Cost





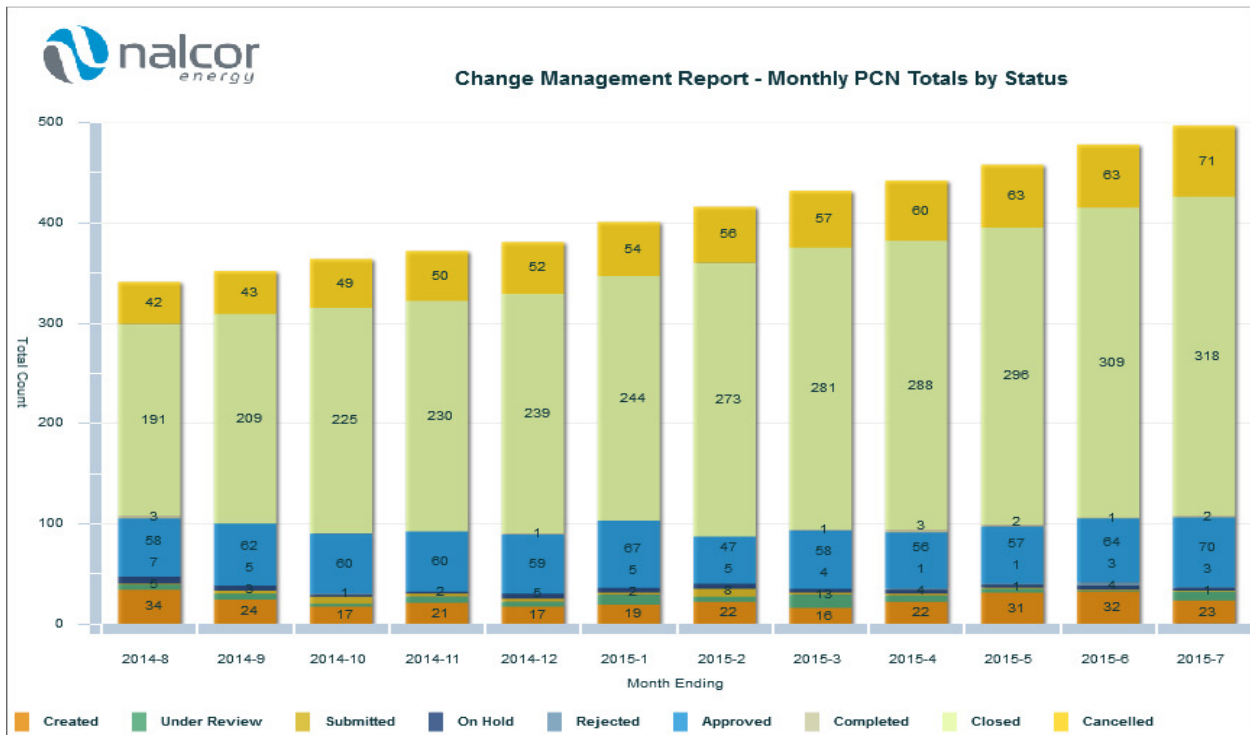
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5.6 PROJECT CHANGES

- PCN-0423: HVdc Foundation Material from PT0308 used on the HVac Line.
- PCN-0450: Extra Foundations for HVdc based on Trend (Construction Spares).
- PCN-0452: Additional Guy Anchor Bottom Bars, Couplers and Centralizers for HVdc Line.
- PCN-0455: Additional Survey Costs for CT0319001.
- PCN-0456: CT0327-020 HVdc Access Road Ballasting S1-1 to S1-400.
- PCN-0457: CH0024-Reservoir Clearing-Provision of fuel to LCP staff by Contractor from Edwards Brook Camp.
- PCN-0461: Innu Support Requirements.
- PCN-0467: Hauling Material from Marshalling Yard to Contractors Camps for HVdc Line.
- PCN-0469: Component 1 MFL Position Adjustments.
- PCN-0470: Creation of SD0568 for C3 Site Offices Purchases Orders (MF, CF, SP).
- PCN-0474: Revision to Power Supply for Group Gilbert and Internet Philosophy for Nalcor Site Office.
- PCN-0476: Extra C-2 Grillage Foundations Required for the HVac Line.
- PCN-0477: Valard Backcharges-budget transfer from CT0319 (Construction of the HVac TL) & CT0327 (Construction of the HVdc TL) to the Lands and Environment budgets for permits purchased.
- PCN-0481: HVdc Clearing and Access - Labrador (Blocks 7 & 6 Partial) Forecasted Cost Increase.
- PCN-0482: Paint Trans-Canada Highway Lines at Soldiers Pond.
- PCN-0486: Crawlspace Remediation - Muskrat Falls Dormitories.

Figure 5.6-1: Project Change Notices (PCNs) Monthly Totals (to date) by Status

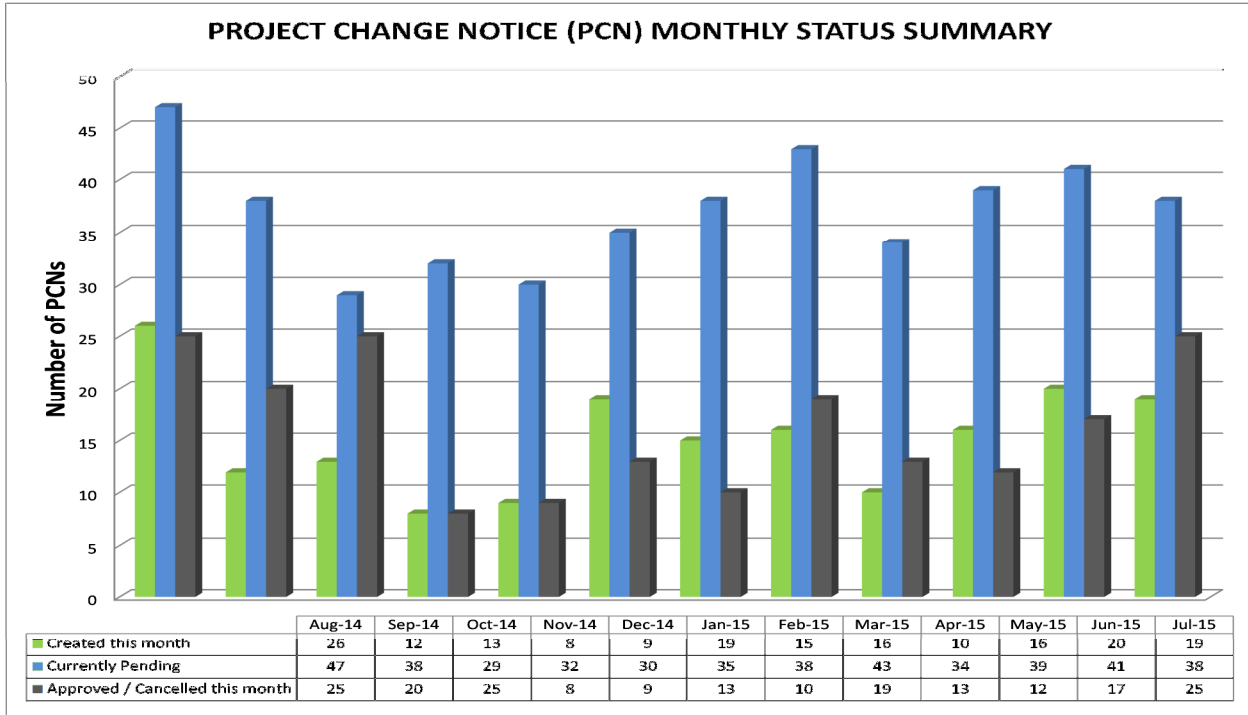




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Figure 5.6-2: Project Change Notices (PCNs) Monthly Totals (to date) by Status



## Section 6. TECHNICAL INTERFACE MANAGEMENT

### 6.1 HIGHLIGHTS

- Provision of refresher on Technical Interface Management process to CH0032 contractor (Andritz).
- Progress to date in the implementation of the Technical Interface Management process:

Type	Open	Closed/Cancelled	Total
Technical Interface – Internal (TII)	57	211	268
Technical Interface – External (TIE)	66	117	183
Technical Interface – Contractor (TIC)	136	74	210
Technical Queries (TQ)	24	153	177
Requests for Information (RFI)	109	301	410
Total	392	856	1248

### 6.2 CURRENT PRIORITIES

- Technical Interface Management process with respect to EPC and other key contractors:
  - Management of Astaldi and Andritz interfaces (T&G and Gates).
  - Development of Contractor Technical Interface Distribution Matrix.
- Further follow-up by C4 with LCP-Operation TL working group to confirm outage windows.
- Development of Interface Document Distribution Matrix and Update of Existing Distribution Matrices.
- Continued development of construction interface schedules.
- Providing guidance to contractors on use of Technical Interface procedure and forms.
- MCT working interface point register.
- Currently focus within Component 3 on closing out the high number of Priority 1 Technical Interfaces.

### 6.3 ISSUES & OPPORTUNITIES

- Issues:
  - Vacant leadership position for the LCP-Operations Interface Steering Committee – awaiting direction on this issue.
- Opportunities:
  - Leverage bi-weekly component level technical interface meetings to provide attention to technical interfaces and their management.

### 6.4 ACTIVITIES PLANNED FOR THE UPCOMING PERIOD

- Continued efforts to maintain and progress technical interface management effectiveness.



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Figure 6.4-1: Lower Churchill Project Interface Management Dashboard – LCP-Operations (by Request Group)

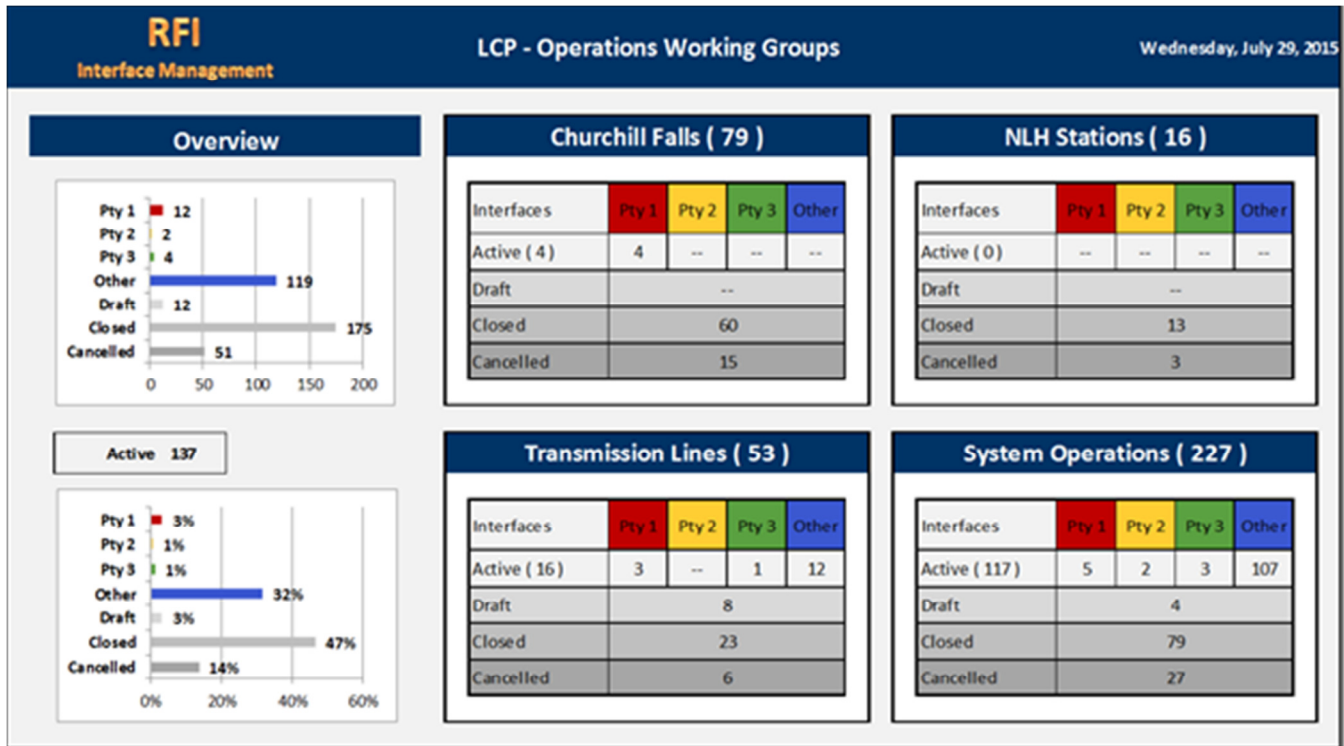
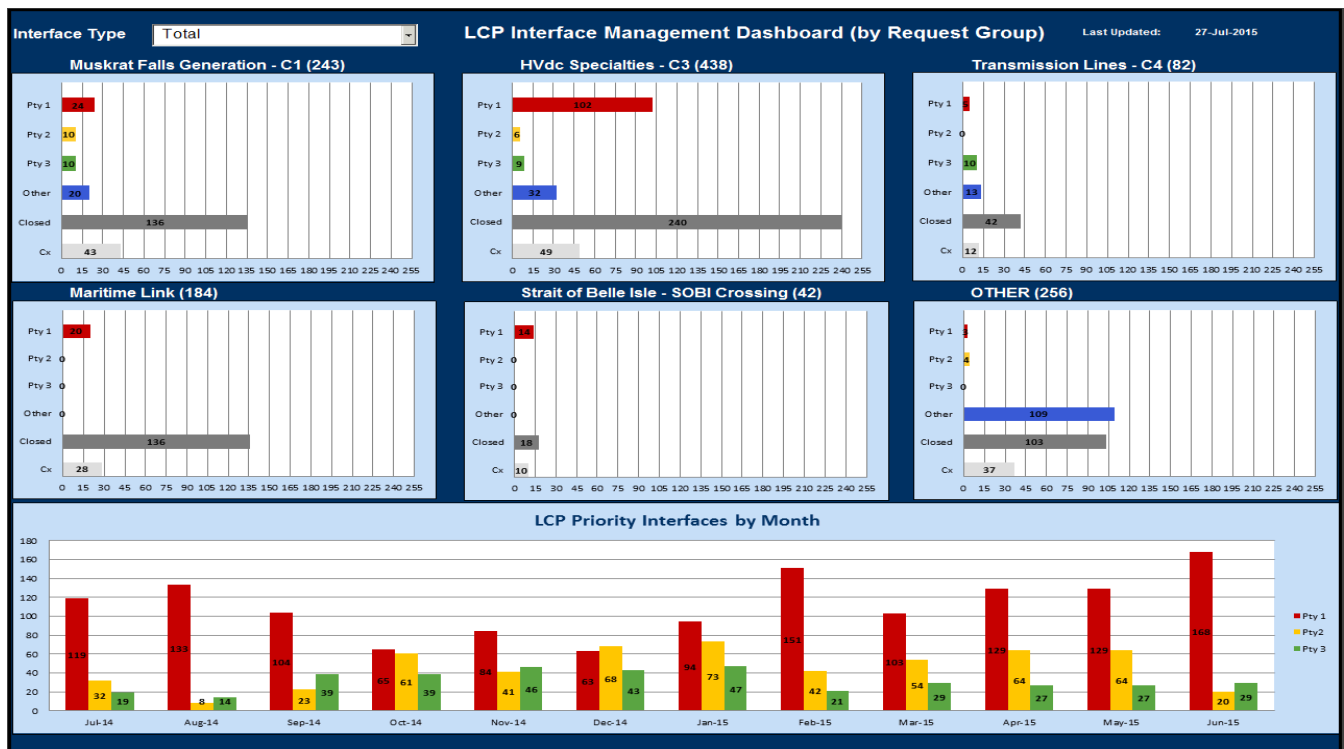


Figure 6.4-2: Lower Churchill Project Interface Management Dashboard – Project Totals (by Request Group)



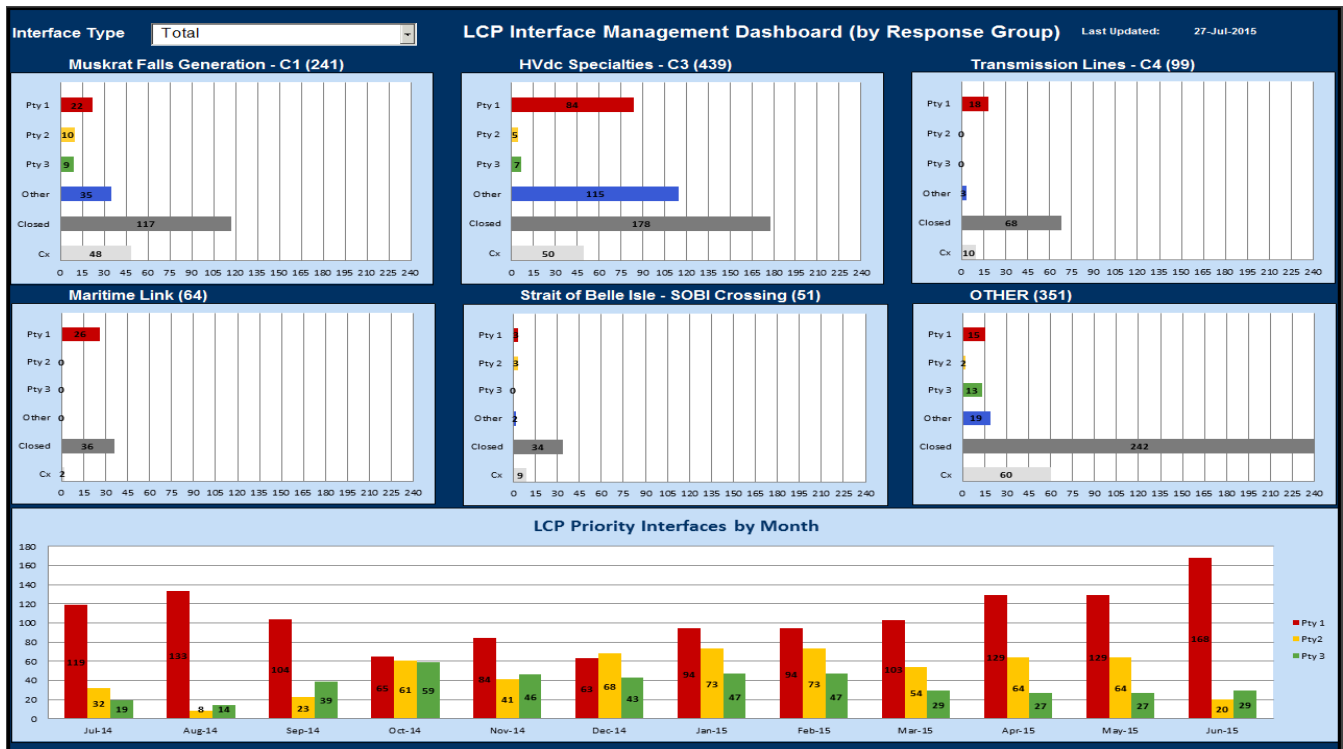




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Figure 6.4-3: Lower Churchill Project Interface Management Dashboard – Project Totals (by Response Group)



## Section 7. RISK MANAGEMENT

### 7.1 HIGHLIGHTS

- Completed evaluation of the risk questionnaire as part of the RFP documents for package CD0510-002 – Supply and Install Permanent Communication System Repeater Buildings.
- Continued coordination process with the following LCP Supplier/ Contractors to develop their Risk Management Plan document and Risk Register to be reported on a monthly basis:
  - CD0534 - Supply and Install of Synchronous Condensers; update of the risk register process ongoing.
- Continued internal meetings with LCP Sub-Projects Risk Coordinators to review definition and implementation of mitigations-actions (risk response step) for identified risks.
- Continued internal review of LCP Suppliers/Contractors risk registers submitted on a monthly basis as part of their monthly progress reports.
- Continued monitoring and reporting process of responses (mitigation strategies – actions) identified and implemented for risks registered in the LCP Risk Register (strategic).
- Attachment 14.5 includes the LCP Risk Register as at 31-July-2015.

### 7.2 CURRENT PRIORITIES

- Monitoring and control of LCP risk register (strategic) based on updated responses plans (mitigations strategies-actions) implemented according to the current context of the LCP Project.
- Continue coordination process with the following LCP Supplier's/Contractors to update their Risk Registers to be reported on a monthly basis:
  - CD0501 - Supply and Install Converter Stations and Transition Compounds.
  - CD0502 - Construction of AC Substations.
    - Joint risk review of both packages scheduled for late August 2015.
- Completing definition and implementation of mitigations – action (risk response step) for all identified LCP Sub-Projects' risks (tactical) in the LCP Risk Management tool to carry-on with the monitoring and control step, including reporting.
- Follow-up internal risk review meetings conducted for major packages related to MFG Sub-Project; risk review completed; updating response (mitigations-actions) plans with risk owners.

### 7.3 ISSUES & OPPORTUNITIES

- The concept of risk exposure activity and timeframe is being introduced to LCP Suppliers/Contractors for implementation in their risk registers. Impacts have been narrowed to the following outcomes: schedule, quality, safety and environment. Cost is considered for reimbursable agreements. Status: ongoing.



## Section 8. HUMAN RESOURCES/INFORMATION SYSTEMS

### 8.1 HIGHLIGHTS

- Human Resources:
  - 7 new hires mobilized during the period, with 10 orientations completed in the Torbay Road Office.
  - Finalized interviews for the Fall 2015 Co-op Student Recruitment, and sent student offer letters and hiring documentation.
  - Revised the LCP Standard for Business Travel, and currently making final adjustments before distribution for approval signatures.
- Information Systems:
  - LCP Powerline Phase 4 completed.
  - IS leadership site visit to the MF construction and North Spur sites.

### 8.2 CURRENT PRIORITIES

- Human Resources:
  - Finalize co-op student recruitment.
  - Finalize LCP Recruitment Process Document.
  - Finalize Supervisor's Checklist in conjunction with Training.
  - Issue the LCP Live Out Allowance (LOA) Procedure.
  - LCP Recognition Policy currently out for approval signatures.
  - Reissue the LCP Business Travel Standard.
  - Issue LCP Site Safety Absolute Review Committee Procedure.
  - Continue to assist Managers with Nalcor-LCP Staff mid-year performance reviews.
  - Finalize update and collection of all LCP employee job descriptions.
- Information Systems:
  - Content publisher training for "The Current" in progress.
  - Aconex Security review - implementation of complex passwords continues.
  - Decision on scope for 2 factor authentication for Aconex environment.
  - LCP Powerline - Valard GIS data exchange process continues.
  - Continued support for North Spur and transmission requirements.

### 8.3 ISSUES & OPPORTUNITIES

- Human Resources:
  - Ongoing timely recruitment for the Project of key roles to meet timelines—currently 43 competitions running in various stages for Components 1, 3 and 4.
- Information Systems:
  - Insufficient lead time on hardware requests for new hires continues to be an issue.
  - Aconex security improvements.
  - Continue focus on information and data security across the Project.

### 8.4 ACTIVITIES PLANNED FOR THE UPCOMING PERIOD

- Human Resources:

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- Orientation and onboarding of new hires.
- Finalize student recruitment for the Fall 2015 semester; and prepare for onboarding.
- Prepare for and onboard Fall 2015 students.
- Information Systems:
  - Finalize “The Current” rollout, communications plan, and proceed with launch, scheduled for early September.
  - Finalize Aconex security enhancements.
  - LCP server infrastructure upgrades continue.
  - Continuation of iPad deployment - 208 devices currently in use.
  - Project Commissioning System - configuration and implementation.
  - Evaluate Prism G2 upgrade.
  - IS Security internal audit.

## Section 9. LABOUR RELATIONS

### 9.1 HIGHLIGHTS

- IBEW/TCEA Liaison Committee Meeting held 29-July-2015, with positive dialogue and outcome.
- 1 MFEA and 1 TCEA Grievance settled.

### 9.2 CURRENT PRIORITIES

- Respectful Workplace Complaints Status for the month of July:
  - Two new complaints received.
- Innu Cultural Sensitivity Training to date - 9,987 workers.
- Muskrat Falls labour availability - as of 31-July-2015, few trades are being requested from outside the Province.
- Muskrat Falls labour productivity - as of 31-July-2015, Contractors indicate there are no significant issues impacting their labour productivity.
- Transmission labour availability - as of 31-July-2015, majority of workers are being obtained from within the Province, with the following trades being accessed from outside the Province: drillers and blasters, stringing operations, assembly crew persons, foundation crew persons and rock hammer operations, linesmen with steel tower experience, and workers with guy pressing experience.
- Transmission labour productivity - as of 31-July-2015, Contractors indicate there are no issues impacting their labour productivity.
- Labour Acquisition Plan:
  - No current initiatives planned.

### 9.3 ISSUES & OPPORTUNITIES

- Muskrat Falls Labour Relations:
  - 126 grievances to date: 25 considered abandoned; 58 settled; 17 referred to arbitration or arbitrated; and 26 active.
- Transmission Labour Relations:
  - 29 grievances to date: 25 considered abandoned/settled; 2 referred to arbitration or arbitrated; and 2 active.
- Reservoir Clearing Labour Relations:
  - There are no current activities taking place in 2015.
- Development of Site Standards:
  - Drug and Alcohol Standard in the process of review.

## Section 10. COST AND SCHEDULE

### 10.1 Overall Project Schedule

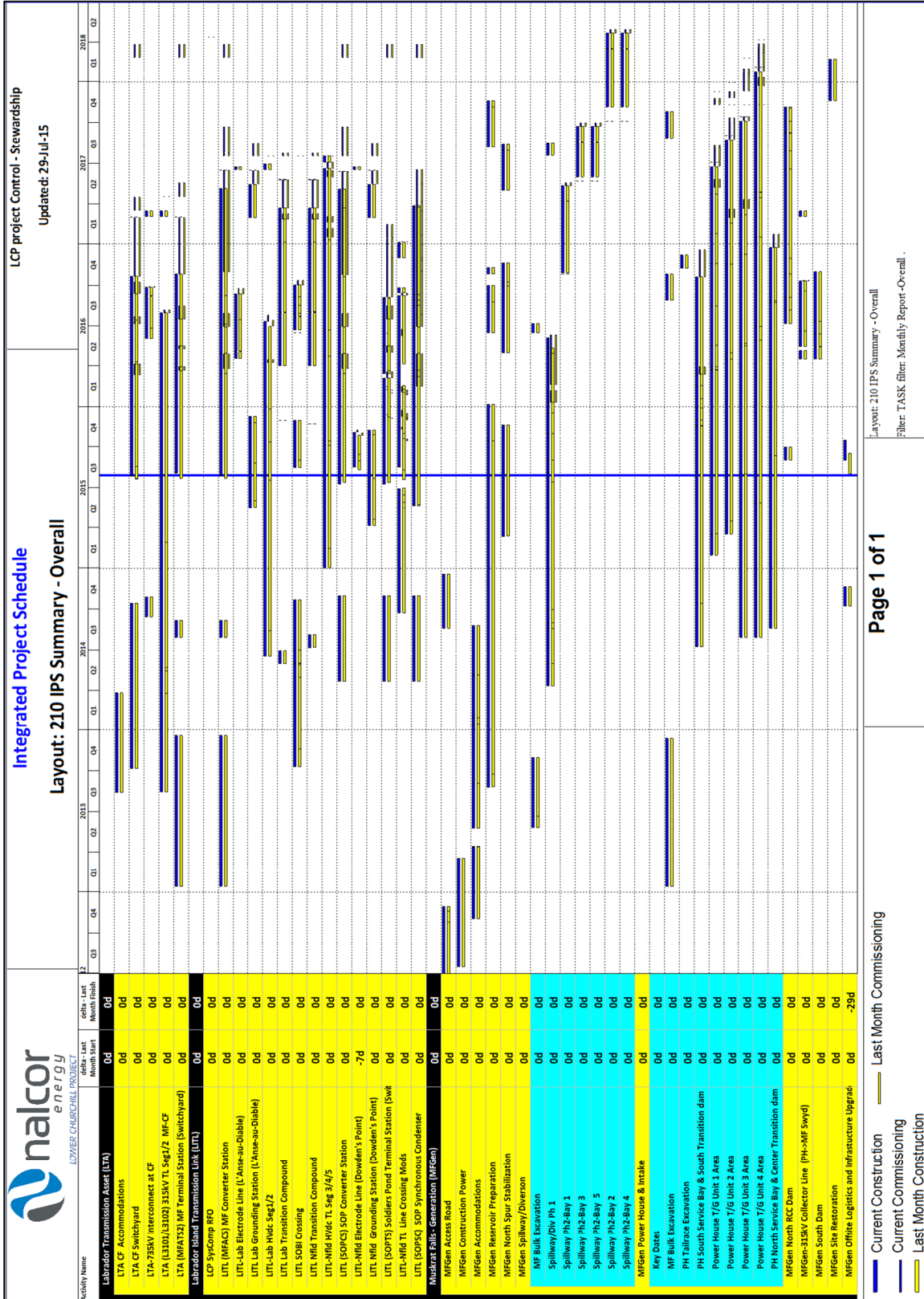
- Current forecast for the availability of the LTA for power transmission is 04-July-2017.
- Current forecast for the availability of the LITL ready for sustainable power transfer Labrador to Newfoundland is 11-Nov-2017.
- For MFG, first power date is under assessment. Performance of CH0007 Contractor is a concern and increased and sustained production rates will be reviewed for schedule impact through the summer and fall.
- The critical paths for the three projects (MF, LTA and LITL) remain unchanged.
- Overall project construction progress is 30.9%. The Overall Project Schedule is outlined in Figure 10.1-1. Overall progress and progress for the individual assets is provided in Figure 10.1-2, and the Overall Construction Progress Curve is provided in Figure 10.1-3.



