

COMPENDIUM OF NOTES

CONSTRUCTION MANAGEMENT PRESENTATIONS

SNCL & HATCH

Oct 27 & 29

Evaluation Team:

Pat Hussey

Ron Power

Bob Barnes

Johann Kroyer

Hatch Construction Management PresentationOctober 27Notes by K. McClintock on Hatch

1. Presentation Alliance members included senior staff from SMEC, SM, Sargent & Lundy, Teshmont. All senior company reps present pledged support to the project. Good display of interest and commitment
2. Hatch say their approach is a “best in class” approach. This was not obvious in the first submission due to deficiencies with a few critical positions
3. Everyone will use Hatch tools...systems and procedures. Good point. This is reason for Alliance concept, but the key CM staff will want their own procedures.
4. Commercial relationship between Alliance members and Hatch will only be “secondment” agreements. Alliance companies therefore not commercially tied to project. (This point was later subject of damage control by Hatch. A high level meeting was arranged with Hatch execs to confirm everyones desire to do this project. They said they were thinking about a high level participation agreement. That is fine but why not a commercial agreement.
5. Hatch presented its proposed organization chart.
6. Hatch have never done a CM job with SM....only a few jobs where Hatch seemed to do engineering. S&L have relevant CM experience
7. Construction Area managers will participate in the design process wrt constructability
8. Field engineers responsible to home office wrt design integrity
9. No hydro projects are currently being executed by Alliance members
10. The Alliance has not worked as a team together before....only separate working relationships
11. SM seem to have very experienced persons. They have worked on James Bay. I like their attitude. The Component 1 CM not present.
12. Hatch does not appear to have any directly related projects where they have undertaken the CM role on a hydro project.
13. Implementation manager is Doug Henderson. Key position and main “planning” role. Doug seems OK. Doug is an independent.
14. Although hatch denied setup, Hatch will take design & procurement responsibility and SM will take the CM role....albeit under Hatch overall CM Sasseville.
15. Sasseville took a lead role in the presentation. He seem very good, but has no recent CM experience. He is very Contracts oriented and is currently the “Contracts Manager” on a job. He has worked with the SM boys in the past....good point. Upon review of his CV, he is light on directly related CM experience.
16. Designers will go to site following completion of design to support construction
17. Response to Bob’s environmental management question seemed weak.
18. Rock quality stated as potential issue. Not frazzle ice!
19. July 2014 is date of river diversion

20. Not very impressed on schedule methodology. They did show they had thought about it however.
21. WRT labor agreement, Hatch will act as mediator
22. Hatch Project Management systems will have matured by time project starts. No development work on the project will take place.....except some customization required by Nalcor.
23. Hatch plan to use CWP's (construction work packages). This methodology is part of their PM system, but could handcuff SM staff who have never used before
24. Hatch plan is to restrict construction work during winter. Only selected work to be carried out. Schedule can still be met. ***This is important***
25. Hatch have not undertaken a deep review of the schedule. It has not been optimized
26. Timing may be an issue wrt contractor availability due to lots of other large projects expected to take place in same time period
27. Component 3 CM organization does not include any Hatch staff!
28. WRT Component 3, the near term focus will be on technical aspects. Our review team agree that Comp 3 CM team should not be an area of immediate focus
29. Hatch pointed out that putting more people on Comp 3 for reviewing EPC contractors work may lead to a negative result. Good point.
30. Teshmont and TransGrid agreed that they would work together in same office in Wpg. if required. Remote location of this work is a concern. How do we manage it?
31. A new Component 4 Project manager was at meeting...Ifti Khan. He seems experienced.
32. Nalcor will need special focus on environmental management reqts and design of environmental mediation and rehabilitation...up front.

Overall Impressions

- ***Hatch put on an impressive display by bringing senior members of Alliance Companies***
- ***SM staff very good***
- ***Sasseville has worked with SM staff before***
- ***All use common systems but SM never use before and not familiar with CWP's except that they represent work packages***
- ***Biggest risk is that most CM personnel are from other companies tied only with secondment agreements. What happens when things get into trouble? No real commitment by other companies.***
- ***Hatch do not show any signs of previous directly related CM experience. They have worked on Canadian hydro sites before but not in the CM role.***
- ***I think they could do the CM role, but integration of other Alliance members will be little touchy***

Notes by Bob Barnes on Hatch

General

I believe we covered thing earlier today.

Component #1

Again, I believe we covered things earlier.

