Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2019, January 04 1:52 PM

To:

Oswell, Terry

Subject:

15-20-82-19 W6M

Afternoon Terry,

Happy New Year.

In follow-up to our meeting in mid December and you made to comment of "it would have been nice to know about the activity before it took place".

As you know, Crew is completing a number of wells outside of the BC Hydro Dam Buffer Notification radius.

We will be starting stimulation on the first of two wells at 15-20–82-19 W6M tomorrow. Crew did complete three wells from this pad in October 2018 with no reportable seismicity.

I hope this is helpful.

Please let me know if any questions.

Paul

Sent from my iPhone

Paul Dever

Vice President, Government and Stakeholder Relations Crew Energy Inc.

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Addo, Kofi; Watson, Andrew; Gilliss,

Sent:

2017, April 28 10:20 AM

To:

Oswell, Terry; Rigbey, Stephen; (19), (22)

Scott; Venables, Stuart

Subject:

BC Hydro Dam Buffer Notification

Follow Up Flag:

Flag Status:

Follow up

Completed

Good morning all,

This is in follow-up to our meeting held on March 22, 2017.

Although no direct take-away items were discussed, is there anything that Crew is able to assist with or would BC Hydro like another meeting to obtain a greater understanding of Crew's current or proposed activities?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, June 14 10:25 AM

19), (22[°]

To:

Rigbey, Stephen; Watson, Andrew; Gilliss, Scott; Oswell, Terry;

Cc:

Kevin Evers

Subject:

Crew Energy / BC Hydro

Morning all,

Thanks to all for making the time to attend the meeting last Friday. We found it very beneficial and welcomed the opportunity to share our learnings.

During the meeting there was a request to visit a Crew padsite and observe completion activity taking place.

In speaking to our Drilling and Completions Manager, Crew will be able to accommodate the request.

Please let me know who is interested and we will start to work on the timing for a site visit.

Thanks again,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2019, January 14 3:01 PM

To:

Jeff.Johnson@bcogc.ca

Cc:

Oswell, Terry; Stuart.Venables@bcogc.ca

Subject:

Crew Energy / BC Hydro

Afternoon Jeff,

Crew and BC Hydro had what I thought was a productive information sharing session earlier today.

I did ask if they received the raw waveform information and they did. However, it was sent as a binary file and would like to have the information as a "seed file".

Would you be able to follow-up with Terry on this? I have included Terry on this request.

Thanks

Paul

Sent from my iPhone

Paul Dever

Vice President, Government and Stakeholder Relations Crew Energy Inc.

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2019, January 25 1:51 PM

To:

Oswell, Terry

Subject:

Crew Energy Activity

Afternoon Terry,

As an update, Crew has finished drilling on our 4-21-82-19 W6M padsite and we have started drilling a 5 well pad at 3-32-82-19 W6M.

The 3-32-82-19 W6M padsite is within the BC Hydro Notification Buffer and we advised on this in December and spoke about it at our most recent meeting earlier this month.

The completion rig is currently being set-up on the 4-21-82-19 W6M padsite (outside of the "buffer") and expect to start pumping this coming Sunday or Monday.

Please let me know if you have any questions.

Regards,

Paul



Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

(14)			

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2018, September 28 9:40 AM

To:

Oswell, Terry

Cc:

'Stuart.Venables@bcogc.ca'

Subject:

Crew Energy Inc. 15-20-82-19 W6 Notice of Completion Activity

Attachments:

Crew Energy Inc. 15-20-82-19 W6M Notice of Completion Activity September 28, 2018.pdf; 15-20-82-19 W6M KSMMA Radius Map.pdf; Induced Seismicity_OGC

Handout.pdf; OGC Hydraulic Fracturing.pdf

Follow Up Flag:

Follow up

Flag Status:

Completed

Good morning Terry,

Crew has several well completions planned for mid-October on our 15-20-82-19 W6 padsite.

The OGC permits do not have a condition for notifying BC Hydro however, there is an OGC Order that requires Operators notify certain stakeholders within a 5 kilometre radius of upcoming completion (hydraulic fracturing) activity.

BC Hydro is a landowner (DL 4429, #21) as shown on attached radius map and as such, Crew is notifying on the 15-20-82-19 W6 completions.

Although the requirement is to notify between 2 and 10 days prior to the completions taking place, I thought best to send to you earlier.

Please review the attached and let me know if you have any questions.

Thanks

Paul



Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2018, December 03 4:00 PM

To:

Oswell, Terry; DSOP

Cc:

Venables, Stuart

Subject:

Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

Attachments:

CREW HZ WILDER 3-32-82-19 WELLSITE_FINAL.PDF; 2016-S010.01_CREW HZ WILDER

3-32-82-19 CONSULTATION MAP_FINAL.PDF

Afternoon Terry,

As required by the BC Oil and Gas Commission Well Authorization permit conditions, Crew hereby notifies BC Hydro on up-coming drilling activity on Crew's 3-32-82-19 W6M padsite in mid-January 2019. The surface location is approximately 6 kilometres from the Site C. Attached is the padsite survey and consultation mapping for your reference.

Pursuant to clause 34 of OGC Permits:

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M)
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M)
- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M)
- Well Authorization # 33505 (Crew HZ Wilder C3-32-82-19 W6M)
- Well Authorization # 33506 (Crew HZ Wilder D3-32-82-19 W6M)
- Well Authorization # 33507 (Crew HZ Wilder E3-32-82-19 W6M)

Crew Energy Inc. ("Crew") hereby notifies BC Hydro and Power Authority ("BC Hydro") of upcoming drilling activities. Crew expects to initiate drilling operations on:

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M) January 15, 2019
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M) January 16, 2019
- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M) January 17, 2019
- Well Authorization # 33505 (Crew HZ Wilder C3-32-82-19 W6M) January 18, 2019
- Well Authorization # 33506 (Crew HZ Wilder D3-32-82-19 W6M) January 19, 2019
- Well Authorization # 33507 (Crew HZ Wilder E3-32-82-19 W6M) January 20, 2019

Drilling operations will begin with setting surface casing on each of the six wells captioned above. Upon setting surface casing on the sixth well, main-hole drilling will commence. From surface casing, each well is expected to take approximately 14 days to reach total depth.

The wells will be drilled vertically and then horizontally drill within the Montney formation.

Completion activities will take place after the wells have been drilled and under the same Well Authorization Permit conditions, Crew will send notification to BC Hydro prior to initiating completion activity. Completion activities are expected to take place sometime in mid to late 2019.

Regards,



Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2018, March 15 9:53 AM

To:

Oswell, Terry

Cc:

Kevin Evers; 'Stuart.Venables@bcogc.ca'

Subject:

Crew Energy Inc. Notification of Activity EXAMPLE

Attachments:

CREW HZ WILDER 3-32-82-19 WELLSITE_FINAL.PDF; CREW HZ WILDER A3-32-82-19 WELLSITE_FINAL.PDF; CREW HZ WILDER B3-32-82-19 WELLSITE_FINAL.PDF; Example of

Hydro March 2018 Notification Operations Overview Map.pdf

Follow Up Flag: Flag Status:

Follow up Flagged

Moring Terry,

In follow-up to our meeting on Monday March 12, 2018, the information below is an example of what Crew will send to DSOP@bchydro.com as it relates to up-coming drilling activity. This example is for drilling only, a separate and similar notification will be sent in relation to completion activity.

To whom it may concern,

Pursuant to clause 34 of OGC Permits:

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M)
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M)
- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M)

Crew Energy Inc. ("Crew") hereby notifies BC Hydro and Power Authority ("BC Hydro") of upcoming drilling activities. Crew expects to initiate drilling operations on:

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M) April 6, 2018
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M) April 7, 2018
- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M) April 8, 2018

Drilling operations will begin with setting surface casing on each of the three wells captioned above. Upon setting surface casing on the third well, main-hole drilling will commence. From surface casing, each well is expected to take approximately 14 days to reach total depth.

The wells will be drilled vertically and then horizontally drill within the Montney formation.

Completion activities will take place some point after the wells have been drilled.

Under the same Permit condition, Crew will send notification to BC Hydro for completion activity.

Regards,

Crew Energy Inc.

Thanks again Terry for setting up the meeting.

Regards,

Paul

Paul A. Dever Vice President, Government & Stakeholder Relations Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697 (22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, July 12-3:19 PM

To:

Rigbey, Stephen; Watson, Andrew; Gilliss, Scott; Oswell, Terry; (19), (22)

Cc:

Kevin Evers

Subject:

Emailing - BC Hydro (June 9 meeting).pdf

Attachments:

BC Hydro (June 9 meeting).pdf

Follow Up Flag:

Follow up Completed

Flag Status:

Afternoon,

In follow-up to our meeting in June, please find the attached slide decks as requested. Let me know if there are any questions on the slides.

We also spoke about meeting again in September or October to give an update on drilling and completion both past and future. Considering it does take some time to find time within each other's schedules, I thought it best to ask for dates now. Please let me know what would work from Hydro's end.

Finally, we are still committed in giving a tour of a padsite during a completion. As the July will not work due to summer schedules, we should have activity taking place in late August and again in September. Once I know the dates I will forward and hopefully the timing will work.

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

Watson, Andrew

Sent: To:

2018, December 05 7:27 AM Oswell, Terry; Schubak, Bob

Subject:

Fwd: Crew Energy

Attachments:

imageb580cd.PNG

See below. Chris was keen for dam safety group to lead discussions with OGC.

Terry maybe you should meet with Paul?

Sent from my iPhone

Begin forwarded message:

From: Paul Dever < Paul. Dever@crewenergy.com >

Date: December 5, 2018 at 7:17:57 AM PST

To: "Andrew.Watson@bchydro.com" < Andrew.Watson@bchydro.com>

Subject: Crew Energy

Good morning Andrew,

I will be in Vancouver next Wednesday December 12th, would you have some time in the morning for a coffee? Would like to discuss Crew's up-coming activity at a high level.

Paul



Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

Watson, Andrew

Sent: To: 2018, December 05 7:28 AM Oswell, Terry; Schubak, Bob

Subject:

Fwd: Crew Energy

Attachments:

imageb580cd.PNG

Sent from my iPhone

Begin forwarded message:

From: "Watson, Andrew" < Andrew. Watson@bchydro.com >

Date: December 5, 2018 at 7:23:16 AM PST **To:** Paul Dever < <u>Paul.Dever@crewenergy.com</u>>

Subject: Re: Crew Energy

Hi Paul

I'm at site next Monday to Wednesday with flight back in evening. Are you in Vancouver Thursday?

Terry might be able to meet with you Wednesday?

Andrew

Sent from my iPhone

On Dec 5, 2018, at 7:18 AM, Paul Dever < Paul. Dever@crewenergy.com > wrote:

Good morning Andrew,

<imageb580cd.PNG>

I will be in Vancouver next Wednesday December 12th, would you have some time in the morning for a coffee? Would like to discuss Crew's up-coming activity at a high level.

Paul

Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com https://www.crewenergy.com

Gilliss, Scott

Sent: To:

2018, December 03 6:15 PM 19), (22)

Subject:

Oswell, Terry

Attachments:

Fwd: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M CREW HZ WILDER 3-32-82-19 WELLSITE_FINAL.PDF; ATT00001.htm; 2016-S010.01 _CREW HZ WILDER 3-32-82-19 CONSULTATION MAP_FINAL.PDF; ATT00002.htm

Scott Sent from my iPhone

Begin forwarded message:

From: "Vaillancourt, Russell" < Russell. Vaillancourt@bchydro.com> To: "Gilliss, Scott" < Scott. Gilliss@bchydro.com >, "Cryderman, James" <James.Cryderman@bchydro.com>, "Turner, Adam" <Adam.Turner@bchydro.com> Subject: Fwd: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

Hi Scott,

Not sure if you want this sent on to you or not? Here it is in case you do.

Thanks, Russell

Sent from my iPhone

Begin forwarded message:

From: "DSOP" < DSOP@bchydro.com>

To: "Vaillancourt, Russell" < Russell. Vaillancourt@bchydro.com >

Subject: FW: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

From: Paul Dever

Sent: Monday, December 03, 2018 3:59:35 PM (UTC-08:00) Pacific Time (US & Canada)

To: Oswell, Terry; DSOP Cc: Venables, Stuart

Subject: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

Afternoon Terry,

As required by the BC Oil and Gas Commission Well Authorization permit conditions, Crew hereby notifies BC Hydro on up-coming drilling activity on Crew's 3-32-82-19 W6M padsite in mid-January 2019. The surface location is approximately 6 kilometres from the Site C. Attached is the padsite survey and consultation mapping for your reference.

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M)
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M)
- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M)
- Well Authorization # 33505 (Crew HZ Wilder C3-32-82-19 W6M)
- Well Authorization # 33506 (Crew HZ Wilder D3-32-82-19 W6M)
- Well Authorization # 33507 (Crew HZ Wilder E3-32-82-19 W6M)

Crew Energy Inc. ("Crew") hereby notifies BC Hydro and Power Authority ("BC Hydro") of upcoming drilling activities. Crew expects to initiate drilling operations on:

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M) -January 15, 2019
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M) -January 16, 2019
- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M) -January 17, 2019
- Well Authorization # 33505 (Crew HZ Wilder C3-32-82-19 W6M) -January 18, 2019
- Well Authorization # 33506 (Crew HZ Wilder D3-32-82-19 W6M) -January 19, 2019
- Well Authorization # 33507 (Crew HZ Wilder E3-32-82-19 W6M) -January 20, 2019

Drilling operations will begin with setting surface casing on each of the six wells captioned above. Upon setting surface casing on the sixth well, main-hole drilling will commence. From surface casing, each well is expected to take approximately 14 days to reach total depth.

The wells will be drilled vertically and then horizontally drill within the Montney formation.

Completion activities will take place after the wells have been drilled and under the same Well Authorization Permit conditions, Crew will send notification to BC Hydro prior to initiating completion activity. Completion activities are expected to take place sometime in mid to late 2019.

Regards,			
0			

Paul

× Shearastelli

Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com https://www.crewenergy.com

Cryderman, James

Sent:

2018, December 03 5:06 PM

To:

Oswell, Terry

Subject:

Fwd: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

Sorry terry, I didn't read below and see that you were on the original email.

Sent from my iPhone

Begin forwarded message:

From: "Vaillancourt, Russell" < Russell.Vaillancourt@bchydro.com > To: "Gilliss, Scott" < Scott.Gilliss@bchydro.com >, "Cryderman, James"

<<u>James.Cryderman@bchydro.com</u>>, "Turner, Adam" <<u>Adam.Turner@bchydro.com</u>>

Subject: Fwd: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

Hi Scott,

Not sure if you want this sent on to you or not? Here it is in case you do.

Thanks, Russell

Sent from my iPhone

Begin forwarded message:

From: "DSOP" < DSOP@bchydro.com>

To: "Vaillancourt, Russell" < Russell. Vaillancourt@bchydro.com >

Subject: FW: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

From: Paul Dever

Sent: Monday, December 03, 2018 3:59:35 PM (UTC-08:00) Pacific Time (US & Canada)

To: Oswell, Terry; DSOP **Cc:** Venables, Stuart

Subject: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

Afternoon Terry,

As required by the BC Oil and Gas Commission Well Authorization permit conditions, Crew hereby notifies BC Hydro on up-coming drilling activity on Crew's 3-32-82-19 W6M padsite in mid-January 2019. The surface location is approximately 6 kilometres from the Site C. Attached is the padsite survey and consultation mapping for your reference.

Pursuant to clause 34 of OGC Permits:

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M)
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M)

- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M)
- Well Authorization # 33505 (Crew HZ Wilder C3-32-82-19 W6M)
- Well Authorization # 33506 (Crew HZ Wilder D3-32-82-19 W6M)
- Well Authorization # 33507 (Crew HZ Wilder E3-32-82-19 W6M)

Crew Energy Inc. ("Crew") hereby notifies BC Hydro and Power Authority ("BC Hydro") of upcoming drilling activities. Crew expects to initiate drilling operations on:

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M) -January 15, 2019
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M) -January 16, 2019
- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M) -January 17, 2019
- Well Authorization # 33505 (Crew HZ Wilder C3-32-82-19 W6M) -January 18, 2019
- Well Authorization # 33506 (Crew HZ Wilder D3-32-82-19 W6M) -January 19, 2019
- Well Authorization # 33507 (Crew HZ Wilder E3-32-82-19 W6M) -January 20, 2019

Drilling operations will begin with setting surface casing on each of the six wells captioned above. Upon setting surface casing on the sixth well, main-hole drilling will commence. From surface casing, each well is expected to take approximately 14 days to reach total depth.

The wells will be drilled vertically and then horizontally drill within the Montney formation.

Completion activities will take place after the wells have been drilled and under the same Well Authorization Permit conditions, Crew will send notification to BC Hydro prior to initiating completion activity. Completion activities are expected to take place sometime in mid to late 2019.