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10.1-1: IPS Summary – Overall Project





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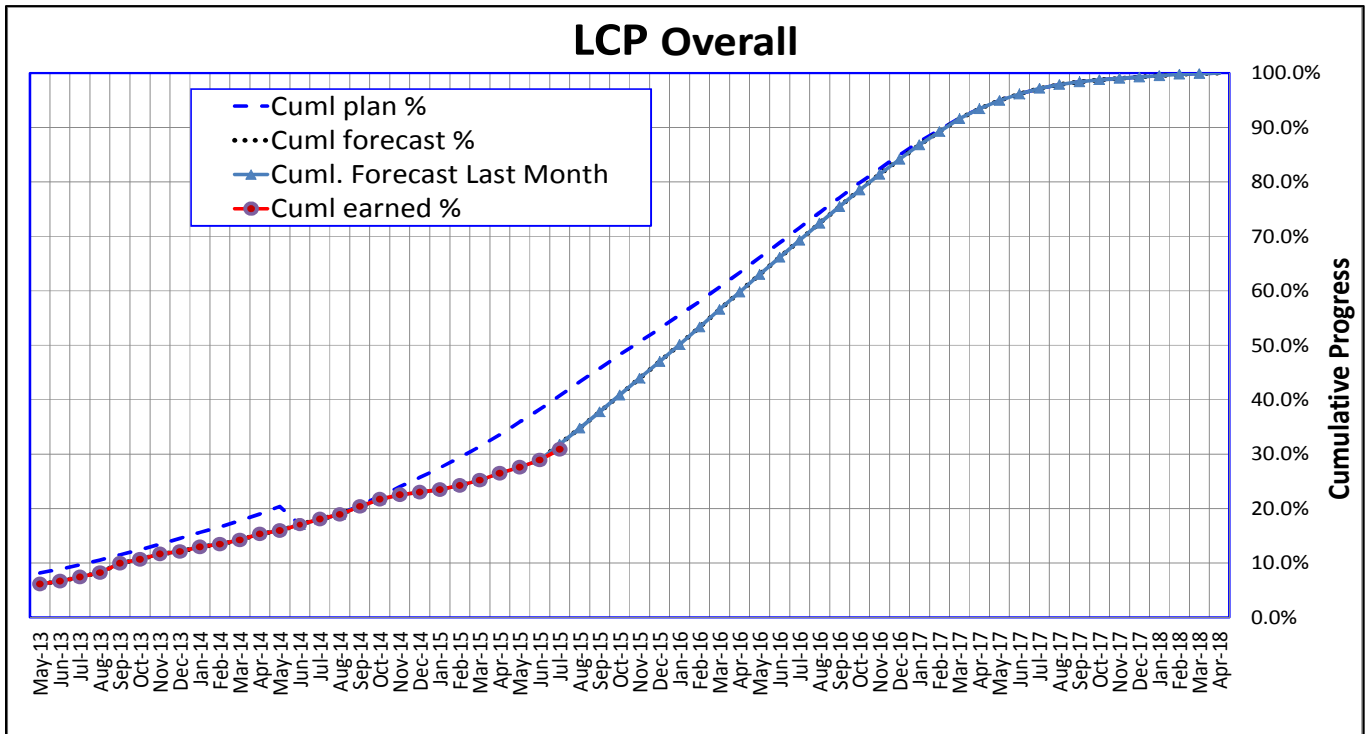
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10.1-2: Summary Construction Progress Table - Overall Project

LCP - Overall 2015 July											
	Weight Factor %	This Reporting Period							Next Month		
		Period %				Cumulative %			Forecast %		
		Plan *1	Forecast *2	Earned	Var-Forecast	Plan	Earned	Variance	Period %	Cumulative %	
		A	B	B1	C	C-B1	E	F	F-E	G	F+G
Labrador Transmission Asset (LTA)	11.1%	3.9%	3.9%	2.1%	-1.8%	53.2%	49.2%	-4.0%	3.9%	53.1%	
Labrador Island Transmission Link (LITL)	42.2%	2.6%	3.0%	1.7%	-1.3%	30.7%	24.3%	-6.4%	3.0%	27.3%	
Muskrat Falls Generation (MFGGen)	46.7%	2.1%	2.6%	2.2%	-0.4%	46.7%	32.5%	-14.2%	2.6%	35.1%	
LCP-Overall	100.0%	2.5%	2.9%	2.0%	-0.9%	40.7%	30.9%	-9.8%	2.9%	33.8%	
Last Reporting Period											
	Weight Factor %	Period %				Cumulative %					
		Plan		Earned		Plan	Earned				
		A	B	C		E	F				
Labrador Transmission Asset (LTA)	11.1%	3.7%		1.7%		49.2%	47.1%				
Labrador Island Transmission Link (LITL)	42.2%	2.2%		0.5%		28.1%	22.6%				
Muskrat Falls Generation (MFGGen)	46.7%	2.0%		1.9%		44.5%	30.2%				
LCP-Overall	100.0%	2.3%		1.3%		38.2%	28.9%				

Notes: \*1 - Plan represents the June 2014 baseline \*2 - Forecasted Value from last month report

10.1-3: Construction Progress Curve - Overall Project







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**10.2 Capital Cost**

**Control Basis**

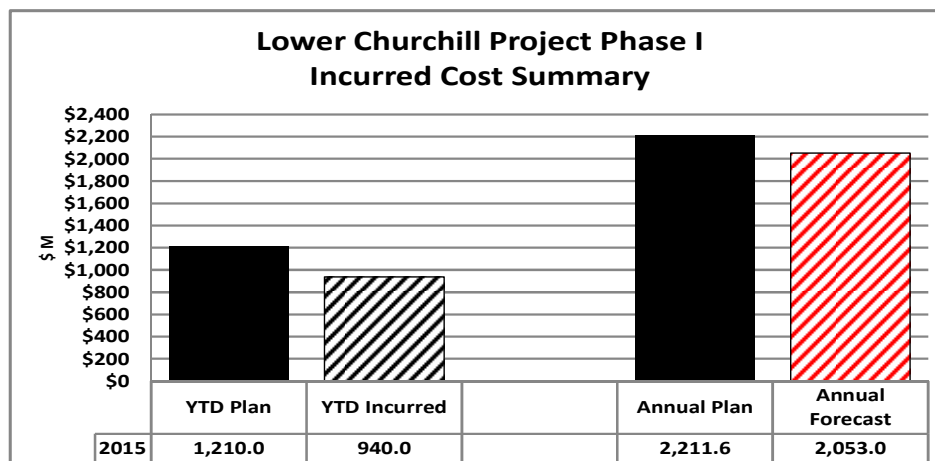
- This section reports costs only related to Phase I of the Lower Churchill Project encompassing Muskrat Falls Generation, the Labrador Island Transmission Link, and the Labrador Transmission Asset. Costs associated with the Maritime Link and Gull Island Generation are not included in this report.
- Reporting is now being undertaken against the capital budgets provided in revised AFE's for Muskrat Falls Generation, the Labrador Transmission Asset, and the Labrador Island Transmission Link, approved by their respective Boards of Directors in June 2014 (CCB). CAPEX costs for Phase I is \$6.990 billion comprised of Muskrat Falls Generation: \$3.372 billion; Labrador Island Transmission Link: \$2.786 billion and the Labrador Transmission Asset: \$0.832 billion.
- Costs related to interest (historical), debt financing, and currency impact are not included in this report.

**Period Incurred versus Plan Incurred Cost**

- Incurred cost for the July 2015 reporting period was \$197.7 million versus the re-baseline CCB for the period of \$200.3 million and a forecast provided at the end of June 2015 of \$214.3 million broken down by component as follows:

Component	Baseline	Forecast	Incurred Cost	Variance
Muskrat Falls Generation	\$80,516,419	\$88,028,888	\$76,875,691	-\$11,153,197
Labrador Island Transmission Link	\$99,829,609	\$88,988,611	\$89,692,689	\$704,078
Labrador Transmission Asset	\$19,982,036	\$37,251,365	\$31,167,910	-\$6,083,455
	<b>\$200,328,064</b>	<b>\$214,268,865</b>	<b>\$197,736,291</b>	<b>-\$16,532,574</b>

- Project incurred cost to date is \$3,083 million, inclusive of CAPEX costs only. The overall variance between July's incurred cost and the forecasted value reported in June is (\$16.5) million, with the largest variance of (\$11) million being attributable to Muskrat Falls Generation, with lower than expected progress on the Turbines and Generators Contract under CH0030, as well as lower than estimated Owner's Cost being the key drivers. Cost details by asset and reporting categories are contained in Sections 11.4, 12.4 and 13.4.
- The 2015 planned, incurred and forecast costs based on the June 2014 re-baseline are summarized below. Project year-to-date incurred costs are \$940 million.



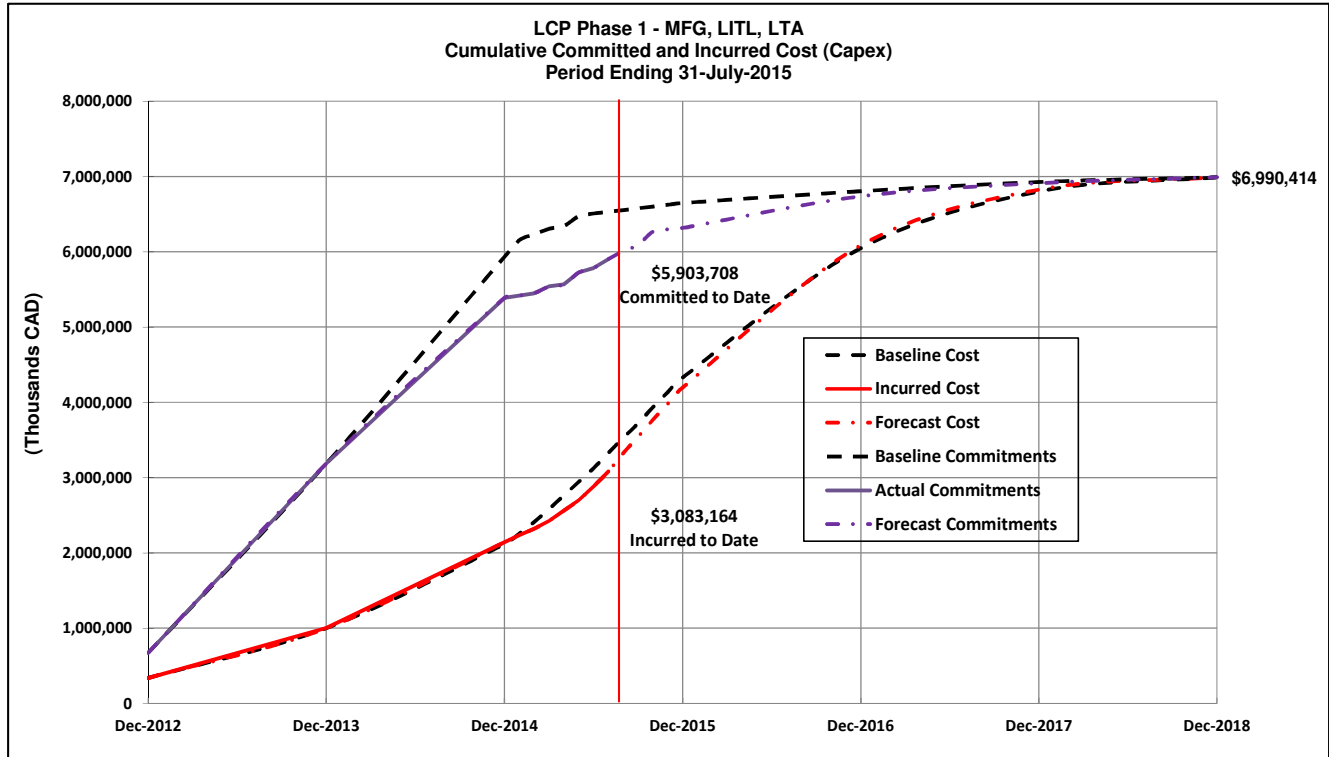
Note: The above values exclude Interest Charges, Project Debt Financing and Other Costs.



**Committed Costs**

- Total committed cost to date is \$5,904 million, inclusive of CAPEX costs only, with an overview of the cumulative commitment and incurred cost outlined below in Figure 10.2-1. Increase in commitment during the current period is aligned with the award of additional clearing sections of the HVdc Transmission Line under CT0327, the award of a major component under CD0504 for HVdc Specialties Civil Works and Building Services, as well as indirect costs incurred.

**10.2-1: Cumulative Committed and Incurred Cost Overview**



Note: Baseline represents the 2014 revised Authorization for Expenditure (AFE) approved in June 2014.

**Current Forecast**

- As of the end of the June reporting period the total FFC for CAPEX costs is \$6.99 billion.

**Contingency**

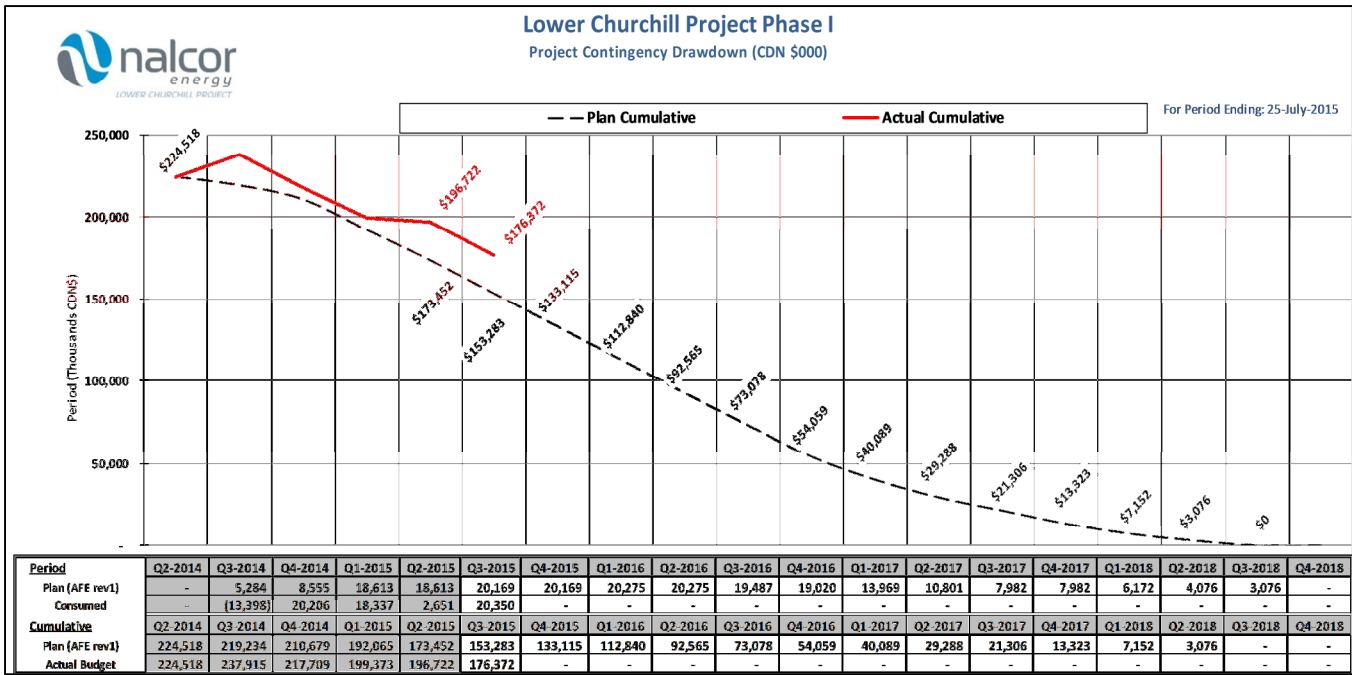
- Available Budget Contingency totals \$176.4 million (Muskrat Falls: \$88.4 million; LITL: \$59.3 million; LTA: \$28.7 million). The overall project contingency drawdown curve is provided in Figure 10.2-2. Key contributors to the drawdown this period are mainly attributable to \$2.1M for costs associated with mold remediation at the Muskrat Falls Camp; \$17M for clearing cost increases, access road ballasting, and additional guy anchor bars, couplers and centralizers for the HVdc Transmission Line under LIL; and \$1.1M for alternative foundation types required for the HVac Transmission Line under LTA.



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Figure 10.2-2: Project Contingency Drawdown Curve



Cost Reports

- The LCP cost report is outlined below in Figure 10.2-3. Figure 10.2-4 outlines the 2014 control budget, incurred and forecast costs; and Figure 10.2-5 outlines the yearly budget, incurred and forecast cost for the overall project.

Figure 10.2-3: Phase 1 Monthly Incurred Cost Report

	A Original Control Budget (OCB)	B Approved Project Changes	C = A + B Current Control Budget (CCB)	Incurred Costs		E Final Forecast Cost (FFC)	G = E - C Variance from CCB
				D Current Period Project-to-Date	F Final Forecast Cost (FFC)		
100 NE-LCP Owners Team, Admin and EPCM Services	\$711,963	-\$2,989	\$708,974	\$7,562	\$499,914	\$708,974	\$0
200 Feasibility Engineering	\$51,750	-\$12,329	\$39,421	\$0	\$39,421	\$39,421	\$0
300 Environmental & Regulatory Compliance	\$44,404	-\$338	\$44,066	\$627	\$26,887	\$44,066	\$0
400 Aboriginal Affairs	\$15,746	\$1	\$15,747	\$2	\$7,136	\$15,747	\$0
500 Procurement & Construction	\$4,967,670	\$993,294	\$5,960,964	\$189,232	\$2,479,111	\$5,960,892	-\$72
900 Commercial & Legal	\$43,103	\$1,768	\$44,871	\$313	\$30,695	\$44,871	\$0
990 Contingency	\$367,852	-\$191,481	\$176,372	\$0	\$0	\$176,444	\$72
<b>CAPEX Total:</b>	<b>\$6,202,489</b>	<b>\$787,925</b>	<b>\$6,990,414</b>	<b>\$197,737</b>	<b>\$3,083,164</b>	<b>\$6,990,414</b>	<b>\$0</b>



MONTHLY PROGRESS REPORT

PERIOD ENDING: 31-JULY-2015

Figure 10.2-4: Phase 1 Current Year Budget, Incurred and Forecast Cost

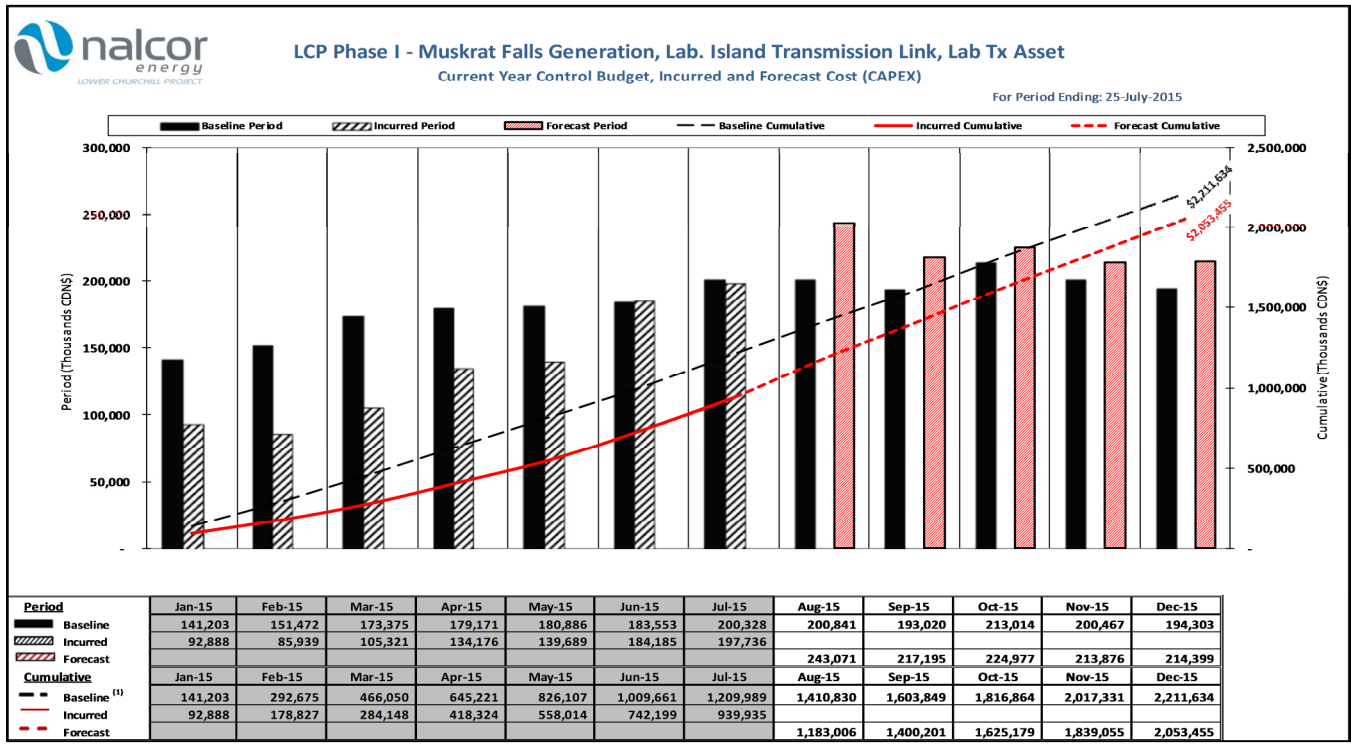
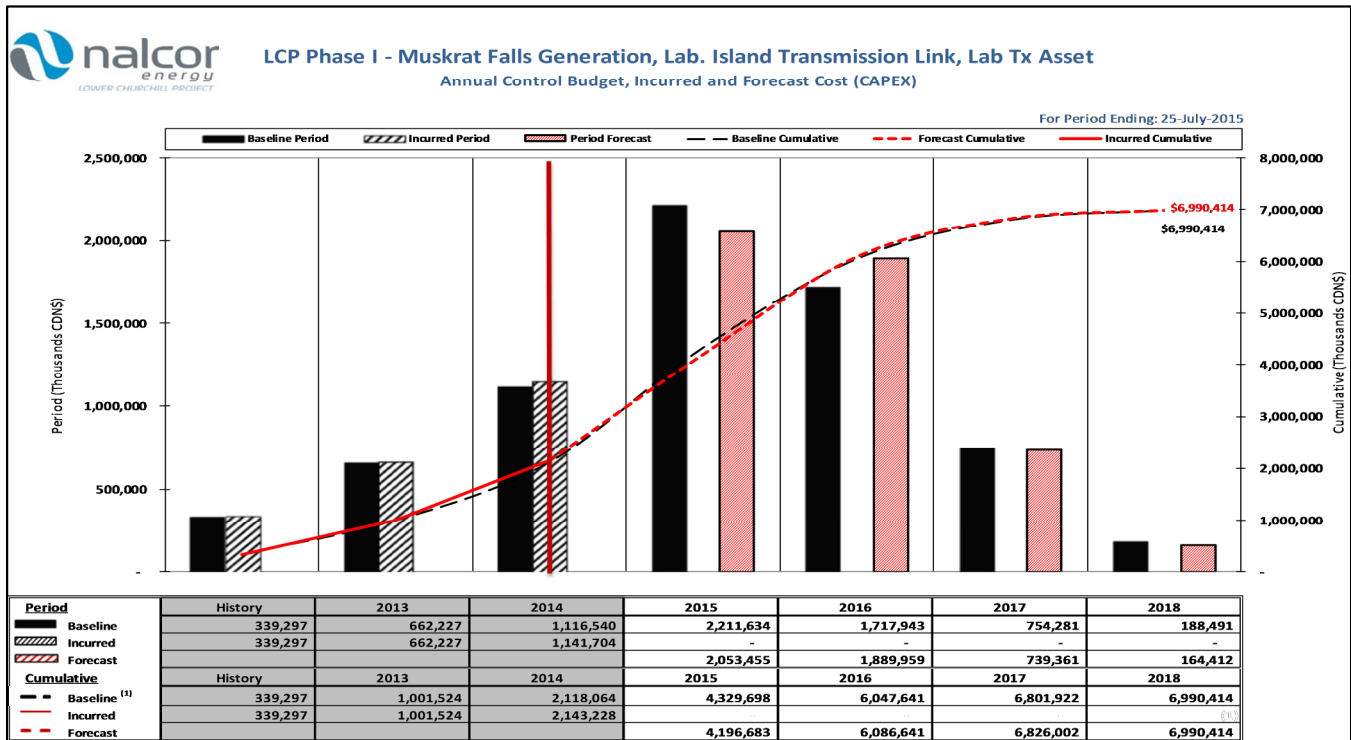


Figure 10.2-5: Phase 1 Annual Budget, Incurred and Forecast Cost



## Section 11. MUSKRAT FALLS GENERATION (MFG)

### 11.1 ENGINEERING

- Engineering coordination continues under Contract CH0007 for the Intake, Powerhouse, Spillway & Transition Dams, with various Engineering Change Notices (ECN) including updating of technical specification for pipe and pipe fittings, changes to the gate hoist building roof opening, spillway discharge channel lining, updating of spillway pier drawings for above EL. 38.00 for gate hoist tower anchors, updating of spillway pier embedded conduit drawings and structural drawing for intake cable trench cover, along with follow-up activities (site queries, concession requests and other construction management forms), the ongoing review process of submittals received from Astaldi, the ICS clash check study and resolutions between Astaldi and LCP Engineering.
- In the area of Mechanical and Electrical, engineering work for the Turbines and Generators under Contract CH0030 is at 95% complete versus 100% planned, with design of the control system continuing to be the main focus. Engineering work for Mechanical and Electrical Auxiliaries under CH0031 is 100% complete, and now supporting bid reviews/clarifications, and there is currently an exercise underway to review and identify opportunities for possibly “re-packaging” the SOW with a focus on capturing technical and commercial implications. Under Contract CH0032 for Powerhouse Hydro-Mechanical Equipment, engineering is at 89% complete; spillway tower anchor design has been completed, and spillway engineering in support of mobilization is the current focus. With respect to the intake and draft tube, continued production of detailed drawings for intake gate body, wheels is ongoing, and the bulkhead gate body drawings have been issued for construction; in addition, several O&M manuals have been submitted for review.
- Engineering review of fabrication documents is ongoing and design substantially complete for the Powerhouse Cranes under CH0033; additional clarification on LCP comments requested by Contractor prior to resubmission for the Powerhouse Elevator under CH0034; and continuation of design and issue of documentation associated with Concrete Lab Generator, North Spur Pumphouse Diesel Generator Installation, and CH0032 Construction Power Supply at Spillway and Laydown Area under CH0068 for Construction Power-Remaining Work.
- In the North Spur under CH0008, work on the Engineering Design Report is ongoing and scheduled to be completed in August 2015. Both the third party consultant dynamic study phase 2 and the hydrogeological study have been finalized, draft reports received, comments underway; and external review of the hydrogeological study has been completed; meeting with Hatch has taken place, and awaiting final report. Award of the on-demand service contract for geotechnical investigation and instrumentation is scheduled to be awarded mid-August 2015; implementation of Observational Method Action Plan in progress.
- Under the area of River Management, Habitat and Site Restoration, river management internal bi-weekly progress meetings are ongoing; Public Safety around Dams study ongoing for construction phase; Emergency Preparedness Plan draft report prepared for review (external); Stage 2 River Management (Diversion Manual) completed updates from internal review. Prepared scope of work for field investigations to assess geotechnical conditions for drag embedment anchors proposed for the debris/safety/ice boom. Reviewed final draft design calculations and drawings from contractor, and draft specification under review, for Design of Debris/Ice/Safety Boom (CH0049-001). Preliminary hydro-technical analysis completed on Edwards Brook delta site, and site visit of Gull Island shoals completed, and assessment of spawning shoal habitats work ongoing (internal) under CH0052 for Habitat Compensation.



**MONTHLY PROGRESS REPORT**

**PERIOD ENDING: 31-JULY-2015**

**11.2 PROCUREMENT**

- Bid Evaluations are ongoing for the following Packages:
  - CH0009-001 Construction of North and South Dams.
  - CH0031-001 Supply and Install of Mechanical & Electrical Auxiliaries (MF).
- Bidder’s List Approved for the following Packages:
  - Nothing to report this period.
- RFP’s issued for the following Packages:
  - Nothing to report this period.
- RFI – RFP statistics and charts:

Description	Total Packages to Procure	Schedule to Date	Actual to Date
Issue EOI/Pre-qual.	60	59	58
Issue Request for Proposal	60	59	57
Issue PO/Contract	60	56	55

- Contracts and PO’s awarded for the following Packages:
  - Nothing to report this period.
- Activities planned for the upcoming period:
  - Continue to manage procurement activities to meet project schedule.
  - Continue to manage procurement activities to work toward the award of Contracts CH0009-001 - Construction of North and South Dams, and CH0031 - Supply and Install of Mechanical & Electrical Auxiliaries (MF).

**11.3 CONSTRUCTION**

**11.3.1. INFRASTRUCTURE AND SERVICES**

- All contracts have progressed to warranty and contract close out, and all service contracts are in place and are being managed as per contractual arrangements.

**11.3.2. DAMS**

**CONSTRUCTION HIGHLIGHTS:**

- CH0009 - Construction of North and South Dams: Continuing with bid review.

**COMMISSIONING:**

- Nothing to report this period.

**ISSUES & OPPORTUNITIES:**

- CH0009 - Construction of North and South Dams: Handover of mix design program; decision on design of Spillway temporary bridge needed.

**ACTIVITIES PLANNED FOR THE UPCOMING PERIOD:**

- CH0009 - Construction of North and South Dams: RFP technical and commercial reviews ongoing; internal design review.

### 11.3.3. POWERHOUSE/INTAKE AND SPILLWAY

#### **CONSTRUCTION HIGHLIGHTS:**

- CH0007 - Intake, Powerhouse, Spillway & Transition Dams:
  - Completed the following:
    - 27 Spillway pier concrete placements.
    - 10 Center Transition Dam placements.
    - 8 Separation Wall Placements.
    - 5 North Transition Dam placements.
    - 2 South Transition Dam placements.
    - 11 Intake placements.
    - 4 South Service Bay placements.
    - 9 Draft Tube placements.
  - Ongoing maintenance of curing, hoarding and heating of the place concrete.
  - Commenced field testing for curtain grouting operations.
  - Commenced installation of spillway downstream temporary and permanent bridges.
  - Commenced installation of two tower cranes outside of the ICS footprint to support construction of the Powerhouse and Intake Units 3/4.

#### **COMMISSIONING:**

- Nothing to report this period.