Component #2

A few points:

- I noted that, although Hatch has worked with Teshmont/Transgrid in the past, Dick Carryer (Dick) indicated that it has been limited.
- Teshmont and Transgrid will work together - out of the same office - in Winnipeg. While this may not be important to us - they felt it was important for them to mention.
- Manufacture and field engineering comes from Teshmont - including commissioning support.
- When challenged - extensively by some of us - they stood firm and explained that they thought their people numbers were correct. They elaborated - I think Alan - that having too many people from the Owner/EPCM consultant on an EPC contract could be dangerous - their words.
- Again, when challenged - ad nauseam by me - they committed to provide a detailed breakdown of their manpower planning - that said, they appeared quite confident.
- John Pearson committed to provide this data after consultation with Dick et al.
- Ron and I met Robin Page during the lunch break and had an excellent discussion. She explained that, while she has technical expertise on transformers and cables, her main role here is to manage the engineering function for Component #3 and to bring Teshmont's and Transgrid's expertise together. She admitted that, while she may appear young to us, she has taken on progressively challenging roles and was up to standing at the front of Teshmont and leading this work. Perhaps the turning point for me was when she assured us that she is not the technical expertise that Teshmont brings - she coordinates it and provides direct owner interface. She also explained the time it takes to bring a successful technical specification to bid and how Teshmont has 3/4 of the specs in hand. I believe we were both satisfied that she could lead the engineering effort for Component #3.

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Component #4

- Ifty Khan spoke as new Component Manager - initial impressions were good.
- Ifty is Hatch - not S&L - but he knows and has worked with them.
- He introduced Gilles Gauthier as direct CM for C#4 - again, initial impressions were good.
- Hatch has worked with S&L for TL design for 10 years; however, construction is ?. Tom of S&L to send us information on their construction experience.
- Gilles explained during the presentation on construction logistics that he has not seen the plan and needs to discuss with the Alliance.
- I felt they provided a very good explanation of manufacturer oversight.

- Chimielski? did a commendable job of explaining their methodology for building the lines including manpower and logistical planning. Whether you agree or not, they put themselves out there and explained their reasons. I want to engage our transmission people to review.
- Subsequent to this we met Ifty the next morning - he is a Hatch person, very senior, very capable. He explained why they switched to Hatch leadership after we rejected Brainerd. He will lead the work out of St. John's. During our interview I wrote down that Ifty is "an open and honest individual" Besides that - which means a lot to me - he knows how to lead design teams for large TLs and has done it many times.

Notes by Johann Kroyer on Hatch

Component 1

Date for start of final Impoundment not shown as a milestone on schedule.
Labour agreement for all components should be in place by June 2011

Component 3

Fidic conditions will be used as basis for the turnkey contract of HVDC specialities

Component 4

4A+4B+4c translates into 6 work fronts , each over 200 km, 3 on LA side and 3 on NF side. Goes from one end to the other. Is this enough? Nalcor pointed out that the work may have to be carried out in both directions doubling the fronts , at least on the NF side.

Clearing contractor goes a year ahead and he will supply the camp for all. Needs to be taken care of contractually. Each Camp needs to accommodate 150 persons.

Inspectors will only have to work within the "green bubble" that extends over 60 km.

Quite Optimistic.

Note the very varying conditions etc. 60 km of lining go over the Long Range Mountains. particularly difficult.

A very good presentation by Rick showing that Hatch has now thought this much better through.

Gilles Gauthier as the new Construction manager and Rick gave a very good impression. They can clearly carry through this work together Ed Sullivan who was not there and whom we need to interview.

Hatch will submit a new schedule showing the sequence of work.

Notes by Ron Power on Hatch

13 November 2010

R. Power notes on Construction Management sessions held with Hatch and SNC.

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Part 1: Notes on Hatch Session

Part 2: Notes on SNC Session

Part 2: General Comments

Part 1: Hatch

Notes from CM Session (to be reviewed in conjunction with presentation material)

Session held in Mississauga - 27 October 2010

Attendees:

- Several executive management personnel from Alliance partners (SMEC / S&L / SM Group) in attendance – listing handed out.

Alliance Concept:

- Hatch provides overall leadership, accountability, single point of contact
- SM noted that they have worked with Hatch Mott MacDonald
- Within the CM team, members of Hatch and SM Group have worked together before
- SM viewed the arrangement as an integrated team within the Hatch Alliance
- Hatch management approach and systems to be used by all – initial workshops to be held.
- Alliance concept is done on large projects (e.g SEBJ)
- Alliance maximizes resources to ensure staff availability.
- Common for form new teams for projects
- Positions in organization consistent with “Best in Class” approach – not based on company affiliation.
- When questioned, noted that the secondment agreements can be considered as “Participation Agreements”

- With respect to SEBJ, it was recorded that **SM Group is a major partner in SEBJ** – Gervais Savard part of SEBJ management.
- SM Group had a mandate from HQ to “deliver” Eastmain
- Wrt SEBJ, and the commercial agreements with SM, SM were questioned as to whether SM personnel were secondments or were there different commercial agreements – responded that there was a consortium payroll arrangement.
- Role of Implementation Manager questioned (D. Henderson – construction specialist in Eastern Canada) – response indicated lack of understanding of EPCM arrangement – response was indicative of self-construct arrangement.
- Wrt tools and processes at sites – Hatch personnel control these at the sites
- Hierarchy: Partners – Processes – Personnel
- Engineering staff will be involved in construction phase – hrs. included – links shown.