Re	ga	rd	ls,

Paul



Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com https://www.crewenergy.com This e-mail and any attachments may contain confidential and privileged information. If you are not the intended recipient, please notify the sender immediately by return e-mail, delete this e-mail and destroy any copies. Any unauthorised dissemination or use of this information, whether by the intended recipient or otherwise, is strictly forbidden. Unless otherwise stated, opinions expressed in this e-mail are those of the author and are not endorsed by the author's employer.

<CREW HZ WILDER 3-32-82-19 WELLSITE_FINAL.PDF>

<2016-S010.01_CREW HZ WILDER 3-32-82-19 CONSULTATION MAP_FINAL.PDF>

Cryderman, James

Sent:

2018, December 03 4:45 PM

To:

Mainprize, Eric; Oswell, Terry

Subject: Attachments: Fwd: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M CREW HZ WILDER 3-32-82-19 WELLSITE_FINAL.PDF; ATT00001.htm; 2016-S010.01

CREW HZ WILDER 3-32-82-19 CONSULTATION MAP_FINAL.PDF; ATT00002.htm

FYI

Sent from my iPhone

Begin forwarded message:

From: "Vaillancourt, Russell" < Russell. Vaillancourt@bchydro.com >

To: "Gilliss, Scott" < Scott. Gilliss@bchydro.com>, "Cryderman, James"

<James.Cryderman@bchydro.com>, "Turner, Adam" <Adam.Turner@bchydro.com> Subject: Fwd: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

Hi Scott,

Not sure if you want this sent on to you or not? Here it is in case you do.

Thanks.

Russell

Sent from my iPhone

Begin forwarded message:

From: "DSOP" < DSOP@bchydro.com>

To: "Vaillancourt, Russell" < Russell. Vaillancourt@bchydro.com>

Subject: FW: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

From: Paul Dever

Sent: Monday, December 03, 2018 3:59:35 PM (UTC-08:00) Pacific Time (US & Canada)

To: Oswell, Terry; DSOP Cc: Venables, Stuart

Subject: Crew Energy Inc. Notification of Drilling Operations at 3-32-82-19 W6M

Afternoon Terry,

As required by the BC Oil and Gas Commission Well Authorization permit conditions, Crew hereby notifies BC Hydro on up-coming drilling activity on Crew's 3-32-82-19 W6M padsite in mid-January 2019. The surface location is approximately 6 kilometres from the Site C. Attached is the padsite survey and consultation mapping for your reference.

Pursuant to clause 34 of OGC Permits:

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M)
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M)
- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M)
- Well Authorization # 33505 (Crew HZ Wilder C3-32-82-19 W6M)
- Well Authorization # 33506 (Crew HZ Wilder D3-32-82-19 W6M)
- Well Authorization # 33507 (Crew HZ Wilder E3-32-82-19 W6M)

Crew Energy Inc. ("Crew") hereby notifies BC Hydro and Power Authority ("BC Hydro") of upcoming drilling activities. Crew expects to initiate drilling operations on:

- Well Authorization # 33502 (Crew HZ Wilder 3-32-82-19 W6M) -January 15, 2019
- Well Authorization # 33503 (Crew HZ Wilder A3-32-82-19 W6M) -January 16, 2019
- Well Authorization # 33504 (Crew HZ Wilder B3-32-82-19 W6M) -January 17, 2019
- Well Authorization # 33505 (Crew HZ Wilder C3-32-82-19 W6M) -January 18, 2019
- Well Authorization # 33506 (Crew HZ Wilder D3-32-82-19 W6M) -January 19, 2019
- Well Authorization # 33507 (Crew HZ Wilder E3-32-82-19 W6M) -January 20, 2019

Drilling operations will begin with setting surface casing on each of the six wells captioned above. Upon setting surface casing on the sixth well, main-hole drilling will commence. From surface casing, each well is expected to take approximately 14 days to reach total depth.

The wells will be drilled vertically and then horizontally drill within the Montney formation.

Completion activities will take place after the wells have been drilled and under the same Well Authorization Permit conditions, Crew will send notification to BC Hydro prior to initiating completion activity. Completion activities are expected to take place sometime in mid to late 2019.

Regards,

Paul



Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

Slocomb, Richard < Richard. Slocomb@bcogc.ca>

Sent:

2017, June 09 8:48 AM

To:

Oswell, Terry

Subject:

Induced Seismicity Meeting with Crew Energy

What is the address of the meeting location?

Organizer: Oswell, Terry

When: 9:00 AM - 11:00 AM June 9, 2017

Subject: Induced Seismicity Meeting with Crew Energy

Location: Bentall 6 Room 4

Sent from my BlackBerry 10 smartphone on the TELUS network.

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2019. April 04 10:57 AM 9), (22)

To:

Cc:

Oswell, Terry

Subject:

KMZ File Part 3

Attachments:

6_of_26_-_farrell_creek_east_-_march_2013.pdf; 7_of_26

_-_farrell_creek_to_halfway_river_-_march_2013.pdf



Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

Rigbey, Stephen

Sent:

2017, March 21 3:28 PM

To:

Oswell, Terry; Gilliss, Scott; Addo, Kofi; (19), (22)

Cc:

Watson, Andrew

Subject:

Meeting with Crew energy

I have talked to Ken Duke regarding the legal aspects and how to handle the messaging. I am selecting and combining slides from Wim and Kofi and will lead our presentation tomorrow with input as necessary from all of you. Thanks

Stephen Rigbey. From my iPhone, apologies for brevity

(19), (22)

From: Sent:

2017, March 09 2:55 PM

To:

Watson, Andrew; Rigbey, Stephen; Addo, Kofi; Oswell, Terry

Subject:

Proposed Agenda Crew Energy Induced Seismicity Site C

Attachments:

BC OGC BC Hydro Dam Notification.pdf

All,

Below is the agenda for a meeting with Paul A. Dever, Director, Government & Stakeholder Relations Crew Energy Inc. and others, in response to the requirement for notification (see attached).

For comments.

Agenda for discussion with Crew Energy regarding induced seismicity:

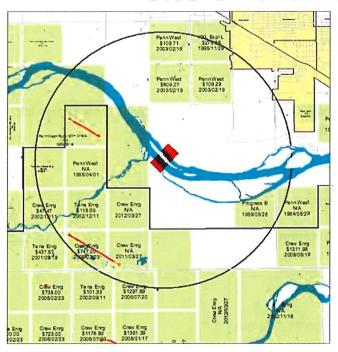
- 1. OGC requirements: 5 km buffer at Site C and need for notification.
- 2. Sensitivity of Site C to induced seismicity during construction.
- 3. Crew Energy preliminary work plan during Site C construction.
- 4. Monitoring array.
- 5. Sharing of data.
- 6. Proposed protocol: see BC Drilling and Production Regulation 21.1 below.

BC Drilling and Production Regulation 21.1

Induced seismicity

- 21.1 (1) During fracturing or disposal operations on a well, the well permit holder must immediately report to the commission any seismic event within a 3 km radius of the drilling pad that is recorded by the well permit holder or reported to the well permit holder by any source available, if
 - (a) the seismic event has a magnitude of 4.0 or greater, or
 - (b) a ground motion is felt on the surface by any individual within the 3 km radius.
 - (2) If a well is identified by the well permit holder or the commission as being responsible for a seismic event that has a magnitude of 4.0 or greater, the well permit holder must suspend fracturing and disposal operations on the well immediately.
 - (3) Fracturing and disposal operations suspended under subsection (2) may continue once the well permit holder has implemented operational changes satisfactory to the commission to reduce or eliminate the initiation of additional induced seismic events.

Site C - 5 km radius



Nearest Montney Activity

- 2.5 km to closest well
- · 4 km to closest production

5 KM

 Montney P&NG tenure very close (Penn West & Crew Energy)

Montney oil focus may bring development in mid term but no indication of near term drivers.

 Crew not LNG linked High liquids/oil and lower pressures = less desirable





January 11, 2017

RE:

PERMIT CONDITIONS PEACE REGION CONSULTATION WITH BC HYDRO

To Whom It May Concern,

The Commission has been working with BC Hydro to understand current and future concerns regarding oil and gas activities in proximity to their existing (WAC Bennett and Peace Canyon Dams) and future (Site C dam) infrastructure with a primary focus on induced seismicity. The Commission has put permit conditions into place that require well permit holders within 5km of the WAC Bennett, Peace and/or Site C dam locations to notify BC Hydro of drilling and completion activities. The affected areas match the 5km Tenure buffer zones that MNGD put into place in March of 2014. The emphasis is to increase communication between oil and gas operators and BC Hydro and to ensure that oil and gas operations do not conflict with the construction and operation of dam infrastructure. The permit conditions are similar to those already in place for the Altken Creek Gas Storage Facility. The specific conditions can be found below, along with a map of the areas where they will be applied.

Please contact Jeff Johnson or Stuart Venables, if you require any further information or clarification. These permit conditions went into effect on January 11, 2017.

Stuart Venables, P.Geo Sr. Petroleum Geologist (250) 419-4472 stuart.venables@bcogc.ca Jeff Johnson, P.Geo Supervisor, Petroleum Geology (250) 419-4422 jeff.johnson@bcoqc.ca

Permit Conditions:

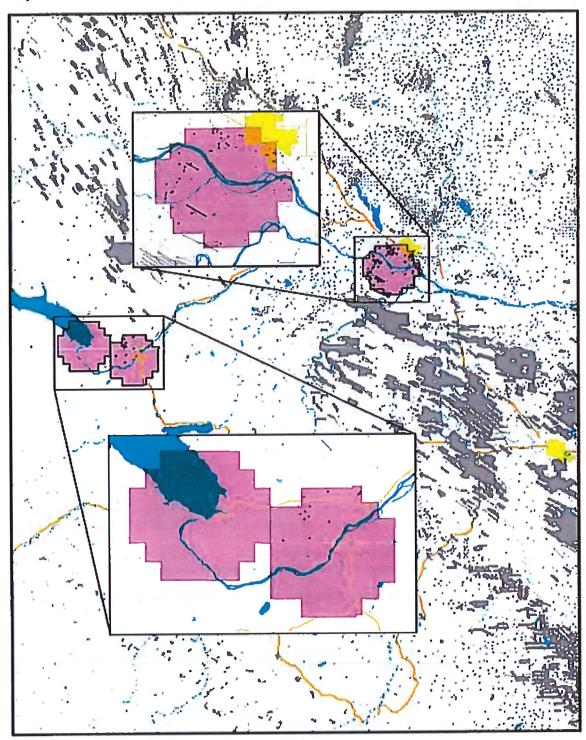
Conditions:

- The permit holder must notify BC Hydro and Power Authority, no more than 45 days and no less than 21 days in advance, of any of the following actions to be taken by the permit holder:
 - a. beginning the drilling of the well; or
 - b. commencement of completion or recompletion operations.

Notifications must be sent to <u>DSOP@bchydro.com</u>, with the subject line *BC Hydro Dam Buffer Notification*.

- If, as a result of a notification under the previous condition, BC Hydro indicates concerns
 with the planned drilling or completion activity, the permit holder must not begin the
 activity until they have reported the concerns to the Commission and received approval to
 proceed.
- The permit holder must not conduct any drilling, completion or well operations authorized by this permit in a manner that has a material adverse impact on the construction, use, or integrity of the [WAC Bennett, Peace Canyon, Site 'C'] dam.





Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, June 23 4:43 PM

To:

Watson, Andrew

Cc:

Gilliss, Scott; Rigbey, Stephen; Oswell, Terry (19), (22)

Kevin Evers

Subject:

Re: Crew Energy / BC Hydro

Hi Andrew,

If we have an operation going on at that time I will let you know and we can line it up.

Have a good weekend.

Paul

Sent from my iPhone

On Jun 23, 2017, at 4:39 PM, Watson, Andrew

<Andrew.Watson@bchydro.com<mailto:Andrew.Watson@bchydro.com>> wrote:

Hi paul

I'm out of town July 10th and back July 25

I'm scheduled to be in the peace july 26/27 and august 1/2 and a few days the following week. Please don't schedule anything around me but I'll make it if I can.

Cheers

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Afternoon all,

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Does this work for all or some?

The padsite is located north of Chetwynd off the Jackfish Road in the Del Rio area.

Paul A. Dever
Director, Government & Stakeholder Relations Crew Energy Inc.
Suite 800 250 - 5th Street SW
Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

<u>paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c</u> <u>mailto:paul.dever@crewenergy.com></u>

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Cc: Watson, Andrew < >>; Paul Dever">>>; Paul Dever

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<<u>Terry.Oswell@bchydro.com<mailto:Terry.Oswell@bchydro.com>></u> (19), (22)

@bchydro.com<mailto:wim.vangassen@bchydro.com>>; Kevin Evers

<Kevin.Evers@crewenergy.com<mailto:Kevin.Evers@crewenergy.com>>

Subject: Re: Crew Energy / BC Hydro

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-BCHydroDisclaimerID5.2.8.1541

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(22)

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Sent:

2017, June 23 4:01 PM

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Cc:

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Subject:

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Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, June 21 3:48 PM

To:

Gilliss, Scott; Rigbey, Stephen; Watson, Andrew

Cc:

Oswell, Terry; (19), (22) Kevin Evers

Subject:

RE: Crew Energy / BC Hydro

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2017, June 23 4:44 PM

To:

Gilliss, Scott

Cc:

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Subject:

Re: Crew Energy / BC Hydro

Kevin Evers; Watson, Andrew

Sounds like we have the same household.

I will keep all up to date in our schedule as time goes on.

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⁻BCHydroDisclaimerID5.2.8.1541

Johnson, Jeff < Jeff. Johnson@bcogc.ca>

Sent:

2019, January 14 3:02 PM

To:

Paul Dever

Cc:

Oswell, Terry; Venables, Stuart

Subject:

RE: Crew Energy / BC Hydro

Thanks for the update Paul. I will follow up on Hydro's request.

Jeff Johnson Supervisor, Petroleum Geology Oil And Gas Commission 2950 Jutland Road Victoria BC V8T 5K2

T.250 419-4422 | F.250-419-4403 |

Jeff.Johnson@bcogc.ca bcogc.ca

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----Original Message----

From: Paul Dever < Paul. Dever@crewenergy.com>

Sent: Monday, January 14, 2019 3:01 PM

To: Johnson, Jeff < Jeff. Johnson@bcogc.ca>

Cc: Terry Oswell < Terry.Oswell@bchydro.com >; Venables, Stuart < Stuart.Venables@BCOGC.ca >

Subject: Crew Energy / BC Hydro

Afternoon Jeff,

Crew and BC Hydro had what I thought was a productive information sharing session earlier today.

I did ask if they received the raw waveform information and they did. However, it was sent as a binary file and would like to have the information as a "seed file".

Would you be able to follow-up with Terry on this? I have included Terry on this request.

Thanks

Paul

Sent from my iPhone

Paul Dever

Vice President, Government and Stakeholder Relations Crew Energy Inc.

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com https://www.crewenergy.com

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Paul Dever <Paul.Dever@crewenergy.com>

Sent:

2019, March 29 2:27 PM

To: Subject: Oswell, Terry

Re: Crew Energy

Great.

I am open until 1:00 if that helps.