#### **ISSUES & OPPORTUNITIES:**

- Performance of the CH0007 Contractor continues to trend behind plan. The LCP team have been collaborating with the Contractor in the implementation of organizational and production changes at the construction management level, and plans to improve production are being realized since re-start of 2015 operations. A review of the C1 (Muskrat Falls Generation) work plan is underway, and implementation of an updated C1 schedule will remain on hold pending acceptance of agreed actions and mitigations plan. Increased and sustained production rates through summer and fall will be assessed for schedule impacts.

#### **ACTIVITIES PLANNED FOR THE UPCOMING PERIOD:**

- Continue implementation of changes to the Contractor's construction management organization.
- Engineering Change Notices for Update of Intake Gate Hoist Roof Opening.
- Engineering Change Notice for Modification of Technical Specification Section 23 05 06 – Pipe and Pipe Fittings, Article 3.6.1.7. This changes update of the Standard Specification for design pressure, pressure test and add CRN registration (CAN to be issued).
- Engineering and Construction Team continue with follow-up activities.
- Complete all concrete placements in Spillway line A piers, and commence installation of Draft Tube formwork in Units 1/2.
- Commence Curtain Grouting operations in the south end of the Spillway.
- Continue installation of Spillway Downstream Temporary and Permanent Bridges.
- Commission and complete the erection of the two Tower Cranes located outside the ICS footprint.
- Complete connection of Labrador Ready Mix batch plant to utility power.

#### 11.3.4. MECHANICAL AND ELECTRICAL

##### CONSTRUCTION HIGHLIGHTS:

- CH0030 - Turbines and Generators:
  - Manufacturing progress is 47% compared with a plan of 66%.
  - Focus is on packaging and preservation for the components scheduled for shipment in August.
  - The 2<sup>nd</sup> shipment from China arrived in Goose Bay, with delivery to the site laydown area in progress.
  - Manufacturing of the governor accumulators commenced in Quebec.
- CH0032 - Powerhouse Hydro-Mechanical Equipment:
  - Manufacturing progress is 49% compared with a planned of 67%.
  - Spillway guides painting and packaging nearing completion.
  - TCM fabrication ongoing, with FAT scheduled for September 2015.
  - Draft tube crane fabrication ongoing at CEC.
  - Intake/draft tube embedded parts fabrication ongoing at Canmec.
  - Primary anchor installation ongoing in spillway upstream block-outs.
  - IBA and markup meetings completed.
  - All anchors stored offsite by Andritz have now been delivered to site and are in Astaldi's care and control - Andritz had been providing offsite storage and transportation for the anchors given the limited storage capacity of Astaldi.
- CH0033 - Powerhouse Cranes:
  - Fabrication is continuing to progress and is on schedule; FAT is planned for September 2015.
- CH0068 - Construction Power Remaining Works:
  - Construction for Administration Building Power Supply is complete. Outstanding work in the Company laydown area consists of installation of Construction power to future Contractor (Andritz Hydro) required for Q2 2015 and mid-span disconnects.
  - Construction work for the Concrete Lab new equipment power supply, cellular shelter, and the switchyard/converter station is complete.
  - Construction for the Cellular Shelter is complete.
  - Construction for the switchyard/converter station is complete.
  - North Spur Cut-off Wall 25kV Line Relocation: NL Hydro to engage a sub-contractor to clear trees and brush for installation of new pole line section to divert power from the MF 25kV line to the Hydro Pumphouse line.
  - Batch Plant Switchgear modification complete.

##### COMMISSIONING:

- Nothing to report this period.

##### ISSUES & OPPORTUNITIES:

- Out of tolerance primary anchors in base slab: CH0032 package team to assist CH0007 with NCR disposition to achieve lowest impact, technically acceptable solution. Andritz have provided a lump sum proposal to address the issues with out of tolerance anchors. Change request in approval process.
- Initial quality/management issues, including material testing and preparation of material test reports, and Inspection Test Protocols, at SinoHydro have been addressed. Identification of specific technical solutions was completed, and management meetings with LCP, Andritz Canada and Linz completed. The majority of the actions have been completed, with documentation backlog to be addressed.





- Andritz Mobilization Readiness under CH0032: Mobilization plan has been requested; accelerated spillway schedule due 12-August-2015.

**ACTIVITIES PLANNED FOR THE UPCOMING PERIOD:**

- CH0030 - Turbines and Generators: Shipment of turbine and generator components for Units 2 and 3; assembly of Unit 3 runner will commence in the next period.
- CH0031 - Mechanical and Electrical Auxiliaries: Bid review/clarification activities; preparations for value engineering execution.
- CH0032 - Hydro-mechanical equipment: Commence site mobilization for spillway; manufacturing is ongoing.
- CH0033 - Powerhouse cranes: Crane assemblies to continue, with FAT to follow in September 2015.
- CH0034 - Powerhouse elevator: Review updated deliverable package.
- PH0014 - Generator Step-Up Transformer: Continue with review of submitted documents.
- PH0015 - Isolated Phase Bus: Provide technical input to supplier.
- PH0016 - Generator Circuit Breaker: Continue with review of documents.
- CH0068 - Construction Power Remaining Work: Complete North Spur 25kV Distribution Line Relocation work; commence work on WTO for Sports Complex Diesel Generator Installation; issue WTO for the Concrete Lab Diesel Generation Installation.

**11.3.5. NORTH SPUR STABILIZATION AND RESERVOIR CLEARING**

**CONSTRUCTION HIGHLIGHTS:**

- CH0024 - Reservoir Clearing North and South Banks:
  - Approximately 1146 ha cleared to date, representing approximately 64.7% complete. Contractor has re-sequenced priorities to clearing of the HVdc Transmission Line, and will return to the work by Q4-2015.
- CH0008 - Construction of North Spur Stabilization:
  - The Cement Bentonite Batch Plant concrete pad was placed and the Mechanical and Structural aspects of the Batch Plant equipment assembly well advanced by the end of the period.
  - The Upstream Cement Bentonite Cut-Off Wall Temporary Work Platform was completed.
  - Work progressed on Subcontractor (Inquip) procedure submittals and on meeting the Power Supply/Electrical permitting requirements.
  - There was a two (2) week delay in starting the Upstream Cement Bentonite Cut-Off Wall (18-July-2015 to 03-August-2015). Mitigation plans include starting a second shift after the dayshift production routine has been established.
  - Alternate production work has been initiated to fully utilize the GNLC equipment fleet: backfilling the North End of the US Embankment; starting the Trench for the NW CB Cut-Off Wall; and begin work on excavation and building the Access Road (RT-07) to the Downstream Slopes.
  - Completed Overburden Excavation (mainly Grubbing & Stripping) and began backfilling work in Cross-Section 7 & 8 (North of the US/NW Cut-Off Wall Intersection) on the Upstream Embankment which includes placing Sand (2G) from the NW CB cut-Off Wall excavation and from the excavation for the Temp Road to the Downstream Slopes (RT-07).
  - Commenced excavation of overburden and 2G material for the installation of the temporary road RT-07 (Access from the South End of the DS Slopes).
  - Commenced excavation of overburden and 2G material in the Trench for the North West CB Cut-Off Wall.
  - Major progress was made on general overburden excavation (mainly grubbing & stripping) on the US Slopes at the South End of the Spur.

- Commenced stripping of overburden from bedrock at the South end of the Spur for future tie-in with the Upstream CB Cut-Off Wall and the Upstream Till layer.
- The Onsite Laboratory became operational early in the period.

**COMMISSIONING:**

- Nothing to report this period.

**ISSUES & OPPORTUNITIES:**

- Nothing to report this period.

**ACTIVITIES PLANNED FOR THE UPCOMING PERIOD:**

- CH0024 - Reservoir Clearing: Winter plan finalization.

**11.3.6. RIVER MANAGEMENT/HABITAT/SITE RESTORATION****CONSTRUCTION HIGHLIGHTS:**

- Nothing to report this period.

**COMMISSIONING:**

- Nothing to report this period.

**ISSUES & OPPORTUNITIES:**

- Decision on execution strategy for operation of spillway during construction needed.


**ACTIVITIES PLANNED FOR THE UPCOMING PERIOD:**

- Continuation of Vista Inflow Model simulations for precipitation events.
- Finalization of Public safety around Dams Draft report (Construction phase).
- Stage 2 River Management Manual (Diversion Manual) draft document - incorporating comments from internal review.
- Spillway operations during diversion/log boom debris removal - obtain decision on execution strategy.
- Preparation of Muskrat Falls Public Safety Plan (Construction) – ongoing (internal).
- Finalize scope of work for River Management Cold Eyes Review and make necessary arrangements to allow this assessment to be completed in September.
- CH0052 - Habitat Compensation: Continue assessment of Spawning Shoals and Edwards Brook delta for design drawings; secure CAD support to prepare engineering drawings for fish habitat compensation package.
- CH0049-001 - Design of Debris/Ice/Safety Boom: Finalize design calculations and drawings.
- CH0049-002 - Supply and Install Debris/Ice/Safety Boom: Finalize documents for RFP, including specifications and drawings package.
- Obtain services of contractor to complete field investigations to assess holding power of anchors for debris/safety/ice boom.
- Meeting with Ducks Unlimited to identify potential sites for wetland habitat compensation to aid with the preparation of Wetland Compensation Plan.

**11.4 COST**

- Incurred Costs for the Current Period and Project-to-Date are lower than planned mainly due to lower than anticipated progress under Contracts CH0030 and CH0032 for Manufacturing of the Turbines and Generators, and Supply and Installation of Hydro-Mechanical Equipment respectively, as well as CH0007 for Construction of the Intake, Powerhouse, Spillway and Transition Dams overall; however, higher than anticipated progress in the period was achieved in relation to CH0007 due to recovery of progress. Incurred Costs for the Current Period under “Owners Team, Admin and EPCM Services” are higher than planned mainly as a result of the higher than planned costs for contractor management. The incurring of the Contingency is reflected within the incurred and future incurred costs in the categories outlined in Figure 11.4-1 as and where the work is performed. Cost to complete continues to remain significant as construction activities for work in progress remain in the early stages, along with two major construction contracts for MFG (CH0009 and CH0031) pending award.
- Overall Final Forecast Cost (FFC) for MFG continues to be aligned with the AFE approved in June 2014 however adjustments to FFC at the specific category level were made as the project continued to progress during the period. The FFC for “Procurement & Construction” increased during the period primarily as a result of costs associated with mold remediation at the Muskrat Falls Camp. Offsetting adjustments were made to the FFC for “Contingency” to align with the changes made within the category of “Procurement & Construction”. A summary of the MFG cost profile, along with the asset overview of Project Contingency Drawdown are provided in Figures 11.4-1, 11.4-2, 11.4-3 and 11.4-4.

**Figure 11.4-1: Muskrat Falls Generation Monthly Incurred Cost Report**

		 <b>Monthly Incurred Cost Report - Muskrat Falls Generation</b> NALCOR ENERGY - Lower Churchill Project COST IN CAD (\$ Thousands) For Period Ending: 25-Jul-2015						
		A Original Control Budget (OCB)	B Approved Project Changes	C = A + B Current Control Budget (CCB)	Incurred Costs		E Final Forecast Cost (FFC)	G = E - C Variance from CCB
					D Current Period	D Project-to-Date		
100	NE-LCP Owners Team, Admin and EPCM Services	\$368,215	\$19,508	\$387,723	\$3,288	\$279,669	\$387,723	\$0
200	Feasibility Engineering	\$17,985	-\$36	\$17,949	\$0	\$17,949	\$17,949	\$0
300	Environmental & Regulatory Compliance	\$17,927	\$6,815	\$24,742	\$24	\$16,448	\$24,742	\$0
400	Aboriginal Affairs	\$13,314	\$0	\$13,314	\$1	\$6,683	\$13,314	\$0
500	Procurement & Construction	\$2,236,847	\$577,762	\$2,814,609	\$73,415	\$1,314,190	\$2,806,949	-\$7,661
900	Commercial & Legal	\$20,021	\$5,219	\$25,239	\$148	\$15,239	\$25,239	\$0
990	Contingency	\$226,849	-\$138,437	\$88,412	\$0	\$0	\$96,073	\$7,661
<b>CAPEX Total:</b>		<b>\$2,901,158</b>	<b>\$470,831</b>	<b>\$3,371,989</b>	<b>\$76,876</b>	<b>\$1,650,178</b>	<b>\$3,371,989</b>	<b>\$0</b>



MONTHLY PROGRESS REPORT

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Figure 11.4-2: Muskrat Falls Generation Current Year Budget, Incurred and Forecast Cost

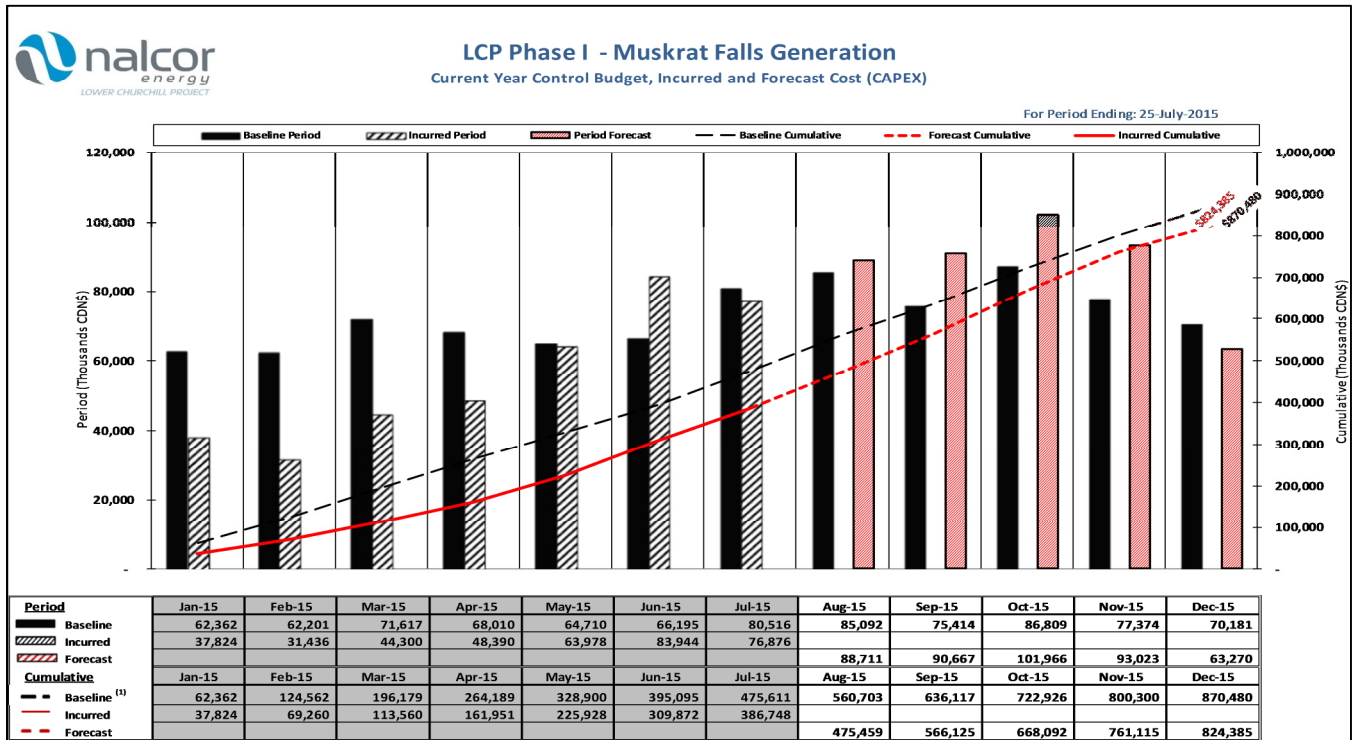
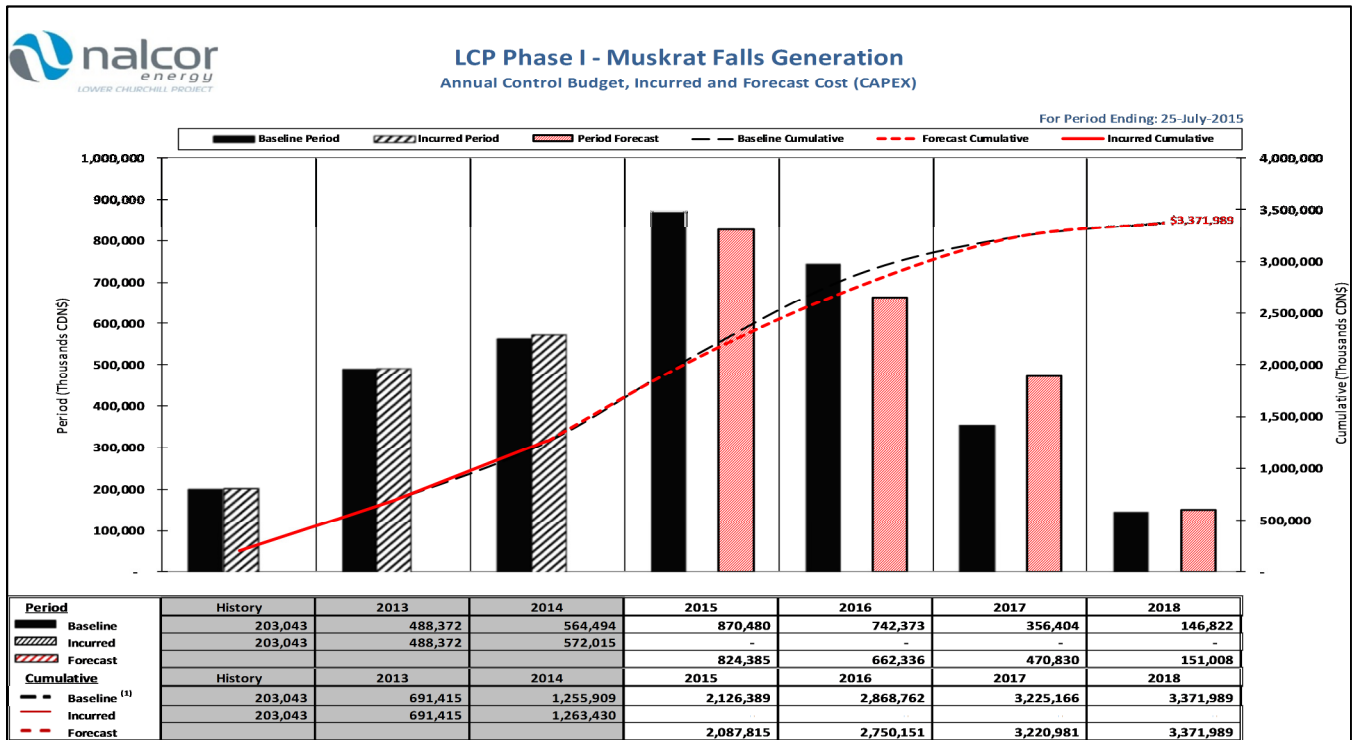


Figure 11.4-3: Muskrat Falls Generation Annual Budget, Incurred and Forecast Cost

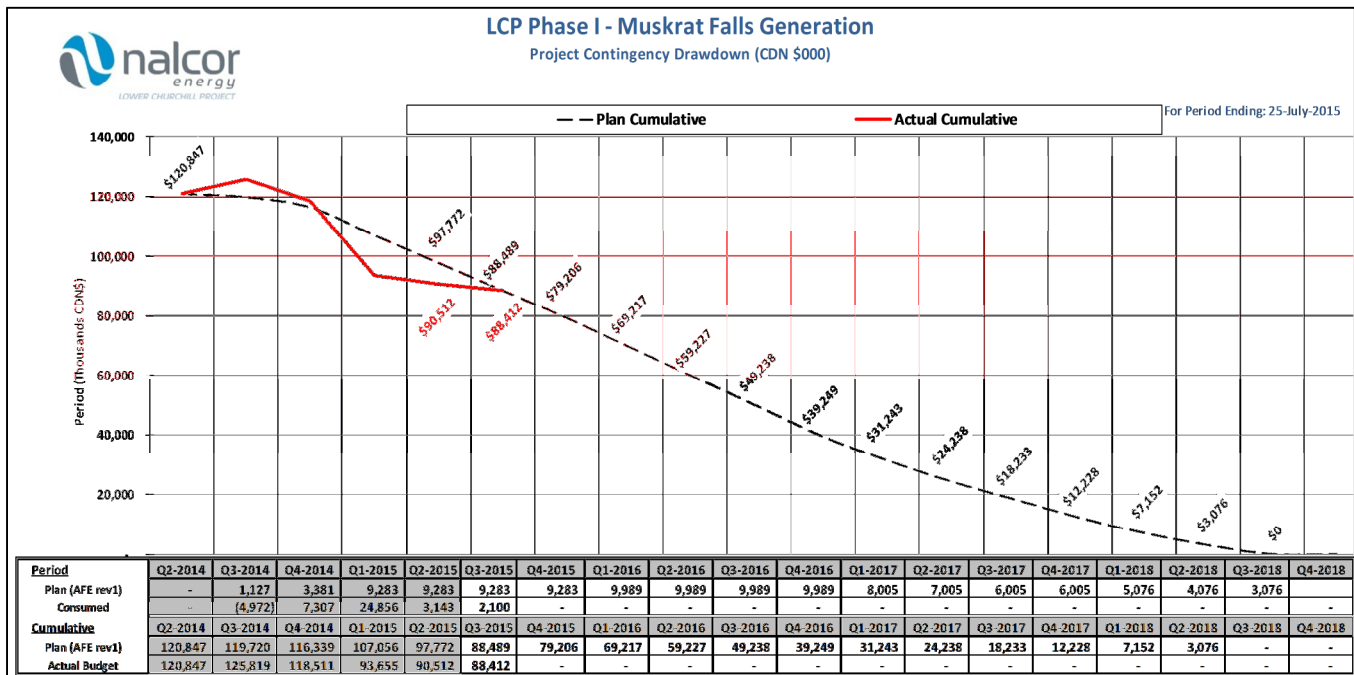




MONTHLY PROGRESS REPORT

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Figure 11.4-4: Muskrat Falls Generation Project Contingency Drawdown Curve



11.5 SCHEDULE

- Period Planned Progress was 2.1% vs. Period Earned Progress of 2.2% - Variance: 0.1%; while Period Forecast Progress was 2.6% as stated in last month's report.
- Cumulative Planned Progress was 46.7% vs. Cumulative Earned Progress of 32.5% - Variance: -14.3%; Cumulative Forecast Progress was 32.8%, as stated in last month's report.
- Critical Path(s):
  - Diversion - River Closure (priority 1a) – On schedule for start of 06-July-2016; completion of North dam upstream cofferdam (5) Groins 1&2 to El. 17m – no change from last month.
  - Diversion - Winter Headpond El. 25m (priority 1b) – On schedule for start of 25-Oct-2016; completion of North dam upstream cofferdam (5) to El.26 - no change from last month.
  - Diversion - Impoundment Full Supply Level El. 39m (priority 1c) – Scheduled start of 06-Nov-2017 on hold; completion of North Dam - no change from last month.
- Reservoir Clearing: Labour transferred to ROW clearing in LITL, but forecast completion continues to be January 2016.
- North Spur:
  - 2016 scope for winter headpond is a subset of the overall 2016 scope; there exists some small float to target completion date.
  - 2017 scope for impoundment is a subset of the overall 2017 scope; there exists some small float to target completion date.
- Powerhouse/Spillway/Transition Dams:
  - Production increased in spillway this month as forecasted last period. A review of the C1 (Muskrat Falls Generation) work plan is underway, and implementation of an updated C1 schedule will remain on hold pending acceptance of agreed actions and mitigations plan, and review of contractor's production through Q3 and Q4.



MONTHLY PROGRESS REPORT

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- Spillway hydro-mechanical installation activities scheduled to commence 01-Sept-2015 under review pending contractor execution plan approval and to be sequenced with CH0007 contractor plan.
- The spillway upstream temporary bridge and access ramp is in relation to package CH0009 - as the contract award date has been delayed compared to the planned date, the schedule is reflecting delays for this activity.
- A summary of the Schedule and Construction Progress data for Muskrat Falls Generation as reported in the Integrated Project Schedule (IPS) is outlined in Figures 11.5-1, 11.5-2 and 11.5-3.

Figure 11.5-1: IPS Summary - Muskrat Falls Generation

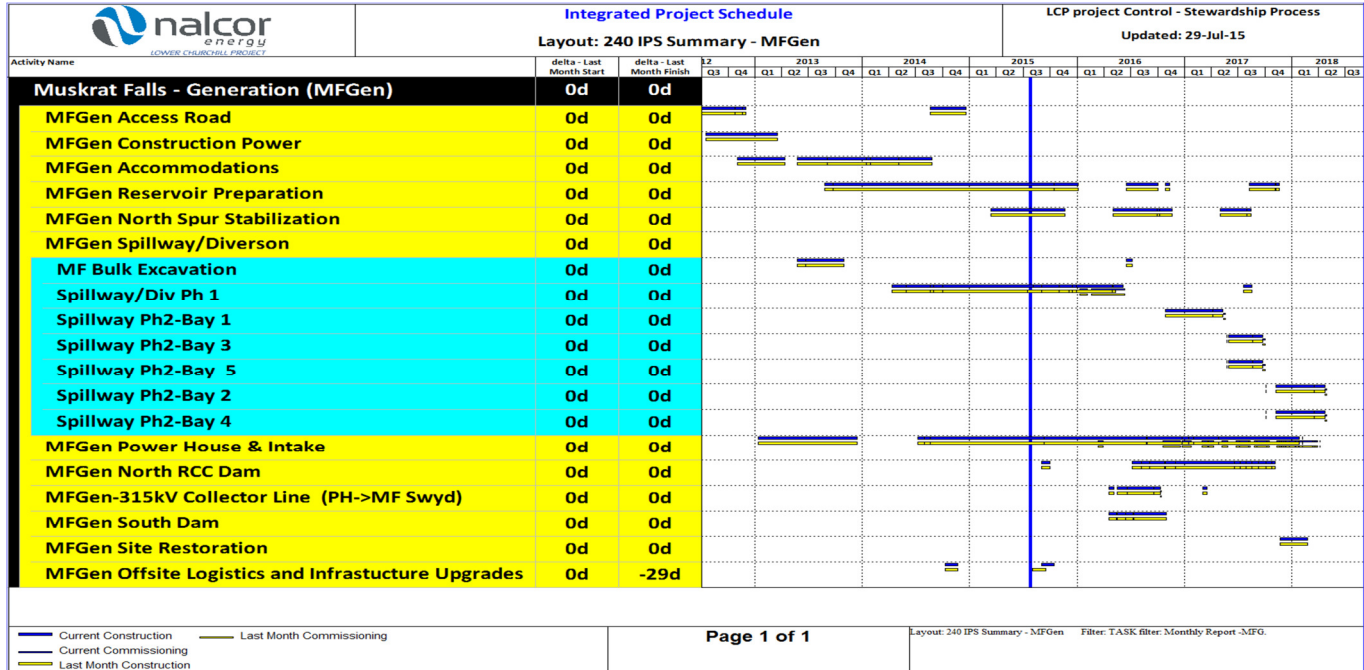


Figure 11.5-2: Summary Construction Progress Table – Muskrat Falls Generation

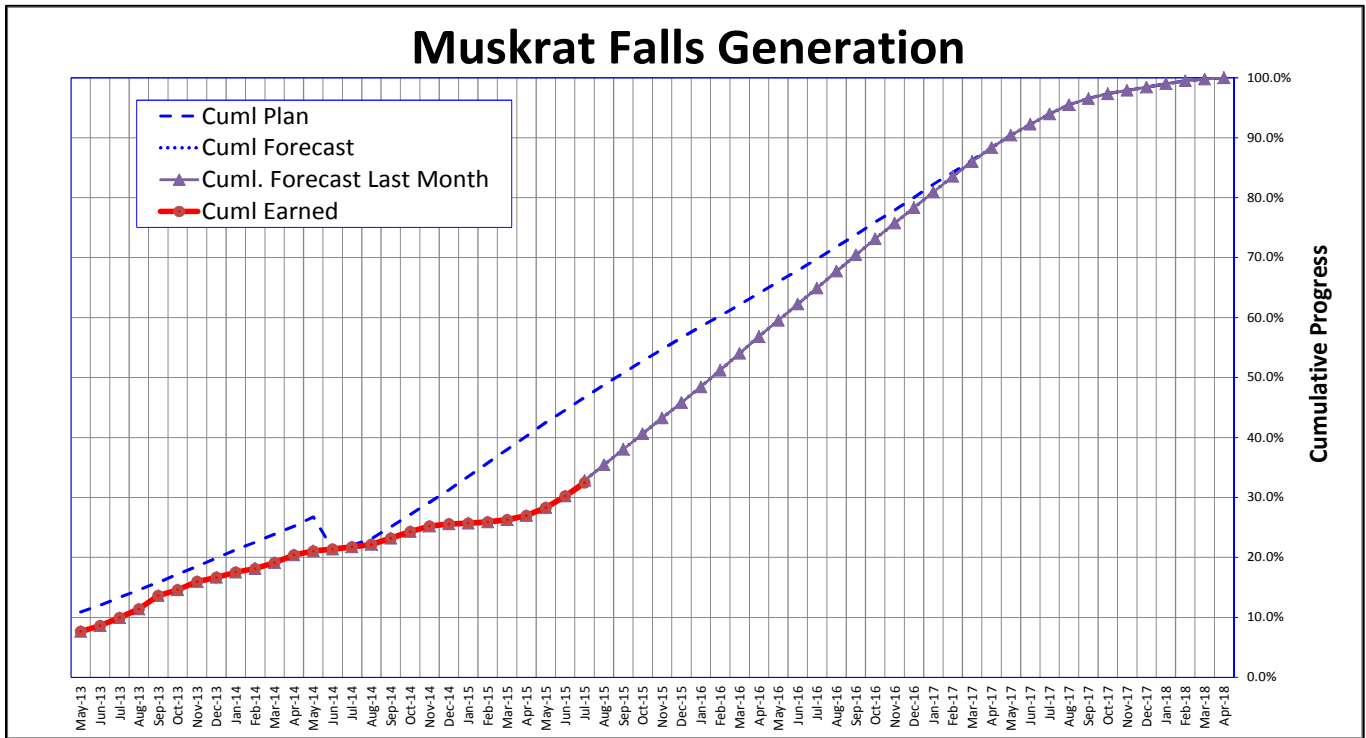
MFGGen Progress Table 2015 July								
	Weight Factor %	This Reporting Period						
		Period %			Cumulative %			
		Plan	Earned	Variance	Plan	Earned	Variance	
	A	B	C	C-B	E	F	F-E	
MFG Road/Camp/Constr. Power	7.9%	0.0%	0.0%	0.0%	100.0%	99.8%	-0.2%	
MFG Reservoir Preparation	6.5%	2.2%	0.0%	-2.2%	69.3%	60.8%	-8.5%	
MFG Spillway & Gates	11.4%	2.6%	7.1%	4.5%	52.2%	52.0%	-0.2%	
MFG North Spur Stabilization	4.2%	4.8%	3.0%	-1.8%	37.5%	10.0%	-27.5%	
MFG North Dam (incl North Transition Dam)	7.5%	0.0%	0.4%	0.4%	0.0%	0.8%	0.8%	
MFG Powerhouse & intake	54.9%	2.7%	2.3%	-0.4%	39.2%	16.0%	-23.2%	
MFG South Dam (incl South Transition Dam)	1.1%	0.0%	0.6%	0.6%	0.0%	3.6%	3.6%	
MFG Misc:Eng/ 315kV/Site Rest./logistic	6.5%	0.6%	0.0%	-0.6%	82.6%	83.5%	0.9%	
<b>MFGGen TOTAL</b>	<b>100.0%</b>	<b>2.1%</b>	<b>2.2%</b>	<b>0.1%</b>	<b>46.7%</b>	<b>32.5%</b>	<b>-14.3%</b>	
Last Reporting Period								
	Weight Factor %	This Reporting Period						
		Period %			Cumulative %			
		Plan	Earned	Variance	Plan	Earned	Variance	
	A	B	C	C-B	E	F	F-E	
MFG Road/Camp/Constr. Power	7.9%	0.0%	0.0%	0.0%	100.0%	99.8%	-0.2%	
MFG Reservoir Preparation	6.5%	2.2%	0.0%	-2.2%	67.0%	60.8%	-6.2%	
MFG Spillway & Gates	11.4%	2.5%	5.7%	3.2%	49.5%	44.9%	-4.6%	
MFG North Spur Stabilization	4.2%	4.4%	2.7%	-1.7%	32.8%	7.0%	-25.8%	
MFG North Dam (incl North Transition Dam)	7.5%	0.0%	0.3%	0.3%	0.0%	0.5%	0.5%	
MFG Powerhouse & intake	54.9%	2.6%	2.1%	-0.5%	36.6%	13.7%	-22.9%	
MFG South Dam (incl South Transition Dam)	1.1%	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%	
MFG Misc:Eng/ 315kV/Site Rest./logistic	6.5%	0.3%	0.0%	-0.3%	82.0%	83.5%	1.5%	
<b>MFGGen TOTAL</b>	<b>100.0%</b>	<b>2.0%</b>	<b>1.9%</b>	<b>-0.1%</b>	<b>44.5%</b>	<b>30.2%</b>	<b>-14.3%</b>	



