

**From:** [Kevin Oakes](#)  
**To:** [Wade, Lowell](#)  
**Subject:** 5M Litre Tank Berm Emails  
**Date:** Monday, June 20, 2011 6:58:40 PM  
**Attachments:** [RE Existing 5M Liter Tank at Site.msg](#)

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Here are an email and PDG model regarding the 5M litre tank berm raise FYI, just in case you find use in it.

**Kevin Oakes**

Project Coordinator - Hope Bay Mining Project

T: 604.523.4130

C: 780.232.7748

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**From:** [Kevin Oakes](#)  
**To:** [Kevin Mather](#)  
**Cc:** [Chris Petrovic](#); [Nick Stoneberger](#); [Calvin Goldschmidt](#); [Jeff DePape](#); [jerryg@jdsmining.ca](mailto:jerryg@jdsmining.ca); [Doug Fielding](#); [Ishan E](#)  
**Subject:** RE: Existing 5M Liter Tank at Site  
**Attachments:** [Copy of 5millionLiterTankLinerAB\(Final\) volume to elev 7.4.pdf](#)

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Kevin,

Here is some further data on the containment at the existing 5mil Litre Tank Berm.

The survey dept dug up some old as-built data on the liner seams. However, once the information was compared against the 'top of gravel' as built, it becomes apparent that in actuality there is approximately 0.4m of cover material at the L.P. along the berm, not the 0.3m that was originally subtracted from the berm height by Hatch.

This further reduces the effective containment volume of the berm to **3,500m<sup>3</sup>**. I've included a drawing prepared by the surveyors illustrating this. Also, if you'd like us to forward the digital files onwards to Hatch for a double check let us know, but it is safe to say containment is currently insufficient to be able to completely fill the 5mil tank.

Thanks,

**Kevin Oakes**

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**From:** Kevin Mather [mailto:kevinm@jdsmining.ca]  
**Sent:** April-04-11 1:35 PM  
**To:** Kevin Oakes  
**Cc:** Chris Petrovic; Nick Stoneberger; Calvin Goldschmidt  
**Subject:** RE: Existing 5M Liter Tank at Site

Guys,

Existing 5 M liter tank

1. Did you ever do an as-built of the 'Top of Liner' around the top of the berm.
2. The only as-built we have is the top of gravel on top of the liner around the top of the berm.
3. If we can get some as-builts of the actual top of liner (remove the gravel) at the low spots along the berm to confirm the exact liner elevation
4. Did Nuna ever submit a complete as-built package for this work (earthworks and as-builts

and signed-off by owner). If not – is one being developed.

When we build the Roberts Bay Tank Farm – let's make 200% sure that the top of liner is as-built and we check that it is at or slightly above design elevation the whole way around (before we cover it) as the lowest spot rules the containment capacity.

Thanks,

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**From:** Kevin Oakes [mailto:kevino@nunalogistics.com]  
**Sent:** April-04-11 11:59 AM  
**To:** Kevin Mather  
**Cc:** Chris Petrovic; Nick Stoneberger  
**Subject:** RE: Existing 5M Liter Tank at Site

Morning Kevin – Yes agreed. The survey calcs below are incorrect and should not be considered as a “containment” volume but rather as a mass volume from a variable berm height to the floor; basically two surfaces compared to one another.

Our survey department did up a proper check for containment identifying the L.P. of the berm using the information available in the SNC Lavalin turnover pack; similar to what Hatch has done. See the attached drawing. We came up with a L.P. berm elevation of 7.82 and used 7.8 for the volume calculations.

What we haven't done is subtract the liner cover on the top of the berm from the equation yet. In my opinion, we shouldn't remove 0.3 m from the elevation used without checking the field conditions in detail which we will. As soon as we can, we will pothole the liner at the L.P. and record the elevation to determine the actual L.P. elevation.

As well, Nick spoke to Angela, and another thing to ascertain is exactly what the environmental requirement is for fuel containment. She is following up on some details for us.

