From: johnmulcahy@lowerchurchillproject.ca

To: <u>Ken McClintock</u>

Subject: CH0009 Adjustment for Man-Hrs.

Date: Monday, July 20, 2015 8:28:10 AM

Hi Ken,

As per our discussion last week, I have tried to make a rational analysis as to where we should increase Bidder # 2 man-hrs estimate from items in Nalcor estimate.

Item Bidder # 2(man-hrs.) Nalcor(man-hrs.) Adjustment to Bidder # 2 man-hrs.

- 1.U/S cofferdam 45,705 68,000(minus jet grouting) + 20,000 man-hrs.(use Nalcor estimate)
- 2. North Dam 272,300 248,400 + 70,000 man-hrs.

Say Nalcor estimate based on productivity of 1

a. Reduce productivity to .5 from estimate on concrete and formwork based on performance of CH0007

Nalcor estimate Increase estimate difference

106,000 man-hrs. 159,000 man-hrs + 53,000 man-hrs

b. Reduce productivity to .75 for RCC placement 58,000 man-hrs. 72,500 man -hrs + 15,000 man-hrs.

Say increase Bidder # 2 by +70,000 man-hrs. (same as Nalcor estimate)

3. Tailrace 20,000 41,000 + 20,000 man-hrs.(Nalcor estimate)

Total increase for Bidder # 2 + 110,000 Man-hrs

Please review and comment.

John Mulcahy
Hydroelectric Construction Specialist
PROJECT DELIVERY TEAM

Lower Churchill Project

- t. **709 737-4254** c. **709 682 0874**
- e. JohnMulcahy@lowerchurchillproject.ca
- w. muskratfalls.nalcorenergy.com

You owe it to yourself, and your family, to make it home safely every day. What have you done today so that nobody gets hurt?