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Figure 11.5-3: Construction Progress Curve - Muskrat Falls Generation



11.6 PHOTOS



CH0007: Spillway-as seen from Cofferdam 2



CH0007: Downstream temporary/permanent spillway bridges



CH0007: Centre Transition Dam



CH0007: Powerhouse Units 1 and 2



CH0008: Construction of North Spur Stabilization Works-  
Construction of temporary road on downstream slope



CH0008: Construction of North Spur Stabilization Works-CB cut-off wall temporary work platform



## Section 12. LABRADOR TRANSMISSION ASSET (LTA)

### 12.1 HVdc SPECIALTIES

#### 12.1.1 ENGINEERING

- CD0502 - Construction of AC Substations:
  - Two hundred and nineteen (219) supplier documents were returned to Contractor with comments (Code 02).
  - Twenty eight (28) supplier documents were reviewed and accepted (Code 01); Company did not receive many drawings related to civil works construction.
  - A two day meeting was held between Company and Contractor during 27-28-July-2015 to discuss protection and control comment response sheets for a number of drawings; this will allow design to progress to IFC in a timely manner.
  - Meeting was held with Alstom on 16-July-2015 for Risk Register review.
  - A meeting was held between Company, Alstom, NL Hydro PETS division and CF(L)Co. to discuss scope of work inside CF(L)Co. yard, most notably related to protection and controls and telecommunications.
  - Contractor submitted eight (8) new Concession Requests - Company responded to five. There currently three (3) CON's circulating for Company response.
- PD0537 - Supply of Power Transformers, AC Substations at Churchill Falls, Muskrat Falls and Soldiers Pond: Engineering is 100% complete for Churchill Falls, Muskrat Falls and Soldier's Pond units, with no issues to report.

#### 12.1.2 PROCUREMENT

- Contracts and POs awarded for the following packages:
  - All HVdc Specialties contracts and POs under the Labrador Transmission Asset have been awarded, excluding the following which are managed under the EPC Contractor's scope of work:
    - CD0504 - Civil Works and Buildings Services for HVdc Specialties: Limited Notice to Proceed (LNTP) awarded to Pomerleau for Labrador, and H.J. O'Connell for Newfoundland. Activities commenced during the period.
- Activities planned for the upcoming period:
  - Continue to manage procurement activities to meet project schedule.

#### 12.1.3 CONSTRUCTION

##### 12.1.3.1 SWITCHYARDS

##### **FABRICATION AND CONSTRUCTION HIGHLIGHTS:**

- PD0537 - Supply of Power Transformers, AC Substations at Churchill Falls, Muskrat Falls and Soldiers Pond:
  - Three (3) remaining SOP units and one (1) MF unit remains to be FAT tested at ABB St. Louis.
  - All seven (7) Churchill Falls units have been tested at Hydro Quebec (IREQ) and are awaiting shipment to Site in late September and October 2015.
  - FAT of all four (4) grounding reactors completed at ABB Vaasa, Finland; Units will be shipped in August to Canada, with furtherance to site (CF&MF) in mid-October.
- CD0502-001 - Construction of AC Substations: Work is continuing on the preparation of management, technical, and commercial deliverables; and the Contractor is mobilizing at Muskrat Falls and Churchill Falls; some challenges with building labour relations and labour acquisition on these two sites.

- CD0504 - Civil Works and Buildings Services for HVdc Specialties: Construction activities commenced at the Churchill Falls Switchyard during the period, and are scheduled to commence at Muskrat Falls in August.

**COMMISSIONING:**

- Nothing to report this period.

**12.1.4 ISSUES & OPPORTUNITIES**

- PD0537 Project Management deliverables quality and timing: Communicate with Supplier on expectations to facilitate closure.
- CD0502 Contractor's Organizational Structure is not effective: Continue to work with Contractor to develop roles, responsibilities and workable reporting relationships within their organization.
- CD0502 Contractor's Quality of deliverable submissions: Continue to remind contractor about the extent of the deficiencies.
- During site visit to CF(L)Co, and subsequent meeting held in July, CD0502 Contractor was notified of some potential design requirement may need to follow Hydro-Quebec standards, which were not known: Technical Interfaces will be sent to CF(L)Co requesting these specific requirements.
- CD0502 Contractor and company in discussions on potential impacts from a 'delay' to approving the control building layouts.
- Upon receiving minutes of meeting for LCC design review, CD0502 Contractor made a statement regarding "changes" to design that LCP have requested. LCP had asked Contractor to outline what these supposed changes were and the Contractor did submit a table outlining the possible changes; further discussions are required.
- CD0502 Contractor has proposed a 42m high triple circuit tower at Soldier's Pond to accommodate the feeders going to the synchronous condenser. Operations have an issue with this proposal because of three energized circuits on the same tower: Company will be making a request that the Contractor review other options.

**12.1.5 ACTIVITIES PLANNED FOR UPCOMING PERIOD**

- CD0502 - Construction of AC Substations:
  - Proposed detailed design review meeting with Alstom related to building architectural, mechanical and electrical services.
  - Review document deliverables from Contractor.
  - Issue engineering change notice for Muskrat Falls tap changer controller.
  - Review and respond to site queries and concession requests provided from Contractor.
  - Review response to Company issued change requests related to reactor/resistor connection, visible disconnects and telecoms structured cabling.
- PD0537 - Supply of Power Transformers, AC Substations at Churchill Falls, Muskrat Falls and Soldiers Pond:
  - Work with Contractor Alstom to develop a site assembly and preservation plan for all sites.
  - Respond to agreed interface requests issued from Contractor to package.
  - Identify and complete all site permitting related to transport, lift, etc.



**MONTHLY PROGRESS REPORT**

**PERIOD ENDING: 31-JULY-2015**

**12.2 TRANSMISSION LINE**

**12.2.1 ENGINEERING**

- Post award follow on support is continuing for all 315 kV HVac packages in support of construction of the HVac Transmission Line.
- Scope preparation on Lower Brook re-configuration.
- Scope preparation on 25 kV under build across the Churchill River.
- 735 kV Lines at CF - Plan and profile line spotting completed based on CF requirements; design check performed to accommodate Component 3's access road; engineering complete for 735 kV lines.

**12.2.2 PROCUREMENT**

- Contracts and POs awarded for the following packages:
  - All Transmission Line contracts and POs under the Labrador Transmission Asset have been awarded.
- Expediting Releases are ongoing for:
  - PT0303-001 - Supply of Tower Hardware HVac: Expediting Release No. 011 (50 Crates) was issued for HVGB MY.
  - PT0304-001 - Supply of Hardware OPGW HVac: Expediting Release No. 004 (3 Crates) was issued for HVGB MY.
- Logistics:
  - Deliveries for PT0302-001 - Supply of HVac Tower Steel: Deliveries are ongoing and as of 31-July-2015, delivered 3 containers to HVGB MY.
  - Deliveries for PT0335-001 - Supply of HVac Anchor Materials: Deliveries are ongoing and as of 31-July-2015, 35 shipments were delivered to HVGB MY.
  - Deliveries for PT0303-001 - Supply of HVac Tower Hardware: Deliveries are ongoing and as of 31-July-15, delivered 2 containers to HVGB MY.
  - Deliveries for PT0303-002 - Supply of HVac Implo devices: Deliveries are ongoing and as of 31-July-2015, delivered 10 shipments to Valard.
  - Deliveries for PT0304-001 - Supply of HVac Link Plates: Deliveries are ongoing and as of 31-July-15, delivered 2 shipments to HVGB MY.
  - Deliveries for PT0304-002 - Supply of HVac OPGW Conductor: Deliveries are ongoing and as of 31-July-15, delivered 1 shipment to HVGB MY.
- Activities planned for the upcoming period:
  - Continue to manage procurement activities to meet project schedule.

**12.2.3 CONSTRUCTION**

**12.2.3.1 HVac TRANSMISSION LINE**

**CONSTRUCTION HIGHLIGHTS:**

- CT0319 - Construction of 315kV HVac Transmission Line:
  - Cumulative Progress to Date:

Commodity	Budget Total QTY	Planned to Date	Installed to Date	Variance	% Complete	SPI
Anchor Installation	1088	648	932	284	85.66%	1.44
Anchor Testing	1088	638	804	166	73.90%	1.26



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Foundation Installation	1260	754	1158	404	91.90%	1.54
Tower Assembly	1260	776	882	106	70.00%	1.14
Tower Erections	1260	737	650	(87)	51.59%	0.88
Conductor Stringing	490481	167,005	148,665	(18,340)	30.31%	0.89

- Stringing of OSHW, OPGW and conductor with sagging, clipping-in and spacer installation on-going.
- North Spur and Osprey Camp installation completed and both camps operational.
- The camp at the 123 km mark is occupied as a temporary camp (full capacity) until permitted as permanent camp with final waste disposal system.
- Utilization of the camp at Churchill Falls is ongoing to support work being completed on an additional work front from the Churchill end.
- Hauling of materials, foundation installation, tower assembly and erection ongoing.
- Guy anchor installation and tower plumbing ongoing.
- Helicopter installation of tower hardware and pulling of pilot lines ongoing.
- Planning has commenced for work south of the river at Muskrat Falls, structures 1-8.
- Moving of fill pile at Churchill Falls switchyard that obstructed construction of HVac 315 kV structure is completed.
- Contractor testing of OPGW reels performed at site.
- Some Contractor crews are moving to the HVdc Transmission Line.
- Productivity continues to improve in both tower erections and stringing each month. Contractor continues to focus on staying in front of their Stringing Crew with anchors, foundations and tower erections. Stringing is well underway with approximately 30% completed by the end of the period.
- CT0341-002 - ROW Clearing for 315 kV HVac Transmission Line:
  - Clearing completed in October 2014, and contract closeout is ongoing.
- Material receipts including steel towers, foundations, hardware, guy wire and conductor are ongoing at the HVGB Marshalling Yard.

**COMMISSIONING:**

- Nothing to report this period.

**12.2.4 ISSUES & OPPORTUNITIES**

- Tower steel shortages/missing materials for tower installation: Issuing missing pieces from surplus inventory. Additional steel and bolts being procured from Sa-Ra to replenish supplies.
- C4, along with other components (C1 and C3), are now going to be working beside each other with more potential interactions between contractors and sharing access and work spaces: Close coordination between components may be required as necessary when contractors are working at the same time. Regular meetings between construction management teams will be set up to share information and plan work accordingly.
- Powerhouse and switchyard interconnect at Muskrat Falls site may not be constructed this year as originally planned due to Powerhouse progress: Scope will be deferred to 2016/2017 as a result and would require remobilization of contractor, however current plan is to proceed with construction of first structure of interconnect at the Muskrat Falls switchyard this summer.
- NCR's raised on tower foundations which do not meet dimensional tolerances; rework and reverse engineering ongoing.



MONTHLY PROGRESS REPORT

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**12.2.5 ACTIVITIES PLANNED FOR UPCOMING PERIOD**

- Post award follow-on engineering support for all open 315 kV HVac packages, as well as resolving site queries and concession requests generated in the field.
- Finalize scope on Lower Brook re-configuration and 25 kV under build across Churchill River.
- CT0341-002 - ROW Clearing for 315 kV HVac Transmission Line: Contract close out.
- CT0319 - Construction of 315kV HVac Transmission Line: Continue all construction activities.
- Coordination planning with C3 for across all interaction points.
- Preparation of Contractor start south of the river at Muskrat Falls; this includes survey work and start of access roads.
- Additional foundations ordered from Fabrimet; C-2 foundations due to be delivered.
- Confirmation of local backfill material and concrete sourcing for structures 1-8 south of the river at MF.
- Analysis continuing of consumption rate of materials to inventory.
- Scope to be awarded to excavate and transport backfill material at structures 1-8
- 735 kV Lines at CF: Review final hardware drawings.

**12.3 COST**

- Incurred costs project-to-date and Incurred Costs Current Period continue to be higher than planned, mainly as a result of higher than planned progress on the HVac Transmission Line under “Procurement & Construction”, and higher than planned costs for contractor management under “Owners Team, Admin and EPCM Services”. The incurring of the Contingency is reflected within the incurred and future incurred costs in the categories outlined in Figure 12.4-1 as and where the work is performed. Cost to complete continues to remain significant for LTA as construction activities for work in progress are ongoing.
- The overall Final Forecast Cost (FFC) for LTA continues to be aligned with the AFE approved in June 2014 however adjustments to FFC at the specific category level were made as the project progressed during the period. The Final Forecast Cost for “Procurement & Construction” has increased during the current reporting period as a result of the costs associated with alternative foundation types required for the HVac Transmission Line to suit infield conditions, as well as increases in costs associated with the 735 kV line. Offsetting adjustments were made to the FFC for “Contingency” to align with the change made in “Procurement & Construction”. A summary of the LTA cost profile, along with the asset overview of Project Contingency Drawdown are provided in Figures 12.4-1, 12.4-2, 12.4-3 and 12.4-4.

**Figure 12.4-1: Labrador Transmission Asset Monthly Incurred Cost Report**

		Monthly Incurred Cost Report - Labrador Transmission Asset						
		NALCOR ENERGY - Lower Churchill Project						
		COST IN CAD (\$ Thousands)						
		For Period Ending: 25-Jul-2015						
		A	B	C = A + B	Incurred Costs		E	G = E - C
		Original Control Budget (OCB)	Approved Project Changes	Current Control Budget (CCB)	Current Period	D Project-to-Date	Final Forecast Cost (FFC)	Variance from CCB
100	NE-LCP Owners Team, Admin and EPCM Services	\$90,385	\$9,573	\$99,958	\$1,416	\$85,480	\$99,958	\$0
200	Feasibility Engineering	\$136	\$84	\$220	\$0	\$220	\$220	\$0
300	Environmental & Regulatory Compliance	\$709	\$310	\$1,019	\$0	\$809	\$1,019	\$0
400	Aboriginal Affairs	\$188	\$0	\$188	\$0	\$1	\$188	\$0
500	Procurement & Construction	\$543,309	\$155,400	\$698,709	\$29,732	\$390,058	\$702,537	\$3,828
900	Commercial & Legal	\$2,479	\$662	\$3,141	\$21	\$2,279	\$3,141	\$0
990	Contingency	\$54,375	-\$25,666	\$28,710	\$0	\$0	\$24,882	-\$3,828
<b>CAPEX Total:</b>		<b>\$691,582</b>	<b>\$140,364</b>	<b>\$831,945</b>	<b>\$31,168</b>	<b>\$478,848</b>	<b>\$831,945</b>	<b>\$0</b>



MONTHLY PROGRESS REPORT

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Figure 12.4-2: Labrador Transmission Asset Current Year Budget, Incurred and Forecast Cost

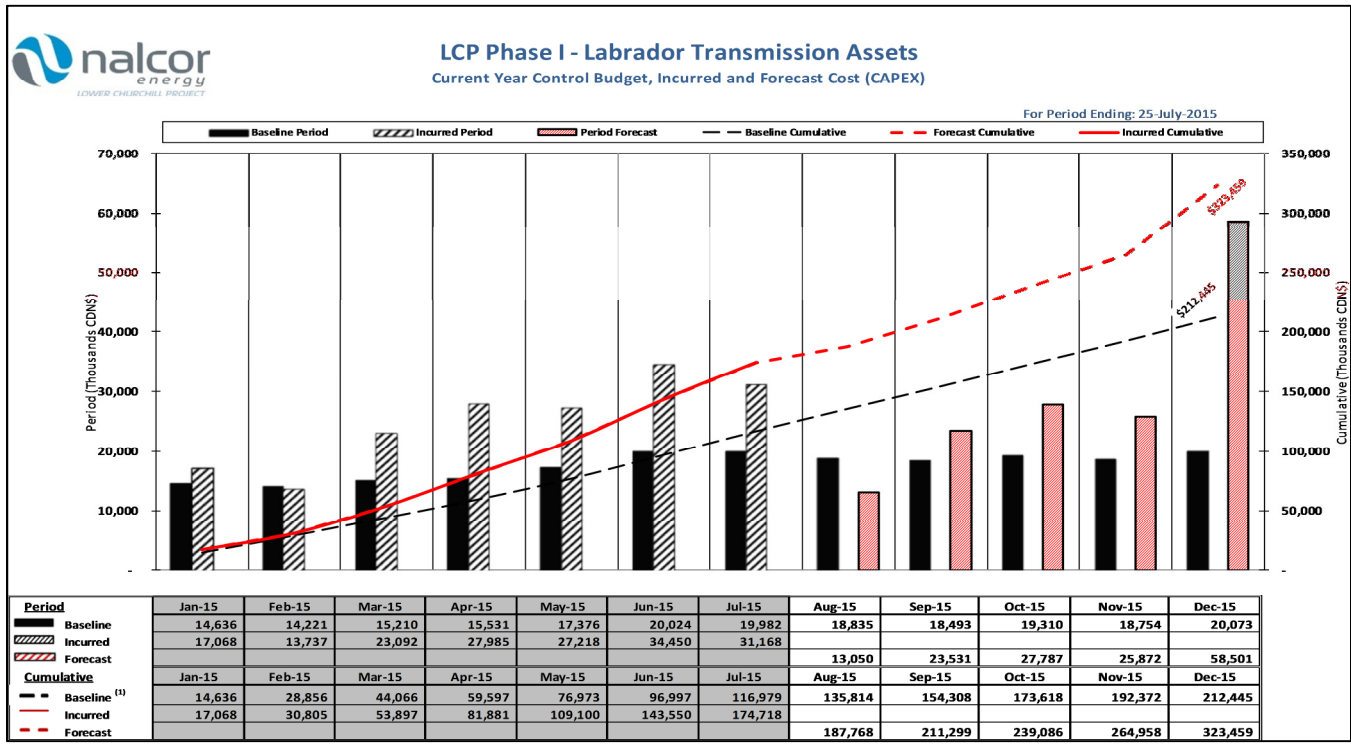
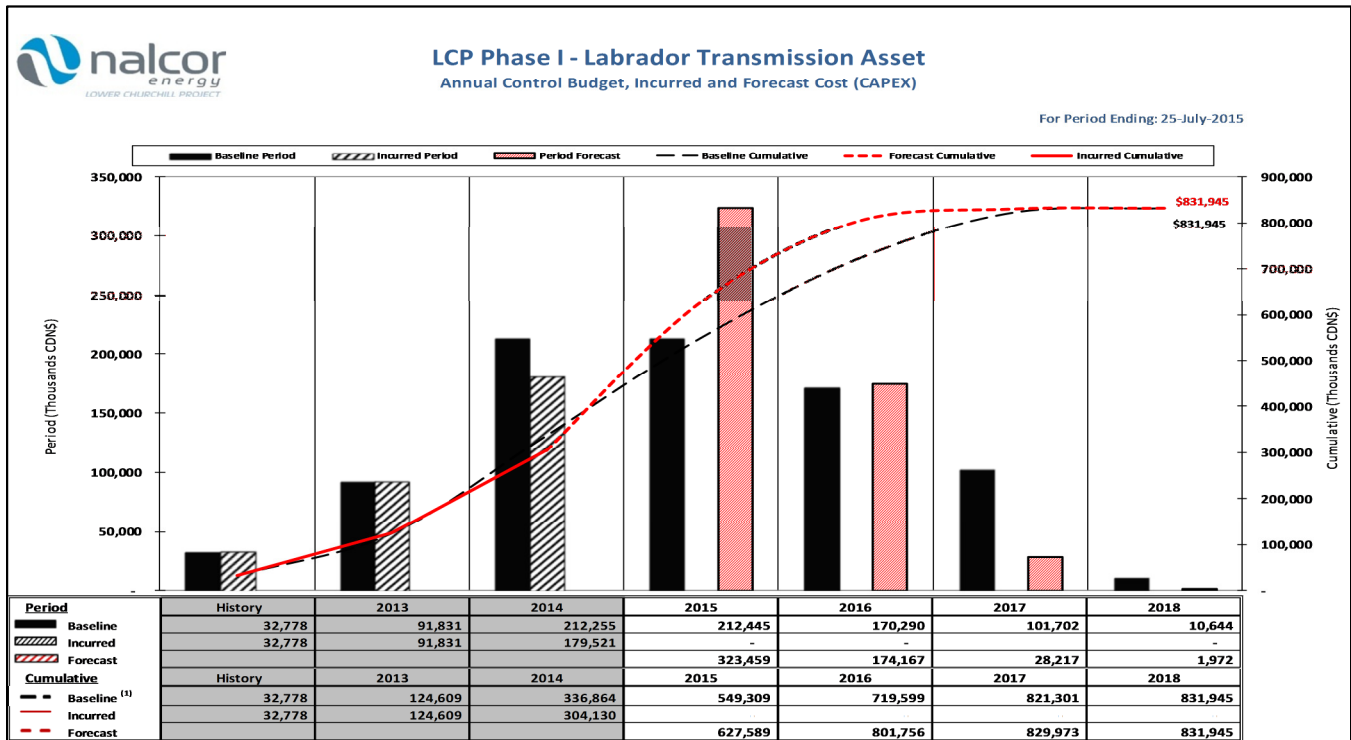


Figure 12.4-3: Labrador Transmission Asset Annual Budget, Incurred and Forecast Cost

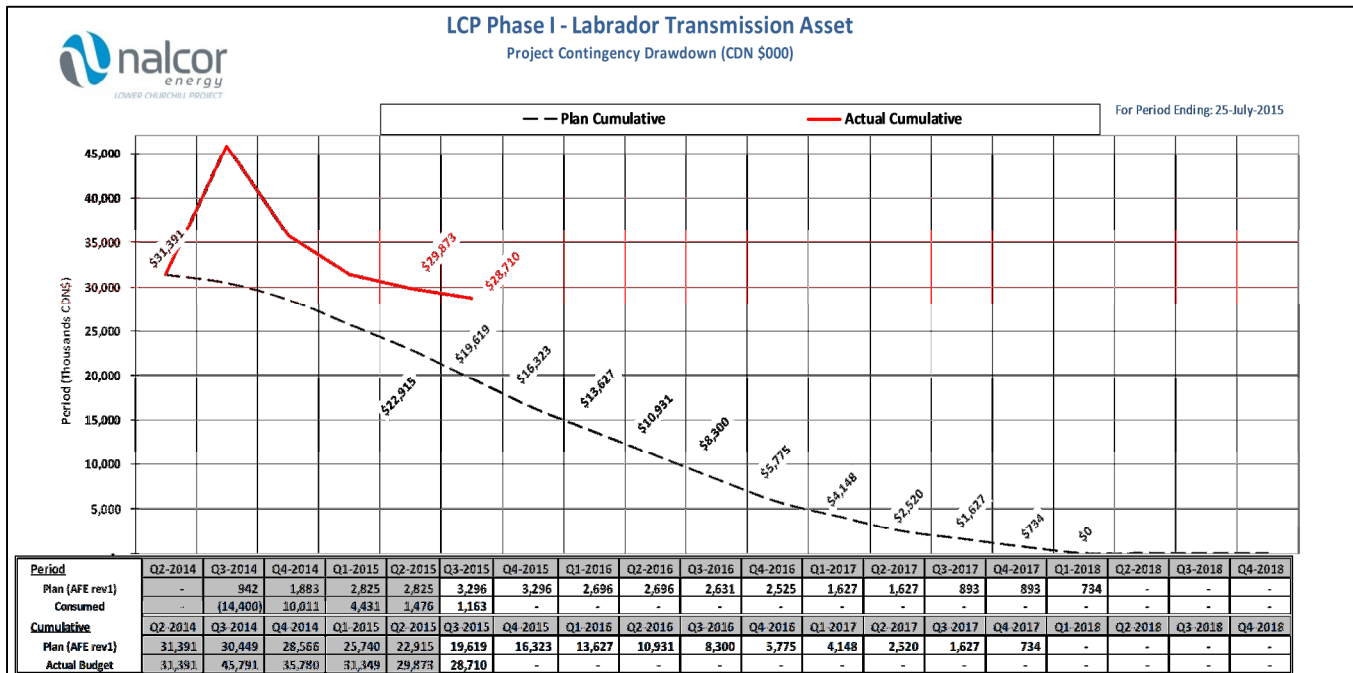




MONTHLY PROGRESS REPORT

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Figure 12.4-4: Labrador Transmission Asset Project Contingency Drawdown Curve



12.4 SCHEDULE

- Period Planned Progress was 3.9% vs. Period Earned Progress of 2.1% - Variance: -1.8%; while Period Forecast Progress was 3.9% as stated in last month’s report.
- Cumulative Planned Progress was 53.2% vs. Cumulative Earned Progress of 49.2% - Variance: -4.0%; Cumulative Forecast Progress was 51.0%, as stated in last month’s report.
- Progress shortfall of civil works is due to Alstom’s later than planned award of the civil works contract and late civil engineering IFC drawings. The switchyard is expected to catch up to forecast so the forecast curve remains unchanged for this month.
- Critical Path: CF Switchyard continues to be on critical path to LTA Power Available forecast for May 2017, no change from last month.
- Switchyards:
  - Civil works at the Churchill Falls switchyard commenced during the period, with civil works at the Muskrat Falls switchyard forecasted to commence in early August 2015.
  - Current forecast date for Static Commissioning for both the MF and CF Switchyards is March 2017, no change from last month.
- 315kV HVac Lines CF-MF:
  - HVac Seg 1/2 - line construction/stringing is progressing.
  - No change this month to HVac Seg 1/2 final inspection date (end of line construction).
- 735kV HVac CF Interconnection (Bus Extension):
  - CF 735kV (bus extension) TL construction start (foundations) not planned until June 2016.



MONTHLY PROGRESS REPORT

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- A summary of the Schedule and Construction Progress data for the Labrador Transmission Asset (LTA) as reported in the Integrated Project Schedule (IPS) is outlined in Figures 12.5-1, 12.5-2 and 12.5-3.