Sent from my iPhone

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```
> On Mar 29, 2019, at 3:09 PM, Oswell, Terry <Terry.Oswell@bchydro.com> wrote: >
```

- > Okay how about 9:30? We may end up meeting at the Site C office on Thurlow but I'll confirm with Wim (who may also attend).
- > -----Original Message-----
- > From: Paul Dever [mailto:Paul.Dever@crewenergy.com]
- > Sent: 2019, March 29 2:49 PM
- > To: Oswell, Terry
- > Subject: Re: Crew Energy
- > Thank you.
- >
- > Anytime after 9:15 work on my end.
- > Paul

>

>

- > Sent from my iPhone
- > This e-mail and any attachments may contain confidential and privileged information. If you are not the intended recipient, please notify the sender immediately by return e-mail, delete this e-mail and destroy any copies. Any unauthorised dissemination or use of this information, whether by the intended recipient or otherwise, is strictly forbidden. Unless otherwise stated, opinions expressed in this e-mail are those of the author and are not endorsed by the author's employer.
- >> On Mar 29, 2019, at 12:41 PM, Oswell, Terry <Terry.Oswell@bchydro.com> wrote:
- >> >> Hi Paul,

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>> No worries. Tuesday morning works for me. I need to be at Edmonds in the afternoon. Does the morning
work for you?
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>> Cheers,
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>> Terry,
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>> I must apologize as I am re-reading my request.
>> The date and day should read Tuesday April 2nd. Does the 2nd work?
>>
>> Sorry for the confusion.
>>
>> Paul
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>>> Subject: Re: Crew Energy
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>>> That works for sure.
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>>> Which building?
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>>> Thanks for accommodating.
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>>> Paul
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>>>>

>>>>

>>>> Paul Dever

>>>> Vice President, Government and Stakeholder Relations Crew Energy

>>>> Inc.

>>> Direct: 403-231-3697

>>>> Email: Paul.Dever@crewenergy.com

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>>> -BCHydroDisclaimerID5.2.8.1541

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2019, March 29 11:49 AM

To: Subject: Oswell, Terry Re: Crew Energy

Thank you.

Anytime after 9:15 work on my end.

Paul

Sent from my iPhone

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2019, March 29 11:29 AM

To:

Oswell, Terry

Subject:

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> Thanks for accommodating.
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>> -BCHydroDisclaimerID5.2.8.1541

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2019, March 29 10:08 AM

To:

Oswell, Terry

Subject:

Re: Crew Energy

Follow Up Flag:

Follow up

Flag Status:

Flagged

That works for sure.

Which building?

Thanks for accommodating.

Paul

Paul A. Dever

Vice President, Government & Stakeholder Relations

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> -BCHydroDisclaimerID5.2.8.1541

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2019, February 25 1:15 PM

To:

Oswell, Terry

Subject:

RE: Crew Energy Activity

Afternoon Terry,

Crew has finished completing on the 4-21-82-19 W6 padsite. Originally we had planned on completing four out of six wells, however, we elected to complete all six wells.

There were no reportable seismic events during the completion of the wells.

On the 3-32-82-19 W6 padsite, we have finished drilling two or the five wells.

Please let me know if you have any questions.

Regards,

Paul

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From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Friday, January 25, 2019 2:52 PM

To: Paul Dever < Paul. Dever@crewenergy.com >

Subject: RE: Crew Energy Activity

Thanks Paul

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2019, January 25 1:51 PM

To: Oswell, Terry

Subject: Crew Energy Activity

Afternoon Terry,

As an update, Crew has finished drilling on our 4-21-82-19 W6M padsite and we have started drilling a 5 well pad at 3-32-82-19 W6M.

The 3-32-82-19 W6M padsite is within the BC Hydro Notification Buffer and we advised on this in December and spoke about it at our most recent meeting earlier this month.

The completion rig is currently being set-up on the 4-21-82-19 W6M padsite (outside of the "buffer") and expect to start pumping this coming Sunday or Monday.

Please let me know if you have any questions.

Regards,

Paul



Paul Dever

Vice President, Government and Stakeholder Relations

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Rigbey, Stephen

Sent:

2017, March 21 3:44 PM

To:

Oswell, Terry

Subject:

Re: Crew Energy Meeting Attendees

Ok

Stephen Rigbey. From my iPhone, apologies for brevity

On Mar 21, 2017, at 15:42, Oswell, Terry < Terry. Oswell@bchydro.com > wrote:

I've already sent them an email asking if they are familiar with web-ex.... Just checking now to see if I can set up a meeting. Seems pretty straight forward. We'll see what they come back with.

From: Rigbey, Stephen

Sent: 2017, March 21 3:41 PM

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I'll try and send out a file first thing in the morning

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Web-Ex might be an option. I'm not overly proficient at it and I'm not sure if the ministries are either but I could ask them. We use it for CDA and BHP Billiton have been using it to communicate with us.

From: Rigbey, Stephen

Sent: 2017, March 21 3:33 PM

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Ideas as how to share slides? I assume I'll have to forward beforehand to those calling in.

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On Mar 21, 2017, at 15:20, Oswell, Terry < Terry. Oswell@bchydro.com > wrote:

The meeting invitation was forwarded by Gareth Clarke to Les MacLaren in the Ministry of Energy and Mines who has presumably forwarded the meeting invite on.

So far, the following people have accepted the meeting invite:

- Amy Sopinka with the Ministry of Energy and Mines
- Richard Grieve with the Ministry of Natural Gas Development

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

E terry.oswell@bchydro.com

bchydro.com

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bchydro.com

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Sent:

2017, March 21 3:59 PM

To:

Oswell, Terry

Subject:

Re: Crew Energy Meeting Attendees

Ok

Stephen Rigbey. From my iPhone, apologies for brevity

On Mar 21, 2017, at 15:46, Oswell, Terry < Terry.Oswell@bchydro.com > wrote:

They do not have web-ex so have requested either the ppt's or pdf's. I've said we would send it to them tomorrow morning before the meeting.

From: Rigbey, Stephen

Sent: 2017, March 21 3:44 PM

To: Oswell, Terry

Subject: Re: Crew Energy Meeting Attendees

Ok

Stephen Rigbey. From my iPhone, apologies for brevity

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Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187 (22)

terry.oswell@bchydro.com

bchydro.com

(19), (22)

Sent:

2019, March 29 3:04 PM

To:

Oswell, Terry

Subject:

RE: Crew Energy Mtg

745 Thurlow Meeting Room 5-010. 9:30-11:00, but we don't have to use all the time. Anybody can access this room by elevator, sign in at 5th floor reception.

(19), (22)

From: Oswell, Terry

Sent: 2019, March 29 2:11 PM **Tc**(19), (22)

Subject: RE: Crew Energy Mtg

Can you make Tuesday morning at 9:30 and provide a room?

(19), (22)

From

Sent: 2019, March 29 3:28 PM

To: Oswell, Terry; Watson, Andrew (19), (22)

Subject: RE: Crew Energy Mtg

Sorry Terry but I cannot make Tuesday morning.

(19), (22)

From: Oswell, Terry

Sent: 2019, March 29 12:10 PM

To: (19), (22) Watson, Andrew;

Subject: RE: Crew Energy Mtg

Paul made a mistake on the date - it's actually Tuesday morning now at 9:30

From

Sent: 2019, March 29 1:52 PM To: Oswell, Terry; Watson, Andrew (19), (22)

Subject: RE: Crew Energy Mtg

I am available on Monday but have a meeting before 3PM - I won't be able to attend in person. If someone else is available to attend, I will skip this one.



From: Oswell, Terry

Sent: 2019, March 29 10:40 AM **To:** Watson, Andrew; (19), (22)

Subject: Crew Energy Mtg

Paul Dever from Crew Energy is in town on Monday and I'll be meeting with him at 3 PM at Dunsmuir for a general update on their activities. Does someone from Site C want to attend?

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

(22)

terry.oswell@bchydro.com

bchydro.com

Smart about power in all we do.

(19), (22)

Sent:

2019, March 29 2:12 PM

To:

Oswell, Terry

Subject:

RE: Crew Energy Mtg

Ok

From: Oswell, Terry

Sent: 2019, March 29 2:11 PM

To: Van Gassen, Wim

Subject: RE: Crew Energy Mtg

Can you make Tuesday morning at 9:30 and provide a room?

From

Sent: 2019, March 29 3:28 PM (19), (22)

To: Oswell, Terry; Watson, Andrew; Subject: RE: Crew Energy Mtg

Sorry Terry but L cannot make Tuesday morning. (19), (22)

From: Oswell, Terry

Sent: 2019 March 29 12:10 PM Tc (19), (22)

Watson, Andrew;

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terry.oswell@bchydro.com

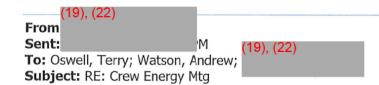
bchydro.com

Smart about power in all we do.

(19), (22) From: 2019, March 29 3:30 PM Sent: Oswell, Terry To: RE: Crew Energy Mtg Subject: No problem Terry – glad Wim can make it and represent Site C. Have a good weekend, (19), (22) From: Oswell, Terry Sent: 2019, March 29 3:28 PM To: (19), (22) Subject: Re: Crew Energy Mtg Sorry about that. Wim's available and I'll send out a summary of the discussion. Sent from my iPhone On Mar 29, 2019, at 3:27 PM, Lord, > wrote: Sorry Terry but I cannot make Tuesday morning. From: Oswell, Terry Sent: 2019, March 29 12:10 PM Watson, Andrew; (19), (22) $To^{(19)}, (22)$

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P 604 528 2187 (22)

terry.oswell@bchydro.com

bchydro.com

Smart about power in all we do.

Rigbey, Stephen

Sent:

2017, March 17 3:10 PM

To:

Oswell, Terry;

Subject:

RE: Crew Energy pre-meet

Any possibility of changing this to Bentall or Dunsmuir?

-----Original Appointment-----

From: Oswell, Terry

Sent: 2017, March 08 10:09 AM To: Oswell, Terry; Rigbey, Stephen; (19), (22)

Addo, Kofi; Watson, Andrew; Gilliss, Scott

Addo, Kofi; Watson, Andrew; Gilliss, Scott

Subject: Crew Energy pre-meet

When: 2017, March 20 2:30 PM-3:30 PM (UTC-08:00) Pacific Time (US & Canada).

Where: EDME10, Mtg Room 3

To prepare for a meeting with Crew Energy on the topic of drilling adjacent to Site C.

Conference Call Details:

Dial-In Phone Numbers:

1-877-385-4099 Toll Free (Canada & USA)

604-899-2339 Vancouver

Access Codes:

Moderator Access code

Participant Access code

(19), (22)

Sent:

2017, March 17 3:15 PM

To:

Rigbey, Stephen; Oswell, Terry; Addo, Kofi; Watson, Andrew; Gilliss, Scott

Subject:

RE: Crew Energy pre-meet

I've booked Meeting Room 1 at Bentall 6th Floor. We'll fix the invite later.

(19), (22)

From: Rigbey, Stephen

Sent: 2017, March 17 3:10 PM

To: Oswell, Terry; (19), (22) Addo, Kofi; Watson, Andrew; Gilliss, Scott

Subject: RE: Crew Energy pre-meet

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604-899-2339 Vancouver

Access Codes:

(17)

Moderator Access cod

Participant Access cod

(19), (22)

Sent:

2017, March 21 9:35 AM

To:

Oswell, Terry; Rigbey, Stephen; Addo, Kofi; Watson, Andrew

Subject:

RE: Crew Energy Slides

We don't have a withstand for the cofferdams.

Below are the results of some of the stability analyses. For the post-seismic analysis, it is assumed that liquefaction of the alluvium occurs. Some liquefaction may occur, but it wouldn't be widespread.

(19), (22)

SITE C CLEAN ENERGY PROJECT

STAGE 1 COFFERDAM STABILITY ANALYSIS RESULTS - FACTORS OF SAFETY

Loading Condition			7	Section						
	Minimum Required Factor of Safety	Sity Surface		\$1-000-0203	81-0xC-4220	S1-00C-0400	S14CD-0163	S14.CD-0470	S1-ACD-0180	. 81-RCC
E. End of Construction Normal Mediture Water Level + B-Der	f06>12	Filtrer mide	Emberkment	Nd=1	237	LET	208	194	1.50	19
		Describend (dry side)	Emberkment	258	2.41	1.98	207	2.41	243	2.1
			Along BIRM	167	1.63	Note 3	Note 3	Note 3	Note 3	Net
			Along BP27	193	2.17	Nate 3	Note 3	Note 3	Note 3	Note
			Along BP28	233	Note 3	1.41	3.35	1.41	NA ³	1.4
			Along BP30	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Picto
			Along BP31	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note
			Along BP33	Note 3	Note 3	Nate 3	Note 3	Note 3	Note 3	Picto
2. Long-Term Steady Stage Seepage Staffs Normal Modrum Dasign Water Level	f05×13	Filmr side	Emberkment	Note 1	2.40	1.50	220	191	1.74	20
		Descripted (dry side)	Emberkment	261	2:30	200	1.25	2.47	243	2.1
			Along BP25	172	164	Nate 3	Note 3	Note 3	Note 3	Note
			Along BP27	127	2.12	Nate 3	Note 3	Note 3	Note 3	Note
			Along BP28	235	Note 3	1.44	3.56	134	Note 3	13
			Along BP30	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note
			Along BP31	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note
			Along BP33	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note
Long-Term Steady Stage Swapege Selantic Normal Meditum Design Water Level	ros>tþ	River side *	Emberkment	Note 1	1.44	1.27	1.91	. 172	1.44	1.7
		Descripted (dy side)	Emberkment	134	1.15	1.33	1.76	215	2.10	18
			Along BP25	0.536 (0.1045 - Note 2)	105	Note 3	Note 3	Note 3	Note 3	Note
			Along BP27	107	1.63	Note 3	Note 3	Note 3	Note 3	Note
			Along BP28	126	NA*	0.762 (UDB - Nds 2)	266	1.17	Note 3	1.1
			Along BP30	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note
			Along BP3t	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note
			Along BP33	Note 3	Note 3	Nate 3	Note 3	Note 3	Note 3	Pitte
4. Post Salardo Normal Modraum Design Water Land	105>1.1	Rher side	Emberkment	Note 1	164	1.15	1.43	121	162	1.1
fa. Rapid Drawdown										

From: Oswell, Terry

Sent: 2017, March 21 9:11 AM

To: (19), (22) Rigbey, Stephen; Addo, Kofi; Watson, Andrew

Subject: RE: Crew Energy Slides

Have there been any analyses carried out on the cofferdams to see what they would actually withstand under seismic loading?

From: (19), (22)

Sent: 2017, March 21 8:47 AM

To: Rigbey, Stephen; Oswell, Terry; Addo, Kofi; Watson, Andrew

Subject: Crew Energy Slides

Attached are PowerPoint slides for use in the meeting with Crew tomorrow, for comment.

(19), (22)

(19), (22)

From

Sent: 2017, March 09 2:54 PM

To: Watson, Andrew; Rigbey, Stephen; Addo, Kofi; Oswell, Terry (terry.oswell@bchydro.com)

Subject: Proposed Agenda Crew Energy Induced Seismicity Site C

All,

Below is the agenda for a meeting with Paul A. Dever, Director, Government & Stakeholder Relations Crew Energy Inc. and others, in response to the requirement for notification (see attached). For comments.

Agenda for discussion with Crew Energy regarding induced seismicity:

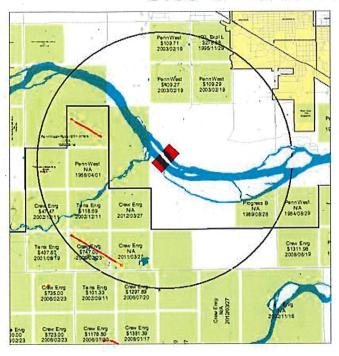
- 1. OGC requirements: 5 km buffer at Site C and need for notification.
- 2. Sensitivity of Site C to induced seismicity during construction.
- 3. Crew Energy preliminary work plan during Site C construction.
- 4. Monitoring array.
- 5. Sharing of data.
- 6. Proposed protocol: see BC Drilling and Production Regulation 21.1 below.

BC Drilling and Production Regulation 21.1

Induced seismicity

- 21.1 (1) During fracturing or disposal operations on a well, the well permit holder must immediately report to the commission any seismic event within a 3 km radius of the drilling pad that is recorded by the well permit holder or reported to the well permit holder by any source available, if
 - (a) the seismic event has a magnitude of 4.0 or greater, or
 - (b) a ground motion is felt on the surface by any individual within the 3 km radius.
 - (2) If a well is identified by the well permit holder or the commission as being responsible for a seismic event that has a magnitude of 4.0 or greater, the well permit holder must suspend fracturing and disposal operations on the well immediately.
 - (3) Fracturing and disposal operations suspended under subsection (2) may continue once the well permit holder has implemented operational changes satisfactory to the commission to reduce or eliminate the initiation of additional induced seismic events.

Site C - 5 km radius



Nearest Montney Activity

- 2.5 km to closest well
- 4 km to closest production

5 KM

 Montney P&NG tenure very close (Penn West & Crew Energy)

Montney oil focus may bring development in mid term but no indication of near term drivers.

Crew not LNG linked
 High liquids/oil and lower
 pressures = less desirable

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2018, November 08 3:46 PM

To:

Oswell, Terry

Subject:

RE: Crew Energy Update

Great...thanks

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From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Thursday, November 8, 2018 4:45 PM **To:** Paul Dever < Paul. Dever@crewenergy.com>

Subject: RE: Crew Energy Update

Will do!

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, November 08 3:41 PM

To: Oswell, Terry

Subject: RE: Crew Energy Update

Hi Terry,

We have a winner..... January 14th works for us.

Will you be able to send a meeting invite in order to nail this down for all?

Paul

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From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Thursday, November 8, 2018 4:26 PM **To:** Paul Dever < Paul. Dever@crewenergy.com >

Subject: RE: Crew Energy Update

Hi Paul,

I'm around most of the time except that I'm working from home Thursday / Friday for the next little while. Let me know when you're in town and I'd be glad to meet up. If J-F is available, we should include him – his calendar is not as restrictive as Bob's and Andrew's.

In January, the 10^{th} from 11:00-1:00, the 14^{th} from 10:30-1:00, the 18^{th} up to 2:00, the 28^{th} from 10:30-1:00, and the 31^{st} from 1:30-3:00 are free on everyone's calendars.

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, November 08 2:57 PM

To: Oswell, Terry

Subject: RE: Crew Energy Update

Hi Terry,

Looks like it will have to be in January. Kevin will be on a family holiday for the week of December 10th. Do you have proposed dates in January?

I will be in and out of Vancouver over the next 6 weeks. At very least, I would like to give you an update on 2019 activity if your time allows.

Will send an e-mail on when I will be out there next.

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Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, November 05 2:09 PM

To: Oswell, Terry

Subject: RE: Crew Energy Update

Afternoon Terry,

Unfortunately December 20th does not work for Kevin.

Are there alternative dates?

Paul

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From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Monday, November 5, 2018 9:51 AM **To:** Paul Dever < Paul. Dever@crewenergy.com >

Subject: RE: Crew Energy Update

Hi Paul,

I'm sorry, something came up last week so that Bob is not available until well into December now. However, December 20th from 1:30 to 2:45 looks good if that works for you. Bob would have to leave by 2:45 for a meeting elsewhere at 3. Everyone else's calendar is clear.

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, November 05 8:21 AM

To: Oswell, Terry

Subject: RE: Crew Energy Update

Morning Terry,

November 27th works on our end.

Did you want me to send a meeting request or will you?

Thanks

Paul

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From: Paul Dever

Sent: Thursday, October 25, 2018 6:15 AM
To: Oswell, Terry < Terry.Oswell@bchydro.com >

Subject: Re: Crew Energy Update

Morning Terry,

We are looking at November 27th or December 10th. Just need to confirm a couple things.

Will land on a date by the end of next week.

Regards

Paul

Sent from my iPhone

On Oct 22, 2018, at 10:29 AM, Oswell, Terry < Terry. Oswell@bchydro.com > wrote:

Hi Paul,

Yes, a meeting would be appreciated by Site C. The following dates / times are currently clear on everyone's calendars:

Tuesday, November 27 2:30 PM – 4:00 PM
Monday, December 10 1:00 PM – 5:00 PM
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The first date, Nov 27th would probably be best if that works for you.

Cheers,

Terry

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To: Oswell, Terry

Subject: Crew Energy Update

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It has been awhile since we last met.

Did you want to try and schedule a meeting for some time in late November or early December as an update on Crew's activity?

Regards,

Paul

Paul Dever

Vice President, Government and Stakeholder Relations

<image001.png> Direct: 403-231-3697

Email: <u>Paul.Dever@crewenergy.com</u> <u>https://www.crewenergy.com</u>

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Paul Dever

Vice President, Government and Stakeholder Relations

<image001.png> Direct: 403-231-3697

Email: <u>Paul.Dever@crewenergy.com</u> <u>https://www.crewenergy.com</u>

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Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2018, November 08 2:57 PM

To:

Oswell, Terry

Subject:

RE: Crew Energy Update

Hi Terry,

Looks like it will have to be in January. Kevin will be on a family holiday for the week of December 10th. Do you have proposed dates in January?

I will be in and out of Vancouver over the next 6 weeks. At very least, I would like to give you an update on 2019 activity if your time allows.

Will send an e-mail on when I will be out there next.

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From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Thursday, November 8, 2018 11:54 AM **To:** Paul Dever < Paul. Dever@crewenergy.com>

Subject: RE: Crew Energy Update

Hi Paul,

There is 11 AM on December 10th or 8:30 AM on December 11th. Otherwise we are looking at January. Do either of those two dates / times work?

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

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Subject: RE: Crew Energy Update

Afternoon Terry,

Unfortunately December 20th does not work for Kevin.

Are there alternative dates?

Paul

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From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

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Subject: RE: Crew Energy Update

Hi Paul,

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From: Paul Dever

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Sent from my iPhone

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Vice President, Government and Stakeholder Relations

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Paul Dever <Paul.Dever@crewenergy.com>

Sent:

2018, October 25 5:15 AM

To:

Oswell, Terry

Subject:

Re: Crew Energy Update

Attachments:

image001.png

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-BCHydroDisclaimerID5.2.8.1541

Watson, Andrew

Sent:

2018, October 15 4:38 PM

To:

Oswell, Terry

Subject:

RE: Crew Energy Update

Follow Up Flag:

Follow up

Flag Status:

Completed

I thinks it's worth an update so we can understand their plans.

Andrew

From: Oswell, Terry

Sent: 2018, October 15 12:31 PM

To: Watson, Andrew

Subject: FW: Crew Energy Update

Hi Andrew – any interest in meeting with Crew Energy in late November / early December?

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

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Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2018, December 05 1:44 PM

To:

Oswell, Terry

Subject:

RE: Crew Energy Update

That will work.

10:45 or so?

Paul

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From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, December 5, 2018 9:53 AM **To:** Paul Dever < Paul. Dever@crewenergy.com>

Subject: RE: Crew Energy Update

Hi Paul,

I'm happy to meet up for coffee on the morning of December 12th in lieu of Andrew, if that works for you. I can suggest several good coffee shops in downtown Vancouver ©

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, November 08 2:57 PM

To: Oswell, Terry

Subject: RE: Crew Energy Update

Hi Terry,

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Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2019, March 29 3:52 PM

To:

Oswell, Terry

Subject:

Re: Crew Energy

Thanks for accommodating

Paul

Sent from my iPhone

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```
> On Mar 29, 2019, at 4:27 PM, Oswell, Terry <Terry.Oswell@bchydro.com> wrote:
>
> Wim has found a room at 745 Thurlow on the fifth floor (no escort required) from 9:30 to 11:00.
>
> Sent from my iPhone
>
>> On Mar 29, 2019, at 5:27 PM, Paul Dever <Paul.Dever@crewenergy.com> wrote:
>>
>> Great.
>>
>> I am open until 1:00 if that helps.
>>
>> Sent from my iPhone
>>
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>>

>>> On Mar 29, 2019, at 3:09 PM, Oswell, Terry <Terry.Oswell@bchydro.com> wrote:

>>>

>>> Okay - how about 9:30? We may end up meeting at the Site C office on Thurlow but I'll confirm with Wim (who may also attend).

>>>

>>> -----Original Message-----

>>> From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

>>> Sent: 2019, March 29 2:49 PM

