

From: Hamel Mario
Sent: 2017-06-26 9:06:28 AM
To: Gagnon Marc; Boulet Francois; Lapointe Jean; Li Jeanne; Francou Vincent; Sabetta Luisa
Subject: Andritz comments June 26 Meeting Minutes - 170623 - Trubines Preservation.docx
Attachments: [Andritz comments June 26 Meeting Minutes - 170623 - Trubines Preservation.docx](#)

Hello All

Please review the first MoM of the weekly meeting on re-preservation be LCP and Andritz.

I read it and find only that we need to mention clearly that the responsibility and the cost is at the charge of LCP.

I mention it several time during the meeting with Dan, but it seem that he forget to put it in the MoM.

Please provide your comments today, within the text in Revision mode.

Thank you

Email Header:

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Date: Mon, 26 Jun 2017 09:06:28 -0400
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by atlsms571.andritz.com ([143.161.171.11]) with mapi id 14.03.0319.002;
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- Trubines Preservation.docx
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TO: Gagnon Marc; Boulet Francois;
Lapointe Jean; Li Jeanne;
Francou Vincent; Sabetta Luisa
From: "Hamel Mario" <Mario>
CKX-Bounce-Address:
Subject: Andritz comments June 26 Meeting Minutes - 170623 -
Trubines Preservation.docx

Minutes of Meeting

Project:	Lower Churchill Project	Package No.:	0030 – T&G
Purpose:		Package Title:	Turbines and Generators
Location:	Telephone Conference	Date / Time:	22 Jun17

Attendees:	Mario Hamel	Dan Philpott	
Distribution:	Richard, Marc, Paul, Frank		
Recorded by:	Dan Philpott	Signature:	

Item	Description	Action	Date
1.0	<p>Pre-Meeting notes:</p> <ul style="list-style-type: none"> - This meeting was carried out at the tail end of the Audit of stored outside preservation at the MFS, MY (Marshalling Yard) and Hangar. - Attending were only Mario and Dan, dialed in from their respective locations. - This meeting is effectively the beginning meeting in the weekly meeting process. 		
2.0	The meeting was opened with the recognition that the highest priority for Andritz is to execute the refurbishment and preservation of stored outside equipment.		
3.0	<p>Responsibility and Organization of the Work</p> <p>The term of preservation required in the Andritz contract has expired and equipment is in need of refurbishment and re-preservation. <u>Everyone agree that the re-preservation activity is at the cost and responsibility of Project.</u> Priority has been set to address equipment stored outside as it is deemed to be critical path for installation and in need of immediate attention due to ongoing and widespread corrosion.</p>		
3.1	Time is of the essence as corrosion is active and widespread for equipment stored outside and the favourable window for executing the work is very limited.		
3.2	Andritz has full Care, Custody and Control of its equipment until a turnover-to-project milestone following full commissioning and testing while the turbines are in operation.		
3.3	Andritz shall therefore identify all processes, subcontractors, service providers, vendors, logistics, plant and other requirements necessary to refurbish and re-preserve equipment.		

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Item	Description	Action	Date
3.4	Andritz shall define, document and propose methods and means for Project review and approval including costings, schedule, risk factors and their recommendations. Details required for definition of proposals and planning shall be identified and addressed with project on an ongoing basis as required. Preliminary incremental items posed for review and approval to project shall be supported by all necessary information, risk and implications and have Andritz's recommendations.		
3.5	The Company Laydown area at the MFS that is currently in use shall remain designated for the storage of Andritz equipment.		
3.6	The Marshalling Yard (MY) and Mega Dome has been acquired by the project for the execution of refurbishment, re-preservation and long term storage of Andritz equipment. Andritz to assess and define the requirements for power, water, plant, equipment and other requirements for this site as part of their plan for equipment care.		
4.0	Components of the existing plan The current mutually accepted plan components include:		