Figure 12.5-1: IPS Summary - Labrador Transmission Asset

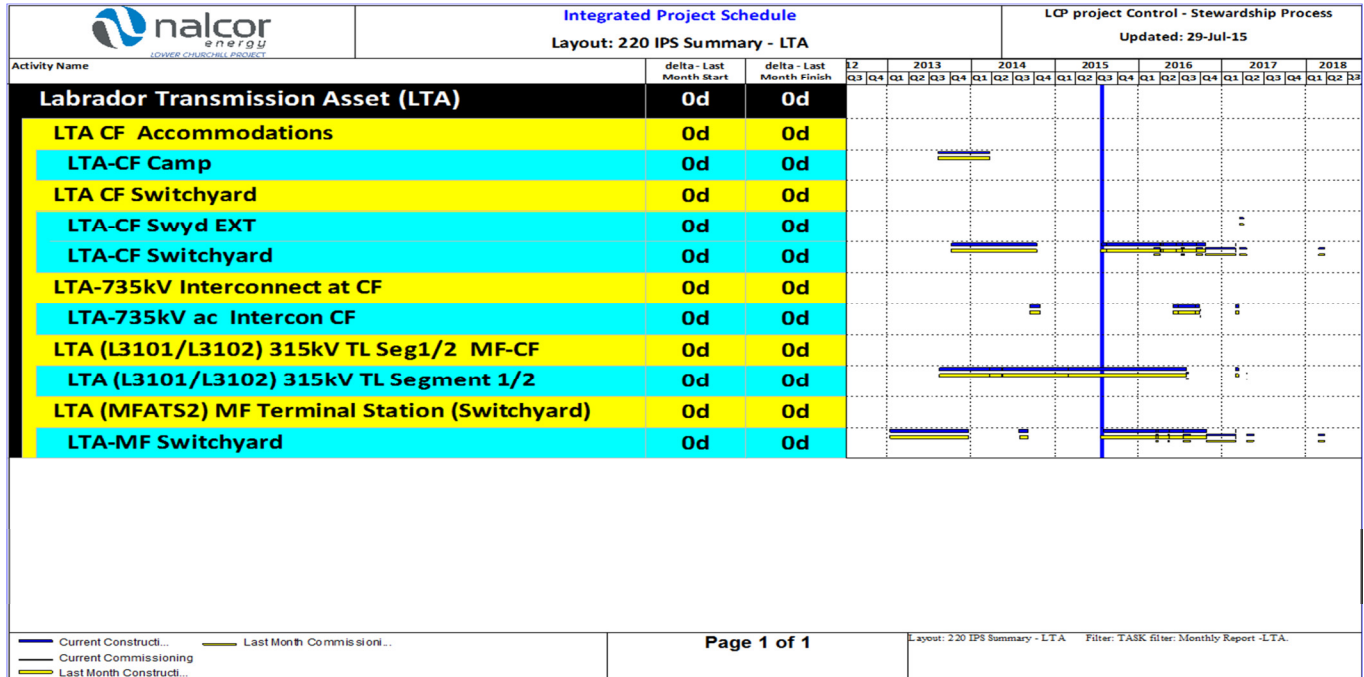


Figure 12.5-2: Summary Construction Progress Table - Labrador Transmission Asset

LTA Progress Table 2015 July								
This Reporting Period								
	Weight	Period %			Cumulative %			
	Factor %	Plan	Earned	Variance	Plan	Earned	Variance	
	A	B	C	C-B	E	F	F-E	
LTA CF Accommodations	1.1%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	
LTA HVac Transmission Line Seg1/2 - MF to CF	56.0%	3.9%	3.6%	-0.3%	62.2%	63.4%	1.2%	
LTA Churchill Falls Switchyard	20.9%	3.9%	0.0%	-3.9%	33.3%	22.3%	-11.0%	
LTA Muskrat Falls Switchyard	14.0%	6.7%	0.0%	-6.7%	22.6%	5.8%	-16.8%	
LTA Misc	8.0%	0.0%	1.1%	1.1%	89.1%	89.2%	0.1%	
<b>LTA TOTAL</b>	<b>100.0%</b>	<b>3.9%</b>	<b>2.1%</b>	<b>-1.8%</b>	<b>53.2%</b>	<b>49.2%</b>	<b>-4.0%</b>	
Last Reporting Period								
	Weight	Period %			Cumulative %			
	Factor %	Plan	Earned	Variance	Plan	Earned	Variance	
	A	B	C	C-B	E	F	F-E	
LTA CF Accommodations	1.1%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	
LTA HVac Transmission Line Seg1/2 - MF to CF	56.0%	3.8%	3.0%	-0.8%	58.3%	59.8%	1.5%	
LTA Churchill Falls Switchyard	20.9%	3.3%	0.0%	-3.3%	29.4%	22.3%	-7.1%	
LTA Muskrat Falls Switchyard	14.0%	6.6%	0.0%	-6.6%	15.9%	5.8%	-10.1%	
LTA Misc	8.0%	0.0%	0.0%	0.0%	89.1%	88.2%	-0.9%	
<b>LTA TOTAL</b>	<b>100.0%</b>	<b>3.7%</b>	<b>1.7%</b>	<b>-2.0%</b>	<b>49.2%</b>	<b>47.1%</b>	<b>-2.1%</b>	

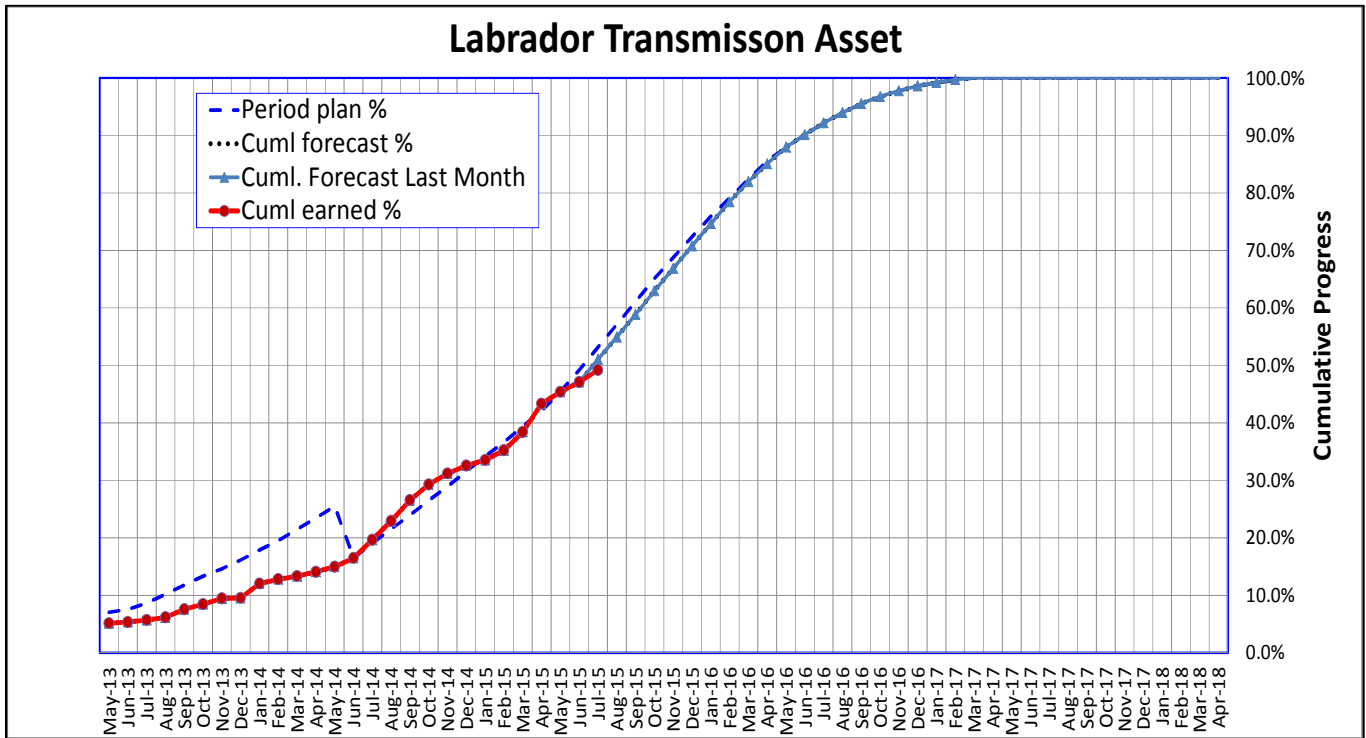




MONTHLY PROGRESS REPORT

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Figure 12.5-3: Construction Progress Curve - Labrador Transmission Asset



12.5 PHOTOS



CT0319: Construction of HVac Transmission Line-concrete Tower erection at structure L2-234



CT0319: Construction of HVac Transmission Line-Placing concrete at structure L1-10



CT0319: Construction of HVac Transmission Line-Formwork construction of concrete installation



CT0319: Construction of HVac Transmission Line-Self-supporting structure foundations ready for concrete



PD0537: Supply of Power Transformers, AC Substations at Churchill Falls-Factory Testing



PD0537: Supply of Power Transformers, AC Substations at Churchill Falls-Autotransformer winding shop

## Section 13. LABRADOR ISLAND TRANSMISSION LINK (LITL)

### 13.1 HVdc SPECIALTIES

#### 13.1.1 ENGINEERING

- CD0502 - Construction of AC Substations:
  - Two hundred and nineteen (219) supplier documents were returned to Contractor with comments (Code 02).
  - Twenty eight (28) supplier documents were reviewed and accepted (Code 01); Company did not receive many drawings related to civil works construction.
  - A two day meeting was held between Company and Contractor during 27-28-July-2015 to discuss protection and control comment response sheets for a number of drawings; this will allow design to progress to IFC in a timely manner.
  - Meeting was held with Alstom on 16-July-2015 for Risk Register review.
  - A meeting was held between Company, Alstom, NL Hydro PETS division and CF(L)Co. to discuss scope of work inside CF(L)Co. yard, most notably related to protection and controls and telecommunications.
  - Contractor submitted eight (8) new Concession Requests - Company responded to five. There currently three (3) CON's circulating for Company response.
- PD0537 - Supply of Power Transformers, AC Substations at Churchill Falls, Muskrat Falls and Soldiers Pond: Engineering is 100% complete for Churchill Falls, Muskrat Falls and Soldier's Pond units, with no issues to report.
- CD0501 - Supply and Install Converters and Cable Transition Compounds:
  - Agreed with Alstom Grid to allow voltage levels to increase so as to meet maximum power levels, without exceeding cable current ratings.
  - Alstom Grid engineering mitigation plan to catch up on progress is marginal, at the present time. Alstom's latest engineering progress shows that progress is at 34.9% vs. planned of 71.2% based on Primavera (which differs from last month's reporting based on PDM). In March of 2015, the Engineering Recovery Plan presented identified a planned progress of 59.5% for this period. This is still ~25% behind schedule.
  - AC Filter design ECN is in progress, showing reactive power interchange limits modified to allow for minor excursions in the interchange under 5 power levels at SP and MF.
  - Awaiting formal response from Contractor on deferment of Transition Compound civil construction (by Company) until spring of 2016.
  - Received Technical Note on how to compensate for the change in undersea cable from 38 to 32 km. This involves either a fundamental frequency blocking filter at the Converter Stations or an additional capacitor bank at Forteau Point. Company is studying proposal and will revert in August.
  - Reviewing proposed layout change impacts at Muskrat Falls with Contractor to define the quantities that have changed as a result of the layout changes.
  - Working with Contractor management to align Stafford and Montreal units on Control System engineering.
- CD0534 - Supply and Install Soldiers Pond Synchronous Condensers: Contractor has completed the rotor design and has submitted their proposal. Company has engaged a third party FEA specialist to review the design. Third party is reviewing final FEA model, which will bring the Phase 1 work package to a close.
  - Seventy-one (71) concession requests received (including seven (7) that have been revised); sixty-one (61) are closed and seventeen (17) currently under evaluation. One (1) Change Request has been issued to the Contractor for removing some pumping equipment that was initially included in the spec. Contractor was to formally respond by 26-June-2015; however no official response has been provided.



**MONTHLY PROGRESS REPORT**

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- Still lack of document submittals, Contractor's engineering is lagging behind Contractor's procurement process. This continues to be of serious concern. Alstom has added engineering staff to increase engineering output.
- Weekly and bi-weekly conference call meetings are being held with Contractor to review engineering issues and resolve issues for all major sub-packages; process has been providing better visibility on design process.
- Action Register created for technical issues; updated weekly by Company and sent to Contractor (Fridays) for discussion during Monday's weekly technical meeting - Register is being used to highlight major technical issues, from Company's viewpoint, to Contractor, and aids in prioritization of work & responses from Contractor.
- CD0508 - Supply and Install of Electrode Sites: Nothing to report this period.
- SD0560 - Provision of Early Works Construction Telecommunications Services:
  - Weekly work packages for NL Hydro Network Services prepared.
  - Continued with preparation of as-built drawings and documentation.
  - Ongoing support for satellite phone deployment.
  - Churchill Falls – Engineering:
    - Telecoms for company laydown area.
    - Transfer of VHF radio system from Muskrat Falls.
- CD0509 - Construction Telecommunications Services at Muskrat Falls:
  - Muskrat Falls Engineering:
    - Weekly work packages for NL Hydro Network Services prepared.
    - Continued with preparation of as-built drawings and documentation.
    - Completed scope of work for fiber optic cable for connection of Nalcor trailer at Valard North Spur Camp.
    - Completed telecoms scope of work for relocation of fiber optic cable–25 kV distribution line relocation–North Spur.
    - Secured additional Land Mobile Radio System channels for Astaldi.
    - Worked with LCMC IS department to troubleshoot latency issues for the administration network.
    - Worked with C1 and Astaldi regarding extension of cellular coverage to the powerhouse and spillway.
    - Support Telecoms scope of work for Muskrat Falls Converter/Switchyard network connection.
    - Support for C1 to establish scope of work for AC power fail alarm for North Spur pumphouse.
    - Support for installation of the CCTV system.
- CD0510 - Supply and Install Permanent Communication Systems:
  - Optical Transport network – Request for Proposal:
    - Request for Proposal was issued in June, with closing date changed from 04-Aug-2015 to 01-Sept-2015.
  - PCN-0335 Repeaters – Permanent Phase Optical Transport Network (OTN):
    - Request for Proposal (RFP) closed during June; two (2) bids have been received.
    - Technical evaluation of the RFP was completed during the period.

**13.1.2 PROCUREMENT**

- RFI – RFP statistics and charts:

Description	Total Packages to Procure	Schedule to Date	Actual to Date
Issue EOI/Pre-qual.	7	7	7
Issue Request for Proposal	7	7	7
Issue PO/Contract	7	6	5

- Bid evaluations ongoing for the following packages:
  - CD0510-002 - Supply & Install of Permanent Communications Systems Pre-Fabricated Buildings.

- Contracts and POs awarded for the following packages:
  - Nothing to report this period.
- The following are managed under the EPC Contractor's scope of work:
  - CD0534-002 - Civil Works for Synchronous Condensers: Contractor is working under a Limited Notice to Proceed (LNTP) awarded in April 2015.
  - CD0534-003 - Third Party FEA: Contractor is nearing completion of analysis.
  - CD0504 - Civil Works and Buildings Services for HVdc Specialties: Two separate Contractors working under an LNTP awarded in June 2015, in Newfoundland, and in Labrador.
- Activities planned for the upcoming period:
  - Continue to manage procurement activities to meet project schedule.
  - Contract award of CD0510-002 for Supply & Install of Permanent Communications Systems Repeater Buildings.

### 13.1.3 CONSTRUCTION

#### 13.1.3.1 SWITCHYARD

##### **FABRICATION AND CONSTRUCTION HIGHLIGHTS:**

- PD0537 - Supply of Power Transformers, AC Substations at Churchill Falls, Muskrat Falls and Soldiers Pond:
  - Three (3) remaining SOP units and one (1) MF unit remains to be FAT tested at ABB St. Louis.
  - All seven (7) Churchill Falls units have been tested at Hydro Quebec (IREQ) and are awaiting shipment to Site in late September and October 2015.
  - FAT of all four (4) grounding reactors completed at ABB Vaasa, Finland; Units will be shipped in August to Canada, with delivery to site (CF&MF) in mid-October.
- CD0502-001 - Construction of AC Substations: Work is continuing on the preparation of management, technical, and commercial deliverables.
- CD0504 - Civil Works and Buildings Services for HVdc Specialties: Construction activities commenced at the Soldier's Pond Switchyard during the period with footings and foundations for gantries and control building.

##### **COMMISSIONING:**

- Nothing to report this period.

#### 13.1.3.2 CONVERTER STATIONS AND CABLE TRANSITION COMPOUNDS

##### **CONSTRUCTION HIGHLIGHTS:**

- CD0501 - Work continues on the preparation of management, technical, and commercial deliverables.
- CD0504 - Civil Works and Buildings Services for HVdc Specialties: Construction activities commenced at the Soldier's Pond Converter Station during the period with excavation and concrete foundations started in the Valve Hall and Control Building areas. Work at the Muskrat Falls site is in the mobilization stage, with some challenges in relation to labour relations and labour acquisition for start-up existing.

##### **COMMISSIONING:**

- Nothing to report this period.

### **13.1.3.3 SYNCHRONOUS CONDENSERS AND ELECTRODES**

#### **FABRICATION AND CONSTRUCTION HIGHLIGHTS:**

- CD0534 - Supply and Install Soldiers Pond Synchronous Condensers: Manufacturing activities are ongoing.
- CD0534-002 - Civil Works Construction: Contractor and HJOC are in various stages of piling for piles 1-18 for the synchronous condenser; approximately forty (40) workers are on Site.
  - First water well drilled is to be abandoned, due to low flow rate (one (1) pint per minute). Location of second well has yet to be confirmed and is delayed.
- CD0508 - Supply and Install of Electrode sites:
  - Work is progressing at both sites and is now ahead of baseline schedule; approximately 33,000 labor hours logged at both sites.
  - Dowden's Point :
    - All core and filter material has been delivered with only armour stone remaining to be delivered to site. This will significantly cut down on truck traffic through the town which was the planned goal before the end of the school year.
    - Installation of the electrode well was completed.
    - Work in water started 15-May-2015 (core); by the end of July the core has been built up to about one (1) meter past high water level and protected with filter stone and armor stone.
  - L'Anse Au Diable:
    - Continued to sort through and haul core, filter stone and armour stone after large blasts at quarry on Site; a good supply of armour was achieved by Contractor.
    - Core material, filter stone and armour stone is being placed and road to the breakwater completed up to subgrade elevation.
    - Drilling and blasting Contractor returned to Site to drill and blast oversize rock; completed marine blast under the breakwater for the electrode wells placement.

#### **COMMISSIONING:**

- Nothing to report this period.

### **13.1.3.4 TELECOMMUNICATIONS**

#### **SYSTEM INTEGRATION:**

- Optical Transport Network Fibre Optic Redundant Path:
  - Negotiations continued with 3rd party providers.
  - Preparation of Indefeasible Right of Use (IRU) agreements continued during the period.
- Terrestrial Fiber Optic Mapping:
  - Continued work to prepare drawings to map Optical Transport Network "A" and "B" path fibres for Aconex review.
- Interfaces:
  - Interfaces for telecoms raceways created for CD0501, CD0502, and CD0534 with some responses received during the month.
  - Agreement for interfaces for telecoms device locations for CD0501 and CD0502, with responses provided pending close out; Contractor discussions regarding close out of interfaces ongoing.
- Integration Laboratory:
  - Received all materials for gateway redundancy testing.



- System Operations Interface Committee:
  - Meetings were held 29-July-2015 to monitor Telecoms, ECC, System and IT interfaces.
- C4 HVac and HVdc OPGW Fiber Testing:
  - Meetings ongoing with C4 on Valard OPGW fibre testing and execution plan; progress continuing.
  - Meetings held 31-July-2015 with Valard to achieve plan alignment.

#### **CONSTRUCTION HIGHLIGHTS:**

- SD0560 - Provision of Early Works Construction Telecommunications Services:
  - Eastlink Fiber Optic Cables:
    - Fiber optic cables to the Holyrood Backup Control Center (BCC) were installed 29-July-2015.
  - Churchill Falls:
    - Ongoing maintenance and support.
    - Completed transfer of VHF radio system from Muskrat Falls and completed installation of system in Churchill Falls.
- CD0509 - Construction Telecommunications Services at Muskrat Falls:
  - General:
    - Ongoing operations and maintenance support.
  - CCTV System:
    - Installation of the CCTV system was completed during the period.
  - Structuring Cabling - Fiber Optic Cables:
    - Commenced installation of fiber optic cable for Nalcor trailer at the Valard North Spur Camp.
  - Switchyard/Converter:
    - Commenced installation of telecoms equipment for temporary construction communications.

#### **COMMISSIONING:**

- Nothing to report this period.

#### **13.1.4 ISSUES & OPPORTUNITIES**

- **Switchyard:**
  - PD0537 Project Management deliverables quality and timing: Communicate with Supplier on expectations to facilitate closure.
  - CD0502 Contractor's Organizational Structure is not effective: Continue to work with Contractor to develop roles, responsibilities and workable reporting relationships within their organization.
  - CD0502 Contractor's Quality of deliverable submissions: Continue to remind contractor about the extent of the deficiencies.
  - During site visit to CF(L)Co, and subsequent meeting held in July, CD0502 Contractor was notified of some potential design requirement may need to follow Hydro-Quebec standards, which were not known: Technical Interfaces will be sent to CF(L)Co requesting these specific requirements.
  - CD0502 Contractor and company in discussions on potential impacts from a 'delay' to approving the control building layouts.
  - Upon receiving minutes of meeting for LCC design review, CD0502 Contractor made a statement regarding "changes" to design that LCP have requested. LCP had asked Contractor to outline what these supposed changes were and the Contractor did submit a table outlining the possible changes; further discussions are required.

- CD0502 Contractor has proposed a 42m high triple circuit tower at Soldier's Pond to accommodate the feeders going to the synchronous condenser. Operations have an issue with this proposal because of three energized circuits on the same tower: Company will be making a request that the Contractor review other options.
- **Converter Stations and Cable Transition Compounds:**
  - Concern remains around the cost of the changes that have not been identified by Contractor yet: Meetings held in July to discuss progress; currently awaiting Contractor revised proposals.
  - Engineering progress is falling further behind, month by month: Monitor the mitigation plan progress.
  - Identification of which layout drawings are to be used as the basis for change: Met with Contractor to ascertain the best solution. Alstom Grid are revising the proposals based on Company input, and are expecting to finalize quantities by August.
  - Integration of SBC and PES re Control Systems: Requested a meeting with both SBC (re DS Agile Control System) and PES (re Series V Control System) in August to ensure systems and outcomes (including method of commissioning) are aligned.
  - Electrode Line disconnect switch commutation capability: Contractor presently assessing whether standard style dc disconnect switches will be able to have sufficient duty to isolate one electrode line in the event of a fault on the line, or whether hi-speed switches are required.
- **Synchronous Condensers and Electrodes:**
  - CD0534 - Engineering submissions lag planned delivery dates. This issue has been discussed with Contractor and cause is related to incomplete engineering on drawings even though engineering is progressing: Result of discussions with Contractor are that incomplete designs (>90%) will be submitted for review prior to 100% design completion.
  - CD0534 - Concern that civil works progress is slow; and there is a general lack of execution planning: Daily construction meetings are taking place to monitor progress and actively highlight areas of concern. Alstom Power has hired a new Construction Manager and Contract Manager. Workshop held 30-July-2015-purpose was to review schedule and develop strategy for schedule recovery; some progress made but much work remains to complete a recovery plan.
  - CD0508 - C&T Quarry at L'Anse au Diable may need to cease drilling & blasting after electrode line is installed (due to proximity of infrastructure susceptible to damage due to vibrations and flyrock): Preliminary discussions were held with present quarry permit holder regarding alternatives and possibly compensation if justified.
- **Telecommunications:**
  - Nothing to report this period.

### 13.1.5 ACTIVITIES PLANNED FOR UPCOMING PERIOD

- CD0502 - Construction of AC Substations:
  - Proposed detailed design review meeting with Alstom related to building architectural, mechanical and electrical services.
  - Review document deliverables from Contractor.
  - Issue engineering change notice for Muskrat Falls tap changer controller.
  - Review and respond to site queries and concession requests provided from Contractor.
  - Review response to Company issued change requests related to reactor/resistor connection, visible disconnects and telecoms structured cabling.
- PD0537 - Supply of Power Transformers, AC Substations at Churchill Falls, Muskrat Falls and Soldiers Pond:
  - Work with Contractor Alstom to develop a site assembly and preservation plan for all sites.



- Respond to agreed interface requests issued from Contractor to package.
- Identify and complete all site permitting related to transport, lift, etc.
- CD0501 - Supply and Install Converters and Cable Transition Compounds:
  - Ongoing review of submitted Alstom Grid technical documents.
  - Identify which layout drawings are to be used for basis of change.
  - Finalise ECN for Reactive Power Interchange limits.
  - Identify path forward on whether a DC Fundamental Frequency Blocking filter or a Capacitor should be used to block coupled currents.
  - Decisions on outstanding Change Requests.
  - Design Review meetings.
  - Monitor Alstom Grid mitigation plan for Engineering.
- CD0534 - Supply and Install Soldiers Pond Synchronous Condensers:
  - Ongoing review of submitted Alstom Power technical documents.
  - Decisions on outstanding Concession Requests.
  - Regular technical and design review meetings.
  - Review of quality & technical documentation associated with purchase orders, to determine whether procurement/manufacturing activities can resume.
  - Work with Contractor to implement Quality Surveillance Plan.
- CD0508 - Supply and Install of Electrode Sites: Continue with placement of core, filter stone, and armour stone at Dowden's Point; and continue to haul and install core, filter stone and armour stone for breakwater, along with installation of electrode wells at L'anse au Diable.
- SD0560 - Provision of Early Works Construction Telecommunication Services:
  - Churchill Falls Company Laydown Area:
    - Complete Telecoms scope of work for connection of Nalcor and contractor trailers.
- CD0509 - Construction Telecommunications Services at Muskrat Falls:
  - Valard Camp:
    - Complete fibre optic communications to Nalcor trailer at the Valard Camp.
  - Converter Stations and Switchyard:
    - Complete telecoms scope of work.
- CD0510 - Supply and Install Permanent Communication Systems (Permanent Telecoms):
  - Continue to develop package execution strategy.
  - Continue to finalize engineering deliverables list.
  - Review CD0510 schedule for update of Integrated Project Schedule.
  - PCN-0335 Repeaters – Permanent Phase Optical Transport Network (OTN):
    - Complete full evaluation for the Request for Proposal (RFP) for three (3) repeater sites and determine way forward.
  - PCN-0146 (Rev. 1) System Integration for LITL, MFA, LTA and MTL:
    - Continue preparation of test plan for testing of redundant Optical Transport Network gateways.
  - Optical Transport Network:
    - Address any technical questions from the bidders.

- System Integration:
  - Maritime Link:
    - Continue to develop Infeasible Right of Use (IRU) agreements with 3rd party provider and EMERA.
  - Points Approval Process:
    - Continue working with Ready for Integration on development of Points Approval Process, including definition of roles and responsibilities.
- Eastlink Fiber Optic Cables:
  - Complete splicing of fibre optic cables at Holyrood Backup Control Center (BCC).
- CD0510 Interfaces:
  - Continue with identification and management of internal and external interfaces.
  - Continue with engagement of stakeholders for development of a Points Approval Process.
  - Continue Aconex review of telecom related Contractor drawings and documents.
  - Continue with telecom base line review for packages CD0501, CD0502 and CD0534.
  - Develop plan for temporary and permanent network integration at Hydro Place.
- Terrestrial Fibre Optic Mapping:
  - Review drawing mapping Optical Transport Network “A” and “B” path fibres.
  - Continue negotiations for 3rd party telecom IRU agreements for exchange of fibres for redundant “B” path.
- ECC Upgrades:
  - Continue meetings with ECC.

## 13.2 TRANSMISSION LINE

### 13.2.1 ENGINEERING

- Post award follow on support is continuing for all 350 kV HVdc packages in support of construction of the HVdc Transmission Line.
- 230 kV Re-termination Lines at Soldiers Pond - Construction sequencing has been developed using lessons learned from 2014; multiple sessions held to review and comment on sequencing; engineering has commenced and is sufficient for bid; significant work has been completed in order to award in August.
- 230 kV Lines Modifications for HVdc Crossing - engineering complete for three crossing zones (TL232, TL201 and TL242).
- Distribution Crossings - HVdc Route sent to Newfoundland Power, report received on burial scope and cost; decision previously made from project perspective to not bury distribution lines; survey of distribution line complete; engineering have evaluated impact (PCN in progress).
- NL Electrode line - engineering commenced; and preliminary engineering complete sufficient for bid; C1 revisions required for construction contract.
- 3-year outage plan completed for re-terminations with NL Hydro; multiple presentation sessions help with NL Hydro.

### 13.2.2 PROCUREMENT

- Bid evaluations ongoing for the following Packages:
  - CT0327-050 - HVdc Clearing & Access – Section 2.



## MONTHLY PROGRESS REPORT

PERIOD ENDING: 31-JULY-2015

- RFI – RFP statistics and charts:

Description	Total Packages to Procure	Schedule to Date	Actual to Date
Issue EOI/Pre-qual.	18	18	18
Issue Request for Proposal	18	18	18
Issue PO/Contract	18	17	17

- Contracts and PO's awarded for the following Packages:
  - PT0351-001 - Supply of Wood Poles for Electrode Lines and 230 KV Re-termination Line.
- Expediting Releases are ongoing for:
  - PT0308-001 - Supply of Steel Tower Foundations HVdc: Expediting Release No.'s 128, 130, 131, 132 and 134 (8 truckloads) were issued for Argentia MY; Expediting Release Nos. 129 (3 truckloads) and 133 (1 truckload) were issued for HVGB MY during the period.
  - PT0328-001 - Supply of Transmission Line Conductors: Expediting Release No. 017 (48 reels) was issued for Argentia.
  - PT0331-001 - Supply of Tower Hardware HVdc: Expediting Release Nos. 018 (164 Skids) and 020 (132 Skids) were issued for HVGB MY; Expediting Release Nos. 019 (44 Skids) and 021 (85 Skids) were issued for Argentia MY.
  - PT0352-001 - Supply of Anchors HVdc: Expediting Release Nos. 038 (1 truckload) and 039 (2 truckloads) were issued for HVGB MY; Expediting Release No. 040 (6 truckloads) was issued for Argentia MY.
- Logistics:
  - Deliveries for PT0308-001 - Supply of HVdc Foundation Materials: Deliveries of Seg 1 and 2 for Labrador are ongoing and as of 31-July-2015, 118 shipments were delivered to the HVGB MY. There were also 14 loads delivered from the Argentia MY, to the HVGB MY. Deliveries of Seg 3-5 for Newfoundland are ongoing and as of 31-July-2015, 99 shipments were delivered to the Argentia MY.
  - Deliveries for PT0352-001 - Supply of HVdc Anchor Materials: Deliveries of Seg 1 and 2 are ongoing and as of 31-July-2015, 50 shipments were delivered to HVGB MY. Deliveries of Seg 3-5 are ongoing and as of 31-July-2015, 28 shipments were delivered to Argentia MY.
  - Deliveries for PT0328-001 - Supply of HVdc Conductors: Deliveries of Seg 1 and 2 are ongoing and as of 31-July-2015, 615 reels were delivered to HVGB MY. Deliveries of Seg 3-5 are ongoing and as of 31-July-2015, 530 reels were delivered to Argentia MY. As of 31-July-2015, 346 reels were shipped to the Port of Trois Rivieres, QC, to be delivered to Argentia, MY in October 2015.
  - Deliveries for PT0329-001 - Supply of HVdc Insulators: Deliveries of Seg 3-5 are ongoing and as of 31-July-2015, 15 containers of Lot 3 insulators were delivered to Argentia MY.
  - Deliveries for PT0330-001 - Supply of HVdc Tower Steel: Deliveries of Seg 1 and 2 are ongoing and as of 31-July-2015 the following deliveries were made to HVGB MY: Ex Houston – 406 containers and 10 truckloads; Ex Dubai - 148 containers; Ex Turkey - 32 containers; Ex India - 91 containers. Deliveries of Seg 3-5 are ongoing and as of 31-July-2015 the following deliveries were made to Argentia MY: Ex Turkey - 5 containers; Ex India - 16 containers; currently consolidating containers for Seg 3 – 5 in Houston, TX, India and Dubai, UAE.
  - Deliveries for PT0330-003 - Supply of 230 kV Tower Steel and HVdc Tower Steel Bolts: Deliveries of tower steel bolts for Seg 1 & 2 are ongoing; deliveries of 230 kV tower steel are ongoing.