```
>>> To: Oswell, Terry
>>> Subject: Re: Crew Energy
>>>
>>> Thank you.
>>>
>>> Anytime after 9:15 work on my end.
>>> Paul
>>>
>>> Sent from my iPhone
>>>
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>>>
>>>> On Mar 29, 2019, at 12:41 PM, Oswell, Terry <Terry.Oswell@bchydro.com> wrote:
>>>>
>>>> Hi Paul.
>>>>
>>> No worries. Tuesday morning works for me. I need to be at Edmonds in the afternoon. Does the morning
work for you?
>>>>
>>>> Cheers,
>>>> Terry
>>>>
>>> -----Original Message-----
>>>> From: Paul Dever [mailto:Paul.Dever@crewenergy.com]
>>> Sent: 2019, March 29 2:29 PM
>>>> To: Oswell, Terry
>>> Subject: Re: Crew Energy
>>>>
>>>> Terry,
>>>>
>>>> I must apologize as I am re-reading my request.
>>>>
>>>> The date and day should read Tuesday April 2nd. Does the 2nd work?
>>>>
>>> Sorry for the confusion.
>>>>
>>>> Paul
>>>>
>>>>
>>>>
>>>> Sent from my iPhone
>>>>
```

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>>>>> Cheers, ->>>>> Terry

```
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>>>>> From: Paul Dever [mailto:Paul.Dever@crewenergy.com]
>>>> Sent: 2019, March 29 1:28 AM
>>>> To: Oswell, Terry
>>>> Subject: Crew Energy
>>>>>
>>>>> Hi Terry,
>>>>>
>>>>> Hope all is well.
>>>>>
>>>>> I will be in Vancouver this coming Monday April 1st, would you have time for a meeting?
>>>>>
>>>>> Thanks
>>>>>
>>>> Paul
>>>>>
>>>>>
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>>>>> Vice President, Government & Stakeholder Relations
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>>>>>
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>>>> -BCHydroDisclaimerID5.2.8.1541

>>>>>

Watson, Andrew

Sent:

2017, November 16 9:51 AM

To:

Paul Dever

Cc:

(19), (22)

Badral, Amy; Oswell, Terry

Subject:

Re: Crew

Hi Paul

will meet you. I got called into other meetings. Busy these days on the project

(19), (22) will run meeting and meet u in lobby - thx Sent from my iPhone

On Nov 16, 2017, at 9:35 AM, Paul Dever < Paul. Dever@crewenergy.com > wrote:

Morning Andrew,

Our plane has delayed getting out of Calgary and just landed. We are taking a cab downtown and might be a 10-15 minutes late depending on traffic.

Are we meeting you in the lobby?

Paul

Sent from my iPhone

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2018, February 05 3:56 PM

To:

Oswell, Terry

Cc:

Rigbey, Stephen; Watson, Andrew; Addo, Kofi; (19), (22)

Gilliss, Scott; Kevin

Evers; 'Stuart. Venables@bcogc.ca'; Johnson, Jeff

Subject:

RE: Draft Conditions

Afternoon Terry,

March 12th will work on our end.

Will you be sending out a meeting invite?

Thanks

Paul

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Monday, February 5, 2018 3:01 PM

To: Paul Dever < Paul. Dever@crewenergy.com>

Cc: Rigbey, Stephen <Stephen.Rigbey@bchydro.com>; Watson, Andrew <Andrew.Watson@bchydro.com>; Addo, Kofi

<Kofi.Addo@bchydro.com>;(19), (22)

Gilliss, Scott

<Scott.Gilliss@bchydro.com>; Kevin Evers <Kevin.Evers@crewenergy.com>; 'Stuart.Venables@bcogc.ca'

<Stuart.Venables@bcogc.ca>; Johnson, Jeff <Jeff.Johnson@bcogc.ca>

Subject: RE: Draft Conditions

Hi Paul,

The OGC/Hydro meeting is set for February 19. March 1^{st} doesn't work and several people are away the week of March 5^{th} .

Other windows:

March 12th, Monday 11:30 AM - 1 PM

March 14th, Wednesday 11:30 AM – 4 PM with some rearranging of meetings

March 16th, Friday 9:00 AM - 10:30 AM or 1:00 PM - 4:00 PM

March 27th, Tuesday 9:00 AM – 10 AM or 2:30 PM – 4:00 PM

Please let me know if any of the above work. Otherwise I guess we'll start looking at April.

Cheers,

Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, January 31 6:54 AM

To: Oswell, Terry

Cc: Rigbey, Stephen; Watson, Andrew; Addo, Kofi;

(19), (22)

Gilliss, Scott; Kevin Evers;

'Stuart.Venables@bcogc.ca'; Johnson, Jeff

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Outside of February and if targeting a meeting before March 16th, the following dates in March work from our end.

1st 5th 6th

8th

9th

Hopefully these dates will work.

Thanks

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Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, January 25 6:43 AM

To: Oswell, Terry

Cc: Rigbey, Stephen; Watson, Andrew; Addo, Kofi; Gilliss, Scott; Kevin Evers;

'Stuart.Venables@bcogc.ca'; Johnson, Jeff

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Could you please review the above and let me know if you would like to meet to discuss.

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P 604 528 2187

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From: Paul Dever <Paul.Dever@crewenergy.com> 2018, January 31 6:54 AM Sent: Oswell, Terry To: Rigbey, Stephen; Watson, Andrew; Addo, Kofi Gilliss, Scott; Kevin Cc: Evers; 'Stuart.Venables@bcogc.ca'; Johnson, Jett **RE: Draft Conditions** Subject: Follow Up Flag: Follow up Flagged Flag Status: Morning Terry, Unfortunately neither of the proposed dates will work on our end due to existing commitments. We do have dates available on February however will wait to comment until the OGC/Hydro meeting is set. Outside of February and if targeting a meeting before March 16th, the following dates in March work from our end. 1st 5th 6th 8th 9th Hopefully these dates will work. **Thanks** Paul From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com] **Sent:** Monday, January 29, 2018 1:35 PM To: Paul Dever < Paul. Dever@crewenergy.com> Cc: Rigbey, Stephen <Stephen.Rigbey@bchydro.com>; Watson, Andrew <Andrew.Watson@bchydro.com>; Addo, Kofi <Kofi.Addo@bchydro.com>; (19), (22) Gilliss, Scott <Scott.Gilliss@bchydro.com>; Kevin Evers <Kevin.Evers@crewenergy.com>; 'Stuart.Venables@bcogc.ca' <Stuart.Venables@bcogc.ca>; Johnson, Jeff <Jeff.Johnson@bcogc.ca> Subject: RE: Draft Conditions

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Follow Up Flag:

Follow up

Flag Status:

Flagged

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To:

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Cc:

Rigbey, Stephen; Watson, Andrew; Addo, Kofi, 19), (2)

19), (22

: Gilliss, Scott; Kevin

Evers

Subject:

RE: Draft Conditions

Afternoon Terry,

Thank you for your e-mail.

We will review your comments below.

Have a good weekend.

Paul

Paul A. Dever Director, Government & Stakeholder Relations Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

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[22]

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Watson, Andrew

Sent: To: 2018, February 05 4:29 PM Oswell, Terry; Badral, Amy

Cc:

(19), (22)

Subject:

Re: Draft Conditions

Amy

Pls book thx

Sent from my iPhone

On Feb 5, 2018, at 4:02 PM, Oswell, Terry < Terry.Oswell@bchydro.com > wrote:

I'll send out the invite.

Wim/Andrew - could you book us a room at Bentall?

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, February 05 3:56 PM

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Cc: Rigbey, Stephen; Watson, Andrew; Addo, Kofi;

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< <u>Kevin.Evers@crewenergy.com</u>>; 'Stuart.Venables@bcogc.ca' < Stuart.Venables@bcogc.ca>; Johnson,

Jeff < Jeff.Johnson@bcogc.ca > Subject: RE: Draft Conditions

Hi Paul,

The OGC/Hydro meeting is set for February 19. March 1^{st} doesn't work and several people are away the week of March 5^{th} .

Other windows: March 12th, Monday 11:30 AM – 1 PM March 14th, Wednesday 11:30 AM – 4 PM with some rearranging of meetings March 16th, Friday 9:00 AM - 10:30 AM or 1:00 PM - 4:00 PM March 27th, Tuesday 9:00 AM – 10 AM or 2:30 PM – 4:00 PM Please let me know if any of the above work. Otherwise I guess we'll start looking at April. Cheers, Terry From: Paul Dever [mailto:Paul.Dever@crewenergy.com] Sent: 2018, January 31 6:54 AM To: Oswell, Terry Cc: Rigbey, Stephen; Watson, Andrew; Addo, Kofi (19), (22) Gilliss, Scott; Kevin Evers; 'Stuart.Venables@bcoqc.ca'; Johnson, Jeff Subject: RE: Draft Conditions Morning Terry, Unfortunately neither of the proposed dates will work on our end due to existing commitments. We do have dates available on February however will wait to comment until the OGC/Hydro meeting is set. Outside of February and if targeting a meeting before March 16th, the following dates in March work from our end. 1st 5th 6th 8th Hopefully these dates will work. Thanks Paul From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com] Sent: Monday, January 29, 2018 1:35 PM To: Paul Dever < Paul. Dever@crewenergy.com> Cc: Rigbey, Stephen < Stephen.Rigbey@bchydro.com >; Watson, Andrew <andrew.Watson@bchydro.com>; Addo, Kofi <<u>Kofi.Addo@bchydro.com</u>> (19), (22) 19), (22) Gilliss, Scott <Scott.Gilliss@bchydro.com>; Kevin Evers < Kevin. Evers@crewenergy.com >; 'Stuart. Venables@bcogc.ca' < Stuart. Venables@bcogc.ca >; Johnson, Jeff <Jeff.Johnson@bcogc.ca> Subject: RE: Draft Conditions

Hi Paul,

Yes, Feb 4 was a typo...

I don't believe that the OGC meeting has been scheduled yet. The last correspondence I saw on this indicated a preference to meet on a Tuesday in late February but the exact date has not yet been set.

If we are to wait until after this, it should be done before March 16th. The afternoon of March 2nd (Friday) is clear on everyone's calendars as is the afternoon of March 13th (Tuesday). Other than these two dates, meetings will need to be rearranged to accommodate everyone. Do either of these dates work for you: Paul, Kevin, Stu and Jeff?

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, January 25 6:43 AM

To: Oswell, Terry

Cc: Rigbey, Stephen; Watson, Andrew; Addo, Kofi (19), (22) Gilliss, Scott; Kevin Evers;

'Stuart.Venables@bcogc.ca'; Johnson, Jeff

Subject: RE: Draft Conditions

Morning Terry,

Assuming February 4th is a typo, Crew is available to meet on February 5th and 13th. February 19th is Family Day in Alberta.

I know the OGC was hoping to have a global discussion with Hydro prior to the tri-party meeting. Do you know if a date has been schedule for that meeting?

Regards,

Paul

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Tuesday, January 16, 2018 5:01 PM

To: Paul Dever < Paul. Dever@crewenergy.com>

Cc: Rigbey, Stephen < Stephen.Rigbey@bchydro.com >; Watson, Andrew (19), (22)

<Andrew.Watson@bchydro.com>; Addo, Kofi <<u>Kofi.Addo@bchydro.com</u>>;

19), (22) Gilliss, Scott <<u>Scott.Gilliss@bchydro.com</u>>; Kevin Evers

< Kevin. Evers@crewenergy.com >; 'Stuart. Venables@bcogc.ca' < Stuart. Venables@bcogc.ca >; Johnson,

Jeff < <u>Jeff.Johnson@bcogc.ca</u>> **Subject:** RE: Draft Conditions

Hi Paul,

Happy New Year!