Question: How will construction be involved in engineering?

- Construction Area Managers will be in the engineering and contracts “picture” – later slides show the functional links
- Engineering Phase – construction are followers
- Construction Phase – construction are leaders

Site Engineering

- Dual role – preventative and reactive

Environmental Compliance – question – How will the project design and build to the requirements?

- Same level as H&S and Quality
- Environmental Management Plan to be produced
- Pay items for Env. Plan and HS Plan

Management Systems (iPas)

- Most integration complete – some gaps still wrt electrical
- For LCP, plan is for total integrated system
- John Pearson noted that the system is being used on the ????? job
- Discussion on link of Construction Work Plan (CWP) to materials management, engineering, document control, primavera etc...
- Do we want a demo ???

Other

- Winter works - Pierre – may not need to do much of it - low productivity evident in winter works
- Gilles Gauthier comments – focus on planning / include environmental, HS, procurement / anticipate the problems
- Take all designers to the site – know the site first
- “Construction Methodology” document handed out.

Question: Are there sufficient Construction Contractors to build MF:

- Yes, but need to plan carefully due to other projects in PQ, Ontario, BC ... looks like there will be a lot of hydro work

Current Projects

- List provided – see slide 22
- No North American hydro projects involving Hatch itself

- None of the projects have all members of the Hatch Alliance working together / none have SM Group working with Hatch

Component 3

- Hatch, Teshmont and Transgrid have worked together
- Technical specialists are Teshmont
- Teshmont and Transgrid will, if necessary, work in one office (in Winnipeg)
- Field people will come from within the Alliance (3 – 4 yrs away)
- Do not “poke fingers” too far into EPC contracts
- Noted that the role is more of “Owner’s Engineer” role with added HS, Env., QA, and field engineering
- Wrt to CM, less involvement in design phase – a lot of involvement in contracts
- Discussion held regarding the number of engineering hours in the proposal. It was noted that technical oversight during manufacturing is included in hrs.
 - **ACTION:** Hatch to provide more info – **received**.
- Discussion as to how Component will be execution in various locations (i.e. engineering in Winnipeg, procurement in STJ etc..
 - **ACTION:** John Pearson to provide “clarity” document.
- Wrt contract packaging, would be as follows:
 - Converter Stns. + Transitions Compounds: 1 EPC Package
 - Shore Electrodes: Conventional construction contracts – detailed design by Hatch.
- Technical oversight activities during manufacturing described
- Construction organization outlined / field responsibilities outlined.
- Gilles Gauthier- planning is the key / construction needs to be involved from the beginning.
- It was pointed out that the schedule for the construction of the transition compounds seems out of sync – Hatch agreed that there is no rationale for the schedule – will actually be later.
- “Construction Methodology” and “Engineering Construction Approach” documents handed out.
- Slides show general resourcing view – strategy described in slides - examples provided of other projects

Current Projects

- Per C3 slide 45, no existing HVdc projects under construction wherein Hatch Alliance is providing CM role.

Component 4

- Alliance experience outlined
- Deputy Component Manager (Jeff Forsyth) name introduced (will he be located / needed in St. John’s ??).
- Gilles Gauthier introduced as Construction Manager for C3 and C4.
- Hatch and S&L have worked together for 10 yrs, and have an JV arrangement.
- Art Holland name introduced (Constructability Review) – need to check out.

- It was noted by Nalcor that S&L's TL experience seems to be design related, with little evidence of much CM experience etc..
 - **ACTION:** S&L to provide CM related information - **received.**
- Technical oversight during manufacturing and construction described – have also used 3rd party inspectors.
- Discussion re engineering hours for support during manufacturing and construction – hours seem low ?? (see slide 88)

Detailed Construction Strategy (Rick Chmielewski)

- 3 HVdc fronts in NL / 2 HVdc fronts and 1 ac front in Lab. – norms used in analysis
- Access roads – need to be “Forestry Standard”
- Camps – need to be bottomed out during constructability – need to specify standards - ~ 150 persons – camps must accommodate all workers and EPCM staff.
- Big challenge – Property issues – in our case Nalcor looks after this
- **Staffing Assumptions:** Contractors are responsible for site safety, environmental compliance and QC – EPCM responsible for QA on these things / EPCM inspectors to do that QA work experience etc.. Environmental Manager will have “Audit role”.
- Contracting strategy
 - Clearing and roads - separate from TL construction
 - In Lab. – separate contracts for clearing and for roads
 - In NL, bundled contract for clearing and roads.
- Schedule for camps and roads versus TL construction discussed
 - **ACTION:** schedule will be looked at again and submitted - **received.**
- “Bubble” construction approach described (see slides for details) – discussion held regarding the amount of travel time due to 200 km segments.
- Risk management strategy discussed / extreme weather planning / helicopter usage / resource availability - staffing via immigration / recruitment and training.