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- Deliveries for PT0334-001 - Supply of HVdc Wire Rope: Deliveries of Seg 1 and 2 are ongoing and as of 31-July-2015, delivered 36 shipments to HVGB MY. Deliveries of Seg 3-5 are ongoing and as of 31-July-2015 delivered 57 shipments to Argentic MY.
- Deliveries for PT0331-001 - Supply of HVdc Tower Hardware: Deliveries of Seg 1 and 2 are ongoing and as of 31-July-2015, delivered 16 shipments to HVGB MY. Deliveries of Seg 3-5 are ongoing and as of 31-July-2015 delivered 3 shipments to Argentic MY.
- Deliveries for PT0331-002 - Supply of HVdc Guy Wire Assemblies: Deliveries of Seg 1 and 2 are ongoing and as of 31-July-2015, delivered 14 shipments to HVGB MY. Deliveries of Seg 3-5 are ongoing and as of 31-July-2015, delivered 3 shipments to Argentic MY.
- Deliveries for PT0331-003 - Supply of HVdc Implo Devises: Deliveries of Seg 1 and 2 are ongoing and as of 31-July-2015, delivered one shipment to Valard.
- Deliveries for PT0353-001 – Supply of HVdc OPGW: Deliveries of Seg 1 and 2 are ongoing and as of 31-July-2015, delivered 85 reels of ADSS conductor and 7 shipments of hardware to HVGB MY; deliveries of Seg 3-5 are ongoing and as of 31-July-2015, delivered 162 reels of ADSS conductor and 6 shipments of hardware to Argentic MY.
- Activities planned for the upcoming period:
  - Continue to manage procurement activities to meet project schedule.

**13.2.3 CONSTRUCTION**

**13.2.3.1 HVdc TRANSMISSION LINE**

- CT0327-001 – 350 kV HVdc Transmission Line:
  - Construction continues to run behind plan on Work Front 1, and as previously reported Valard had suspended construction activities on the line due to the spring thaw and the resultant poor conditions of the access. Valard has resumed construction activities as road conditions improve and as crews return from extended turnarounds. With just over 13% overall complete on Work Front 1, Valard forecasts to be out of Labrador with Anchor Installation and Foundations by the end of 2015. To support this schedule, Valard is adding additional crews to augment their current efforts as these crews finish up on the HVac lines. Progress is being monitored closely as the crews return to full capacity to gauge the overall impact of the Spring thaw.
  - Cumulative Progress to Date (work front 1) is as follows:

Commodity	Budget Total QTY	Planned to Date	Installed to Date	Variance	% Complete	SPI
Anchor Installation	1147	1023	137	(886)	11.94%	0.13
Anchor Testing	1147	991	75*	(916)	6.54%	0.08
Foundation Installation	1284	1198	313	(885)	24.38%	0.26
Tower Assembly	1284	1059	435	(624)	33.88%	0.41
Tower Erections	1284	821	57*	(764)	4.44%	0.07
Conductor Stringing	396,205	201,889	0	(201,889)	0.00%	0.00

**\*NOTE: An over-reporting error was identified by Valard in their “Installed to Date” quantities from last month that has been trued up in this month’s report**



- ROW clearing and access development is proceeding well and staying in front of planned construction activities under multiple HVdc clearing contracts:
  - Labrador - approximately 1,571 hectares have been cleared to date representing 66% complete of the clearing required for Labrador. The project continues to evaluate progress, particularly Blocks 4-7 to ensure current progress on access development in these sections supports the needs of construction; current forecast to complete this section is December 2015.
  - Newfoundland - approximately 1,321 hectares have been cleared to date representing 31% complete of the clearing required for Newfoundland; remaining blocks for clearing and access on the island are scheduled for award during Q3 2015.
- PT0330-001 - Mass fabrication activities of material for the transmission line towers are continuing in Texas, Dubai and India.

**COMMISSIONING:**

- Nothing to report this period.

**13.2.3.2 AREA HVAC LINES RE-TERMINATIONS AND MODIFICATIONS**

**CONSTRUCTION HIGHLIGHTS:**

- CT0342 - Construction of AC Transmission Line-Island:
  - Final outage construction and tie-in structures for TL218 and TL232 completed, inspected and ready for energization; turnover documents for TL218 complete; TL232 turnover preparations required; construction commenced on TL201 crossing, and poles erected for 2 of 4 structures to be completed September 2015.
  - Clearing activities completed for Soldier's Pond re-termination lines in April (28 hectares) and TL201 modification.
- CT0342-002 – Transmission Line Construction (HVac 230 kV Modifications and Island Electrode Line: To be awarded in August; survey crews have staked structures and worked with engineering to avoid bad structure locations.

**COMMISSIONING:**

- Inspection held on remaining 2 structures of TL 218 and acceptance to LCP complete; full inspection of TL218 and TL232 complete; turnover documentation in progress.

**13.2.4 ISSUES & OPPORTUNITIES**

- Degree of effort and difficulty constructing suitable access for DC construction likely lead to cost growth beyond cost target: Working both internally and with Valard to optimize work in order to seek efficiencies. Final proposals for HVdc ROW and access (Blocks 15-19) have been received and are under evaluation.
- Jyoti America's financial position impact their operating cash flow and hence threaten timely deliveries of critical HVdc tower supply: LCMC continue to work with Jyoti in order to ensure security of supply. Risk mitigation efforts continue to be implemented, including directly procuring tower bolts, and re-allocation of production to the financially stable Jyoti Gulf Fabricator's facility in Dubai and make use of spare production capacity in India.
- NCR's raised on tower foundations which do not meet dimensional tolerances; rework and reverse engineering ongoing.

**13.2.5 ACTIVITIES PLANNED FOR UPCOMING PERIOD**

- Post award follow-on engineering support for all open 350 kV HVdc packages, as well as resolving site queries and concession requests generated in the field.

- Re-termination and modification of 230 KV Lines finalize design; engineering is complete with preliminary quantities; finalize C1 documents for construction contract, and finalize material list to support procurement efforts.
- Distribution Crossings: Finalize PCN.
- Electrode Line NL: Finalize line design C1 revision.
- CT0327-001: Continue installing foundations and anchors; continue tower assembly and erection for Segment 1; continue Segment 2 tower assembly and foundation installation; and commence guy anchor installation.
- CT0327-010 Clearing (Springdale Forestry): Completed clearing, contract closeout ongoing. Implementation of remedial ballast program on unsuitable access works ongoing.
- CT0327-013 Clearing (JCL): Clearing and Access works ongoing in Blocks 4, 5 and partial 6 in Labrador.
- CT0327-011 Clearing (C&T): Continuation of access work in lower portion of Block 6.
- CT0327-014 Clearing (SFR): Clearing and access ongoing on Blocks 13 & 14 on the Island.
- CT0327-015 Clearing (JCL): Clearing and access ongoing on Blocks 9-12 on the Island.
- CT0327-050 Clearing Section 2 RFP: Finalize award recommendation for Blocks 15-18.
- CT0342-001: Non-outage work on TL201 (approximately 2 structures) to be completed.
- CT0342-002: Kick-off and commence work with focus on TL201 and TL217 at Soldier's Pond.

### 13.3 STRAIT OF BELLE ISLE (SOBI)

#### **CONSTRUCTION HIGHLIGHTS:**

- LC-SB-003 - Submarine Cable Design, Supply and Install: Tandem, lead sheathing and PE extrusion process was completed on the third cable; armoring has commenced and is ongoing. FAT of Submarine Cables 1 and 2 previously completed successfully and are stored awaiting load out in late 2015 for the 2016 installation. All fiber manufacturing and delivery is complete and embedded in cable. Installation coordination development for surge arrestor design is ongoing with Nexans/ABB in coordination with Alstom. Land cable reels have been received in Halifax and are awaiting delivery to site scheduled for mid-August 2015. Termination porcelains and installation equipment have been received in St. Anthony and are ready for mobilization to site. Mobilization readiness ongoing and HIRAs completed for the upcoming 2015 installation campaign; 2016 campaign transportation and installation engineering development ongoing.
- LC-SB-011 - Subsea Rock Placement Design, Supply and Install: Armor stone quarrying for quayside construction is ongoing. The first crib construction and installation has been completed, with 6 cribs remaining to be installed. Final rock quantities have been defined as 448,000 te for the 2016 installation campaign.
- LC-SB-021 - Civil Works: Contractor has substantially completed all civil works for the three cable vaults at Shoal Cove and Forteau Point; backfilling of the cable vaults and trenching is ongoing; handover is scheduled to be completed by early August 2015.
- LC-SB-024 - Conduit Internal Inspection: Contractor change order has been approved and kick-off performed for the upcoming campaign to verify integrity of conduit bore and preservation effectiveness; deliverable development is ongoing with the inspection date to be agreed.
- LC-SB-044 - Conduit External Inspection: Agreement has been awarded to Maritime Survey Services for the marine campaign for visual inspection of the HDD conduit exits; engineering and deliverable development has commenced, with kickoff anticipated in early August, 2015.

- Spare cable turntable site: Leases for Spare Cable Turntable Site location under development with Commercial and Lands Groups; preferred bidders have been selected for both, and final negotiations are ongoing.
- Climate controlled cable spares location has been awarded to a local vendor in Forteau.
- MWS attendance at relevant hold points for witness on behalf of insurance is ongoing with upcoming witness points in Halifax and SOBI.

**COMMISSIONING:**

- Nothing to report this period.

**ISSUES & OPPORTUNITIES:**

- 2016 submarine cable logistics and transportation engineering to ensure solution is risk mitigated: Securing of vessel for transport of submarine cables from Japan to Norway; currently ongoing discussions between Nexans and potential carriers under the guidance of LCP.

**ACTIVITIES PLANNED FOR THE UPCOMING PERIOD:**

- LC-SB-003 - Submarine Cable Design, Supply and Install: Land cable reel transportation to SOBI and local site transportation logistics for 2015; Nexans 2015 site mobilization and installation procedures, procurement and general readiness; 2015 construction coordination between Nexans, MCT Civil Contractor and C3 civil contractor; 2016 readiness for submarine cable load out and installation.
- LC-SB-008 - HDD Design and Project Support: Ongoing engineering support as required during field execution and as-builts for closeout of civil works scope of work for land cable installation.
- LC-SB-011 - Subsea Rock Placement Design, Supply and Install: Ensuring site safety while working in nearshore area for quayside construction, stemming from the awareness of an excavator incident during crib installation; quayside construction is behind schedule and a recovery plan is to be established by Contractor; final bern design and installation engineering ongoing; Contractor to address issues with quayside access road.
- LC-SB-021 - Civil Works: Civil works completion and handover to LCP and LC-SB-003 Contractor; close out remaining open items from 2014.
- LC-SB-024 - HDD Directional Drilling Services: Complete design and installation engineering and HIRA procedures; mobilize inspection equipment to site and perform inspection works.
- LC-SB-044 - Conduit External Inspection: Award contract to preferred bidder; commence installation engineering and perform audit on vessel and inspection equipment.
- Spare Cable Turntable Site: Finalization of negotiation process with preferred bidder and award.
- A detailed update with regard to the Strait of Belle Isle can be found in the [Labrador - Island Link – SOBI Marine Crossing 29-July-2015 Monthly Report](#).

**13.4 COST**

- Incurred costs for the current period and project-to-date are lower than planned mainly as a result of lower than estimated progress on the HVdc Transmission Line in the category of “Procurement and Construction”. Although construction activities on the transmission line have resumed, the impact of the spring thaw on productivity previously resulting in a temporary reduction in crews, delaying work, and the continued increased focus on construction activities for the HVac Transmission Line, factor into the variance between planned and incurred costs in this category. The

incurring of the Contingency is reflected within the incurred and future incurred costs in the above categories as and where the work is performed. Cost to complete continues to remain significant for LITL as construction activities for work in progress are ongoing.

- The overall Final Forecast Cost (FFC) for LITL continues to be aligned with the AFE approved in June 2014 however adjustments to FFC at the specific category level were made as the project progressed during the period. The Final Forecast Cost for "Procurement and Construction" has increased during the reporting period as a result of clearing cost increases on the HVdc Transmission Line under CT0327, and additional quantities and redesign of various zones on the line due to maximum wind load requirements under PT0330; offset by savings stemming from removal of fibre optic cable from the wood pole electrode line between Soldier's Pond and Holyrood under CT0342. Offsetting adjustments were made to the FFC for "Contingency" to align with the adjustments made in this category. A summary of the LITL cost profile, along with the asset overview of Project Contingency Drawdown are provided in Figures 13.4-1, 13.4-2, 13.4-3 and 13.4-4.

Figure 13.4-1: Labrador Island Transmission Link Monthly Incurred Cost Report

		Monthly Incurred Cost Report - Labrador-Island Transmission Link			For Period Ending: 25-Jul-2015			
		NALCOR ENERGY - Lower Churchill Project			COST IN CAD (\$ Thousands)			
		A	B	C = A + B	Incurred Costs			
		Original Control Budget (OCB)	Approved Project Changes	Current Control Budget (CCB)	Current Period	D Project-to-Date	E Final Forecast Cost (FFC)	G = E - C Variance from CCB
100	NE-LCP Owners Team, Admin and EPCM Services	\$253,363	-\$32,070	\$221,293	\$2,859	\$134,764	\$221,293	\$0
200	Feasibility Engineering	\$33,629	-\$12,377	\$21,252	\$0	\$21,252	\$21,252	\$0
300	Environmental & Regulatory Compliance	\$25,768	-\$7,462	\$18,306	\$604	\$9,630	\$18,306	\$0
400	Aboriginal Affairs	\$2,244	\$0	\$2,244	\$1	\$453	\$2,244	\$0
500	Procurement & Construction	\$2,187,514	\$260,132	\$2,447,646	\$86,084	\$774,863	\$2,451,406	\$3,761
900	Commercial & Legal	\$20,603	-\$4,113	\$16,490	\$145	\$13,176	\$16,490	\$0
990	Contingency	\$86,628	-\$27,378	\$59,250	\$0	\$0	\$55,489	-\$3,761
<b>CAPEX Total:</b>		<b>\$2,609,749</b>	<b>\$176,731</b>	<b>\$2,786,480</b>	<b>\$89,693</b>	<b>\$954,138</b>	<b>\$2,786,480</b>	<b>\$0</b>





MONTHLY PROGRESS REPORT

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Figure 13.4-2: Labrador Island Transmission Link Current Year Budget, Incurred and Forecast Cost

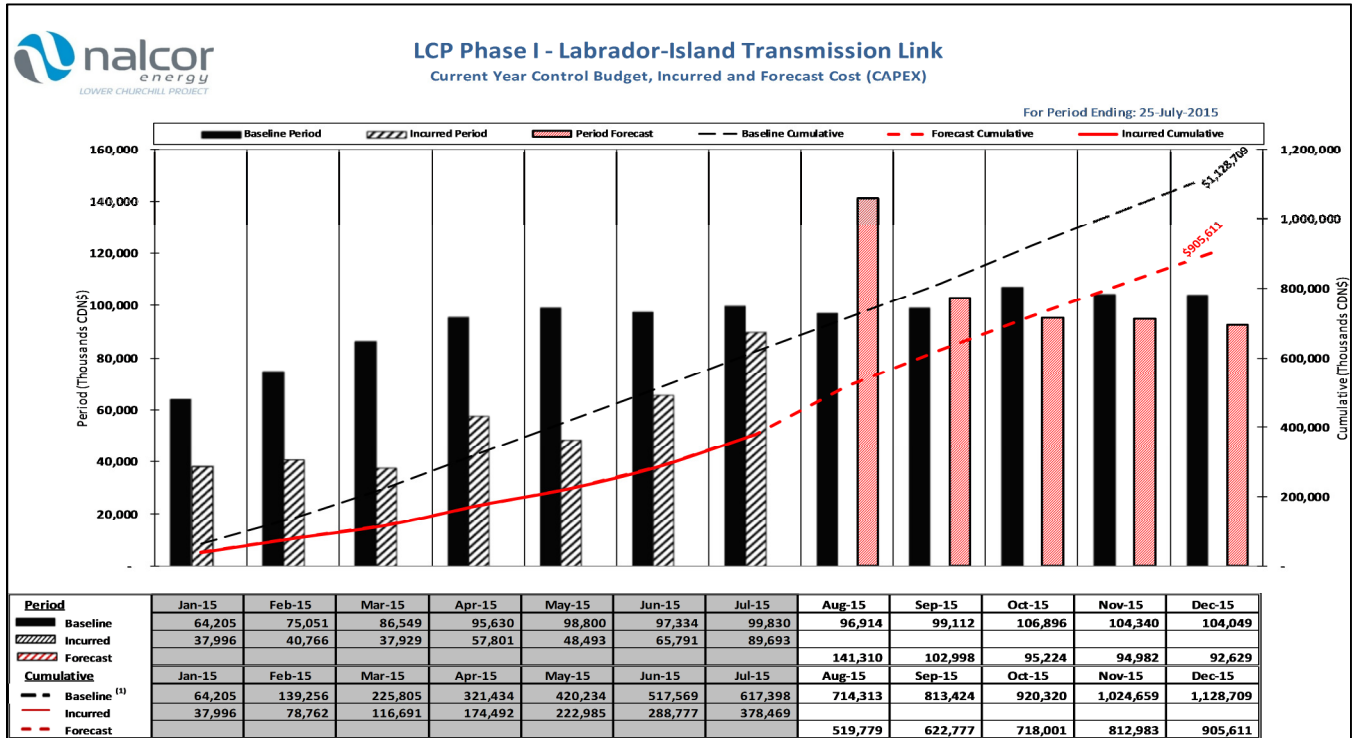
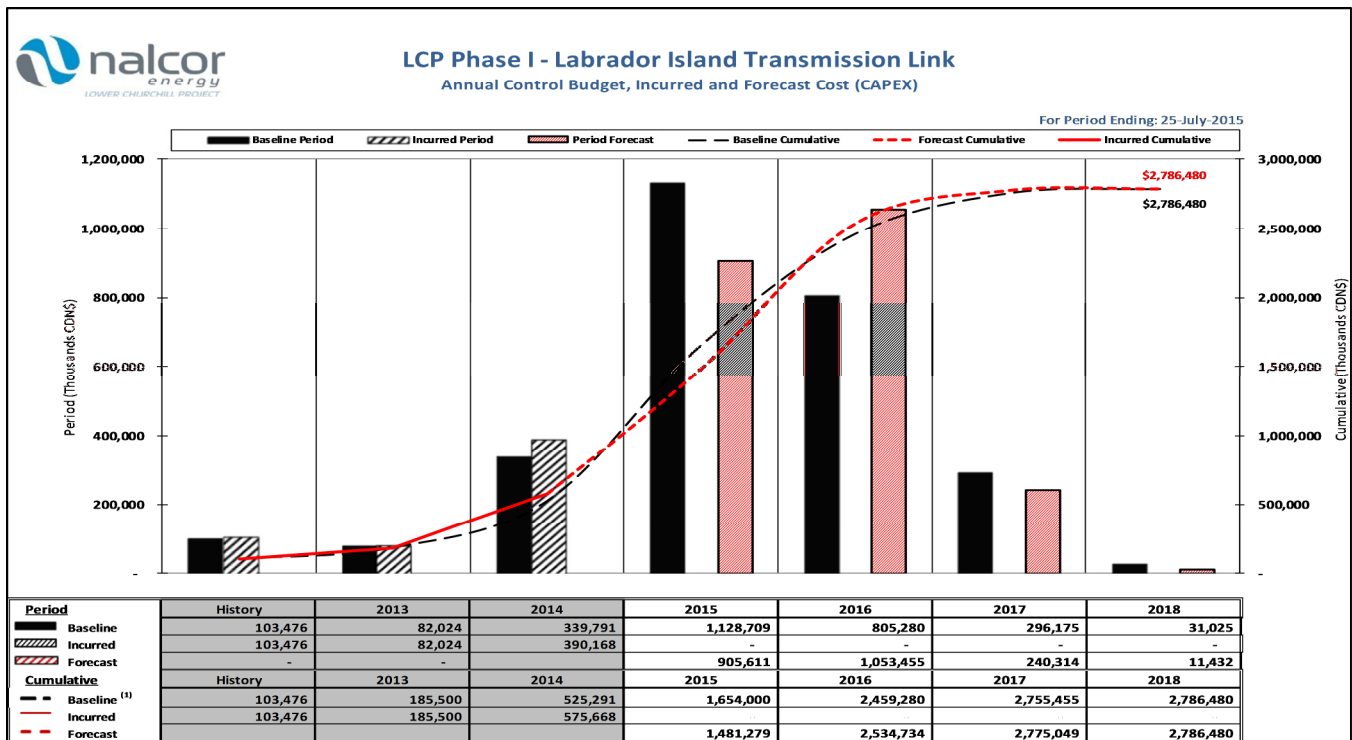


Figure 13.4-3: Labrador Island Transmission Link Annual Budget, Incurred and Forecast Cost

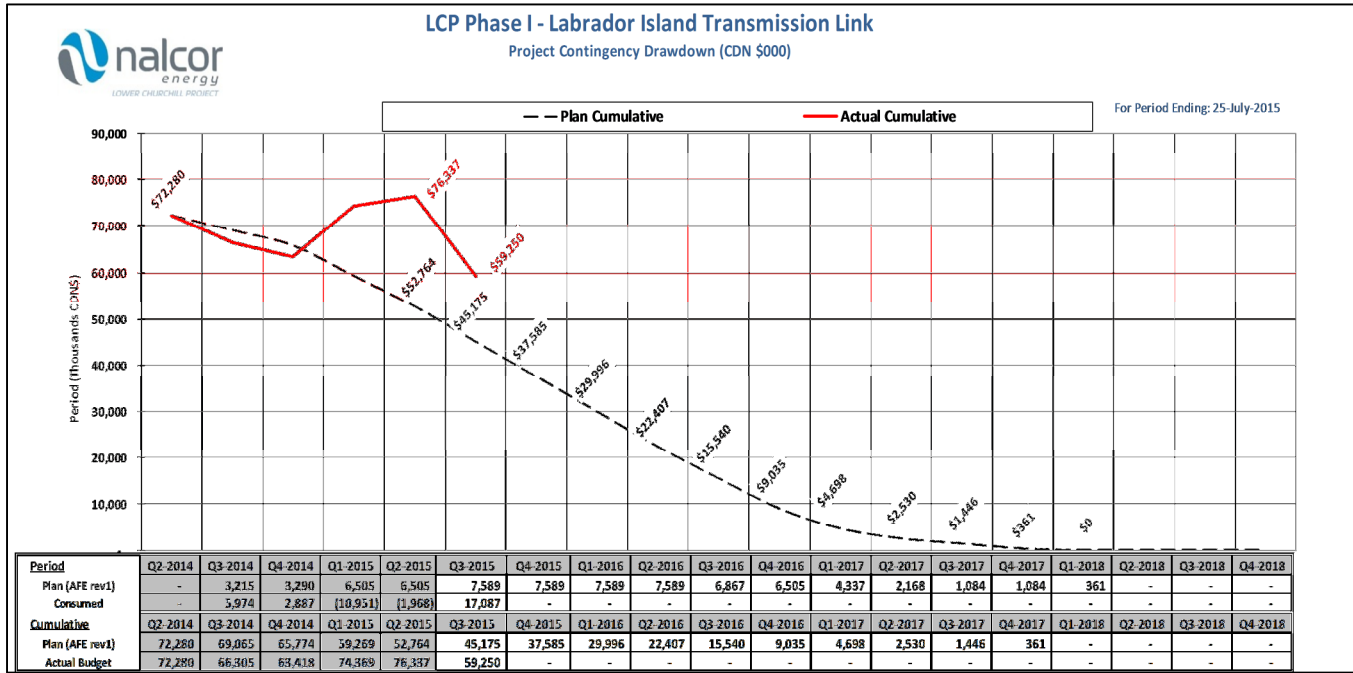




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Figure 13.4-4: Labrador Island Transmission Link Project Contingency Drawdown Curve



13.5 SCHEDULE

- Period Planned Progress was 2.6% vs. Period Earned Progress of 1.7% - Variance: -0.9%; while Period Forecast Progress was 3.0% as stated in last month's report.
- Cumulative Planned Progress was 30.7% vs. Cumulative Earned Progress of 24.3% - Variance: -6.4%; Cumulative Forecast Progress was 25.6%, as stated in last month's report.
- Progress shortfall to civil works is due to Alstom's later than planned award of the civil works contract and late civil engineering IFC drawings. The switchyard/converters and transmission lines are expected to catch up to forecast so the forecast curve remains unchanged for this month.
- Critical Path:
  - HVdc Segments 4 and 5 are interlinked so both segments are driving the LITL critical path – unchanged from last month.
- SOBI Crossing:
  - The next construction activities are land cable installation at Shoal Cove and Forteau Point scheduled for Q3 2015.
- HVdc Line:
  - HVdc Labrador Segment 1 - Final inspection date remains unchanged.
  - HVdc Labrador Segment 2 - Final inspection date delayed 11 days, well within the current float.
  - HVdc Newfoundland Segment 3 - Final inspection date remains unchanged.
  - HVdc Newfoundland Segment 4 - Final inspection date remains unchanged.
  - HVdc Newfoundland Segment 5 - Final inspection date remains unchanged.
- Converters / Switchyards / Synchronous Condensers:
  - MF Converter earthworks was completed in December 2013; concrete and building scope commenced late in the period; static commissioning is planned for June 2017, no change from last month.

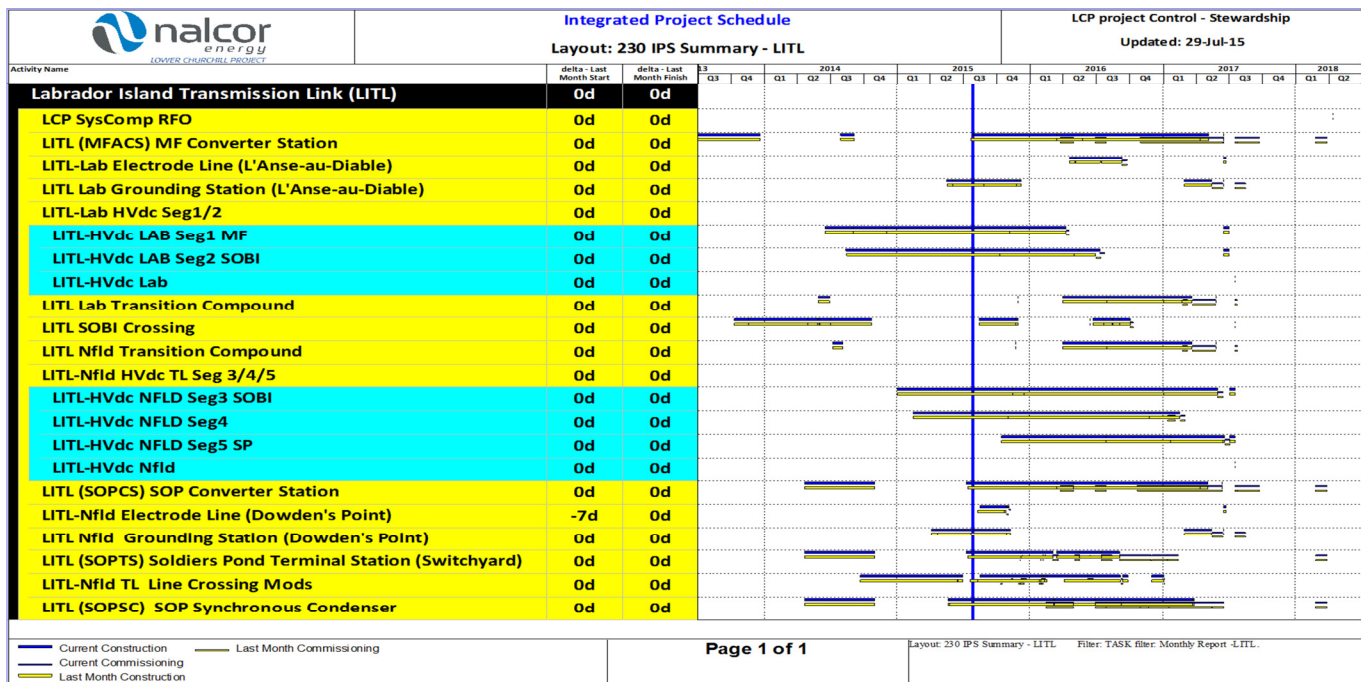


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- Soldier's Pond Converter earthworks was completed 31-Oct-2014; concrete and building scope commenced early in the period; static commissioning is planned for June 2017, no change from last month.
- SOP Switchyard earthworks was completed 31-Oct-2014; concrete and building scope commenced early in the period; static commissioning is planned for November 2016, no change from last month.
- SOP Synchronous Condensers earthworks was completed 31-Oct-2014; concrete and building scope commenced in May 2015 and is ongoing; static commissioning is planned for May 2017, no change from last month.
- Civil works of the converters/switchyards/synchronous condensers is slow to start impacting progress, but there is no effect on completion date of static commissioning.
- Transition Compounds/Grounding (Electrode Stations):
  - Work at both the Newfoundland grounding station and the Labrador grounding station (electrode stations) are ongoing, with breakwaters scheduled to be completed this year; static commissioning dates for both sites is June 2017, no change from last month.
  - Transition compound/civil structures scheduled to begin in April 2016; static commissioning dates for both Forteau Point and Shoal Cove are scheduled for May 2017, no change from last month.
- SOP Transmission Line Re-routing: Scheduling reworked to line by line level of detail.
- A summary of the Schedule and Construction Progress data for the Labrador Island Transmission Link (LITL) as reported in the Integrated Project Schedule (IPS) is outlined in Figures 13.5-1, 13.5-2 and 13.5-3.