**Kevin Oakes**

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**From:** Kevin Mather [mailto:kevinm@jdsmining.ca]  
**Sent:** April-04-11 10:46 AM  
**To:** Kevin Oakes  
**Cc:** Chris Petrovic  
**Subject:** FW: Existing 5M Liter Tank at Site

Kevin – with Chris gone I need you to chase this down. Looking at the as-built; there is no way it is

7.8M liters capacity. A couple things to consider – as-built is from the top of gravel floor to the bottom of the berm liner.

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**From:** Russ Eby [mailto:Russ.Eby@Newmont.com]  
**Sent:** April-02-11 6:46 PM  
**To:** Kevin Mather; Chris Hanks  
**Subject:** FW: Existing 5M Liter Tank at Site

Kevin / Chris

See the information below regarding the 5ML tank containment there is another volume number which indicated we have 7.802 ML hope this turns out being correct Please let me know your thoughts

Thanks

Russ

**Russ Eby**  
HBML Site Manager  
[Russ.Eby@newmont.com](mailto:Russ.Eby@newmont.com)  
(604) 759-4684 ph  
(778) 229-9955 bb  
(907) 250-5701 M

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**From:** Nick Stoneberger [mailto:nicks@nunalogistics.com]  
**Sent:** Saturday, April 02, 2011 11:23 AM  
**To:** Doug Fielding (JDS); Russ Eby  
**Subject:** FW: Existing 5M Liter Tank at Site

FYI

**Nick Stoneberger**  
Site Superintendent  
Hope Bay Mining Project  
T: +1 604 759 4700  
C: +1 780 504 9472

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**From:** hopebay survey  
**Sent:** April-02-11 10:16 AM  
**To:** Kevin Oakes  
**Cc:** Nick Stoneberger  
**Subject:** RE: Existing 5M Liter Tank at Site

Did a check in my volume program and got:

- **7.805 ML** when using the entire crest.(Didn't factor in liner thickness.)
- **7.732 ML** when using the crests low pt. (Didn't factor in liner thickness.)

The turnover shows **7.802ML....**

I'll take a look in the field for a berm width to use for the .45m fill volume.

Ronnie

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**From:** Kevin Oakes  
**Sent:** Friday, April 01, 2011 9:54 PM  
**To:** hopebay survey  
**Subject:** FW: Existing 5M Liter Tank at Site

Can you guys do a rough calc on volume required to raise the berm at the existing 5 mil litre tank at Robs Bay by 0.45m in height? Use a side slope angle of say 1:1 and a width of whatever the existing berm is.

Also, Ron like we talked about today, can you double check the existing containment volume the current berm has? I know this is a bit tough, but can you make the numbers work with the info you have in the turnover pack and do a bit of a double check on the existing berm height, to make sure it all makes sense?

Thanks guys,

**Kevin Oakes**  
Project Coordinator - Hope Bay Mining Project  
T: 604.523.4130  
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**From:** Chris Petrovic  
**Sent:** Thursday, March 31, 2011 7:33 PM  
**To:** Farzad Nader; Kevin Oakes  
**Subject:** FW: Existing 5M Liter Tank at Site

Can you guys put this estimate together and send it to Kevin Mather.

**Chris Petrovic**

Project Manager - Hope Bay Mining Project

T: 780.434.9306

C: 780.238.8121

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**From:** Chris Petrovic

**Sent:** Thursday, March 31, 2011 7:31 PM

**To:** 'Kevin Mather'

**Cc:** Farzad Nader; Calvin Goldschmidt; Doug Fieldings; jerryg@jdsmining.ca; Ishan Fechter

**Subject:** RE: Existing 5M Liter Tank at Site

Ok, also we will need to put some dollars to liner work.

**Chris Petrovic**

Project Manager - Hope Bay Mining Project

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**From:** Kevin Mather [mailto:kevinm@jdsmining.ca]

**Sent:** Thursday, March 31, 2011 7:07 PM

**To:** Chris Petrovic

**Cc:** Farzad Nader; Calvin Goldschmidt; Doug Fieldings; jerryg@jdsmining.ca; Ishan Fechter

**Subject:** FW: Existing 5M Liter Tank at Site

Chris – please get us a budget for increasing the height of this berm by say 0.45m. Obviously there may be side slopes requiring more fill to support this.