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4.1	<p>Primary Preservation Means</p> <ul style="list-style-type: none"> - It is anticipated that due to the current visible condition of equipment (exposed due to deterioration or through survey of condition) that corrosion is wide spread for equipment stored outside. There is no equipment that has yet been found to be entirely intact and not requiring refurbishing of machined surfaces. - All equipment has exceeded its design preservation interval and therefore requires revisit of the existing preservation measures, regardless of its condition. All stored outside equipment has an existing storage period ranging from months to years. Re-Preservation shall use consistent approaches regardless of the anticipated duration of storage (except as defined by the criticality designation). - Specialized preservation shrink wrap shall be the primary means of preservation for stored outside equipment. Reasons: <ul style="list-style-type: none"> o Equipment shall be installed in the powerhouse continuously beginning in a number of months and continue for a number of years. o De-preservation process to occur throughout the year, including winter with -40 degree C temperature, wind and snow. o Industrial wash activities required to remove heavy duty coatings is challenging and costly, shall be required periodically, over an extended period of time, require multiple additional handling and transporting cycles, and require appropriate facilities to execute. o Following the removal process, equipment shall be vulnerable to subsequent corrosion until installed. o Removal of coatings cannot take place in the powerhouse. - Removal of the shrink wrap is carried out at the last possible moment, in the powerhouse before or during installation thereby providing protection as long as physically possible. Removal is quick and easy to do. Wrap is recyclable. 		

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Item	Description	Action	Date
4.2	<p>Previous Criticality Assignment and Augmented Preservation</p> <ul style="list-style-type: none"> - Assignment of Criticality of High, Medium or Low has been assigned to all equipment stored outside. <ul style="list-style-type: none"> o High – Machined surfaces have the highest tolerances and difficult, costly and time consuming to correct if corrosion is significant o Medium – Machined surfaces have a lower tolerance and or are more easily repaired should surface refurbishment be required. o Low – Machined surfaces have lower tolerance for pitting and other surface defects, corrosion remaining, etc. and may be subject to machining following the installation process, etc. - Some equipment have a combination of these surfaces (i.e. Stay Ring) - Embedded equipment tends to have lower tolerances and are required earlier for installation than others, on a per unit basis. - Preservation shall also be equipped with additional tools to monitor and prevent corrosion: <ul style="list-style-type: none"> o Addition of extra foam rust preventing emitters o Tell-tails such as steel coupons or other indicators, moisture indicators, inspection windows, zippers for access inside the wrap and to lifting points and eyes, etc. - Equipment designated as High Criticality shall receive augmented preservation measures to further reduce the risk of corrosion requiring repair. These measures may be one or a combination of the following in addition to the shrink wrap and measures mentioned above: <ul style="list-style-type: none"> o Application of rust inhibiting coatings, regardless of removal requirements o Addition of extra foam rust preventing emitters o Special inspection and access methods, etc. 		

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Item	Description	Action	Date
4.3	<p>Principals and Execution Objectives</p> <ul style="list-style-type: none"> - The following principals shall be targeted to the extent possible: <ul style="list-style-type: none"> o Equipment movements shall be kept to a minimum (equipment shall be moved from its current location only when ready for refurbishment and re-preservation and thereby moved directly into the Mega Dome for the work). o Top priority for refurbishment and re-preservation shall be a combination of embedded items whose installation is approaching (needs to be processed before required for installation) and High Criticality equipment that pose the greatest risk to project schedule and cost. o All work that can be done properly outside shall be carried out outside. We expect this to be a significant percentage, depending on the start time and progress before the season is lost. o The nature of this work demands that records of as-found condition, acceptance criteria for machined surface condition, designation of refurbishment process, chemical rust removal and re-preservation are controlled and recorded. o Certain sequences and processes are time dependant and need to be executed in sequence, without time delay between steps. ITPs with H,W and R points shall be determined to control these steps and support the criticality of the sequence and to avoid rework. o Like pieces shall be scheduled for refurbishment and re-preservation in sequence: <ul style="list-style-type: none"> ▪ Production rate for work shall be important and lessons learned are applied immediately ▪ Approaches, snow load structures, wrap cut plans, tell-tail, zipper, support details, markings, labeling, dunnage production, and many other factors are facilitated ▪ Any findings and corrective actions related to these items can be applied to all with confidence and efficiency 		