Current Projects

- Projects listed - all projects completed now.
- 50 kms 230 kV, 80 kms 500 kV, 550 kms 345kV
- Various degrees of CM role.

General Comments

Hatch: Big focus on experience of Alliance members, depth and breadth of individual organizations, and assurances that the Hatch Alliance can work. Belief that no one consultancy can meet project requirements with the current market conditions.

Notes by Ron Power on SNCL

Part 2: SNC

Notes from CM Session (to be reviewed in conjunction with presentation material)

Session held in Montreal - 29 October 2010

Attendees:

- Several executive management personnel from various divisions in attendance – listing handed out.

H&S

- Don Mode introduced as new candidate for H&S Manager – he noted that all H&S personnel will come from SNC-Lavalin. Construction H&S approach described.
- Programs similar to those used at Shipshaw to be used.
- Wrt Voisey's Bay, worked with unions and Construction Safety Council at the start – it worked.
- Contractors will need to produce site safety plans up front to align.
- Don Mode not familiar with Nalcor's system – will have to do a gap analysis – did that for Sask. Power.

Project Set-up

- Paul Murray discussed the SNC process of setting up the project using a dedicated team – referred to other projects wherein that was done.

PM – C1

- Francois Courturier will be PM for C1

Org. Structure

- It was noted that having a Construction Director will provide commonality / consistency wrt to LR, HS, Env. Etc...
- Discussion held regarding the Area Managers who transition from engineering into construction – basically sub-PM's / Project Engineers / Scope Managers. Area Managers responsible for overall delivery of their area. They report to the PM always. They interface

with all involved parties – interface manager / procurement / project services / Eng. Disciplines / CM. It was noted that they have cost and schedule accountability and have the power, from the PM, to get what they want – they can get support staff if needed – their responsibility ends at end of commissioning.

- Wrt contract packages, Lead Engineers take responsibility.
- SNC recommended Nalcor have Area Managers as well (counterparties).
- In the construction org. charts, area construction superintendents will be in charge of the construction of their area – they report directly to the Construction Manager. The Area Managers still responsible for delivery of the complete scope. VB worked successfully like this. Nalcor noted that the names and resumes of the construction superintendents have not been submitted. It was noted by SNC that the Area Managers in conjunction with the Construction Manager provide much of the construction wherewithal in the initial project phases and that the construction superintendents would come into the picture later and therefore were not submitted with the bid. It was subsequently agreed that names and resumes would be provided.
 - **ACTION:** provide names and resumes of Construction Superintendents – **received**.
- Wrt slide C1 18, Nalcor noted that there are a lot of direct reports to the Construction Director and questioned whether this is an issue – response that depends on the quality of the people – N. Mills noted that he knows the people.
- R. Nichol stated that if N. Mills' role as Construction Director becomes overwhelming and interferes with his role as C1 CM, then a dedicated CM could be put in place for M. Falls
- When questioned, it was noted that the org. charts presented in the session and the personhours included in the bid are aligned – the org. charts presented are more detailed than those presented in the bid.
 - **ACTION:** Certain slides to be updated and resent to Nalcor: C1 Slides 16, 27, 65, 79

Labour and Contractor Availability

- When questioned as to the impact of upcoming projects on the labour availability, it was noted that this same concern never really materialized on other recent projects and SNC does not expect a shortage for LCP. Regarding TL lineman, it was noted that there are resources in the USA as well.
- Regarding availability of Contractors – no big issues foreseen. It was noted that there are very good contractors in Canada.

Subcontractors

- Wrt to the list of potential subcontractors (C1 Slide 32),
 - No key personnel from subs in general, but could be some later
 - The named companies have agreed to provide personnel on a seconded basis
 - Can provide specialty services (e.g. forestry)

Reservoir Clearing

- Recognize that Nalcor have done a lot of work on this
- Will be dealt with under the infrastructure area – have not looked at yet in great detail
- Slides 37 to 45 describe approach.

M. Falls Specific Construction Management (slides 46 – 77)

- Slide 50 – will propose a dedicated Environmental Lead to be at the site – currently shows HSE Lead

- Slide 61 – Environmental Management – discussion held – seems that Nalcor will need to take a lead role in ensuring that the wherewithal is put in place for Environmental Management regardless of who the EPCM is.
- Area Managers responsible to ensure all aspects of CM involvement in the design process c/w all the players, shown on slide 65, take place. The processes to accomplish this are in place.
- Site personnel will be able to sign off on home-office based engineering drawings and documents – this will be done electronically at the site – PDM is used for this – Sharepoint is the basis. This process is being used on existing projects. Stressed importance of broad-band communication.
 - **ACTION ON US:** Do we want to visit any sites to see this stuff first hand ??
- Use of Norms: Discussion re use of norms from other jobs – it was noted that you do not know what is in them – better to develop/use your own norms based on contract requirements. Detailed norms such as hrs./m3 etc.. would be a Contractor's responsibility.
- Tenders: preference is "Invited Tenders", but can handle Public Tendering – prequalification would need to be employed.
- Winter Work: yes, can do that. Single shifts better than double-shifting.