I agree that it would be helpful to have our next meeting with both Crew and the OGC. In February, it looks like BC Hydro people have time available in their calendars in the afternoons of February 4, 13, 16 or 19.

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, January 08 7:45 AM

To: Oswell, Terry

Cc: Rigbey, Stephen; Watson, Andrew; Addo, Kofi; (19), (22) Gilliss, Scott; Kevin Evers;

'Stuart.Venables@bcogc.ca'; Johnson, Jeff

Subject: RE: Draft Conditions

Happy New Year Terry.

In follow-up to our discussion in late December, Crew understands the importance of open and on-going discussion as it relates to respective activities within proximity of the Peace River.

Although there is no requirement for Crew to forward induced seismicity information to BC Hydro, Crew is open to discussing the type and timelines of the requested information with BC Hydro. As the OGC is Crew's regulatory agency, it is important to have the OGC attend these discussions and in speaking with Stu Venables and Jeff Johnson, they are willing to attend any go-forward meetings.

Crew is available to discuss your request and how best to move forward. What does you schedule look like for a meeting in February?

Regards,

Paul

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Friday, December 15, 2017 10:29 AM

To: Paul Dever < Paul. Dever@crewenergy.com >

Cc: Rigbey, Stephen < Stephen.Rigbey@bchydro.com>; Watson, Andrew

<<u>Andrew.Watson@bchydro.com</u>>; Addo, Kofi <<u>Kofi.Addo@bchydro.com</u>>; (19), (22)

<wim.vangassen@bchydro.com>; Gilliss, Scott <Scott.Gilliss@bchydro.com>

Subject: Draft Conditions

Hi Paul,

We have drafted up some conditions that we would provide to the Oil and Gas Commission once notified of upcoming activity within the 5 km buffer zone. Our initial proposed conditions are as follows:

- If there is an earthquake with magnitude equal to or greater than M_w2 or measured ground motion greater than 0.05g (initial level chosen for discussion), Crew Energy will notify BC Hydro (through DSOP) within 24 hours and provide the date, time, magnitude (Mw), epicenter (latitude, longitude), focal depth and the associated uncertainty. Within two weeks of the event, Crew Energy will provide full SEED files for the event.
- Within 30 days after well operations are complete within the buffer zone, full SEED files for all recordings from earthquakes with-ground motions greater than 0.02g (or 0.008g once the OGC requirement changes) are to be provided to BC Hydro.

We would like to see the template that Crew Energy will use to provide the earthquake occurrence notification to the DSOP.

Could you please review the above and let me know if you would like to meet to discuss.

Thanks, Terry

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

(22)

terry.oswell@bchydro.com

bchydro.com

Smart about power in all we do.

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Any thoughts on a September meeting?
At this point my schedule is booking up and available after the 20th.
Paul
Sent from my iPhone
On Jul 13, 2017, at 1:25 PM, Rigbey, Stephen Stephen.Rigbey@bchydro.com wrote:

I'll leave it to Andrew to set up meeting dates.

drilling which you can update on. Say November?

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Cc: Watson, Andrew; Gilliss, Scott; Oswell, Terry (19), (22)

Paul, many thanks for the effort in putting together these slides.

Subject: Re: Emailing - BC Hydro (June 9 meeting).pdf

Let us know if that works.

----Original Message----

Morning Andrew,

Sent: 2017, August 03 8:58 AM

To: Rigbey, Stephen; Watson, Andrew

From:

Sent:

Subject:

Hi Paul,

cheers Andrew

To: Cc:

Watson, Andrew

2017, August 03 2:30 PM

Gilliss, Scott; Oswell, Terry;

Paul Dever; Rigbey, Stephen (19), (22)

RE: Emailing - BC Hydro (June 9 meeting).pdf

I'm satisfied to wait until later in the fall unless there is something pressing on your end. Might be more productive to spread out a bit and to meet once you have completed 2017 works and have the plan for 2018

I think it depends on if you have any new information and/or updated plans that you would like to brief us on.

Kevin Evers

Kevin Evers

Stephen Rigbey

Best regards, Stephen

Director, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th Floor Burnaby, B.C. V3N 4X8

Office:

604.528.2898

(22)

Email:

stephen.rigbey@bchydro.com<mailto:stephen.rigbey@bchydro.com>

bchydro.com/dam safety<http://www.bchydro.com/>

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, July 12 3:19 PM

To: Rigbey, Stephen; Watson, Andrew; Gilliss, Scott; Oswell, Terry

Cc: Kevin Evers

Subject: Emailing - BC Hydro (June 9 meeting).pdf

Afternoon,

In follow-up to our meeting in June, please find the attached slide decks as requested. Let me know if there are any questions on the slides.

We also spoke about meeting again in September or October to give an update on drilling and completion both past and future. Considering it does take some time to find time within each other's schedules, I thought it best to ask for dates now. Please let me know what would work from Hydro's end.

Finally, we are still committed in giving a tour of a padsite during a completion. As the July will not work due to summer schedules, we should have activity taking place in late August and again in September. Once I know the dates I will forward and hopefully the timing will work.

Regards,

Paul

Paul A. Dever
Director, Government & Stakeholder Relations Crew Energy Inc.
Suite 800 250 - 5th Street SW
Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c</pre>
mailto:paul.dever@crewenergy.com>

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-BCHydroDisclaimerID5.2.8.1541

			illustrate and the
From:		Paul Dever <paul.dever@crewenergy.com></paul.dever@crewenergy.com>	
Sent:		2017, August 03 8:58 AM Rigbey, Stephen; Watson, Andrew (19), (22)	_
To: Cc:		Watson, Andrew; Gilliss, Scott; Oswell, Terry;	: Kevin Evers
Subject:		Re: Emailing - BC Hydro (June 9 meeting).pdt	1410.0
Morning A	Andrew,	al des la cita, a sembli, la marentamentamentamente la di pessió di garbant. La stanta como calla como di tipo como cilico como il marentali solli indice.	
Any thou	ghts on a September	meeting?	
At this po	oint my schedule is b	ooking up and available after the 20th.	
Paul			
Sent from	n my iPhone		
	, 2017, at 1:25 PM, R n.Rigbey@bchydro.co	Rigbey, Stephen om <mailto:stephen.rigbey@bchydro.com>> wrote:</mailto:stephen.rigbey@bchydro.com>	
Paul, mar	ny thanks for the effo	ort in putting together these slides.	
I'll leave i	t to Andrew to set u	p meeting dates.	
Best rega	rds,		
Stephen			
Chamban I	Di-J		
Stephen I	Dam Safety		
Director,	Dain Surety		
BC Hydro			
,	thpoint Dr, 10th Floo	or	
Burnaby;	B.C. V3N 4X8		
	604.528.2898		
(22)			
Email:	stephen.rigbey@bc	hydro.com <mailto:stephen.rigbey@bchydro.com></mailto:stephen.rigbey@bchydro.com>	

bchydro.com/dam safety<http://www.bchydro.com/>

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, July 12 3:19 PM

To: Rigbey, Stephen; Watson, Andrew; Gilliss, Scott; Oswell, Terry

Cc: Kevin Evers

Subject: Emailing - BC Hydro (June 9 meeting).pdf

Afternoon,

In follow-up to our meeting in June, please find the attached slide decks as requested. Let me know if there are any questions on the slides.

We also spoke about meeting again in September or October to give an update on drilling and completion both past and future. Considering it does take some time to find time within each other's schedules, I thought it best to ask for dates now. Please let me know what would work from Hydro's end.

Finally, we are still committed in giving a tour of a padsite during a completion. As the July will not work due to summer schedules, we should have activity taking place in late August and again in September. Once I know the dates I will forward and hopefully the timing will work.

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

<u>paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c</u> <u>mailto:paul.dever@crewenergy.com></u>

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⁻BCHydroDisclaimerID5.2.8.1541

Rigbey, Stephen

Sent:

2017, July 13 12:26 PM

To:

Paul Dever; Watson, Andrew; Gilliss, Scott; Oswell, Terry

Cc:

Kevin Evers

Subject:

RE: Emailing - BC Hydro (June 9 meeting).pdf

Paul, many thanks for the effort in putting together these slides.

I'll leave it to Andrew to set up meeting dates.

Best regards,

Stephen

Stephen Rigbey

Director, Dam Safety

BC Hydro

6911 Southpoint Dr, 10th Floor Burnaby, B.C. V3N 4X8

Office

604.528.2898

Email:

stephen.rigbey@bchydro.com

bchydro.com/dam safety

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, July 12 3:19 PM

To: Rigbey, Stephen; Watson, Andrew; Gilliss, Scott; Oswell, Terry;

Cc: Kevin Evers

Subject: Emailing - BC Hydro (June 9 meeting).pdf

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Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, October 04 9:35 AM

To:

Watson, Andrew

(19), (22)

Gilliss, Scott; Oswell, Terry; Cc:

Kevin Evers; Rigbey, Stephen

Subject:

RE: Emailing - BC Hydro (June 9 meeting).pdf

Morning Andrew,

Kevin and I will be in Victoria on November 6th and will be available for meeting in Vancouver on November 7th.

Will November 7th work on Hydro's end for an update meeting on Crew's activities?

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

----Original Message----

From: Watson, Andrew [mailto:Andrew.Watson@bchydro.com]

Sent: Thursday, August 3, 2017 3:30 PM

To: Paul Dever < Paul. Dever@crewenergy.com>; Rigbey, Stephen < Stephen. Rigbey@bchydro.com>

Cc: Gilliss, Scott < Scott.Gilliss@bchydro.com >; Oswell, Terry < Terry.Oswell@bchydro.com >; (22), (19)

<wim.vangassen@bchydro.com>; Kevin Evers < Kevin.Evers@crewenergy.com>

Subject: RE: Emailing - BC Hydro (June 9 meeting).pdf

Hi Paul,

I think it depends on if you have any new information and/or updated plans that you would like to brief us on. I'm satisfied to wait until later in the fall unless there is something pressing on your end. Might be more productive to spread out a bit and to meet once you have completed 2017 works and have the plan for 2018 drilling which you can update on. Say November?

Let us know if that works.

cheers

Andrew

----Original Message-----

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, August 03 8:58 AM

To: Rigbey, Stephen; Watson, Andrew

Cc: Watson, Andrew; Gilliss, Scott; Oswell, Terry (19), (22) Kevin Evers

Subject: Re: Emailing - BC Hydro (June 9 meeting).pdf

Morning Andrew,

Any thoughts on a September meeting?

At this point my schedule is booking up and available after the 20th.

Paul

Sent from my iPhone

On Jul 13, 2017, at 1:25 PM, Rigbey, Stephen

<<u>Stephen.Rigbey@bchydro.com</u><mailto:Stephen.Rigbey@bchydro.com>> wrote:

Paul, many thanks for the effort in putting together these slides.

I'll leave it to Andrew to set up meeting dates.

Best regards,

Stephen

Stephen Rigbey Director, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th Floor Burnaby, B.C. V3N 4X8

Office:

604.528.2898

(22)

Email: stephen.rigbey@bchydro.com

bchydro.com/dam safety<http://www.bchydro.com/>

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, July 12 3:19 PM

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Cc: Kevin Evers

(19), (22)

Subject: Emailing - BC Hydro (June 9 meeting).pdf

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Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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<u>paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c</u> mailto:paul.dever@crewenergy.com>

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Paul Dever <Paul.Dever@crewenergy.com>

Sent:

2017, March 10 9:42 AM

To:

Oswell. Terrv

Cc:

19), (22) Watson, Andrew

Subject:

Re: March Meeting

Follow Up Flag:

Follow up

Flag Status:

Completed

Morning Terry.

Any concerns if the OGC attends?

Not sure if the are available.

Paul

Sent from my iPhone

On Mar 8, 2017, at 3:40 PM, Oswell, Terry <Terry.Oswell@bchydro.com<mailto:Terry.Oswell@bchydro.com>> wrote:

Thanks Paul. I'll get back to you with an agenda. In the meantime, I have booked a meeting time of 9:30 to 11:00 AM on Wednesday, March 22 at the Bentall Centre (same location as last time).

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, March 08 11:43 AM

To: Oswall Terry

; Watson, Andrew

Subject: KE: IVIarch IVIeeting

Hi Terry,

Not a problem.

The morning of the 22nd will work on my end. If you are able to send an agenda, I will then be able to determine if additional support is required from Crew.

Thanks

Paul

Paul A. Dever

Director, Government & Stakeholder Relations Crew Energy Inc.

Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c mailto:paul.dever@crewenergy.com>

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, March 8, 2017 11:11 AM

To: Paul Dever < Paul. Dever@crewenergy.com < mailto: Paul. Dever@crewenergy.com >>

Cc:(19), (22)

; Watson,

Subject: RE: March Meeting

Hi Paul,

Sorry for the delay in responding to you. I'm away for much of March but we do have time available in everyone's calendars on the morning of March 22. Will that work for you?

Cheers,

Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, March 07 3:15 PM

To: Oswell, Terry

Cc: Watson, Andrew

Subject: RE: March Meeting

Afternoon Terry,

Currently trying to schedule a number of meetings over the next few weeks.

Have you considered a date for our follow-up meeting?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c mailto:paul.dever@crewenergy.com>

From: Paul Dever

Sent: Wednesday, March 1, 2017 11:25 AM

To: 'Oswell, Terry' <Terry.Oswell@bchydro.com<mailto:Terry.Oswell@bchydro.com>>

Cc: (19), (22) mailto:wim.vangassen@bchydro.com>>; Watson,

Andrew < Andrew. Watson@bchydro.com < mailto: Andrew. Watson@bchydro.com >>

Subject: RE: March Meeting

Good morning Terry,

Have you had an opportunity to review available dates for a follow-up meeting in March?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3cmailto:paul.dever@crewenergy.com>

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, February 1, 2017 4:53 PM

To: Paul Dever < Paul Dever@crewenergy.com < mailto: Paul Dever@crewenergy.com >>

mailto:wim.vangassen@bchydro.com>>; Watson,

Andrew < Andrew. Watson@bchydro.com < mailto: Andrew. Watson@bchydro.com >>

Subject: March Meeting

Hi Paul,

Thanks for arranging to meet with us today. I've updated Stephen Rigbey on our conversation and he's in agreement that a meeting for further discussion would be a good idea. His admin is looking into dates that will work for the five or so BC Hydro people that would attend and she'll be in touch with you about your availability.

We would like to have a better understanding of your existing protocols for felt earthquakes and your current capabilities for monitoring those events.

I think that you would like to have a better understanding of how we will respond to a notification from Crew Energy.

We should develop an agenda for the meeting a little closer to the date.

Cheers, Terry

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

2)

E terry.oswell@bchydro.com<mailto:terry.address@bchydro.com>

bchydro.com<http://www.bchydro.com/>

Smart about power in all we do.

⁻BCHydroDisclaimerID5.2.8.1541

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, March 08 11:43 AM

To:

Oswell, Terry

Cc:

19), (22) Watson, Andrew

Subject:

RE: March Meeting

Follow Up Flag:

Follow up

Flag Status:

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Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, March 8, 2017 11:11 AM

To: Paul Dever < Paul Dever@crewenergv.com>
Cc⁽¹⁹⁾, (22)

Watson, Andrew < Andrew. Watson@bchydro.com >

Subject: KE: IVIATEIT IVIEETING

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Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Paul Dever

To: 'Oswell Terry' < Terry Oswell@bcbydro.com>
Cc⁽¹⁹⁾, (22)

Watson, Andrew < Andrew. Watson@bchydro.com >

Susject ne. maren meeting

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Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P OR4

Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, February 1, 2017 4:53 PM To: Paul Dever < Paul. Dever@crewenergy.com> Subject: March Meeting

Hi Paul,

Thanks for arranging to meet with us today. I've updated Stephen Rigbey on our conversation and he's in agreement that a meeting for further discussion would be a good idea. His admin is looking into dates that will work for the five or so BC Hydro people that would attend and she'll be in touch with you about your availability.

We would like to have a better understanding of your existing protocols for felt earthquakes and your current capabilities for monitoring those events.

I think that you would like to have a better understanding of how we will respond to a notification from Crew Energy.

We should develop an agenda for the meeting a little closer to the date.

Cheers, Terry

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

(22)

604 528 2187

terry.osweii@pcriydro.com

bchydro.com

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Rigbey, Stephen

Sent:

2017, March 08 8:49 AM

To:

Oswell, Terry

Subject:

Re: March Meeting

I think holding this meeting earlier is better. But we need Kofi involved as well. We also need to schedule an internal meeting beforehand.