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Item	Description	Action	Date
4.4	<p>Execution of Refurbishment and Preservation Rework</p> <ul style="list-style-type: none"> - The majority of stored outside equipment shall be moved to the MY for refurbish and preservation work. (Exceptions being the large embedded parts currently located at the MFS Company Laydown which are difficult to move offsite, require relatively little work and are intended to have the work carried out in-situ outdoors.) - Many machined surfaces are located on the bottom supporting surfaces. These shall require multiple lifts to have all these surfaces worked and protected (shifting support and dunnage between lifts. - The Mega Dome is too small for crane operations of any significant scale. It is therefore anticipated that equipment is placed on low bed trailers that are moved in and out of the dome for the required lifts to move dunnage and supports. Low bed trailer provides for safer and easier access to equipment and reduces issues associated with low head room within the Dome for access. - A long term storage plan for the MY shall be determined and laid out in the field and signage placed. - Equipment undergoing outdoor refurbishment and re-preservation shall either be refurbished and re-preserved in its current location and then moved to long term storage or shall be moved to its long term storage and then worked. 		
5.0	Specific Discussion points:		
5.1	<p>Note: There are currently two service providers being considered and presented by Andritz:</p> <ul style="list-style-type: none"> - Option A – Intercept – Shrink Wrap Vendor and contractor. They do not do rust removal or coatings services and the gap in their services is yet to be defined by Andritz. - Option B – Bullwarc Inc. (Cortec) - full service contractor and supplier of preservation products (including rust removal, coatings, shrink wrap and others). Have visited site and carried out significant study development and pre-planning into execution of services at the project sites. 		

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Item	Description	Action	Date
5.2	<p>Andritz: Service provider A (Intercept) indicated that they require a \$5000 upfront expense to be paid prior to their deployment to site. Both Andritz and Project indicated that this is contrary to processes. The cost is to cover their experts (2) traveling to site for 2 days to carryout measurements and inventory so that they can define shrink wrap cut lists required to assemble Kits for each piece of equipment for subsequent shipment to site.</p> <p>Project: Refusal to pay the site visit cost and the apparent flawed approach by this subcontractor to remotely do these kits, should not necessary preclude them from consideration. Perhaps they could be asked to visit for one day to assess the situation and use available drawings to do necessary preliminary calculations. This should be at their cost according to normal processes. Further, we understand that this subcontractor is not offering any rust removal or surface preservation coating services. Therefore the delivery of these services needs to be resolved and included in the overall analysis and considerations involving them in order to assess any costing related to their involvement. Both Andritz and Project need to have viable comparative options in order to make decisions. Project need to be presented these options.</p>		

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Item	Description	Action	Date
5.3	<p>Andritz: Indicated that are struggling to get either service providers to warranty their equipment for corrosion damage following application of preservation measures. Option B – Bullwarc (Cortec) has indicated they warrant all preservation products for the specifications they are intended and that they warrant the proper application of all measures and the corrections of any errors in this regard. Andritz were struggling with this lack of warrant extended to their equipment.</p> <p>Project: We have not heard of such a warranty extended to protected parts from a service provider or vendor of products and do not see how they could. Successful preservation required each of the following activities to be successful:</p> <ul style="list-style-type: none"> - selection of the correct products (technical), - proper rust removal and surface preparation, - their proper application under the correct conditions, - appropriate inspection and monitoring of the conditions, integrity and effectiveness <p>Many of the above are out with the control of the contractor/vendor and therefore uninsurable. Further, if no subcontractor shall ever provide the warranty to equipment than it is not part of the selection criteria unless it drives Andritz to do the preservation themselves.</p>		
5.4	<p>Project: The weather window is running out and a decision on the subcontractor is required urgently. Andritz is asked to expedite this process to the extent possible. This can be based on a combination of schedule, risk, cost and other factors. Details are required in order to propose a way forward for decision and execution. There is a significant amount of knock-on planning required in order to successfully execute this scope:</p> <ul style="list-style-type: none"> - Scheduling, costing, approvals - Plant selection, and mobilization - Hiring - Planning - Procurement and logistics 		

Contract/Supplier hereby agrees that Contract/Supplier has reviewed and agrees with the content and accuracy of these Minutes of Meeting.

Signature: _____

Name (please print): _____

Date: _____