Current Projects

- List provided – see slide 79 – SNC doing EPCM or EPC
- 3 – EPCM projects, 1 EPC project (2 hydro projects in Canada)
- wrt Shipshaw Hydro project
 - Owner's (Rio-Tinto) PM is in SNC office
 - Owner has full-time people in SNC office, and some full-time people at the site.
 - some 50% complete now (could visit ??)
 - civil works will be completed in 2011
 - project will be completed in 2012
 - the SNC engineering team would move over to LCP
 - the CM team would be phased in to LCP.

Gates

- could design internally – depends on the pre-qualified suppliers and their abilities – some fabricators do not have the design ability and therefore farm the design out – often results in additional expense to the Owner.
- SNC have engineered 3 major spillways and 2 major powerhouses in the last 10 yrs – a lot of recent gate experience
- all SNC gate designers are from the manufacturers
- recent radial gate experience in PQ

"Explain how you plan to build this Component" (see C1 slides 80 to 96)

- very comprehensive due to the fact that SNC have been doing the layout work to date
- discussion of use of rollways (Rubert, Limestone and LG2 same principle)
- pay items (and penalties) will be used for T&G manufactures to deliver the hydraulic passages details
- vigorous discussion regarding critical path and need for winter concreting / double shifting
- pre-fab concrete elements, such as downstream p/h walls, could ease schedule and potentially alleviate need for double shifting

Component 3 (Satish Sud)

- Wrt contract packaging, would be as follows:
 - Converter Stns.: 1 Turnkey (EPC ??) Package
 - Shore Electrodes: 2 each conventional construction contracts – detailed design by SNC.
 - Transition Compounds: 1 conventional construction contract – detailed design by SNC.
- Wrt VSC, more risks, including risk of delay in particular
- Team members (Remy Azar and Charles Clarke) have VSC experience
- Alberta – West Link – discussion as to specs, for converter stations – SNC reviewed all specs and contributed to the specs – found out later in discussions with Aurel Stanca the reasons for this
- SNC have 350 T&D people in the Calgary office

CM Organization

- Nalcor questioned the size of the team per site – discussion Nick Mills etc..
- Have to validate progress wrt payments
- Have to ensure EPC is meeting intermediate milestones
- Technical assurance
- Quality assurance
- Roger Nichol noted that the EPC contract would be managed very similar to a construction contract in many ways.
- Detailed explanation of CM services / how to build.
- Detailed explanation of activities during manufacturing.
- Detailed explanation of commissioning / turnover, including description of Energization Plan to be worked with Nalcor.
- Construction Support Team described – strong.

Current HVdc Projects

- List provided – see C3 slides 32 and 33
- Current (ongoing) and recent projects listed (Canadian and International)
- Egypt-Saudi Interconnection / GCC Interconnection / Western Alberta Link

Component 4 (Les Molzan) Note: slides were not numbered - for reference, slide numbers will continue on from Component 3

- Overall construction plan described – Plans to be developed in conjunction with site visits.
- Wrt contract packaging, each line segment (100 km segments) would be a single package to include:
 - Roads
 - Brushing
 - Camp and material yards
 - TL construction
 - Reclamation
- Construction matrix organization outlined – team composition outlined
- Construction to be phased to meet schedule but to reduce staffing levels – plan to utilize local, provincial, national and international resources
- Noted that in 100 km section
 - 1 set of foundations per day

- 1 tower per day
- camps 150 – 200 persons maximum
- Terry McCarthy looked at roads
- Land issues mentioned as big challenge – for LCP, Nalcor handles this
- ~ 100 km long working segments discussed – seems to be though out
- when asked, SNC have experience in installing towers in existing ROWs – there are safety concerns but have done it before and have provided training for this – may use “Work Permit” system for these lines.
- Question: for 4C, how many SNC CM staff? Response: 12 to 16 perhaps.
- It was noted that most TL constructors have cold weather experience – it is a reality.
- Renald Tremblay’s and Brian Stacey’s experience documented in slides.