Stephen Rigbey. From my iPhone, apologies for brevity

On Mar 8, 2017, at 08:43, Oswell, Terry < Terry. Oswell@bchydro.com > wrote:

This is a meeting with Paul Dever (communications guy) and someone else from Crew Energy. They are drilling adjacent to the Site C project and are likely going to be providing the majority of notifications related to drilling and fracking. Wim and I met with him in late January or early February as initial contact.

They want to know how we are going to respond when the notify us of drilling activity as they are now required to do. We want to know about their existing protocols (stop lights?) and how they are monitoring. I've got a page of notes on our initial meeting but they are at my desk and I'm working from home today.

From: Rigbey, Stephen

Sent: 2017, March 08 8:35 AM

To: Oswell, Terry

Subject: Re: March Meeting

Please give me a bit more background and remind me about what this is all about. I obviously did not give much time thinking about this previously.

Stephen Rigbey. From my iPhone, apologies for brevity

On Mar 8, 2017, at 08:09, Oswell, Terry < Terry. Oswell@bchydro.com > wrote:

I want to respond to Paul this morning. There is time in everyone's calendars on Monday, March 20 from 2-4 or Wednesday, March 22 from 9:30 – 11:00 (I think this would be preferable). I'm away next week and the last week of March so the next time would be in April.

Prior to the meeting, we need to come up with an agenda and we should have an idea of how we will respond to a notification from Crew Energy. Do you think we can come up with this by March 22?

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, March 07 3:15 PM

To: Oswell, Terry

Cc: Van Gassen, Wim; Watson, Andrew

Subject: RE: March Meeting

Afternoon Terry,

Currently trying to schedule a number of meetings over the next few weeks.

Have you considered a date for our follow-up meeting?

Regards,

Paul

Paul A. Dever
Director, Government & Stakeholder Relations Crew Energy Inc.
Suite 800 250 - 5th Street SW
Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Paul Dever

Sent: Wednesday, March 1, 2017 11:25 AM
To: 'Oswell, Terry' <Terry.Oswell@bchydro.com>

Cc:^{(19), (22)}

Watson, Andrew

<a href="mailto:Mailto:Andrew.Watson@bchydro.com
 Subject: RE: March Meeting

Good morning Terry,

Have you had an opportunity to review available dates for a follow-up meeting in March?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, February 1, 2017 4:53 PM **To:** Paul Dever < <u>Paul.Dever@crewenergy.com</u>>

Cc: (22), (19)

Watson, Andrew

<Andrew.Watson@bchydro.com>

Subject: March Meeting

Hi Paul,

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Cheers, Terry

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

721

terry.oswell@bchydro.com

bchydro.com

Smart about power in all we do.

Rigbey, Stephen

Sent:

2017, March 08 8:35 AM

To:

Oswell, Terry

Subject:

Re: March Meeting

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From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, March 07 3:15 PM

To: Oswell, Terry **Cc**⁽¹⁹⁾, (22) Watson, Andrew

Subject: RE: March Meeting

Afternoon Terry,

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Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Paul Dever

Sent: Wednesday, March 1, 2017 11:25 AM

To: 'Oswell, Terry' <terry.oswell@bchydro.com> Cc: (19), (22) Watson, Andrew</terry.oswell@bchydro.com>
< <u>Andrew.Watson@bchydro.com</u> > Subject: RE: March Meeting
Good morning Terry,
Have you had an opportunity to review available dates for a follow-up meeting in March?
Regards,
Paul
Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc.
Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4
Bus 403.231.3697 22)
Fax 403.266.6259 paul.dever@crewenergy.com <mailto:paul.dever@crewenergy.com< td=""></mailto:paul.dever@crewenergy.com<>
From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com] Sent: Wednesday, February 1, 2017 4:53 PM To: Paul Dever <paul.dever@crewenergy.com> Cc: (19), (22) Watson, Andrew <artarew.watson@bchydro.com> Subject: March Meeting</artarew.watson@bchydro.com></paul.dever@crewenergy.com>
Hi Paul,
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We should develop an agenda for the meeting a little closer to the date.
Cheers, Terry

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187



terry.oswell@bchydro.com

bchydro.com

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Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, March 07 3:15 PM

To:

Cc:

Oswell, Terry 19), (22) Watson, Andrew

Subject:

RE: March Meeting

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Have you considered a date for our follow-up meeting?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Rus 403 231 3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Paul Dever

Sent: Wednesday, March 1, 2017 11:25 AM

To: 'Oswell, Terry' <Terry.Oswell@bchydro.com> Cc: \(^{(22)}, (19)\)

Watson, Andrew < Andrew. Watson@bchydro.com >

Subject: RE: March Meeting

Good morning Terry,

Have you had an opportunity to review available dates for a follow-up meeting in March?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

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Sent: Wednesday, February 1, 2017 4:53 PM
To: Paul Dever < Paul. Dever@crewenergy.com>

Cc: (19), (22)

Subject: March Meeting

Watson, Andrew < Andrew. Watson@bchydro.com >

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Cheers,

Terry

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

22)

terry.oswell@bchydro.com

bchydro.com

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Paul Dever <Paul.Dever@crewenergy.com>

Sent:

2017, March 01 10:25 AM

To:

Cc:

Oswell Terry 1<mark>9), (22)</mark> Watson, Andrew

Subject:

RE: March Meeting

Follow Up Flag:

Follow up

Flag Status:

Flagged

Good morning Terry,

Have you had an opportunity to review available dates for a follow-up meeting in March?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, February 1, 2017 4:53 PM To: Paul Dever < Paul. Dever@crewenergy.com >

Cc:(22), (19)

Watson, Andrew < Andrew. Watson@bchydro.com >

Subject: March Meeting

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Terry

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

(22)

terry.oswell@bchydro.com

bchydro.com

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Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, February 03 6:20 AM

To:

Oswell Terry

Cc:

9), (22) Watson, Andrew

Subject:

RE: March Meeting

Thanks for making the time to meet with me.

During the meeting there were comments regarding possible conditions BC Hydro would be considering. If you are able to forward any possible conditions in advance of the meeting we will be able to speak to them.

Enjoy your trip.

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

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Sent: Wednesday, February 1, 2017 4:53 PM **To:** Paul Dever < Paul. Dever@crewenergy.com>

Cc:(22), (19)

Watson, Andrew < Andrew. Watson@bchydro.com >

Subject: March Meeting

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Cheers,

Terry

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BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

604 528 2187

terry.oswell@bchydro.com

bchydro.com

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From:	Paul Dever <paul.dever@crewenergy.com></paul.dever@crewenergy.com>	
Sent:	2017, March 21 6:04 AM	
To:	Oswell, Terry	
Cc:	(19), (22) Watson, Andrew	
Subject:	Re: March Meeting	
STATE OF STA	ga da Carriada de Pellegga newsari (dertablika gerillika se saguega gerillika se saguega a	
N4 : T		
Morning Terry,		
Stu Venables of the OGC wi	Il be attending and should be able to address your questions.	
Regards	ggyppiginger green and i New Grosser german overgadigit rejection plant in Albertalia and Jacob and V	
David		
Paul		
Sent from my iPhone		
sent from my ir none		
On Mar 20, 2017, at 4:20 Pi	И, Oswell, Terry	
<terry oswell@bchydro.co<="" td=""><td>m<mailto:terry.oswell@bchydro.com>> wrote:</mailto:terry.oswell@bchydro.com></td><td></td></terry>	m <mailto:terry.oswell@bchydro.com>> wrote:</mailto:terry.oswell@bchydro.com>	
trenty. oswene benyaro.co	in anianter greater great grea	
Hi Paul,		
Could not let me be sound	I furus Curry Furus vill be attending on Wadnesday? Diseas have someone	
	else from Crew Energy will be attending on Wednesday? Please have someone	
who can speak to induced s	eismicity and details of the monitoring systems.	
• •	in the state of th	
71		
Thanks		
Terry		
·		
Sent from my iPhone		
On Mar 8, 2017, at 11:42 A	M. Paul Dovor	
<paul.dever@crewenergy.c< td=""><td>com<mailto:paul.dever@crewenergy.com>> wrote:</mailto:paul.dever@crewenergy.com></td><td></td></paul.dever@crewenergy.c<>	com <mailto:paul.dever@crewenergy.com>> wrote:</mailto:paul.dever@crewenergy.com>	
II: Town		
Hi Terry,	Single of the control	
Not a problem.	to the second of the second	
Not a problem.		
The morning of the 22nd w	ill work on my end. If you are able to send an agenda, I will then be able to	
determine if additional sup		
acternine ir additional sup	port is required from Grewi	
Thanks		
	The second of th	
Paul		
	and the second of the second o	
Paul A. Dever		

Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c mailto:paul.dever@crewenergy.com>

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, March 8, 2017 11:11 AM

To: Paul Dever < Paul Dever@crewenergy.com<mailto:Paul Dever@crewenergy.com>>
C(

; Watson,

Andrew < Andrew. Watson@bchydro.com < mailto: Andrew. Watson@bchydro.com >>

Subject: RE: March Meeting

Hi Paul,

Sorry for the delay in responding to you. I'm away for much of March but we do have time available in everyone's calendars on the morning of March 22. Will that work for you?

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, March 07 3:15 PM

To: Oswell, Terry

Cc: (19), (22) ; Watson, Andrew

Subject: RE: March Meeting

Afternoon Terry,

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Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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(22)

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paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c mailto:paul.dever@crewenergy.com>

From: Paul Dever

Sent: Wednesday, March 1, 2017 11:25 AM

To: 'Oswell. Terrv' < Terrv. Oswell@bchvdro.com < mailto: Terrv. Oswell@bchvdro.com >>

 $C_{\rm C}$ ^{(19), (22)}

Watson,

Andrew < Andrew. Watson@bchydro.com < mailto: Andrew. Watson@bchydro.com >>

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paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c mailto:paul.dever@crewenergy.com>

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Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

(22)

E terry.oswell@bchydro.com<mailto:terry.address@bchydro.com>

bchydro.com<http://www.bchydro.com/>

Smart about power in all we do.

⁻BCHydroDisclaimerID5.2.8.1541

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2019, January 16 2:48 PM

To:

Oswell, Terry

Subject:

RE: Meeting in June

Hi Terry,

This time works on our end.

Thanks

Paul



Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

This e-mail and any attachments may contain confidential and privileged information. If you are not the intended recipient, please notify the sender immediately by return e-mail, delete this e-mail and destroy any copies. Any unauthorised dissemination or use of this information, whether by the intended recipient or otherwise, is strictly forbidden. Unless otherwise stated, opinions expressed in this e-mail are those of the author and are not endorsed by the author's employer.

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Monday, January 14, 2019 3:55 PM

To: Paul Dever < Paul. Dever@crewenergy.com >

Subject: Meeting in June

Hi Paul,

Monday, June 3 from 11 - 12:30 is currently clear on everyone's calendars. Does that work for you and Kevin?

Cheers,

Terry

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

(22)

terry.oswell@bchydro.com

bchydro.com

Smart about power in all we do.

(19), (22)

Sent:

2018, November 13 3:02 PM

To:

Oswell, Terry Watson, Andrew

Cc: Subject:

RE: Update from Crew Energy

Terry, room TH 12-046 is confirmed.

(19), (22)

----Original Appointment----

From: Oswell, Terry

Sent: 2018, November 08 3:53 PM

To: Oswell, Terry; Schubak, Bob; Addo, Kofi; Watson, Andrew Paul Dever (Paul Dever@crewenergy.com); Kevin Evers (Kevin.Evers@crewenergy.com); Eichhorst, Sabrina

(Sabrina.Eichhorst@snclavalin.com)

Cc: Van Gassen, Wim

Subject: Update from Crew Energy

When: 2019, January 14 11:00 AM-12:30 PM (UTC-08:00) Pacific Time (US & Canada).

Where: 745 Thurlow Street

Paul and Kevin – please note the new location. Andrew o (19) could you find us a meeting room?

Rigbey, Stephen

Sent:

2017, May 30 10:14 AM

To:

Oswell, Terry

Subject:

Re: BC Hydro Dam Buffer Notification

I have another telephone call scheduled for that morning. Please check my schedule

Stephen Rigbey. From my iPhone, apologies for brevity

On May 29, 2017, at 11:53, Rigbey, Stephen < Stephen.Rigbey@bchydro.com > wrote:

Terry, please set it up for June 9. Jeff, I have a call in to Ken to talk about your potential involvement — may not be required for this particular meeting...

Stephen Rigbey, MASc. PEng. | Director, Dam Safety

BC Hydro

6911 Southpoint Drive, 10th floor Burnaby, BC V3N 4X8

P 604 528 2898

(22)

stephen.rigbey@bchydro.com

bchydro.com

Smart about power in all we do.

From: Oswell, Terry

Sent: 2017, May 26 9:01 AM

To: Rigbey, Stephen

Cc: (22), (19); Addo, Kofi; Watson, Andrew; Gilliss, Scott; Jeff Christian

Subject: RE: BC Hydro Dam Buffer Notification

The only time that everyone is available (not on vacation or out of reach) is next week, assuming Kofi can call in from Vancouver Island, or the morning of June 9th if some people can cancel or move meetings. After that, we're looking at the week of July 10 although Andrew is away until July 31.

Jeff, are you available next week? Monday afternoon would be best.

From: Rigbey, Stephen

Sent: 2017, May 10 8:11 PM

To: Rigbey, Stephen

Cc: Oswell, Terry; (22), (19) Addo, Kofi; Watson, Andrew; Gilliss, Scott; Jeff Christian

Subject: Re: BC Hydro Dam Buffer Notification

Need to discuss strategy before arranging this meeting. It may be time to get legal involved with this issue as well. Jeff, this is the similar issue regarding resumption of fracking activities near site c. The difference is that I think with proper protocols, this activity could be allowable. I'm

available by phone for the rest of the week.

Stephen Rigbey. From my iPhone, apologies for brevity

On May 10, 2017, at 15:51, Paul Dever < Paul. Dever @crewenergy.com > wrote:

Afternoon Terry,

Thanks for your e-mail.

I think it would be best if we meet in person in the event that additional questions come up.

What is your schedule like for a meeting?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, May 10, 2017 11:40 AM

To: Paul Dever < Paul.Dever@crewenergy.com>; Rigbey, Stephen

<<u>Stephen.Rigbey@bchydro.com></u>; (22), (19)

Addo, Kofi < Kofi.Addo@bchydro.com>; Watson, Andrew

<<u>Andrew.Watson@bchydro.com</u>; Gilliss, Scott <<u>Scott.Gilliss@bchydro.com</u>; Venables,

Stuart < Stuart. Venables@BCOGC.ca>

Subject: RE: BC Hydro Dam Buffer Notification

Hi Paul,

Thanks for following up. Here is a summary of the information that we are looking for from Crew.

Description of hole location, subsurface orientation/length and timing to the extent
these are known. Description of the geological horizons and any history of induced
seismicity in nearby or in similar settings. If there is no history of induced seismicity in
similar boreholes it would be useful to summarize the number and location that have
been completed already with no evidence of induced seismicity.

- 2. What the time histories might look like so that the response of BC Hydro structures to the induced seismicity can be assessed
- 3. A description of the protocols that Crew will follow for a fracking induced earthquake
- 4. How Crew mitigates the risk of causing an earthquake in the boreholes

Please let me know if you have any questions with the above and if you think another meeting would be beneficial to discuss these further.

Thanks, Terry

----Original Message----

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, May 08 5:27 AM

To: Oswell, Terry; Rigbey, Stephe (19), (22) Addo, Kofi; Watson, Andrew;

Gilliss, Scott; Venables, Stuart

Subject: Re: BC Hydro Dam Buffer Notification

Good morning.

I am following up on the previous e-mail to confirm any go-forward action items.

Regards

Paul

Sent from my iPhone

On Apr 28, 2017, at 11:20 AM, Paul Dever

<Paul.Dever@crewenergy.com<mailto:Paul.Dever@crewenergy.com>> wrote:

Good morning all,

This is in follow-up to our meeting held on March 22, 2017.

Although no direct take-away items were discussed, is there anything that Crew is able to assist with or would BC Hydro like another meeting to obtain a greater understanding of Crew's current or proposed activities?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com</pre>
crewenergy.com%3cmailto:paul.dever@crewenergy.com>

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-BCHydroDisclaimerID5.2.8.1541

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, May 29 1:37 PM

To:

Oswell, Terry

Subject:

RE: BC Hydro Dam Buffer Notification

Afternoon Terry,

June 9th will work.

Once you have confirmed will be able to forward an agenda?

Thanks

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Monday, May 29, 2017 1:43 PM

To: Paul Dever < Paul. Dever@crewenergy.com > Subject: RE: BC Hydro Dam Buffer Notification

Hi Paul,

I'm working on a meeting for the morning of June 9th but am still waiting for confirmation from one person that they are available. Will this date work for you?

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, May 23 8:53 AM

To: Oswell, Terry

Subject: RE: BC Hydro Dam Buffer Notification

Morning Terry,

Any update on a possible meeting date?