Thanks,

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**From:** Kevin Mather [mailto:kevinm@jdsmining.ca]

**Sent:** March-31-11 7:02 PM

**To:** Eby, Russ (russ.eby@newmont.com); 'Brad Skeeles'

**Cc:** Chris Hanks (chris.hanks@newmont.com); Spenceley, Jim (jim.spenceley@newmont.com); Bruce Dignem; Church, Dillion (dillion.church@newmont.com)

**Subject:** FW: Existing 5M Liter Tank at Site

Brad & Russ,

The existing 5M liter tank containment volume is inadequate. Please see the attached memo which explains the situation. Note: We did survey checks over the last week to confirm this.

As you are the owners of this system; please manage accordingly to ensure we stay within compliance.

Bruce - we need to plan on increasing the height of the berm so we need to account for this w.r.t. both cost and fuel storage. I will generate a formal pdn for this (Dillion – can we get Henry to put an estimate together); however we may be able to push this work off until next year. Note: We are going to start running into camp space issues next summer if we keep pushing things out. We can discuss appropriate timing at our next face to face.

Thanks,

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**From:** Rustad, Bruce [mailto:BRustad@hatch.ca]  
**Sent:** March-31-11 6:21 PM  
**To:** Kevin Mather  
**Cc:** Wolfe, Robyn; Schwab, Gerry; Greg Blaylock; Nesjan, Dorian; Calvin G; Ishan Fechter  
**Subject:** RE: Existing 5M Liter Tank at Site

Kevin,

Attached, is the requested memo complete with reference drawings.

- SNC Design drawing
- SNC As-Built drawing
- Site Survey drawing

Please let me know if you require anything else.

Regards,

Bruce

Bruce Rustad, P.Eng (Associate)  
Project Director / Senior Project Manager

HATCH

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 [email: brustad@hatch.ca](mailto:brustad@hatch.ca)  [www.hatch.ca](http://www.hatch.ca)

<<Memo Existing Fuel Storage at Roberts Bay.pdf>>

-----Original Message-----

From: Kevin Mather [<mailto:kevinm@jdsmining.ca>]

Sent: Thursday, March 31, 2011 2:59 PM

To: Nesjan, Dorian; 'Calvin G'

Cc: 'Greg Blaylock'; Schwab, Gerry; 'Ishan Fechter'

Subject: RE: Existing 5M Liter Tank at Site

Gerry - I need this memo tomorrow please.

Thanks,

Kevin

-----Original Message-----

From: Kevin Mather [<mailto:kevinm@jdsmining.ca>]

Sent: March-31-11 3:58 PM

To: 'Nesjan, Dorian'; 'Calvin G'

Cc: 'Greg Blaylock'; 'Schwab, Gerry'; 'Ishan Fechter'

Subject: RE: Existing 5M Liter Tank at Site

Gerry,

I need a memo from yourself to myself indicating that the existing containment is xxxx m3. And as such, Newmont should not be filling the tank

more then 90% of xxx to ensure that design 110% containment volume is

maintained; prior to accounting for storage of barrels and seacans



in this

area. Highlight the fact that we have gone out and done spot survey

checks to confirm that this is indeed the case.

Start the memo by stating the reason this volume was assessed was to look at

the potential of putting the 1.5M liter av-gas tank in this area.

Furthermore that we propose to increase the berm height to enable the 5M L

tank to be fully filled in the future. I think if we are going to raise the

berm height, lets do it in a way that still enables us to put the 1.5M liter

tank in this area in the future; and store barrels and lubricants in seacans.

Thanks,

-----Original Message-----

From: Nesjan, Dorian [<mailto:DNesjan@hatch.ca>]

Sent: March-31-11 3:47 PM

To: Calvin G; Kevin Mather

Cc: Greg Blaylock; Schwab, Gerry; Ishan Fechter

Subject: RE: Existing 5M Liter Tank at Site

Attached is the updated Tank Containment Sketch with the recent survey shown

in magenta. It basically confirms the original survey was correct and the

containment volume (ignoring the seacans) is actually reduced a little as a

result of the new survey picking up the raised area around the tank.