Technical Oversight during Manufacturing (Afzal Hussain)

- Would need to do testing on insulator strings if new voltages
- 6 to 8 weeks for towers conceptual design – if Owner starts changing things, could cause a lot or extra work)
- technical oversight / quality surveillance linked to criticality ratings
- inspectors from SNC offices in India, Brazil etc..
- inspection at marshalling yards described

Current TL Projects

- List provided
- Several EPC projects in Alberta, mostly 230kV, 100 kms
- EPCM Project - GCCIA – 800 km of HVac 400 kV lines
- EPC – Western Alberta Link – 320 kms 500kV HVdc
- Egypt-Saudi Interconnection – 1300kV 500kV HVdc

Part 3: General Comments

Hatch: Big focus on experience of Alliance members, depth and breadth of individual organizations, and assurances that the Hatch Alliance can work. Belief that no one consultancy can meet project requirements with the current market conditions.

SNC: Big focus on the fact that they themselves are executing similar projects right now and likewise can do LCP. Focus on detailed construction philosophy / approach /methods etc... with emphasis on integration of engineering, construction, commissioning, support services and systems.

Notes by Bob Barnes on SNCL

General

A few points:

- During Intros there were a couple of notable changes:
 1. Introduced Don Mode - their Global power HSE Director as new LCP HSE Manager - +ve step.
 2. Introduced Francois Couturier - their VP Hydro & Power Systems as new LCP Project Manager for component #1 - very +ve step.
- Paul Murray, their VP Construction - Global Power - attended and showed strong support and input.
- Roger Nichol - Project Director - lead the day and showed much more leadership than at the previous meeting.

Component #1

A few points:

- Paul Murray: Q 1.1, Q 1.2 and Q 1.3
 1. They have brought forward vast changes in CM with Nick Mills now as overall Constr. manager as well as Component #1
 2. Added 5 Construction Superintendents to run the MF site
 3. Area Managers are similar to deputy project managers that follow specific aspects of the MF job from "cradle to grave"
 4. Led a lengthy and healthy discussion regarding the roles of the Area Managers and Construction Superintendents; Area Managers report to PM and are responsible to ensure all facets of their aspect of the job are managed smoothly - design, procurement, construction, completions, etc.; Construction Superintendents (CS) report to Nick Mills to manage construction on site.
 5. Names of CS will be provided early next week
 6. Lengthy discussion regarding labour agreements - you probably have notes
- Don Mode: Q 1.1
 7. Senior HS person for SNC - talked with passion
 8. Believes in behaviour based HS
 9. doesn't know anything about Nalcor energy (NE) safety management systems
- Paul Murray: Q 1.2 and Q 1.3
 10. Plan to use a work pack system - sounded similar to Hatch a couple of days back

11. SNC researching the availability of skilled trades. believe that civil trades will not be an issue, skilled trades a concern
12. Les Molzan believes Us transmission line companies/labour will fill that gap
13. Again, plenty of discussion of construction labour
- Bert Peach: Q 1.4 and Q 1.5
14. No JVs, people will be seconded to SNC if required
15. Most leadership roles are by SNC
16. He spoke on reservoir clearing - they don't get significance of this - Don Murray interjected that they may want to separate this out with specific leadership, contracting strategy, etc.
- Nick Mills: Q 1.6 and Q 1.7
17. He indicated that plenty of their people want to work in the field on this project - getting experienced, top quality site leadership will not be an issue
18. His site Org will consist of 50 -70 people - depends at this point
19. You indicated that you wanted the names for their org chart on page 5.
20. Nick mentioned there would be a dedicated Planner for each section
21. He repeated the action to identify the CS
22. I still feel they don't get our way forward on Environmental management and the amount of engineering time it may take to do this as required - we can work on that later
23. Strong statement on early construction involvement
24. You asked how this will all work in the design office - answer appeared to be that the Area Managers were a key to make all this work
25. When I asked for clarification - Nick, and others, stated that modern, high speed, high capacity data communications at site was imperative to make the project a success
26. Lots of detail - Nick is a very experience manager - no interview required here
27. He, and others, clearly indicated they would prefer invited construction tenders - Don clarified, pre-quals at the very least.
28. Nick strongly stated that, no matter what the arrangements on specific contracts, EPC or not, SNC take full responsibility for everyone and everything on their work sites for the owner
29. They provided a few examples of ongoing Hydro jobs - nothing big - Shipshaw near Chicoutimi - a 220 MW, \$300M project for Rio Tinto would be the best for us to visit - they need 2 weeks notice.
30. They can engineer the gates in house - there was a discussion on type, including possible rollways - not germane to these discussions
31. There was a discussion on the schedule prompted by a question I asked. SNC's approach appears drastically different from Hatch. SNC claim they need to do winter work and need to double shift the construction work - this concerns me greatly as it will box us in with little maneuverability to handle changes and difficulties. There appeared to be some disagreement between their construction personnel and planner - we can, and should, address this before award. I am unclear what they have put in their proposal to cover this - both winter and back shift work is not productive, I'm surprised at this approach.
- I got the impression that when construction starts, their main team will be based at Muskrat Falls - not clear on this.
- They presented a strong organization for construction management for this component with Area Managers and Construction Supers as separate entities
- They underestimate the magnitude and importance of reservoir clearing and its far reaching impact on fish habitat and overall project success. I believe that got our message - I think we will see more direct and individual focus on this issue. If we get it wrong, it may not only impact on construction, watering up, commissioning and operations but, it may be a hot point for various NGOs going forward.
- 32.

