

Date : 7/31/2014 9:48:39 AM
From : "Goebel, Martin"
To : "Khan, Haseen"
Subject : RE: Landslides in vicinity of LCP
Attachment : image001.jpg;

Thanks, please follow up with Peter Madden to obtain the addition relevant reports.

Regards, Martin

From: Khan, Haseen
Sent: Thursday, July 31, 2014 9:31 AM
To: Goebel, Martin
Subject: FW: Landslides in vicinity of LCP

Martin;

FYI. It is a reasonable approach (documentation of landslides in weekly reports).

Haseen

From: Dawe, Paula V
Sent: Thursday, July 31, 2014 9:03 AM
To: Khan, Haseen
Subject: RE: Landslides in vicinity of LCP

Haseen,

We only have the "Bank Stability Study". I'll ask for the other 2. The reports probably provide sufficient information, however, I still think they should report on any landslides in their weekly construction reports from now on.

One thing Maria has noticed with the RTWQ station downstream of Muskrat Falls is that it has been continuously buried in sediment this year.

Paula Dawe, P.Eng.
Program Lead
Hydrometric and Water Quality Section, Dam Safety Program

From: Khan, Haseen
Sent: Wednesday, July 30, 2014 10:17 AM
To: Dawe, Paula V
Subject: FW: Landslides in vicinity of LCP

Paula;

Do we have all these documents noted in Gilbert's email? Do these documents include sufficient information to address our concerns relating to landslides and their impacts?

Is there a need for a meeting with NALCOR? Thanks.

From: Goebel, Martin
Sent: Wednesday, July 30, 2014 9:33 AM
To: Khan, Haseen
Subject: FW: Landslides in vicinity of LCP

Haseen:

I have had some discussions with Gilbert Bennett of Nalcor. I am agreeable to the approach suggested here. Please review the documents in our possession and then let's see what information gaps there are.

Regards, Martin

From: GBennett@nalcenergy.com [<mailto:GBennett@nalcenergy.com>]
Sent: Monday, July 28, 2014 8:10 PM
To: Goebel, Martin
Cc: PeterMadden@lowerchurchillproject.ca; RegisBouchard@lowerchurchillproject.ca; DavidHaley@lowerchurchillproject.ca
Subject: Fw: Landslides in vicinity of LCP

Martin,

As we discussed today, we have completed previous studies in relation to the cause and effects of landslides in the Muskrat Falls reservoir. Effects of slides in the reservoir were discussed in document MFA-SN-CD-0000-CV-RP-0009-01 prepared by SNC Lavalin and titled "Landslide Generated Waves in the Muskrat Falls Reservoir." Field investigations were undertaken by AMEC in 2010 and documented in a report titled "Bank Stability and Fish Habitat 2010 Field Investigation Reports; Vol. 1 - Bank Stability Assessment", and a study prepared by AMEC entitled "Bank Stability Study" was filed as part of the environmental assessment for the Lower Churchill Hydroelectric Generation Project.

Water Resources Division should have these reports on file; if not, Peter Madden can provide the Division with copies of them.

These reports indicate that slides both upstream and downstream of the Muskrat Falls site are expected, and that these factors have been considered in the design of the dam. The underlying factors for these slides are also discussed in these reports.

Notwithstanding the current interest in slides on the Churchill River, these events are expected to be ongoing during operations, and the potential effects of these events have been considered in the design of the facilities at Muskrat Falls. Rather than embarking on a review of every slide in the reservoir, I believe it would be more productive to discuss any concerns directly with our geotechnical experts so that we can establish thresholds for further action or analysis. We'd be happy to set up such a meeting if desired.

Regards,

Gilbert



— Forwarded by Peter Madden/NLHydro on 07/28/2014 02:16 PM —

From: "Dawe, Paula V" <pauladawe@gov.nl.ca>
To: "'PeterMadden@lowerchurchillproject.ca'" <PeterMadden@lowerchurchillproject.ca>, "davidhaley@lowerchurchillproject.ca" <davidhaley@lowerchurchillproject.ca>,
Date: 07/28/2014 01:56 PM
Subject: Landslides in vicinity of LCP

Peter, David:

Please consider this email a formal request for a technical report on the location, extent, cause and impact of landslides that have occurred in the vicinity of the Lower Churchill Project (both upstream and downstream) in 2014. During the ENVC July 10 site visit, new landslides downstream of the LCP site were observed. This or other landslides have also been reported in the media recently. The area we would like reported on includes any area to be impacted by the flooding of the reservoir upstream, and downstream to real time water quality monitoring station NF03OE0050 (Churchill River 6.15km below Lower Muskrat Falls).

ENVC also requests that NALCOR include the occurrence of any new landslides in the area defined above in its Lower Churchill Project Weekly Progress Reports from this point onward.

Thanks,

Paula Dawe, P.Eng.
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Water Resources Management Division
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