We will need to raise/extend sections of the liner at the crest about

350-400mm to obtain our 110% capacity.

Dorian

-----Original Message-----

From: Calvin Goldschmidt [<mailto:calving@jdsmining.ca>]

Sent: Wednesday, March 30, 2011 6:13 AM

To: Nesjan, Dorian; 'Kevin Mather'

Cc: 'Greg Blaylock'; Schwab, Gerry; 'Ishan Fechter'

Subject: RE: Existing 5M Liter Tank at Site

Dorian,

Here is what I received from Survey. Looks like they didn't check the liner

for us. If it's missing anything else, please let me know. I will get them

to redo it.

Calvin.

-----Original Message-----

From: Nesjan, Dorian [<mailto:DNesjan@hatch.ca>]

Sent: Friday, March 18, 2011 4:08 PM

To: Kevin Mather; Calvin G

Cc: Greg Blaylock; Schwab, Gerry

Subject: RE: Existing 5M Liter Tank at Site

Here is a sketch showing the info I have and what I assumed. I outlined the

two low points that is causing us problems. If survey can confirm elevations

along the yellow crest line to determine if elevations shown are indeed the

current grade (top of 20mm rock, 300 above liner).

Confirming the possible cover over liner at the crest edge and its extent

would help too if possible.

Some elevations around the tank would help as the eng. dwgs show the tank

pad built up a bit.

A few pictures is always beneficial too.

thx

Dorian

-----Original Message-----

From: Kevin Mather [<mailto:kevinm@jdsmining.ca>]

Sent: Friday, March 18, 2011 11:17 AM

To: Nesjan, Dorian; 'Calvin G'

Cc: 'Greg Blaylock'

Subject: RE: Existing 5M Liter Tank at Site

Dorian - what do you need to confirm your assumptions and volume

- do you need any field survey

-----Original Message-----

From: Nesjan, Dorian [<mailto:DNesjan@hatch.ca>]

Sent: March-18-11 12:02 PM

To: Kevin Mather; Calvin G

Cc: Greg Blaylock

Subject: RE: Existing 5M Liter Tank at Site

Kevin,

Looking at the one AutoCAD dwg and the text survey file from Calvin I

determined they contain the same information. This survey contained shots to

the top of the 20mm crushed rock as their file names implies.

I used an elev. Of 7.8 as high point around the berm which resulted in a

volume of approx. 5390m<sup>3</sup>. I then subtracted 300mm from this as the engineering dwgs show 300 cover over the top of the liner and recalculated

using a h.p. elev. Of 7.5. which resulted in a volume of approx. 4000m<sup>3</sup>.

I'm not sure if this survey is to the top of the final 20mm rock or the 20mm

rock below the liner (the AutoCAD file name does say liner cover).

A few inches here or there makes a big difference. I can show you better on

the screen if you have any questions and where I determined the low points.

Dorian

-----Original Message-----

From: Kevin Mather [<mailto:kevinm@jdsmining.ca>]

Sent: Friday, March 18, 2011 9:44 AM

To: Nesjan, Dorian; 'Calvin G'

Cc: 'Greg Blaylock'

Subject: RE: Existing 5M Liter Tank at Site

Dorian,

Any more luck with the containment volume

-----Original Message-----

From: Nesjan, Dorian [<mailto:DNesjan@hatch.ca>]

Sent: March-17-11 8:08 AM

To: Calvin G

Cc: Greg Blaylock; Kevin Mather

Subject: RE: Existing 5M Liter Tank at Site

Thx Calvin, I will bring it in and compare it to the asbuilt survey  
you sent

earlier.

Any luck on the other areas?