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Rus 403 231 3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Thursday, May 11, 2017 9:13 AM

(19), (22)

To: Paul Dever < Paul. Dever@crewenergy.com >; Rigbey, Stephen < Stephen. Rigbey@bchydro.com > Addo, Kofi < Kofi. Addo@bchydro.com >; Watson, Andrew

Andrew.Watson@bchydro.com; Gilliss, Scott Scott.Gilliss@bchydro.com; Venables, Stuart

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Subject: RE: BC Hydro Dam Buffer Notification

Hi Paul,

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Cheers,

Terry

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Subject: RE: BC Hydro Dam Buffer Notification

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From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, May 10 3:52 PM (19) (

To: Oswell, Terry; Rigbey, Stephen; Addo, Kofi; Watson, Andrew; Gilliss, Scott; Venables, Stuart

Subject: RE: BC Hydro Dam Buffer Notification

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Thanks for your e-mail.

I think it would be best if we meet in person in the event that additional questions come up.

What is your schedule like for a meeting? Regards, Paul Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4 Bus 403.231.3697 Fax 403.266.6259 paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com] Sent: Wednesday, May 10, 2017 11:40 AM (19), (22)To: Paul Dever < Paul. Dever@crewenergy.com >; Rigbey, Stephen < Stephen. Rigbey@bchydro.com > Addo, Kofi < Kofi. Addo@bchydro.com>; Watson, Andrew <Andrew.Watson@bchydro.com>; Gilliss, Scott <Scott.Gilliss@bchydro.com>; Venables, Stuart <Stuart.Venables@BCOGC.ca> Subject: RE: BC Hydro Dam Buffer Notification Hi Paul, Thanks for following up. Here is a summary of the information that we are looking for from Crew. Description of hole location, subsurface orientation/length and timing to the extent these are known. Description of the geological horizons and any history of induced seismicity in nearby or in similar settings. If there is no history of induced seismicity in similar boreholes it would be useful to summarize the number and location that have been completed already with no evidence of induced seismicity. What the time histories might look like so that the response of BC Hydro structures to the induced seismicity can be assessed A description of the protocols that Crew will follow for a fracking induced earthquake 3. How Crew mitigates the risk of causing an earthquake in the boreholes Please let me know if you have any questions with the above and if you think another meeting would be beneficial to discuss these further. Thanks, Terry

3

----Original Message----

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017,	May 08	5:27 AM
-------------	--------	---------

To: Oswell, Terry; Rigbey, Stephen (19), (22) Addo, Kofi; Watson, Andrew; Gilliss, Scott; Venables, Stuart

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Rigbey, Stephen

Sent:

2017, May 29 11:54 AM

To:

Oswell, Terry

Cc:

19), (22) Addo, Kofi; Watson, Andrew; Gilliss, Scott; Jeff Christian

Subject:

RE: BC Hydro Dam Buffer Notification

Terry, please set it up for June 9. Jeff, I have a call in to Ken to talk about your potential involvement – may not be required for this particular meeting...

Stephen Rigbey, MASc. PEng. | Director, Dam Safety

BC Hydro 6911 Southpoint Drive, 10th floor Burnaby, BC V3N 4X8

P 60 (**22**)

604 528 2898

stephen.rigbey@bchydro.com

bchydro.com

Smart about power in all we do.

From: Oswell, Terry

Sent: 2017, May 26 9:01 AM

To: Riabev, Stephen

Cc^{(19), (22)} Addo, Kofi; Watson, Andrew; Gilliss, Scott; Jeff Christian

Subject: RE: BC Hydro Dam Buffer Notification

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Jeff, are you available next week? Monday afternoon would be best.

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Sent: 2017, May 10 8:11 PM

To: Rigbey, Stephen

Cc: Oswell, Terry(19), (22)

Addo, Kofi; Watson, Andrew; Gilliss, Scott; Jeff Christian

Subject: Re: BC Hydro Dam Buffer Notification

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Sent: Wednesday, May 10, 2017 11:40 AM

To: Paul Dever <Paul.Dever@crewenergy.com>; Rigbey, Stephen <<u>Stephen.Rigbey@bchydro.com</u>>; (19), 22), (19)

Addo, Kofi <<u>Kofi.Addo@bchydro.com</u>>; Watson, Andrew

<<u>Andrew.Watson@bchydro.com</u>>; Gilliss, Scott <<u>Scott.Gilliss@bchydro.com</u>>; Venables, Stuart

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Thanks, Terry

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Rigbey, Stephen

Sent:

2017, May 26 5:27 PM

To: Cc:

Jeff Christian Oswell, Terry

Subject:

Re: BC Hydro Dam Buffer Notification

Just landed back in Vancouver. I'll contact Andrew Watson and Ken about this first thing Monday morning Stephen Rigbey. From my iPhone, apologies for brevity

On May 26, 2017, at 16:31, Jeff Christian < ichristian@lawsonlundell.com wrote:

Hi Terry – I have time next week, including Monday afternoon, but need instructions from Ken Duke to get involved. So far I haven't heard from him.

Jeff Christian | Partner Lawson Lundell LLP D 604.631.9115 | M 604.780.7954 | F 604.669.1620

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Friday, May 26, 2017 9:01 AM

To: Rigbey, Stephen

Cc: (22), (19) Addo, Kofi; Watson, Andrew; Gilliss, Scott; Jeff Christian (3115) -14Flr

Subject: RE: BC Hydro Dam Buffer Notification

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Sent: 2017, May 08 5:27 AM

To: Oswell, Terry; Rigbey, Stephen (19), (22) Addo, Kofi; Watson, Andrew; Gilliss, Scott; Venables, Stuart

Subject: Re: BC Hydro Dam Buffer Notification

Good morning.

I am following up on the previous e-mail to confirm any go-forward action items.

Regards

Paul

Sent from my iPhone

On Apr 28, 2017, at 11:20 AM, Paul Dever < Paul.Dever@crewenergy.com wrote:

Good morning all,

This is in follow-up to our meeting held on March 22, 2017.

Although no direct take-away items were discussed, is there anything that Crew is able to assist with or would BC Hydro like another meeting to obtain a greater understanding of Crew's current or proposed activities?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3cmailto:paul
.dever@crewenergy.com</pre>

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-BCHydroDisclaimerID5.2.8.1541

Addo, Kofi

Sent:

2017, May 11 6:05 AM

To:

Oswell, Terry

Subject:

RE: BC Hydro Dam Buffer Notification

Terry,

FYI - I'm in Campbell River May 16th to 31st for fieldwork.

From: Oswell, Terry

Sent: 2017, May 10 4:12 PM

To: Paul Dever; Rigbey, Stephen;

Addo, Kofi; Watson, Andrew; Gilliss, Scott; Venables, Stuart

Subject: RE: BC Hydro Dam Buffer Notification

Hi Paul,

May 29th after 2 PM is the first time that is free for everyone. Will that work for you?

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, May 10 3:52 PM

To: Oswell, Terry; Rigbey, Stephen (22), (19) Addo, Kofi; Watson, Andrew; Gilliss, Scott; Venables, Stuart

Subject: RE: BC Hydro Dam Buffer Notification

Afternoon Terry,

Thanks for your e-mail.

I think it would be best if we meet in person in the event that additional questions come up.

What is your schedule like for a meeting?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, May 10, 2017 11:40 AM

To: Paul Dever < Paul. Dever@crewenergy.com >; Rigbey, Stephen < Stephen. Rigbey@bchydro.com > (19), (22)

(19), (22)

Addo, Kofi < Kofi. Addo@bchydro.com >; Watson, Andrew

<a href="mailto:Andrew.Watson@bchydro.com; Gilliss, Scott Scott.Gilliss@bchydro.com; Venables, Stuart

<Stuart.Venables@BCOGC.ca>

Subject: RE: BC Hydro Dam Buffer Notification

Hi Paul,

Thanks for following up. Here is a summary of the information that we are looking for from Crew.

- Description of hole location, subsurface orientation/length and timing to the extent these are known. Description of the geological horizons and any history of induced seismicity in nearby or in similar settings. If there is no history of induced seismicity in similar boreholes it would be useful to summarize the number and location that have been completed already with no evidence of induced seismicity.
- What the time histories might look like so that the response of BC Hydro structures to the induced seismicity can be assessed
- A description of the protocols that Crew will follow for a fracking induced earthquake
- How Crew mitigates the risk of causing an earthquake in the boreholes

Please let me know if you have any questions with the above and if you think another meeting would be beneficial to discuss these further.

Thanks, Terry

----Original Message-----

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, May 08 5:27 AM

To: Oswell, Terry; Rigbey, Stephen (22), (19) Addo, Kofi; Watson, Andrew; Gilliss, Scott; Venables, Stuart

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-BCHydroDisclaimerID5.2.8.1541

Rigbey, Stephen

Sent:

2017, May 10 8:11 PM

To:

Rigbey, Stephen

Cc:

Rigbey, Stephen

CC.

Oswell, Terry; (19), (22); Addo, Kofi; Watson, Andrew; Gilliss, Scott; Jeff Christian

Subject:

Re: BC Hydro Dam Buffer Notification

Need to discuss strategy before arranging this meeting. It may be time to get legal involved with this issue as well. Jeff, this is the similar issue regarding resumption of fracking activities near site c. The difference is that I think with proper protocols, this activity could be allowable. I'm available by phone for the rest of the week.

Stephen Rigbey. From my iPhone, apologies for brevity

On May 10, 2017, at 15:51, Paul Dever < Paul. Dever @crewenergy.com > wrote:

Afternoon Terry,

Thanks for your e-mail.

I think it would be best if we meet in person in the event that additional questions come up.

What is your schedule like for a meeting?

Regards,

Paul

Paul A. Dever
Director, Government & Stakeholder Relations Crew Energy Inc.
Suite 800 250 - 5th Street SW
Calgary, Alberta T2P 0R4

Bus 403.231.3697



Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, May 10, 2017 11:40 AM

(22), (19)

Rigbey, Stephen < Stephen.Rigbey@bchydro.com >; (19),
Addo, Kofi < Kofi.Addo@bchydro.com >; Watson, Andrew

< Andrew. Watson@bchydro.com >; Gilliss, Scott < Scott. Gilliss@bchydro.com >; Venables, Stuart

<Stuart.Venables@BCOGC.ca>

Subject: RE: BC Hydro Dam Buffer Notification

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- 2. What the time histories might look like so that the response of BC Hydro structures to the induced seismicity can be assessed
- 3. A description of the protocols that Crew will follow for a fracking induced earthquake
- 4. How Crew mitigates the risk of causing an earthquake in the boreholes

Please let me know if you have any questions with the above and if you think another meeting would be beneficial to discuss these further.

Thanks, Terry

----Original Message----

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, May 08 5:27 AM

To: Oswell, Terry; Rigbey, Stephen; (22), (19) Addo, Kofi; Watson, Andrew; Gilliss, Scott;

Venables, Stuart

Subject: Re: BC Hydro Dam Buffer Notification

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paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.co
m%3cmailto:paul.dever@crewenergy.com>

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-BCHydroDisclaimerID5.2.8.1541

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, May 10 3:52 PM

Scott; Venables, Stuart

To:

Oswell, Terry; Rigbey, Stephen

Addo, Kofi; Watson, Andrew; Gilliss,

Subject:

RE: BC Hydro Dam Buffer Notification

Afternoon Terry,

Thanks for your e-mail.

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What is your schedule like for a meeting?

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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(22)

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paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Wednesday, May 10, 2017 11:40 AM

To: Paul Dever < Paul Dever@crewenergy.com >; Rigbey, Stephen < <u>Stephen.Rigbey@bchydro.com</u> > (22), (19)

; Addo, Kofi < Kofi. Addo@bchydro.com>; Watson, Andrew

Andrew.Watson@bchydro.com; Gilliss, Scott Scott.Gilliss@bchydro.com; Venables, Stuart

<Stuart.Venables@BCOGC.ca>

Subject: RE: BC Hydro Dam Buffer Notification

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Thanks for following up. Here is a summary of the information that we are looking for from Crew.

Description of hole location, subsurface orientation/length and timing to the extent these are known. Description of the geological horizons and any history of induced seismicity in nearby or in similar settings. If there is no history of induced seismicity in similar boreholes it would be useful to summarize the number and location that have been completed already with no evidence of induced seismicity.

2.	What the time histories might look like so that the response of BC Hydro structures to the induced seismicity can be assessed
3.	A description of the protocols that Crew will follow for a fracking induced earthquake
4.	How Crew mitigates the risk of causing an earthquake in the boreholes
	Please let me know if you have any questions with the above and if you think another meeting would be beneficial to discuss these further.
	Thanks, Terry
	Original Message From: Paul Dever [mailto:Paul.Dever@crewenergy.com] Sent: 2017, May 08 5:27 AM To: Oswell, Terry; Rigbey, Stephen (19), (22) Addo, Kofi; Watson, Andrew; Gilliss, Scott; Venables, Stuart Subject: Re: BC Hydro Dam Buffer Notification
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	Regards
	Paul
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	Regards,

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Paul

Bus 403.231.3697



Fax 403.266.6259

<u>paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3cmailto:paul.dever@crewenergy.com</u>>

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-BCHydroDisclaimerID5.2.8.1541

Watson, Andrew

Sent:

2017, May 09 7:48 AM

To:

Rigbey, Stephen

Cc:

Oswell, Terry (19), (22) Addo, Kofi; Gilliss, Scott

Subject:

Re: BC Hydro Dam Buffer Notification

Thx terry/Steven

I believe we also discussed these points

Also looking for

description of hole location, subsurface orientation/length and timing to the extent these are know-description of the geological horizons and any history of induced seismicity in nearby or in similar settings. If there is no history of induced seismicity in similar boreholes it would be useful to summarize the number and location that have been completed already with no evidence of induced seismicity.

Thx

Sent from my iPhone

>

>

- > On May 8, 2017, at 8:36 PM, Rigbey, Stephen < Stephen.Rigbey@bchydro.com wrote:
- > Terry, you are on the right track. Please coordinate with Wim and the others and provide a response in my absence. Thanks
- > Stephen Rigbey. From my iPhone, apologies for brevity
- >> On May 8, 2017, at 11:49, Oswell, Terry < Terry. Oswell@bchydro.com> wrote:
- >>
- >> I had a couple things in my notes that we wanted from Crew:
- >> We want to know what the time histories might look like so that structures can be assessed (btw I don't think Paul knows what a time history is)
- >> We would like a description of the protocols that Crew will follow for a fracking induced earthquake
- >> We want to understand how Crew mitigates the risk of causing an earthquake in the boreholes >>
- >> Anything else? Please correct above notes if necessary.
- >> -----Original Message-----
- >> From: Paul Dever [mailto:Paul.Dever@crewenergy.com]
- >> Sent: 2017, May 08 5:27 AM
- >> To: Oswell, Terry; Rigbey, Stephen (19), (22) Addo, Kofi; Watson, Andrew; Gilliss, Scott; Venables,
- Stuart

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>> Subject: Re: BC Hydro Dam Buffer Notification