Figure 13.5-1: IPS Summary - Labrador Island Transmission Link





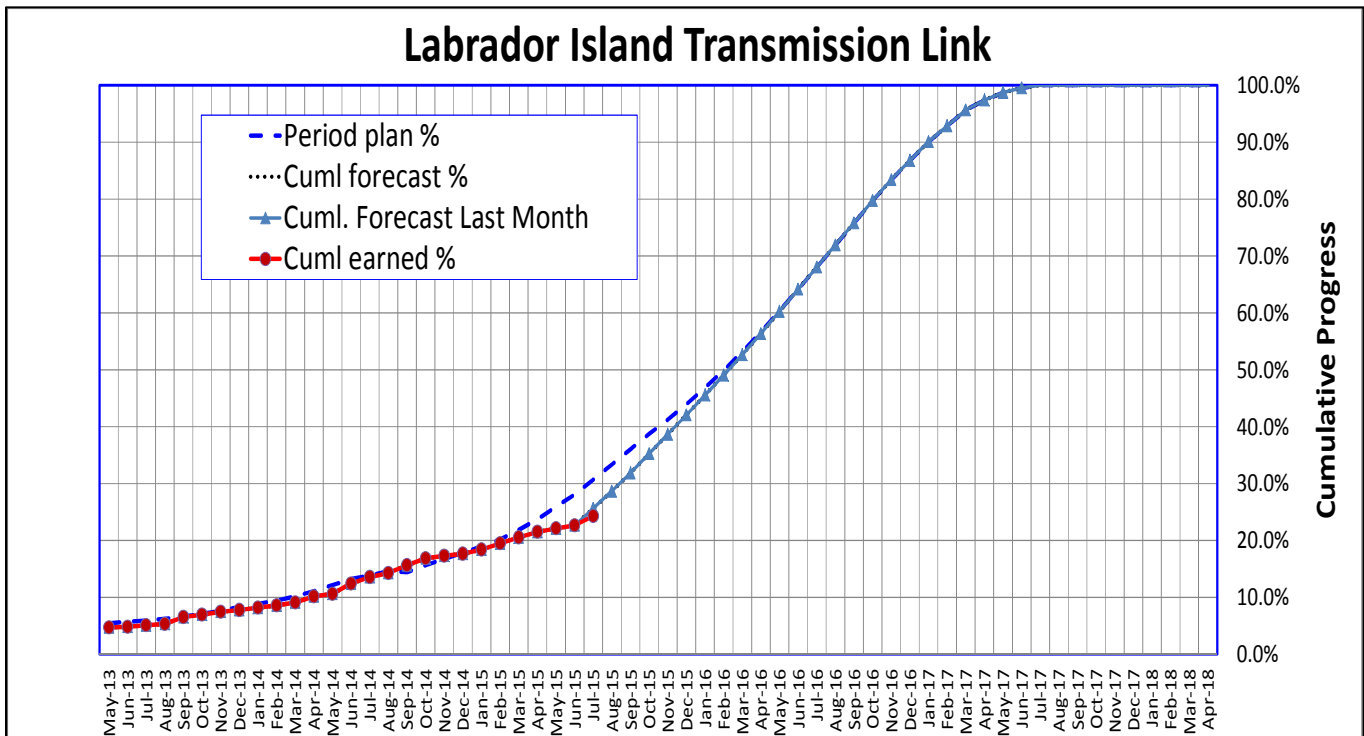
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Figure 13.5-2: Summary Construction Progress Table - Labrador Island Transmission Link

LITL Progress Table 2015 July							
This Reporting Period							
	Weight Factor % A	Period %			Cumulative %		
		Plan B	Earned C	Variance C-B	Plan E	Earned F	Variance F-E
LITL Muskrat Falls Converter	5.7%	5.9%	0.0%	-5.9%	13.6%	4.4%	-9.2%
LITL Soldiers Pond Converter	5.8%	1.9%	0.9%	-1.0%	16.1%	10.5%	-5.6%
LITL HVdc Transmission Line Seg 1/2	19.3%	3.6%	1.3%	-2.3%	32.8%	22.0%	-10.8%
LITL HVdc Transmission Line Seg 3/4/5	35.3%	3.2%	1.7%	-1.5%	16.9%	4.8%	-12.1%
LITL Grounding (Electrode) Sites	1.7%	1.7%	14.2%	12.5%	3.4%	31.8%	28.4%
LITL Transition Compounds	1.8%	0.0%	0.0%	0.0%	30.5%	33.3%	2.8%
LITL SOBI Cable Crossing	18.0%	0.8%	2.2%	1.4%	58.8%	65.4%	6.6%
LITL Soldiers Pond Switchyard	3.2%	2.9%	0.3%	-2.6%	26.9%	15.9%	-11.0%
LITL Soldiers Pond Synchronous Condensers	4.9%	2.1%	2.2%	0.1%	20.7%	14.2%	-6.5%
LITL Misc	4.3%	0.0%	0.0%	0.0%	83.0%	74.2%	-8.8%
<b>LITL TOTAL</b>	<b>100.0%</b>	<b>2.6%</b>	<b>1.7%</b>	<b>-0.9%</b>	<b>30.7%</b>	<b>24.3%</b>	<b>-6.4%</b>
Last Reporting Period							
	Weight Factor % A	Period %			Cumulative %		
		Plan B	Earned C	Variance C-B	Plan E	Earned F	Variance F-E
LITL Muskrat Falls Converter	5.7%	0.0%	0.0%	0.0%	7.7%	4.4%	-3.3%
LITL Soldiers Pond Converter	5.8%	1.6%	0.0%	-1.6%	14.2%	9.6%	-4.6%
LITL HVdc Transmission Line Seg 1/2	19.3%	3.5%	0.4%	-3.1%	29.2%	20.7%	-8.5%
LITL HVdc Transmission Line Seg 3/4/5	35.3%	3.1%	0.0%	-3.1%	13.8%	3.1%	-10.7%
LITL Grounding (Electrode) Sites	1.7%	1.3%	11.7%	10.4%	1.7%	17.6%	15.9%
LITL Transition Compounds	1.8%	0.0%	0.0%	0.0%	30.5%	33.3%	2.8%
LITL SOBI Cable Crossing	18.0%	0.7%	0.9%	0.2%	58.0%	63.2%	5.2%
LITL Soldiers Pond Switchyard	3.2%	2.3%	0.0%	-2.3%	24.0%	15.6%	-8.4%
LITL Soldiers Pond Synchronous Condensers	4.9%	1.7%	1.7%	0.0%	18.6%	12.0%	-6.6%
LITL Misc	4.3%	0.0%	0.0%	0.0%	83.0%	74.2%	-8.8%
<b>LITL TOTAL</b>	<b>100.0%</b>	<b>2.2%</b>	<b>0.5%</b>	<b>-1.7%</b>	<b>28.1%</b>	<b>22.6%</b>	<b>-5.5%</b>

Figure 13.5-3: Construction Progress Curve - Labrador Island Transmission Link



13.6 PHOTOS



CT0327-001: HVdc Transmission Line—Erecting of self-supporting structure of tower S1-45



CT0327-001: HVdc Transmission Line—Rock foundation formwork ready for concrete placement



CD0504: HVdc Specialties Civil Works and Building Services-Control Building foundations



CD0508: Supply and Install of Electrode Sites-Dowden's Point



CD0534: Supply and Install Soldiers Pond Synchronous-Formwork



SOBI: Cable vault foundations completed with backfill at Shoal Cove



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**Section 14. ATTACHMENTS**



## MONTHLY PROGRESS REPORT

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## 14.1 SAFETY STATISTICS – JULY 2015



## HSE Report

For period 01-Jul-2015 to 31-Jul-2015

	Current Period			Year to Date			Project to Date		
	Project Delivery Organization	Contractors	Total	Project Delivery Organization	Contractors	Total	Project Delivery Organization	Contractors	Total
Exposure Hours	95,353	783,985	879,338	543,113	3,795,271	4,338,384	3,849,855	10,643,872	14,493,726
<b>Leading Indicators</b>									
High Potential Near Misses	0	3	3	0	35	35	2	167	169
Near Misses	1	20	21	4	81	85	39	277	316
First Aid	0	33	33	3	148	151	18	469	487
Conditions/Hazards, Practices, & Commendations	0	0	0	1	1	2	2,976	453	3,429
Orientations Completed	218	771	989	1,607	3,993	5,600	9,260	10,044	19,304
TSA's Completed	0	52	52	0	2,980	2,980	24	4,838	4,862
StepBacks Completed	848	31,692	32,540	4,819	187,807	192,626	14,672	442,775	457,447
Worksite Inspections	497	2,799	3,296	2,359	7,689	10,048	5,252	13,975	19,227
<b>Lagging Indicators</b>									
Lost Time Injuries	0	1	1	0	2	2	0	6	6
Medical Aids	0	2	2	0	21	21	0	46	46
Occupational Illnesses	0	0	0	0	0	0	0	0	0
Restricted Work Cases	0	31	31	0	81	81	0	92	92
Vehicle Incidents	0	1	1	1	10	11	1	23	24
Restricted Work Days	0	377	377	0	1,194	1,194	0	1,337	1,337
Lost Time Days	0	44	44	0	183	183	0	185	185
Property & Equipment Damage	1	21	22	8	138	146	19	350	369
Security Incidents	0	1	1	2	10	12	3	23	26
<b>Lagging Frequencies</b>									
Total Recordable Incident Frequency Rate	0.000	8.674	7.733	0.000	5.481	4.794	0.000	2.706	1.987
Lost Time Incidents Frequency Rate	0.000	0.255	0.227	0.000	0.105	0.092	0.000	0.113	0.083
All Injury Frequency Rate				*****METRICS UNDER REVIEW*****					

**Note: Metrics for the AIFR are under review - please refer to Section 2.1 for monthly statistical reporting of this frequency.**

## 14.2 SAFETY INCIDENTS – JULY 2015

Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/28/2015 1:00:00AM	6/28/2015 1:57:15 PM	Employee in non-compliance of Safety absolute #10- failure to comply with all requirements of LCP drug and alcohol standard when entering company premises.	Near Miss	Yes
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/28/2015 8:30:00AM	6/28/2015 2:06:39 PM	While moving the hose connected to the vac truck, worker stepped to side tripped on rebar and fell on the rock hitting the right elbow.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/28/2015 9:50:00AM	6/28/2015 2:12:36 PM	IP while stepping down from a ladder stepped onto a piece of wood and twisted right foot.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/28/2015 1:30:00 PM	6/28/2015 5:36:49 PM	Operator of excavator was sorting scrap wood materials when their bucket contracted some plywood resulting in breaking the small lower window in the machine.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/29/2015 3:00:00 AM	6/29/2015 12:30:40 PM	Workers were cutting off anchor bolt rod at Tower Crane No. 4 pad; as rod bent forward after being cut, rod contacted the ring finger of workers right hand.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/29/2015 1:45:00 AM	6/29/2015 12:37:59 PM	IP was walking around a Doka form on the ground and stepped on a rock, rolling right ankle.	First Aid	





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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
C1 - Muskrat Falls Generation	Spectra Security Inc.	SH0019	6/29/2015 1:25:00 PM	6/29/2015 4:10:42 PM	Worker was backing fire truck into the firehall when the rear passenger side of the truck made contact with the weather stripping on the door of the hall. Minimal damage to the weather stripping; no damage to the firetruck.	Property & Equipment Damage	
C4 - Overland Transmission	Johnson's Construction	CT0327-015	6/28/2015 11:55 :00 AM	6/29/2015 11:16:03 PM	Manual labourer was cutting brush, while sweeping brush away and holding the chainsaw it kicked back and made contact with his left forearm.	Medical Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/29/2015 2:45:00 PM	6/30/2015 7:43:35 AM	IP was helping co-worker install speed rods when a 4x4 that was 8 feet long tipped over contacting the IP's upper left arm.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/29/2015 2:30:00 PM	6/30/2015 9:37:46 AM	IP was using pry bar to strip panels when the piece of wood came back and made contact with the IP's face resulting in a small abrasion.	First Aid	
C1 - Muskrat Falls Generation	Lower Churchill Management Corporation	LCP-MF	6/29/2015 4:00 00 PM	6/30/2015 9:55:31AM	Electrical inspector was reported to have crossed red chain by contractor.	Near Miss	Yes
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/30/2015 2:30:00 AM	6/30/2015 12:58:14 PM	A piece of plywood approximately 2'x4' slipped out of the workers hands and fell approximately 4 feet through an opening between scaffold decking deflecting off the bed rock and contacted the IP's right	First Aid	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
					leg who was working below at the time.		
C4 - Overland Transmission	Valard Construction	CT0327-01	6/29/2015 8:20:00 AM	6/30/2015 1:57:50 PM	A man lift was being pulled out with a loader; the man lift slipped, causing its bucket to strike and break loader window.	Property & Equipment Damage	
C4 - Overland Transmission	Springdale Forest Resources	CT0327-014	6/30/2015 12:50:00 PM	7/1/2015 9:15:49AM	A loaded Rock Truck travelling up a steep incline spun in mud, stalled and rolled backwards approximately 60m across the access road.	Vehicle Incident	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	6/30/2015 9:00:00 AM	7/1/2015 10:57:51AM	As IP was reaching up to gain access to a trailer deck ladder; the IP felt pain in lower left part of the stomach area.	Modified Work	
C4 - Overland Transmission	Valard Construction	CT0327-01	6/30/2015 3:00:00 PM	7/2/2015 6:51:53 AM	Truck carrying driller hit bridge.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/1/2015 3:30:00 PM	7/2/2015 5:14:20 PM	IP was coming down a ladder when they stepped off some plywood at the base and their right foot got caught in an obstruction resulting in discomfort to their right ankle. The IP was assessed July 1st with no treatment but after a recheck July 2nd additional treatment was required.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/2/2015 10:45:00 AM	7/2/2015 5:20:23 PM	IP was unscrewing an adaptor that was on an anti-two block device with a pocket knife; when the knife slipped it resulted in a	Medical Aid	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
					cut to the right index finger.		
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/2/2015 8:00:00 PM	7/3/2015 9:15:54AM	Worker was picking up material at Separation Wall and stepped on a hole covered with burlap.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/2/2015 9:00 00 AM	7/4/2015 3:27:55 PM	IP was walking out of a sea-can and struck their left knee on shelving inside the sea can.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/4/2015 2:30:00 AM	7/4/2015 4 :00:28 PM	Light vehicle made contact with a boulder while backing out from the RCC Dam resulting in damage to the rear driver's side bumper.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/3/2015 11:15:00 PM	7/5/2015 12:27 :28AM	Injured Person (IP) was stepping onto a rebar mat when his left leg slipped two feet through the mat scraping shin on left leg.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/3/2015 11:50:00 PM	7/5/2015 12:33:41AM	Injured Person (IP) and co-worker were tasked with placing a 4 m x 25 mil vertical rebar into a drilled hole in concrete. A vertical concrete wall was immediately behind the rebar being placed. During this time, the lighting went out briefly causing the IP to lose sight of their hand placement pinching left pinkie between rebar and concrete wall.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/3/2015 4:00:00AM	7/5/2015 12:37:30AM	Zoom Boom Operator was backing Zoom Boom out of the maintenance dome when the mirror made contact with the water truck.	Property & Equipment Damage	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/3/2015 2:50:00 PM	7/5/2015 12:43:47 AM	Injured Person (IP) was working with the concrete crew, tying back vertical rebar. While the concrete was being poured, some fell and landed on the set concrete, causing it to bounce up. A small amount went under the IP's safety glasses and into their left eye.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/2/2015 3:00:00 PM	7/5/2015 8:54:51AM	Injured Person (IP) was spotting for a zoom boom when IP stepped on a rock and felt pain in their right foot.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/4/2015 8:20:00 PM	7/5/2015 8:59:08AM	Injured Person (IP) was passing under rebar that was approximately four feet from the ground. IP stood up without first clearing from under the rebar, contacting top of hard hat.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/2/2015 9 20:00 AM	7/5/2015 9:59:16 AM	The Injured Person (IP) opened a Doka Hatch accessing the upper level of Pier 3A; as the IP went through the opening the hatch came down and contacted the IP in the head.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/3/2015 2:00:00 PM	7/5/2015 10:45:50 AM	Injured Person was moving some pieces of lumber, while walking with materials stepped on a rock and rolled his ankle.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/4/2015 11:15:00 PM	7/5/2015 11:34:40AM	Worker was picking up wire and placing it their bucket. As the worker was balling up the wire, a piece of wire punctured the	First Aid	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
					workers right palm.		
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/5/2015 10:00:00AM	7/5/2015 5:26:29 PM	Injured Person (IP) was bush hammering in the Spillway on Pier 1A-Q9 and felt discomfort in his left arm. IP stated they switch out bush-hammering every 10 minutes or when they need a break.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/5/2015 6:00:00 PM	7/6/2015 1:05:44 PM	IP was hooking up the end of the hose to the jib of the pump truck and felt a sharp pain in their left elbow.	First Aid	
C4 - Overland Transmission	Valard Construction	CT0327-001	7/3/2015 2:00:00 PM	7/6/2015 3:03:49 PM	Drill operator was lowering the second joint on the anchor during an install. The excavator operator maneuvered in the wrong direction causing too much slack and the anchor slipped off the coupler just missing two employees on the ground.	Near Miss	
C4 - Overland Transmission	Valard Construction	CT0327-001	7/6/2015 12:30:00 PM	7/6/2015 3:05:36 PM	Northstar Truck driver was pulling out of the access to structure 20 on the dc line with a load of rig mats. One of the straps that was in place to secure the load unhooked and landed on the opposite side of the truck. Two employees had just walked past the area where the strap landed.	Near Miss	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/ Absolute Violation
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/3/2015 3:00:00 PM	7/7/2015 7:46:58 A M	While security was on patrol observed a worker smoking outside a dorm exit in a non-designated area.	Security Incident	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/6/2015 5:20:00 PM	7/7/2015 8 :18:35AM	Worker was safing out the working deck on CTU 4A. As the worker was kneeling down they inadvertently moved the hammer with the back of their leg causing it to fall through a 2inch gap in the deck. The hammer weighed 14oz and fell approximately 70 feet to the ground.	High Potential Near Miss	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/6/2015 11:30:00 PM	7/7/2015 8:21:57 AM	IP was ascending a ladder when they contacted the back of their neck with a piece of uncapped rebar.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/6/2015 10:15:00 PM	7/7/2015 8:32:18 AM	Worker was on B-line when they heard the crane horn sound, the worker moved to get out of the way and tripped in the guy wire and fell to the rebar mat.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/6/2015 11:45:00 PM	7/7/2015 12:5352 PM	Worker climbed up a ladder to reach onto the panel and put upper body weight onto doka panel; the weight shifted, and the edge of the handrail made contact with the top of a step ladder that was right underneath and damaged the top of the ladder.	Property & Equipment Damage	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/7/2015 8:30:00 AM	7/7/2015 3:35:48 P M	IP was rerouting hose for a vac truck when the hose slipped over the safety railing causing the end of the hose to hook the IP's thumb.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/7/2015 12:45 :00 PM	7/7/2015 5 :17:39 PM	IP was cutting a piece of 2x4 with a mitre saw when the saw jammed and the 2x4 made contact with the knuckle of the IPs left ring finger.	Modified Work	
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/6/2015 8:15:00 PM	7/7/2015 5 :58:31 PM	While preparing to clean the OE lunch trailer, the worker cut her right index finger on the wooden broom handle while placing the broom behind the door.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/8/2015 1:00:00 AM	7/8/2015 8:37:33 AM	Worker had just pried a piece of 7x8 plywood from work deck for the process of jumping panels. As they were moving another piece of lumber out of the way to nail the plywood to the deck, the plywood went through the 2 inch gap between the panels and fell 40 feet to the North Transition Dam below. Area was barricaded to ensure that no one could enter.	Near Miss	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/8/2015 4:00:00AM	7/8/2015 8:39:44 AM	IP was installing inverted dowels when they stepped off the rebar onto the uneven ground. In doing so, their foot got hooked in the rebar. This caused them to lose their balance and fall on the	First Aid	Yes



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
					rocks.		
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/7/2015 11:40:00 PM	7/8/2015 10:30:15 AM	Fuel truck operator was driving up the hill from the lower level of Q-6 to fuel equipment located in the area. Upon reaching the crest of the hill, the bracket on the bottom of the fuel truck struck into a rock on the road, damaging the fuel transfer pump which resulted in a fuel leak.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/8/2015 1:45:00 PM	7/8/2015 5:32:10 PM	Individual was installing re-enforcement rods though form block-outs and was observed above 6' without being properly tied off.	High Potential Near Miss	Yes
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/8/2015 2:25:00 PM	7/8/2015 5:34:11 PM	After worker had lodged 8 inch plates on the working deck of pier SA the worker stood up and felt discomfort in their lower back.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/8/2015 5:45:00 PM	7/9/2015 7:57 :14 A M	Worker was carrying a scaffold plank and their left pinky finger got pinched between plank and the railing.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/8/2015 8:30:00 PM	7/9/2015 8:07 :42 A M	Worker had unhooked a 4-way bridle sling from a doka stair tower; as they let go the hooks to turn around a gust of wind blew the hook over, hitting their hard hat. The hard hat then fell approximately 21 feet to the	Near Miss	





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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/ Absolute Violation
					controlled zone below.		
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/8/2015 9:00:00 PM	7/9/2015 8:19:00 AM	IP was stepping down from a two-step set of scaffold stairs into the D-line area of the Powerhouse when the person slipped but did not fall while exiting stairs, resulting in discomfort to back.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/9/2015 1:27:00AM	7/9/2015 8:22:26 AM	Haul truck was backing into the main office laydown by the draft tube liners to supply material to the excavator to widen the pad. During this, the haultruck right rear passenger side tire contacted a liner shifting it off dunnage resulting in damage to the tire.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/9/2015 4:45:00AM	7/9/2015 8:27 :34 A M	IP was pulling on a piece of rebar when their foot slipped and buckled; the IP felt pain in left knee.	Modified Work	
C3 - HVdc Specialities	Alstom Power	CD534-sp	7/8/2015 3:30:00 PM	7/9/2015 1:03:43 PM	A concrete pump truck was retracting its boom, when a small piece of concrete fell from the pump landing near the worker.	Near Miss	
C1 - Muskrat Falls Generation	Labrador Catering	SH0018	7/9/2015 9:00:00AM	7/9/2015 4:13:48 PM	An employee approached management with concerns of a co-worker being intoxicated. Upon speaking with the employee there was a strong smell of alcohol detected.	Near Miss	Yes



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/ Absolute Violation
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/9/2015 4:35:00 PM	7/10/2015 8:30:29AM	IP was cutting rebar with ban saw when the ban saw jammed resulting in a cut to the right pinky finger.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/9/2015 6:00:00 PM	7/10/2015 8:32:19AM	JLG operator was assisting with offloading materials when the JLG hit a shallow ditch and contacted a wood decking which was stacked up in the immediate area. Minor damage was sustained by the JLG.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Lower Churchill Management Corporation	LCP-Mf	7/10/20 15 9:00:00 AM	7/11/2015 9:25:33 AM	Air pressure inside the sports complex was too high, causing steel door frame to separate and lift off the concrete foundation.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/11/20 15 5 :10:00AM	7/11/2015 9:54:01 AM	Injured Person was bending over to pick up a bench when a protruding nail from the concrete wall behind the worker punctured their buttocks.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/11/2015 9:00:00 AM	7/11/2015 2:01:02 PM	While using the Zoom Boom to bring 10 ft. embeds into dome, the embeds made contact with the door frame breaking a piece of 2x4.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/11/20 15 1:50:00 PM	7/11/2015 5:12:38 PM	Excavator operator was breaking rock (with Tramac Hammer) at Sector 4 when a small rock ricocheted off of another rock, smashing the front and rear windshields on the excavator. No injury occurred.	Property & Equipment Damage	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/11/2015 3:40:00 PM	7/12/2015 7:56:37 AM	Worker was installing safety rails on the top deck of the Doka forms. Worker went to stand up from kneeling position when their hammer hooked the mid-rail causing it to fall out of the holder. The hammer fell 3 feet to the deck below grazing another workers left arm.	Near Miss	
C4 - Overland Transmission	Valard Construction	CT0319	7/9/2015 2:00:00 PM	7/12/2015 11:19:31AM	Driller's helper lifting drill casing sunk in mud while walking on site. Upon pulling his foot free, the employees left foot came out of the boot and contacted the drill, bruising it.	Modified Work	
C4 - Overland Transmission	Valard Construction	CT0319	7/11/20 15 2:30:00 PM	7/12/2015 11:22:16 AM	Employee backing out of tower site onto right of way road reversed into the parked mantis crane that had recently been moved to that location. No damage to crane but rear passenger side damage to pick-up.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/12/2015 9:50:00 AM	7/12/2015 1:41:20 PM	Injured Person (IP) was moving rebar when 1 piece of rebar fell 5 inches onto the IP's right hand.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/11/20 15 11:40:00 PM	7/12/2015 1:58:42 PM	Injured Person (IP) was drilling holes in the rock while standing on a rebar mat. The IP stepped backwards and fell onto some exposed rod resulting in a small abrasion on their right upper leg.	First Aid	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/11/2015 9:00:00 PM	7/12/2015 2:10:52 PM	Laborers were cleaning inside of a sloped rebar mat and were placing materials/debris at the top of the cage. A 6 foot speed rod slid down and out through the form, fell down through some scaffold decks, and then came to a stop on a deck after travelling approximately 50 feet.	Near Miss	
C4 - Overland Transmission	Valard Construction	CT0327-001	7/10/2015 12:20:00 PM	7/12/2015 5:01:55 PM	Starter on the generator of grout truck was defective, and caught on fire.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/12/2015 12:30:00 PM	7/13/2015 10:00:23 AM	Injured Person (IP) was walking from lunchroom back to worksite when they rolled their right ankle on a rock.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/12/2015 11:15:00AM	7/13/2015 10:07:54 AM	Injured Person (IP) was replacing plywood walkway and tripped on rebar. IP caught themselves with their right hand and felt discomfort to 5th digit.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/13/2015 3:45:00 AM	7/13/2015 10:15:41 AM	Injured Person (IP) was walking with a 3 meter steel deck on their shoulder and rolled right ankle on a rock.	First Aid	
C4 - Overland Transmission	Valard Construction	CT0327-01	7/7/2015 11:45:00 AM	7/13/2015 2:01:10 PM	Tire of a rock truck struck a rock on the side of the road resulting in the truck starting to sway. Spongy and uneven ground conditions contributed to the truck leaving the road, causing the dump section to tip over.	Near Miss	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/13/2015 7:25:00 AM	7/13/2015 2:28:42 PM	Individual was observed working on the roof of the Ice Machine without Fall Protection.	Near Miss	Yes
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/13/2015 10:50:00AM	7/13/2015 3:20:18 PM	Injured Person (IP) was removing guardrail from the middle deck of Pier 1A; a piece of the wooden guardrail was caught behind the form work. IP swung the hammer with the claw end at the wood; the hammer glanced off the wood and struck his right knee.	Modified Work	
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/11/2015 5:20:00 AM	7/13/2015 3:29:56 PM	At the end of the shift, a rock truck driver was doing an inspection of his vehicle when he noticed that the fuel access protector had been damaged.	Property & Equipment Damage	
C4 - Overland Transmission	Valard Construction	CT0327-001	7/12/2015 11:00:00AM	7/13/2015 3:38:44 PM	Crew member struck elbow with 8 ft piece of loading pipe. Crew member was assessed by on-site medic and was referred to see physician the following morning, after reassessment.	Modified Work	
C4 - Overland Transmission	Valard Construction	CT0319	7/13/2015 10:00:00 AM	7/14/2015 8:47:39 AM	Employee installing spacers from STR 170-169 on a steep incline. The cart was slipping slightly due to wet condition of the wire therefore, the employee was assisting movement toward STR 169 when they felt a sharp pain in their abdomen.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/13/ 20 15 3:30:00 PM	7/14/2015 9:30:47 AM	Injured Person (IP) was walking downstairs to Tailrace No. 4. As	Modified Work	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/ Absolute Violation
					the IP stepped onto the ground they rolled their right ankle.		
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/14/2015 2:00:00 PM	7/14/ 2015 4:32 :16 PM	While installing 750 kcmil cable, the Injured Person (IP) was lifting the cable over a strut leg which is used to support the tray. Once the cable was lifted over the strut the IP attempted to lay the cable into the tray and at this time they pinched their hand between the heavy cable and tray.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/15/2015 8:15:00 AM	7/15/2015 12:24:11 PM	While landing a load of lumber with the Tower Crane the Injured Person (IP) was walking on working deck of the pier, when IP's left leg made contact with a Dewie Dag rod protruding into the walkway resulting in a minor laceration to the left leg.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/17/2015 11:30:00PM	7/ 17/2015 9:39:33 AM	IP was placing cement with the hose from the pumper truck when the IP felt discomfort in the right shoulder.	First Aid	
C4 - Overland Transmission	Valard Construction	CT0327-01	7/16/2015 1:30:00 PM	7/17/2015 11:19:08 AM	Operator was backing in with a spotter to dump load, pulled ahead to straighten out RT, shoulder under front left tire gave way causing the cab section of the truck to slide into ditch. Cab section tipped on an angle but the dump section stayed upright.	Near Miss	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
C4 - Overland Transmission	Valard Construction	CT0327-01	7/14/2015 10:20:00PM	7/17/2015 11:46:33 AM	Rock truck box failed, jolting worker.	Modified Work	
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/14/2015 1:00:00AM	7/17/2015 12:43:29 PM	Non-approved sub-contractor asked to leave the worksite.	Near Miss	Yes
C3 - HVdc Specialities	Alstom Power	CD534-sp	7/17/2015 11:30:00AM	7/18/2015 9 22:15 AM	Potential worker under a suspended load.	Near Miss	Yes
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/18/20 15 5:30:00 AM	7/18/2015 1:05:06 PM	Injured Person (IP) was assisting in lining up the bit on a concrete drill that had an extension of five feet. In the process, their glove got caught on the extension when the drill bit was inadvertently pushed, resulting in the IP's hand getting caught on the extension and straining their hand.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/17/2015 1:30:00 AM	7/18/2015 1:11:40 PM	Injured Person (IP) was adjusting a U-Bar and pinched left forearm between the U-Bar and a vertical bar.	First Aid	
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/5/2015 12:30:00PM	7/18/2015 1:19:25 PM	The forks of a Caterplilard forklift was damaged while trying to free them. The fork was stuck between the ground and a low bed platform.	Property & Equipment Damage	Yes
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/18/2015 11:00:00AM	7/18/2015 2:30:03 PM	Injured Person (IP) was walking across rebar mat and struck their nose on a piece of horizontal rebar.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/18/2015 7:15:00 AM	7/18/2015 5:23 :46 PM	IP was walking down steps, when they misjudged the last step and landed heavily on their right foot	First Aid	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
					resulting in discomfort to the right hip.		
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/18/2015 10:15:00AM	7/19/2015 11:11:47 AM	IP was bolting up beams; when stepping up onto the beam (approx. 2ft elevation) IP's left foot slipped resulting in discomfort to their left knee.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/19/2015 9:00:00 AM	7/19/2015 11:18:28 AM	IP was walking on a rebar matt when their foot slipped between the rebar and scraped their shin.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/19/2015 7:57:00 AM	7/19/2015 1:38:58 PM	Worker was preparing to jump panels on Pier 2A; as they were removing an upper piece of plywood (filler), the bottom filler fell off and went down through work deck and trailing deck and landed on the ground below. It did not fall in a controlled zone and there was no one in the area at the time of the incident; the filler fell 100 feet.	Near Miss	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/17/2015 2:30:00 PM	7/19/2015 1:42:26 PM	After inspecting a piece of equipment at the crusher the worker got into their 1/2 ton vehicle and while driving forward the right front bumper contacted a concrete barrier moving it 2-3 feet. Damage was sustained to the front bumper.	Property & Equipment Damage	Yes