Dorian

-----Original Message-----

From: Calvin Goldschmidt [<mailto:calving@jdsmining.ca>]

Sent: Wednesday, March 16, 2011 1:48 PM

To: Nesjan, Dorian

Cc: 'Greg Blaylock'; 'Kevin Mather'

Subject: RE: Existing 5M Liter Tank at Site

Dorian,

I found the SNC Lavalin Turnover Binder/package.

System #1 dated November 08.

I found the attached survey data in this binder.

Please let me know if the info provided helps out at all. If more survey

info is required, let me know.

Calvin.

-----Original Message-----

From: Nesjan, Dorian [<mailto:DNesjan@hatch.ca>]

Sent: Wednesday, March 16, 2011 12:09 PM

To: Calvin G

Cc: Greg Blaylock; Kevin Mather

Subject: RE: Existing 5M Liter Tank at Site

Hi Calvin,

The only dwg I received is one called 'ASBUILT COMPILATION MAP ALL FEB

17 2011.dwg' and has very little info around the Roberts Bay area except for

some survey around the jetty road and incoming road. I used an SRK dwg

called 'Asbuilt-Pre2010-2010 for Airstrip Exp-A2007 toe crest.dwg'

that filled in this area better but only showed toe/crest lines. I don't see

any random survey points and I am unsure when this was done or how up to

date it is.

Survey information is lacking in other areas such as the Doris Camp.

The existing camp area is missing along with various parts of roads from

what I can see. I pieced some missing parts in from SRK dwgs but

again I

don't know when/where this information came from.

I am hoping there is one master file of all the survey done to date that

showing the required random points and breaklines to define the current

asbuilt facilities. If there is no up to date master file are there multiple

surveys files available for the various areas?

Thx for any help

Dorian

-----Original Message-----

From: Calvin Goldschmidt [<mailto:calving@jdsmining.ca>]

Sent: Wednesday, March 16, 2011 11:12 AM

To: Nesjan, Dorian

Cc: 'Greg Blaylock'; 'Kevin Mather'

Subject: RE: Existing 5M Liter Tank at Site

Hello Dorian,

Did the 3d Survey drawing that Greg Blaylock has give you the information

that you have?

Calvin.

-----Original Message-----

From: Kevin Mather [<mailto:kevinm@jdsmining.ca>]

Sent: Wednesday, March 16, 2011 10:35 AM

To: Calvin G; [dnesjan@hatch.ca](mailto:dnesjan@hatch.ca)

Subject: FW: Existing 5M Liter Tank at Site

Dorian - any as-built information that you are looking for from site; go

directly to Calvin.

Thanks,

-----Original Message-----

From: Kevin Mather [<mailto:kevinm@jdsmining.ca>]

Sent: March-16-11 11:01 AM

To: Calvin Goldschmidt (calving@jdsmining.ca); 'gschwab@hatch.ca';  
'dnesjan@hatch.ca'

Cc: Doug Fieldings (dougf@jdsmining.ca); jerryg@jdsmining.ca; 'Greg Blaylock'; Bruce Rustad (brustad@hatch.ca)

Subject: Existing 5M Liter Tank at Site

Calvin,

We have reviewed the design drawing for the existing 5M liter tank and

containment on site. The containment berm was designed for an elevation of

8.6M and the as-built shows an elevation of 8.0M and the as-built that SRK

has shows a low point of 7.6 m.

We are concerned that the containment is not large enough to accommodate the

5,500 m3 that it was designed for.

Can we get a survey of the crest of the berm (very short intervals - elevation is key) the toe of the berm, some spot points on the floor



and the

location of the tank itself?

Can you follow up to see if there was a turnover package completed and is in

Newmont`s possession somewhere?

This information needs to go Dorian Nesjan and Gerry Schwab. Gerry is

Hatch`s engineering manager for the project now that Mark Lasby has left.

Dorian can complete the volume if he has he survey information.

Thanks,

Kevin

-----Original Message-----

From: VAN1056 [<mailto:VAN1056>]

Sent: March-16-11 10:35 AM

To: Kevin Mather

Subject:

This E-mail was sent from "VAN1056" (Aficio MP C4500).

Scan Date: 03.16.2011 09:35:01 (-0700)

Queries to: VAN1056

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