Component #3

A few points:

- Satish Sud: Q 3.1, Q 3.2, then Q 3.4 and Q 3.3 to finish
 1. Satish explained that Taqueer Ahmad was not available to be at the meeting due to evaluation meeting in Alberta to award the converter contract for the WATL project (the same meetings that forced Robyn Page to leave the Hatch meetings early)
 2. He explained they have two new names to be Construction Managers since our rejection of the two they had proposed. They will be given to us shortly.
 3. From a construction management perspective, they will treat the EPC contractor similar to him being an EPCM contractor - SNC still required to manage
 4. They've made a number of personnel changes - we will review next week
 5. Changed their org structure for engineering support; however, it's essentially the same overall
 6. Their people go from engineering to contractor/supplier oversight to engineering in the field to commissioning - the same people.
 7. Anticipate 5 to 6 people on each converter site
 8. He has no concerns related to actual converter station size, which of the 3 contractors get the contract and whether it is LCC or VSC based design
 9. When pressed about their role at WATL Project they were evasive. We were invited to visit the project; however, it is in early stages - not much to see.
 10. They provided a lot of slides on this component, but, for the most part, went through things quickly. there was not a lot of discussion on this component.
 - 11.

Component #4

A few points:

- Les Molzan: Q 4.1 and Q 4.6
 1. They will start recruiting their "competent" team once award is clarified
 2. He stated that he expected one contract for everything in each of Labrador, SOBI to TB and TB to SP - somewhat unusual given the diverse skill sets involved.
 3. When asked there was a disagreement between their engineering and construction people related to tower contracts - minor for now
 4. Based on his tower erection timelines, I do not see why he needs so many work fronts and why the job takes so long - I was confused by his approach.
 5. When asked, he verified that he has not seen the TL corridors or routes. He did caveat his schedule discussion by saying it needs a lot more thought.
 6. He stated that winter work is preferred on soft ground - good - he needs to see the whole route to gain a perspective of what he is facing - I'm not totally convinced he understands what he is up against.
 7. He stated that he has no experience in helicopter erection of large TL towers - this may be an issue
 8. He figures 12 to 18 people to manage the Labrador section of the HVdc line
 9. He has constructed lines within and adjacent to existing lines - not sure of length
 10. He guesses 12 to 16 people to manage the 735 kV line. I do not think he has done a line like this
- Afzal Hussain: Q 4.2

11. Engineering support for manufacturer oversight, etc. will be provided by the Component #4 engineering team through the Procurement Coordinator
12. Estimates this would be 2 months work for 7-8 people. I assume this 16 MM is in their proposal
13. He provided a strong explanation - they know this stuff
- Les Molzan: Q 4.3 & Q 4.5 then Q 4.4 to finish
14. Have done plenty of work in winter - often preferred - will not work in temps below -40 C/F
15. His people have worked in difficult conditions in the past and he doesn't see this as any more challenging
16. We rejected the two Area managers for this component - Les disagrees and supported both of them. He said the resumes don't tell the story, these are both good guys. After some discussion, Ron made a clear statement about the fact that we are building a world class TL and we need world class people to manage the construction - nothing less will do - they got the message. Consequently, I am unclear what they will propose for construction management of component - there could be a wholesale change!!
17. Regardless, we agreed to take these two Area Managers off the reject list for now and reconsider interviewing them - with our TL lead present
18. He provided some examples - nothing ongoing at present - most fairly small if we were building these lines we would do them in-house, and have many times.
- 19.

Closing Remarks

Roger Nichol:

1. He got the message about TL construction management - loud and clear - we want the "A" team
2. He sees major advantages to a scenario award vs a component by component award.
3. Speaking on behalf of his entire team - present or not - he felt the day was very worthwhile.

Notes by Johann Kroyer on SNCL

O. General

0.1 Increased commitment of top management

0.2 New overall HSE Manager: Don Mode from Global Energy. He was involved in Voisey's Bay.

0.3 New Project Manager Component 1 : Francois Couturier . He is Vice President in

Engineering Energy Division. A very strong CV.

0.4 Support Team strengthened with Paul Murrey. He is President in global Energy.

He is in charge of the design of the nuclear project in Ontario.

1. Component 1

1.1. Paul Murrey explained the construction management approach with a new Organization Chart where the three components have been integrated.

1.2. Nick Mills is now proposed as the Construction Director and also Construction Manager for Components 1, 2 and 3.

1.3 The role of Area Managers was explained . The shall be nomibnated from the outset of the pproject and will be responsible for their area including costs and budget to the very end. They will be stationed in St. John's but go regularly to site.