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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/ Absolute Violation
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/19/2015 9:30:00 AM	7/19/2015 3:07:24 PM	A light low velocity contact between a Roller and a Loader. The Loader operator was getting the go to go to proceed from the roller operator but the roller backed off; no monetary damage.	Near Miss	
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/16/2015 9:00:00 AM	7/20/2015 7:58:32 AM	While working at RT-03, worker stepped off the shoulder of the road onto uneven ground, slipped, and cut his wrist on the ground surface.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/19/2015 9:00:00 PM	7/20/2015 10:06:15 AM	IP was scraping concrete forms when they overextended feeling discomfort in right chest area.	Modified Work	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/19/20 15 9:10:00 PM	7/20/2015 10:10:17 AM	IP was walking along pier SB-06 in the Spillway with a small piece of lumber when the IP scraped their left leg on a piece of rebar.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/20/20 15 1:55:00 AM	7/20/2015 10:13:30A M	IP was carrying rebar to the rotor table when the IP tripped on a piece of rebar twisting their ankle.	Modified Work	
C4 - Overland Transmission	Valard Construction	CT0319	7/19/20 15 1:00:00 PM	7/20/2015 2:36:56 PM	Operator moving reels of wire placed a reel upon rig mat. The operator returned with another reel and observed the reel had moved approximately 4 feet and contacted a parked pick-up truck.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/20/20 15 2:15:00 PM	7/20/2015 5:34:23 PM	IP was pulling out support bars from the ground as they attempted to pull out a bar, the bar stayed in place resulting in excessive strain being placed on	Modified Work	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
					the IP's right ribs.		
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/20/20 15 6:50:00AM	7/21/2015 9:35:08 AM	While IP was descending off a ladder the IP twisted their right ankle.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/21/20 15 4:30:00AM	7/21/2015 10:28 :16AM	While tower crane 1 was completing a blind lift (stair tower), a communication failure occurred over the radio resulting in the cable making contact with a guardrail.	High Potential Near Miss	
C1 - Muskrat Falls Generation	Labrador Catering	SH0018	7/20/20 15 4:30:00 PM	7/21/2015 2:00:57 PM	Staff was cleaning a room in PO Dorm. She moved a n item on the desk in order to clean it. The item turned out to be a lancet and she pricked the forefinger and thumb of her right hand.	Near Miss	
C4 - Overland Transmission	Johnson's Construction	CT0327-015	7/18/20 15 10:00:00 AM	7/21/2015 5:55:29 PM	Operator was using a 155 dozer, while performing routine task, operator conducted a shoulder check, and instantly felt a sharp pain in his lower back. Seek medical attention.	Modified Work	
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/19/20 15 11:50:00 PM	7/21/2015 11:00:36 PM	Worker was refueling a 40T wiggle wagon when it appeared as if the fuel overflowed and ran down the fender onto the heated exhaust causing a small fire which was put out within seconds.	Near Miss	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/21/20 15 10:10:00 PM	7/22/2015 9:14:26 AM	IP was descending a ladder when they misjudged the landing which caused the IP to slip and fall	Lost Time Incident	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
					approximately 2-3 feet below the platform. The IP contacted the landing with their right side while still maintaining contact with the ladder.		
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/21/20 15 2:30:00AM	7/22/2015 9:16:48 AM	IP was walking between Pier 3A and 4A and stepped on a piece of wood covering a 1 foot hole. The plywood moved and the IP tripped causing a small abrasion to the lower left leg.	First Aid	
C4 - Overland Transmission	Springdale Forest Resources	CT0327-014	7/2 1/2015 4:50:00 PM	7/22/2015 2:20:01 PM	Boom Mulcher operator was clearing trees at chainage 324+000 (Structure 54-244). Operator notices a small fire approximately 6" X 6", approximately 10 ft. from his machine where he had previously mulched.	Near Miss	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/23/2015 9 :20:00 AM	7/23/2015 4:16:48 PM	IP was walking along the top level of Pier A-12 and put hand on some tired rebar to guide themselves along, when a piece of tie wire punctured through the IP's work glove and into the IP's finger.	First Aid	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/24/2015 9:20:00 AM	7/24/2015 1:54:27 PM	Worker was cleaning around scaffold; the worker slipped on burlap and caught themselves on a scaffold ledger.	Modified Work	



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Component	Company	Contract	Time of Incident	Reported	Description	Class	Potential Safety/Absolute Violation
C1 - Muskrat Falls Generation	Gilbert NL Construction	CH0008	7/23/2015 10:40:00 PM	7/25/2015 12:11:04 AM	Worker dumping load from semi-dump in the laydown area. When he raised the dump the box started to lean causing the dump to tip over.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/24/2015 3:55:00 PM	7/25/2015 8:52:18 AM	While reversing into a parking spot at E-Laydown, the rear end of a light vehicle made contact with the front of a car already parked in the area.	Property & Equipment Damage	
C1 - Muskrat Falls Generation	Astaldi Canada Inc.	CH0007	7/24/2015 11:40:00 PM	7/25/2015 8:55:55 AM	While loader operator was reversing a light vehicle truck approached their left side. As the operator was watching the truck they made contact with a flatbed trailer that was parked on the right side of the loader.	Property & Equipment Damage	

## 14.3 ENVIRONMENTAL INCIDENTS – JULY 2015

Transmission Line Type / Contract	Date of Incident	Description of Incident: Fluid Release Incidents (>2L)	Risk Assessment	
			Actual Consequence	Maximum Reasonable Consequence
<b>AC Construction (Labrador)</b>				
CT0319	09-Jul-15	15L of hydraulic oil was believed to have leaked from a transport truck owned by Merchants Construction that was left on Access Road 50.	Contamination of the immediate ground.	No migration
CT0319	16-Jul-15	12.5L of motor oil leaked from a damaged filter on a Ford F-150 pickup on Highway 420.	Contamination of the immediate ground.	No migration
CT0319	20-Jul-15	3L of diesel leaked from a damaged fuel connection on a truck owned by Woodward's at the Muskrat Camp.	Contamination of the immediate ground.	No migration
CT0319	23-Jul-15	25L of diesel leaked from a damaged fuel line on a fuel truck at the Diver Brook work front.	Contamination of the immediate ground.	No migration
CT0319	24-Jul-15	3L of motor oil leaked from a skid steer as a result of normal wear and tear on Access Trail 126.	Contamination of the immediate ground.	No migration
CT0319	31-Jul-15	3L of hydraulic oil leaked from a damaged line on an excavator at Structure L1-299.	Contamination of the immediate ground.	No migration
<b>DC Construction (Labrador)</b>				
CT0327-001	04-Jul-15	15L of hydraulic oil leaked from a damaged seal on a TT03 Peterbelt at Structure S1-183.	Contamination of the immediate ground.	No migration
CT0327-001	05-Jul-15	15L of hydraulic oil leaked from a TT03 Peterbelt in the Muskrat Camp parking area.	Contamination of the immediate ground.	No migration
CT0327-001	18-Jul-15	3L of hydraulic oil leaked from a failed hydraulic line on an excavator at Structure S1-221.	Contamination of the immediate ground.	No migration
CT0327-001	23-Jul-15	5L of hydraulic fluid leaked from a failed hydraulic line on an excavator at Structure S2-544.	Contamination of the immediate ground.	No migration
CT0327-001	24-Jul-15	2.5L of hydraulic fluid was spilled when a container overturned at the Structure S1-272 Laydown.	Contamination of the immediate ground.	No migration
CT0327-001	24-Jul-15	2.5L of engine oil was spilled from an unknown source at the Structure S1-272 Laydown.	Contamination of the immediate ground.	No migration

Transmission Line Type / Contract	Date of Incident	Description of Incident: Fluid Release Incidents (>2L)	Risk Assessment	
			Actual Consequence	Maximum Reasonable Consequence
<b>DC Clearing/Access (Newfoundland and Labrador)</b>				
<b>CT0327-010</b>	06-Jul-15	30L of engine oil leaked from a broken seal on a haul truck at Structure S1-238.	Contamination of the immediate ground.	No migration
<b>CT0327-010</b>	25-Jul-15	<5L of diesel leaked from an overfilled fuel tank on a pickup at the Structure S1-379 Access - Route 510 intersection.	Contamination of the immediate ground.	No migration
<b>CT0327-011</b>	24-Jul-15	Various spills of unknown fluids were found at the abandoned Laydown between Structures S2-460 and S2-461. Total amount spilled was estimated to be 4L.	Contamination of the immediate ground.	No migration
<b>CT0327-011</b>	27-Jul-15	3.5L of 5W-20 leaked from a ruptured hose on a Sandvik rock drill at the Structure S2-408 Borrow Source.	Contamination of the immediate ground.	No migration
<b>CT0327-013</b>	02-Jul-15	8L of antifreeze leaked from a busted radiator hose on a forwarder at KM 58.5 on St. Paul's River Road.	Contamination of the immediate ground.	No migration
<b>CT0327-013</b>	23-Jul-15	2L of hydraulic fluid leaked from a hose on an excavator at the Structure S1-569 Quarry.	Contamination of the immediate ground.	No migration
<b>CT0327-014</b>	19-Jul-15	40L of hydraulic oil leaked from a broken hose on a forwarder on Picketts Branch Road (chainage 221+150 to 222+750).	Contamination of the immediate ground.	No migration
<b>CT0327-014</b>	27-Jul-15	3L of hydraulic oil leaked from a broken hose on a processor at a chainage of 316+500 on Sheffield Lake Road.	Contamination of the immediate ground.	No migration
<b>CT0327-015</b>	07-Jul-15	3L of hydraulic fluid leaked from a broken line on a processor at Structure S3-300.	Contamination of the immediate ground.	No migration
<b>Generation Site (Labrador)</b>				
<b>CH0007</b>	01-Jul-2015	2L of coolant leaked from line failure on crane.	Contamination of the immediate ground.	No migration
<b>SH0022</b>	03-Jul-2015	40L of waste oil released to ground from a vacuum truck due to valve failure.	Contamination of the immediate ground.	No migration
<b>CH0007</b>	11-Jul-2015	4L of hydraulic fluid released from an over-pressurized tank on a roll-on/roll-off truck at the Rebar Laydown, Area B.	Contamination of the immediate ground.	No migration
<b>CH0007</b>	13-Jul-2015	10L of hydraulic fluid released to ground from a damaged crusher cone at Area C1 LRM Crusher.	Contamination of the immediate ground.	No migration

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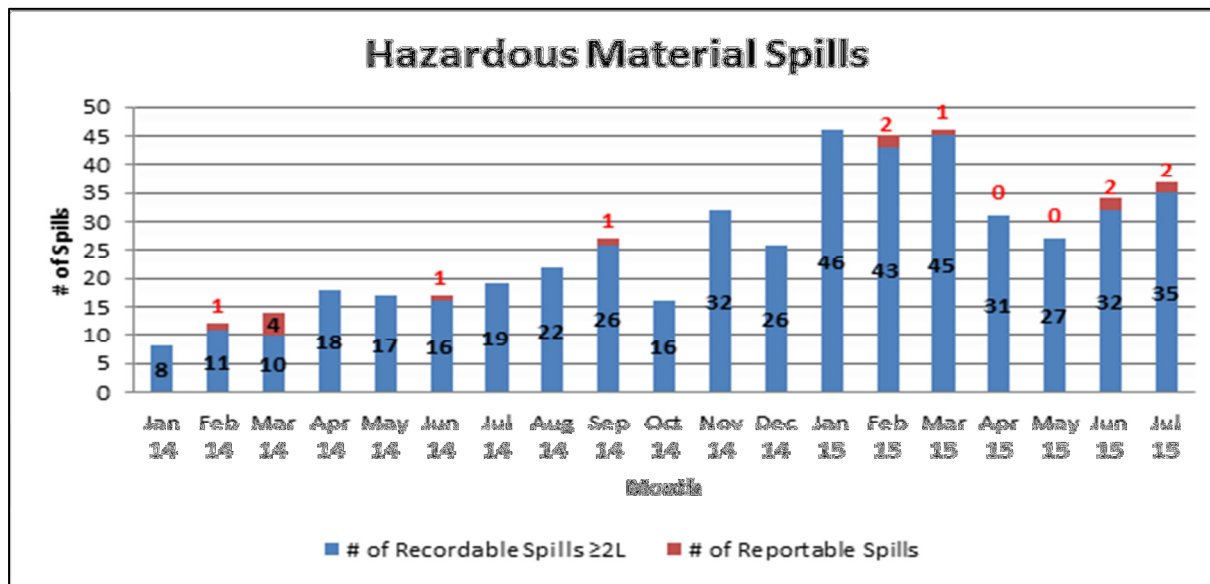
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Transmission Line Type / Contract	Date of Incident	Description of Incident: Fluid Release Incidents (>2L)	Risk Assessment	
			Actual Consequence	Maximum Reasonable Consequence
CH0008	01-Jul-2015	10L of transmission fluid released to ground from a failed hose on a rock truck at RT01A, behind the Laydown.	Contamination of the immediate ground.	No migration
CH0008	04-Jul-2015	17L of oil released to ground from a damaged oil pan on a Sterling dump trailer at the Laydown area.	Contamination of the immediate ground.	No migration
CH0008	06-Jul-2015	4L of coolant released to ground from a failed hose on a CAT 740 in the Upstream area (bottom of RT03A).	Contamination of the immediate ground.	No migration
CH0008	07-Jul-2015	10L of oil released to ground from a failed hose on Sterling dump trailer at the 2C Gravel Stockpile.	Contamination of the immediate ground.	No migration
CH0008	07-Jul-2015	100L of diesel released to ground from a damaged fuel pump on a fuel truck at Q6 west upper access road. This was reported to the Environmental Emergencies Line.	Contamination of the immediate ground.	No migration
CH0008	11-Jul-2015	35L of hydraulic fluid released to ground from a failed o-ring on a hydraulic hose on an HDGC5 Komatsu at the Upstream embankment.	Contamination of the immediate ground.	No migration
CH0008	26-Jul-2015	10L of hydraulic fluid leaked from a failed filter fitting on a grader on TLH 500 (500 meters east of GR2).	Contamination of the immediate ground.	No migration
<b>HVdc Specialties</b>				
CD0508	15-Jul-2015	L'Anse au Diable - 5L of hydraulic fluid released to ground from a failed hose on a CAT 390 on the Breakwater.	Contamination of the immediate ground.	No migration
<b>SOBI</b>				
LC-SB-021	01-Jul-2015	2L of hydraulic fluid released to ground from loader due to hydraulic hose failure.	Contamination of the immediate ground.	No migration
LC-SB-011	28-Jul-2015	0.5L of oil released to water during launching of work boat. This was reported to the Environmental Emergencies Line.	Minor sheen on water	No migration



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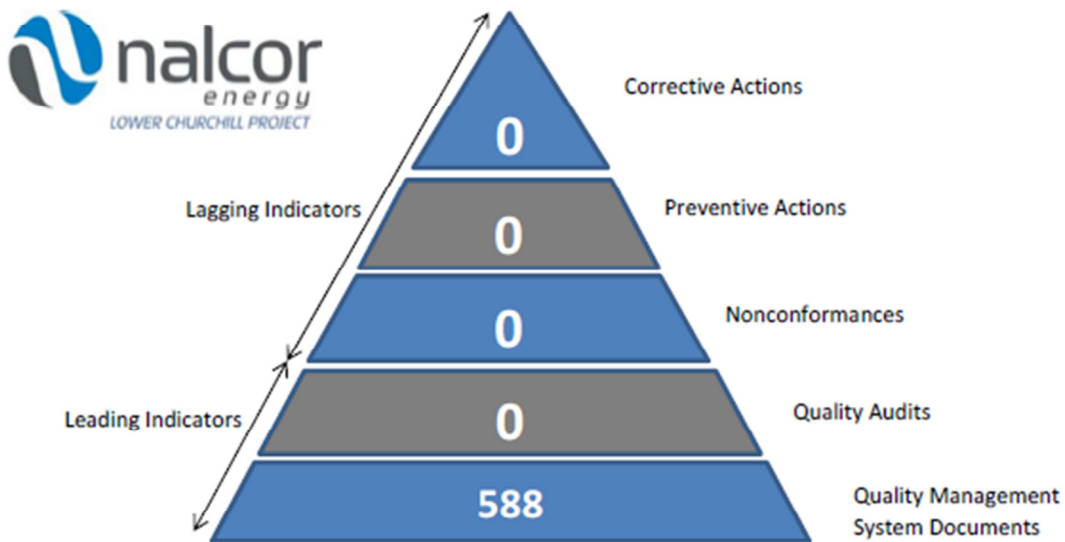
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14.4 QUALITY PERFORMANCE – JULY 2015

**QUALITY PERFORMANCE**  
**LOWER CHURCHILL**  
**PROJECT DELIVERY TEAM - Internal**  
**Year to Date July 2015**



**Identifying and reporting on quality audits and taking actions is critical to prevent nonconformances and corrective actions.**

PROJECT DELIVERY TEAM QUALITY METRICS				
2015 Actual			Performance	Target
July	YTD		2014	2015
0	0	Corrective Actions	21	0
0	0	Preventive Actions	4	4
0	0	Nonconformances	0	0
0	0	Quality Audits	3	4
17	588*	Quality Management System Documents	510*	578*

\*Includes previous years.

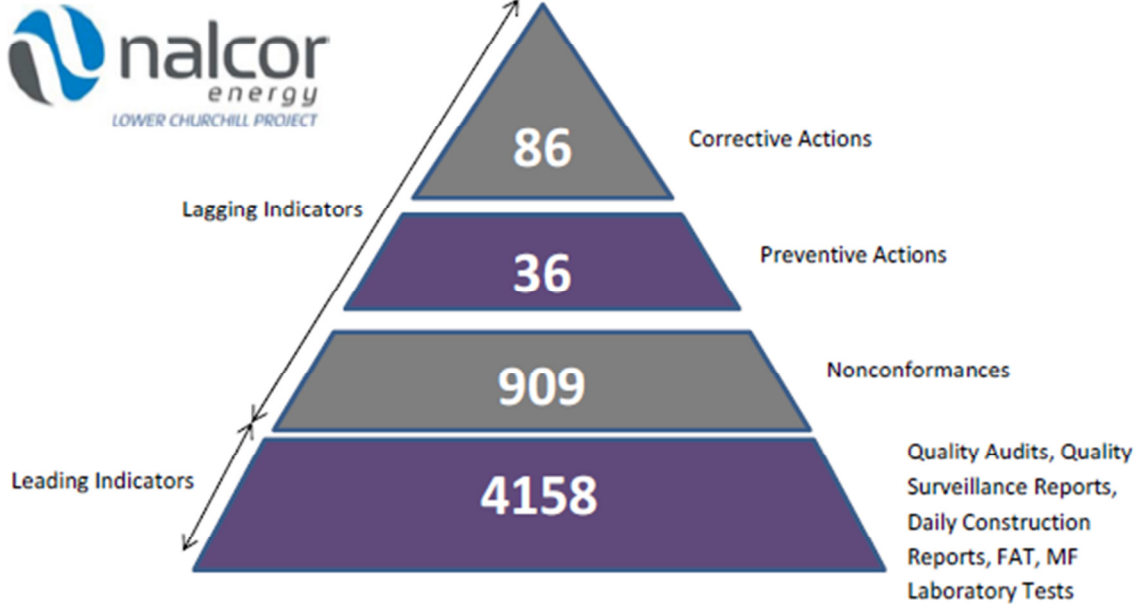


# QUALITY PERFORMANCE

## LOWER CHURCHILL

### SUPPLIERS / CONTRACTORS- External

Year to Date July 2015



**Identifying and reporting quality audits, surveillance and daily reporting is and taking actions is critical to prevent nonconformances and corrective actions.**

SUPPLIERS / CONTRACTORS QUALITY METRICS				
2015 Actual			Performance	Target
July	YTD		2014	2015
1	86	Corrective Actions	16	0
0	36	Preventive Actions	27	30
124	909	Nonconformances	299	500
1	11	Quality Audits	18	20
3	68	Quality Surveillance Reports	51	160
583	2941	Daily Construction Reports	2451	5600
0	33	Factory Acceptance Test/Type Test	86	40
350	1105	Laboratory Tests	810	3000

\* Statistics indicate those issued by the Project Delivery Team and Main Suppliers / Contractors which include the following::  
 CH0007 Construction of Intake and Powerhouse, Spillway and Transition Dams  
 CH0030 Supply and Install Turbines and Generators  
 CH0032 Supply and Install Powerhouse Hydro-Mechanical Equipment  
 CD0501 Supply and Install Converters and Cable Transition Compounds (EPC)  
 CD0502 Construction of AC Substations  
 CD0534 EPC Synchronous Condensers at Soldiers Pond  
 CT0319 315 kV HVac Transmission Line Construction (MF to CF)  
 CT0327 350 kV HVdc Transmission Line Construction (MF to SP)  
 LC-SB-003 SOBI Submarine Cable Design, Supply and Installation  
 LC-SB-011 Subsea Rock Protection Design, Supply and Installation



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14.5 LCP RISK ASSESSMENT REGISTER – JULY 2015

Risk Assessment Level	Risk Title	Mitigation Update	Status	Trend This Period	Trend Previous Period	Comments
	Contract or PO awards delayed	Contract and PO priorities established. Resources brought to bear and target dates were generally met with no impact on the overall project schedule.	Open	↓	↓	Most of the major LCP contracts have been awarded. RFP completed for outstanding major contracts.
	Productivity of labour	Labour agreements include productivity enhancement initiatives. Accommodation complex, food and conditions are highly competitive to attract and retain workers and enhance productivity. Wages and rotation cycles are competitive and attractive. Nalcor Project Management teams are working with all Contractors to identify and implement initiatives designed to improve production and productivity.	Open	●	●	Productivity at Muskrat Falls has the full attention of both Nalcor & Astaldi, with mitigation initiatives underway. Outcomes of implemented mitigations will be visible during spring and summer season, it will facilitate re-evaluation of the risk profile.
	Contractor interface management	Contracting strategy has been adjusted to reduce the number of interfaces and potential for claims. Large contract packages, EPC or Unit Price have been selected to reduce the interface risks.	Open	●	●	
	Aboriginal agreements/consultation/ Accommodation not achieved in a timely manner or delays caused by legal challenges	New Dawn Agreement signed and consultations carried out as required. Legal challenges have been made in Project's favour and no delays have been experienced.	Open	●	●	Some legal challenges are still before the courts but not expected to cause delays
	Availability of qualified and experienced PM resources to manage the project and organizational effectiveness	PM resources have been sourced from Canadian and North American engineering consultants, PM consultants and Nalcor staff. The IE has reviewed and endorsed the PM approach taken by Nalcor and the effectiveness of the PM team and have provided positive reports on the work to date and the organization for the upcoming project phases.	Open	●	●	Ongoing monitoring.



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Risk Assessment Level	Risk Title	Mitigation Update	Status	Trend This Period	Trend Previous Period	Comments
	Qualified labour not available to contractors	Extensive training and recruitment initiatives were put in place early and to date no significant qualified labor shortages have been reported.	Open			Context of the project has been changed due to slowdown in the Oil and Gas industry.
	Safety performance of contractors	Project team has qualified and experienced H&S professionals who are reviewing safety of the bidders to ensure required standards are being met in the bids. Furthermore once awarded safety is a key feature of the kick off meeting and is followed up at site with toolbox talks, JSA's and if necessary safety standdowns if leading indicators point to potential incidents/accidents. The safety record of the Project is better than industry norms in NL however our goal is zero accidents and zero incidents. That is our safety culture, so it is a relentless pursuit of improvement in all areas.	Open			Safety standdowns carried out at MF and LITL work fronts because of high potential near misses.
	Ability to ensure commercial competitiveness with major contractors	Competitive contracting has been achieved by aggressively selling the project to Canadian, North American and International contractors.	Open			
	Timely approval to proceed with environmental, engineering and procurement required for BDE to WAV transmission line	Submitted to PUB awaiting a response. Proceeding with front end environmental and engineering.				PUB approval received– Project Manager appointed, in progress
	Contractor bids higher than estimate	This has been experienced and project capital costs have been adjusted accordingly to reflect the highly competitive market.	Open			Project team reviewing opportunities for cost reduction as required.
	Design enhancements to improve reliability and quality	This has been experienced and project capital costs have been adjusted accordingly to reflect the prudent design enhancements to improve reliability and quality.	Open			All design changes have been thoroughly vetted by a formal management of change process.
	Environmental performance of contractors	Project team has qualified and experienced environmental professionals who are reviewing	Open			The environmental record of LCP is good and our



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Risk Assessment Level	Risk Title	Mitigation Update	Status	Trend This Period	Trend Previous Period	Comments
		the environmental performance of the bidders to ensure required standards are being met in the bids. Furthermore once awarded, environment is a key feature of the kick off meeting and is followed up at site.				relationship with the regulators is positive however there is a relentless pursuit of improvement in all areas.
	North spur stability	Design has been carried out and costs reflected in the project estimate to bring the North Spur up to CDA standards. This design has been reviewed by a cold eyes review team, independent, internationally respected experts and the Independent Engineer. And all parties agree that the design meets all recognized standards and best practices. Initial Geotechnical Assessment is positive.	Open			Monitored by experts through construction.
	River diversion in 2016	This is a critical milestone towards first power in 2017; critical path activities are spillway construction and award of the north dam contract and completion of that contract. Concrete placement rate at the Spillway is much improved.	Open			Project team and civil contractor have this as their highest priority with daily meetings to ensure progress towards the completion of the spillway to allow the river diversion to occur as planned. Currently civil contractor is confirming all milestones will be met.
	Powerhouse concrete placement	There is a significant amount of concrete placement required to complete the powerhouse and project team and civil contractor are working together to ensure the integrated cover system is installed in order to continue with work in a controlled environment through winter. Currently the civil contractor is confirming that key milestones will be met, however this is a high priority for the project	Open			Nalcor & Astaldi working to improve productivity and concrete placement.



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Risk Assessment Level	Risk Title	Mitigation Update	Status	Trend This Period	Trend Previous Period	Comments
		team.				
	Ability to place RCC dam in one season	Project team have assessed the original plan and have changed the plan to remove this risk by bringing forward the RCC dam contract award and start of the work to have a two season RCC placement schedule.	Open			Bid reviews identify schedule OK.
	Weather impact on schedule	Site preparation contracts have been scheduled to carry out the work in Summer. SOBI cable installation has a one year float built in and work will be carried out in summer. Transmission construction and ROW are year round activities but could be impacted by extreme weather conditions; if so additional work fronts can be opened in summer months to recover lost time. Reservoir and ROW clearing are scheduled in advance of following activity and have not been a risk to date.	Open			LCP and contractors/Suppliers coordinating internally development of appropriate winterization execution plans beyond 2015.
	Contractor performance causing schedule delays	Only top tier contractors and suppliers have been selected with reputations that they complete on time. Furthermore contract clauses including liquidated damages included in contracts to ensure contractor meets required schedule dates. Site teams are monitoring performance on a daily basis and LCP meets with senior contract management at Steering Committee level to ensure full corporate alignment and commitment.	Open	 & Improving	 & Improving	Nalcor & Astaldi are working to improve construction management organization and project management functions that support construction.



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**Legend:**

**Risk Assessment Levels**

	Low
	Medium
	High

**Trend:**

	Increased Risk Assessment
	No Change
	Decreased Risk Assessment

Status: Open, Closed, Retired.