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>> Regards
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would BC Hydro like another meeting to obtain a greater understanding of Crew's current or proposed
activities?
>>
>>
>> Regards,
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>> Paul
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>> Paul A. Dever
>> Director, Government & Stakeholder Relations Crew Energy Inc.
>> Suite 800 250 - 5th Street SW
>> Calgary, Alberta T2P 0R4
>>
>> Bus 403.231.3697
>> Fax 403.266.6259
paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com%3c
mailto:paul.dever@crewenergy.com>
>>
```

Rigbey, Stephen From: Sent: 2017, May 08 8:36 PM Oswell, Terry To: Cc: Addo, Kofi; Watson, Andrew; Gilliss, Scott Subject: Re: BC Hydro Dam Buffer Notification Terry, you are on the right track. Please coordinate with Wim and the others and provide a response in my absence. Thanks Stephen Rigbey. From my iPhone, apologies for brevity > On May 8, 2017, at 11:49, Oswell, Terry <Terry.Oswell@bchydro.com> wrote: > I had a couple things in my notes that we wanted from Crew: > - We want to know what the time histories might look like so that structures can be assessed (btw - I don't think Paul knows what a time history is) > - We would like a description of the protocols that Crew will follow for a fracking induced earthquake > - We want to understand how Crew mitigates the risk of causing an earthquake in the boreholes > Anything else? Please correct above notes if necessary. > ----Original Message----> From: Paul Dever [mailto:Paul.Dever@crewenergy.com] > Sent: 2017, May 08 5:27 AM Addo, Kofi; Watson, Andrew; Gilliss, Scott; Venables, > To: Oswell, Terry; Rigbey, Stephen Stuart > Subject: Re: BC Hydro Dam Buffer Notification > > Good morning. > I am following up on the previous e-mail to confirm any go-forward action items. > > Regards > > Paul > Sent from my iPhone > On Apr 28, 2017, at 11:20 AM, Paul Dever <Paul.Dever@crewenergy.com<mailto:Paul.Dever@crewenergy.com>> wrote: > Good morning all,

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Sent:

2017, May 08 5:27 AM

To:

Oswell, Terry; Rigbey, Stepher

Addo, Kofi; Watson, Andrew; Gilliss,

.

Scott; Venables, Stuart

Subject:

Re: BC Hydro Dam Buffer Notification

Follow Up Flag:

Follow up

Flag Status:

Completed

Good morning.

I am following up on the previous e-mail to confirm any go-forward action items.

Regards

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paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com</pre>
mailto:paul.dever@crewenergy.com

Watson, Andrew

Sent:

2017, January 31 2:06 PM

To:

Oswell, Terry (19), (22)

Subject:

Re: BC Hydro Dam Buffer Notification

Follow Up Flag:

Follow up

Flag Status:

Completed

(19), (2 Terry

Looks like i need to go to Victoria so wim pls handle the consult with them

We i assume the process is we send a letter to OGC based on concerns and considerations we have

Access and location (interfaces)

Timing

Vibrations

Methods

Risk assessment (high risk activity?)

Monitoring and criteria

Sent from my iPhone

On Jan 31, 2017, at 1:38 PM, Paul Dever < Paul. Dever@crewenergy.com > wrote:

Thanks Terry.

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Tuesday, January 31, 2017 10:40 AM

To: Paul Dever < Paul. Dever@crewenergy.com >; Watson, Andrew < Andrew. Watson@bchydro.com >;

Van Gassen, Wim < wim.vangassen@bchydro.com > Subject: RE: BC Hydro Dam Buffer Notification

Hi Paul,

We will meet at one of our downtown offices located at 1055 Dunsmuir Street (Bentall 4 tower at Dunsmuir and Thurlow). We will meet you in the lobby just before 10 AM.

Cheers, Terry

From: Oswell, Terry

Sent: 2017, January 31 8:06 AM **To:** Paul Dever; Watson, Andrew

Subject: Re: BC Hydro Dam Buffer Notification

Hi Paul,

It's more likely that we'll meet downtown. I'll let you know where once that's been confirmed.

Cheers, Terry

Sent from my iPhone

On Jan 30, 2017, at 2:55 PM, Oswell, Terry < Terry.Oswell@bchydro.com> wrote:

Hi Paul,

Wednesday at 10 AM works for me.

I'm at 6911 Southpoint Drive in Burnaby. This is also at the Edmonds skytrain station, if you want to take transit from downtown. It's about 20 minutes from the Granville Street skytrain station. When you arrive in the lobby, you will need to sign in at the security desk and they will want a piece of ID (driver's licence) which they will hold onto. Once you arrive, give me a call and I'll meet you in the lobby.

Cheers, Terry

(22)

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, January 30 1:27 PM **To:** Oswell, Terry; Watson, Andrew

Subject: RE: BC Hydro Dam Buffer Notification

Hi Terry,

I am thinking of 10:00 am on Wednesday. Where is your office?

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4 Bus 403.231.3697 (22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Friday, January 27, 2017 1:49 PM

To: Paul Dever < Paul. Dever@crewenergy.com >; Watson, Andrew

<Andrew.Watson@bchydro.com>

Subject: RE: BC Hydro Dam Buffer Notification

Hi Paul,

I've got time on Wednesday next week between 10 AM and 2 PM. Will that work for you?

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, January 27 12:04 PM **To:** Oswell, Terry; Watson, Andrew

Subject: BC Hydro Dam Buffer Notification

Good afternoon,

Crew Energy was recently notified by the OGC regarding additional notification requirements in proximity to BC Hydro dam locations.

I will be in Vancouver next week and would like the opportunity to meet if schedules allow.

Crew is hoping to gain a better understanding of BC Hydro's requirements for notification and timelines Crew can expect in response. I will also be able to go over an area map showing Crew's activity in proximity to the Site C buffer area.

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

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(22)

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paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

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Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, January 31 1:39 PM

To:

Oswell, Terry; Watson, Andrew

Subject:

RE: BC Hydro Dam Buffer Notification

Thanks Terry.

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697 Cell 403.815.5575

Fax 403.266.6259

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Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

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Watson, Andrew

Sent:

2017, January 31 6:42 AM

To:

Oswell Terry 19), (22)

Cc:

Subject:

Re: BC Hydro Dam Buffer Notification

Ok I'll try and reach him today. Best to do downtown if you can. Other interfaces at the dam site could also be a big deal depending on where they want to drill. Alternatively wim could go to Victoria. That might be better for me.



can you call me on cell when you get in.

Thx

Sent from my iPhone

On Jan 31, 2017, at 6:38 AM, Oswell, Terry < Terry.Oswell@bchydro.com > wrote:

Thanks. Wim is back tonight

Sent from my iPhone

On Jan 31, 2017, at 7:33 AM, Watson, Andrew < Andrew. Watson@bchydro.com > wrote:

back from fsj? I have to be in Victoria on Wednesday morning. Maybe wim can attend.

Would be good to see a map and drilling alignment. I assume we will want a risk assessment and approach for monitoring. Schedule for this work will also be important

Sent from my iPhone

On Jan 31, 2017, at 5:32 AM, Oswell, Terry < Terry.Oswell@bchydro.com > wrote:

Andrew - I should have checked - are you available Wednesday at 10? I can change to meeting downtown easily.

Sent from my Phone

On Jan 30, 2017, at 1:26 PM, Paul Dever <Paul.Dever@crewenergy.com> wrote:

Hi Terry,

I am thinking of 10:00 am on Wednesday. Where is your office?

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crew
energy.com</pre>

From: Oswell, Terry

[mailto:Terry.Oswell@bchydro.com]
Sent: Friday, January 27, 2017 1:49 PM

To: Paul Dever < Paul.Dever@crewenergy.com >; Watson, Andrew < Andrew.Watson@bchydro.com > Subject: RE: BC Hydro Dam Buffer Notification

Hi Paul,

I've got time on Wednesday next week between 10 AM and 2 PM. Will that work for you?

Cheers, Terry

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2017, January 27 12:04 PM **To:** Oswell, Terry; Watson, Andrew

Subject: BC Hydro Dam Buffer Notification

Good afternoon,

Crew Energy was recently notified by the OGC regarding additional notification requirements in proximity to BC Hydro dam locations.

I will be in Vancouver next week and would like the opportunity to meet if schedules allow.

Crew is hoping to gain a better understanding of BC Hydro's requirements for notification and timelines Crew can expect in response. I will also be able to go over an area map showing Crew's activity in proximity to the Site C buffer area.

Regards,

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crew
energy.com</pre>

Watson, Andrew

Sent:

2017, January 31 6:34 AM

To:

Oswell, Terry

Subject:

Re: BC Hydro Dam Buffer Notification

When is (19),

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(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

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<Andrew.Watson@bchydro.com>

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Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, January 30 12:27 PM

To:

Oswell, Terry; Watson, Andrew

Subject:

RE: BC Hydro Dam Buffer Notification

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Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

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paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Friday, January 27, 2017 1:49 PM

To: Paul Dever < Paul. Dever@crewenergy.com >; Watson, Andrew < Andrew. Watson@bchydro.com >

Subject: RE: BC Hydro Dam Buffer Notification

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(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

Paul Dever < Paul. Dever@crewenergy.com>

Sent:

2017, January 27 11:48 AM

To:

Venables, Stuart; Watson, Andrew; Oswell, Terry

Subject:

RE: BC Hydro | Crew Energy: Mutual Introduction

Thank you Stu.

Paul

Paul A. Dever Director, Government & Stakeholder Relations Crew Energy Inc. Suite 800 250 - 5th Street SW Calgary, Alberta T2P 0R4

Bus 403.231.3697

(22)

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com

From: Venables, Stuart [mailto:Stuart.Venables@BCOGC.ca]

Sent: Tuesday, January 24, 2017 9:30 AM

To: 'Andrew.Watson@bchydro.com' < Andrew.Watson@bchydro.com'>; Oswell, Terry (Terry.Oswell@bchydro.com)

<<u>Terry.Oswell@bchydro.com</u>>; Paul Dever <<u>Paul.Dever@crewenergy.com</u>>

Subject: BC Hydro | Crew Energy: Mutual Introduction

Good morning,

Contact information is provided below for BC Hydro and Crew Energy to facilitate coordination and planning in proximity to BC hydro infrastructure and Crew Energy Tenure.

BC Hydro

Primary Contact: Terry Oswell

Email: Terry.oswell@bchydro.com

Phone: 604-528-2187

(22)

Address: 6911 Southpoint Drive E10, Burnaby, BC V3N 4X8

Secondary Contact:

Andrew Watson, BCHydro Engineering Manager - Site C

Email: Andrew.watson@bchydro.com

Phone: 604-317-7205

Crew Energy

Primary Contact:
Paul A. Dever
Director, Government & Stakeholder Relations Crew Energy Inc.
Suite 800 250 - 5th Street SW
Calgary, Alberta T2P 0R4

Fax 403.266.6259

paul.dever@crewenergy.com<mailto:paul.dever@crewenergy.com



Stuart Venables P.Geo Senior Petroleum Geologist Stuart.Venables@BCOGC.ca Victoria BC Office Address Directory bcogc.ca T. 250 419-4472 F. 250-419-4403





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Sopinka, Amy MEM:EX < Amy. Sopinka@gov.bc.ca>

Sent:

2017, March 21 3:45 PM

To: Subject:

Oswell, Terry; Grieve, Richard MNGD:EX RE: BC Hydro meeting with Crew Energy

Hi Terry,

Thanks for your note. Unfortunately, neither Richard or I will be in Vancouver tomorrow. I have heard of Web-Ex but neither Richard nor myself have the software installed and I don't think we can ensure we would be able to have it operational in time for the meeting.

Could you send the material to us in PPT or PDF and you can walk us through on the call?

Amy

From: Oswell, Terry [mailto:Terry.Oswell@bchydro.com]

Sent: Tuesday, March 21, 2017 3:38 PM

To: Sopinka, Amy MEM:EX; Grieve, Richard MNGD:EX

Subject: BC Hydro meeting with Crew Energy

Hi Amy and Richard,

We will be showing information using powerpoint during the meeting tomorrow. One option of sharing this information with you (assuming that you are not in Vancouver) is Web-Ex. Is this a software that you are familiar with? Or is there something else that you use to share desktops with external agencies?

Cheers, Terry

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

terry.oswell@bchydro.com

bchydro.com

Smart about power in all we do.

Watson, Andrew

Sent:

2018, October 02 12:17 PM

To:

Oswell, Terry

Cc:

(19), (22)

Subject:

RE: Crew Energy Inc. 15-20-82-19 W6 Notice of Completion Activity

Terry

I believe our shapefile (at OGC) and duty of the consultations is based on 5km from center of dam. Unless they have triggered or see any increased seismic activity in the area I don't see any need for further information. Once they have developed these wells it would be useful to get a debrief on the monitoring activities and results. I believe these were included in their long term plan the last time we met?

Schubak, Bob

Andrew

From: Oswell, Terry

Sent: 2018, October 02 12:11 PM

To: Watson, Andrew

Cc(19), (22) Schubak, Bob

Subject: FW: Crew Energy Inc. 15-20-82-19 W6 Notice of Completion Activity

FYI. The land within the 5 km radius is just to the left of the BC Hydro Site C Dam (south Bank) label on the map. Please let me know if you'd like a response sent to Paul.

From: Paul Dever [mailto:Paul.Dever@crewenergy.com]

Sent: 2018, September 28 9:40 AM

To: Oswell, Terry

Cc: 'Stuart.Venables@bcogc.ca'

Subject: Crew Energy Inc. 15-20-82-19 W6 Notice of Completion Activity

Good morning Terry,

Crew has several well completions planned for mid-October on our 15-20-82-19 W6 padsite.

The OGC permits do not have a condition for notifying BC Hydro however, there is an OGC Order that requires Operators notify certain stakeholders within a 5 kilometre radius of upcoming completion (hydraulic fracturing) activity.

BC Hydro is a landowner (DL 4429, #21) as shown on attached radius map and as such, Crew is notifying on the 15-20-82-19 W6 completions.

Although the requirement is to notify between 2 and 10 days prior to the completions taking place, I thought best to send to you earlier.

Please review the attached and let me know if you have any questions.

Thanks

Paul



Paul Dever

Vice President, Government and Stakeholder Relations

Direct: 403-231-3697

Email: Paul.Dever@crewenergy.com

https://www.crewenergy.com

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(19), (22)

Sent:

2017, November 17 8:31 AM

To:

Oswell, Terry

Subject:

RE: Crew Energy Meeting - 16 Nov 2017 Notes

(19), (22)

I wrote down the same pad numbers as you quoted.

(19), (22)

From ^{(19), (22)}

Sent: 2017, November 17 8:29 AM

To: Oswell, Terry

 $\mathbf{C}(22), (19)$

Subject: KE: Crew Energy Meeting - 16 Nov 2017 Notes

Terry,

Did you check the numbers for the well pads. I had 4-21(no condition) and 3-32 (with condition). I added a comment in green.

From: Oswell, Terry

Sent: 2017, November 17 8:21 AM

To: (19), (22)

Subject: RE: Crew Energy Meeting - 16 Nov 2017 Notes

Here's the latest for your review. DSOP process is in place.

From: Oswell, Terry

Sent: 2017, November 16 2:09 PM

To: (19), (22)

Cc:

Subject: RE: Crew Energy Meeting - 16 Nov 2017 Notes

Thanks! I forgot to add information about the availability of the slides so further additions in blue below. I'll leave your first comment for (22), —he'll look at these tomorrow.

The wording in the authorization is actually "no more than 45 days and no less than 21 days in advance, of..... a. beginning the drilling of a well; or b. commencement of completion or recompletion operations". I've changed the wording below to say "between"

I had 0.008g noted a few times so I'm comfortable using this. Not much difference between 0.02 and 0.018!

Sent: 2017, November 16 1:59 PM

To: Oswell Terry Cc: (19), (22)

Subject: RE: Crew Energy Meeting - 16 Nov 2017 Notes

Terry,

Thank you for capturing the meeting. I am offering some comments in red below.

From: Oswell, Terry

Sent: 2017, November 16 1:51 PM

To: (22), (19)

Subject, crew Linergy meeting

anything to add before sending this onto Andrew, Stephen, Scott and Kofi?

nd myself from BC Hydro; Paul Dever and Kevin Evers from Attendance at the meeting was Crew Energy

gave an update of the status of construction at Site C, with emphasis that the right bank in general is very sensitive with 20-30 mm of movement seen so far (displacements are similar in magnitude as predicted displacements) we should point out that the movement observed is in line with what was expected) and that the inlet portal excavation is also very sensitive. Movements of the slopes are observed with small blasts and rainfall events. The inlet portal excavation is starting now and is expected to continue through winter. Less concerned about seismic induced ground motions with regards to the earthfill structures and tunnels.

noted that BC Hydro is looking into the withstand of the inlet portal structure, beyond the level to which it was designed to.

Paul gave a summary of the June 9 meeting with BC Hydro, noting that they now have Well Authorization from the OGC for Pad 3032 which is fully within the 5 km buffer zone. There will be 10 wells from this pad. This Well Authorization requires that Crew Energy notify between 21 and 45 days (before drilling and before completion). They will send this

notification to the DSOP email address with copy to my address. I need to check that the DSOP Process contains the information the DSOP needs to act on the notification email (post-meeting check – it does contain instructions to forward the email to me). They also have authorization to drill from Pad 421 which is immediately adjacent to the buffer zone and although the Well Authorization doesn't require they notify us for this pad, they plan to because some wells may cross the 5 km buffer zone by a few meters. They may drill from this pad first. Work is expected to start in January.

Kevin gave a hard copy presentation on well activity since the June meeting. They have completed 7 pads and for each pad, they showed a map with the location of all measured seismic events for the period of well activity, in addition to the location of major faults (publically available information) and smaller faults that they have identified. The highest recorded event was magnitude 1.92. Only one event was measured within the buffer zone, magnitude 0.78 on November 4. Crew Energy have two ground motion accelerometers that are moved around as required and buried in the ground in a concrete vault. They are required to submit a record of ground motions exceeding 0.02g to the OGC within 30 days after operations complete. It's possible that the requirement for movements to report on will decrease to anything over 0.008g starting in January but apparently this date is a moving target. The set of slides is not available until Kevin gets permission to share them – they may decide to provide us with a summary of the significant events and distance from the well.

With work possibly starting in or near the buffer zone in January, we should expect our first formal notification to arrive in December. If BC Hydro wants to have any conditions other than what Crew Energy is already doing, we will need to decide what we want fairly soon and then inform the OGC.

As interest, Paul and Kevin noted that there is an Induced Seismicity Workshop being held in Calgary on December 4.

Terry Oswell | Dam Safety Program Engineer, Dam Safety

BC Hydro 6911 Southpoint Dr, 10th floor Burnaby, BC V3N 4X8

P 604 528 2187

E terry.oswell@bchydro.com

bchydro.com

Smart about power in all we do.