What was shown as Area Managers on figure 6.4 will now be called Construction Superintendants. These are different persons. NOTE: These are still to be named.

1.4 Nick Mills stated the SNC-Lavalin will take on the responsibility for HSE on site irrespective of formalities by law.

1.5 Francois Couturier made a good presentation of the main stages of construction of the works. This he showed with illustrations/drawings.

1.6 Nick Mills stated that construction works are planned on one shift only while the planner of the support team, Lee Stanton considers that the works must be on double shifts. Nick also stated that the works need be carried out during winter. This is different to Hatch's opinion.

Needs to be studied further in due course.

1.7 According to planning people the critical path goes through civil works of powerhouse. This is logical if model test for T/G and procurement of thesef is done timely.

1.8 Vertical gates will probably be proposed by SNC-Lavalin.

1.9 SNC-Lavalin have shown 31 July 2010 as a milestone date for diversion. They are aware that the spillway gates have to be ready then.

1.10 SNC-Lavalin propose to do the detailed design of the gates if the Owner accepts this.

1.11 Presentation on component 1 was much more comprehensive and better than on 7 October, 2010

3. Component 3

3.1 Satish Sud presented a new organization chart for the construction management.

General Superintendant Labrador is now Dennis Billand

General Superintendant Newfoundland is now Charles Kozak

Construction Support Manager is Luis Chaves

NOTE : CV's are awaited for the first two.

3.2 Presentation on this was OK although SNC-Lavalin avoided to admit that they have used Teshmont to most extent for their latest design on Alberta link.

4. Component 4

4.1 Les Molzan presented the organization charts for 4A,4B and 4C

It is noted that he wants to keep on Terry Gordon as Superintendant for Labrador and Daryl Manchur as superintendent for Newfoundland.

SNC- Lavalin requests Nalcor to reconsider their rejection of these candidates

4.2 SNC-Lavalin was requested to remove name in box for aboriginal affairs

4.3 Les Molzan's philosophy is to have ONE contractor for the whole component.

Is this realistic?

4.4 Main challenges : access and logistics.

4.5 Presentation OK but not as good as made by Hatch

Notes by K. McClintock on SNCL

SNCL Presentation

1. SNC was well represented with most key project staff and executives (Patrick Lamarre, Albert Williams, Paul Murray, Michel Dubois)

2. Don Mode gave safety moment. Don is proposed as HSE mgr. He seems good...very animated and engaging. Not shy.
3. They stressed the SNCL "Way of doing things"
4. Francois LaCoutier has replaced previous Component 1 PM. He is involved in all Hydro projects. VP level. Looks good
5. Logistics planning noted as being very key element of the execution plan. This comes from Voiseys experience
6. Good understanding of labor reqt's. This is based on Voiseys experience
7. Project may have to consider use of US contractors for Transmission line work
8. Presentation focuses on its "integrated team". All work to be done by SNCL people
9. Area managers are similar in role as very senior Project Engineers. They can go to whomever they want to get the job done.
10. Nalcor counterparts at Area Manager level are suggested
11. It appears that the CM (Nick Mills) has too many persons reporting to him. How does he control things? SNCL says the Area Managers take the prime load
12. They will hold weekly meetings with Area Mgrs & Const Supt's
13. Must have high speed communications. **Very important otherwise open for claims**
14. Nick Mills seems very impressive. Many years of CM experience. Led Voiseys Bay. Currently CM on job in Nevada.
15. Currently working on directly related project...Shipshaw. Also executing the CM role. Could be good synergies with LCP due to timing. Client organization very small. Maybe we should explore how that org works wrt client/contractor for lessons learned
16. Extensive CM experience is demonstrated
17. They have experienced gate designer. This may be important to protect schedule & design integrity. They have radial gate experience
18. Roger Nichol laid back. Not very dynamic. Used to be very senior within SNCL org. Now retired
19. Lee Stanton presented schedule. Says that work must be done during winter to protect schedule. Construction guys say they have not looked at schedule so we must wait before that statement is gospel
20. Les Molzan (Component 4) says he would need about 18 persons to manage contractor for the Lab section of 4A and 15 for 4C. He was not involved in the proposal organization and manpower plan
21. SNCL will update the org chart as the Infrastructure position was left off
22. SNCL to provide list of environmental and other issues/challenges they experienced on previous projects

Overall Impressions

- Very impressed with appearance of one integrated team. No external entities are required
- Roger Nichol looks like he would be very high level (not too hands on) but he has the authority within the SNCL organization from his previous position
- SNCL has recent directly related experience. This means that their procedures and systems must have been fine tuned for large scale hydro
- SNCL has recent EPCM experience in Labrador on Voiseys.
- Nick Mills is impressive as CM. He is a career CM and was Voiseys CM
- Appears to be lots of depth to the organization
- SNCL can definitely execute the CM of LCP