
From: Cory Warnock
Sent: Thursday, January 02, 2014 4:04 PM
To: waterlaw@uci.net
Cc: Mike Salzetti
Subject: RE: Grant lake email thread

Harold,

As with all initial licensing processes, the timeline for development and submittal of a license application is a bit of a moving target that is constantly being refined and narrowed down as the overall process progresses. That said, we will be planning a series of meetings with stakeholders to discuss the results of our natural resource studies in the next couple months. These discussions will be conducted synonymously with our engineering feasibility work. As such, our current plan is to submit a license application sometime in early 2015 but to pin that down to a specific month at this point would be premature and unfair to the process. Additionally, all of our study plans that are currently posted to the website (see the "Provisions for Technical Review" Section), have a schedule associated with them. I hope this helps somewhat.

Let me know if you have any questions,

Cory

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

From: H Shepherd CWA [mailto:waterlaw@uci.net]
Sent: Monday, December 30, 2013 4:57 PM
To: Cory Warnock; waterlaw@uci.net
Cc: Mike Salzetti
Subject: RE: Grant lake email thread

Cory:

I have reviewed the website you provided below but cannot find any information on an expected timeline for the FERC licensing application. Can you provide me with such time line or point out on the website where I can find it? Thanks again.

Harold

BODY { font-family:Arial, Helvetica, sans-serif;font-size:12px; }

On Mon 12/02/13 3:57 PM , Cory Warnock wrote:

Hello Mr. Shepherd, Thanks for your interest in the project. I'll get your name added to our general distribution list. Additionally, the Kenai Hydro website (<http://www.kenaihydro.com/>) is kept up to date with proceedings and final documents for your review. As you have questions, don't hesitate to let me know, Cory Cory WarnockSenior Licensing and Regulatory Consultant McMillen, LLCwww.mcmillen-llc.com5771 Applegrove Ln.Ferndale, Wa. 98248O – 360-384-2662C – 360-739-0187F – 360-542-2264 From: H Shepherd CWA [mailto:waterlaw@uci.net]
Sent: Monday, December 02, 2013 11:47 AM
To: Cory Warnock; H Shepherd CWA
Subject: Re: Grant lake email thread
Mr. Warnock:

Please add me to the list-serve for the Work Group related to any information re: the Grant Lakes Hydropower project. Thank you.

Harold Shepherd, Director
Center for Water Advocacy
P.O. Box 2903
909 3rd Ave., Ste 7
Seward, AK 99664
(907)224-3887

>On Tue 11/12/13 6:32 PM , Mark Luttrell wrote:

>On Sep 13, 2013, at 12:55 PM, Jan Konigsberg jan@hydroreform.org> wrote:

>

>----- Forwarded message -----

>From: Miller, Monte D (DFG)monte.miller@alaska.gov>

>Date: Mon, Sep 9, 2013 at 12:04 PM

>Subject: RE: Grant Lake Project Work Groups

>To: Cory Warnock cory.warnock@mcmillen-llc.net>, "Alstrom, Audrey D
>(AIDEA)" aalstrom@aidea.org>, "Barbara Stanley (bstanley@fs.fed.us)"
>bstanley@fs.fed.us>, "Brenda Trefon (btrefon@kenaitze.org)"
>btrefon@kenaitze.org>, "Goodrum, Brent W (DNR)"
>brent.goodrum@alaska.gov>, "Cassie Thomas (cassie_thomas@nps.gov)"
>cassie_thomas@nps.gov>, "Griffin, David W (DNR)"
>david.griffin@alaska.gov>, "Schade, David W (DNR)"
>david.w.schade@alaska.gov>, "Denise Koopman
>(denise.koopman@usace.army.mil)" denise.koopman@usace.army.mil>,
>"douglas_mutter@ios.doi.gov" douglas_mutter@ios.doi.gov>, "Ott, Douglas
>C (AIDEA)" dott@aidea.org>, "Eric Rothwell (eric.rothwell@noaa.gov)"
>eric.rothwell@noaa.gov>, "Litchfield, Virginia P (DFG)"
>ginny.litchfield@alaska.gov>, "Jan Konigsberg (jan@hydroreform.org)"
>jan@hydroreform.org>, "Mouw, Jason E B (DFG)" jason.mouw@alaska.gov>,
>"Jeffry Anderson (Jeffry_Anderson@fws.gov)" Jeffry_Anderson@fws.gov>,
>"Klein, Joseph P (DFG)" joe.klein@alaska.gov>, "Bittner, Judith E
>(DNR)" judy.bittner@alaska.gov>, "K.J. Muschovic (kjmushovic@blm.gov)"
>kjmushovic@blm.gov>, "Katherine McCafferty
>(katherine.a.mccafferty2@usace.army.mil)"

>katherine.a.mccafferty2@usace.army.mil>, "Ken Hogan
>(kenneth.hogan@ferc.gov)" kenneth.hogan@ferc.gov>, "Kevin Laves
>(klaves@fs.fed.us)" klaves@fs.fed.us>, "Sager, Kimberly R (DNR)"
>kimberly.sager@alaska.gov>, "Schick, Lesli J (DNR)"
>lesli.schick@alaska.gov>, "lynnda_kahn@fws.gov" lynnda_kahn@fws.gov>,
>"Walton, Michael L (DNR)" michael.walton@alaska.gov>, "Mike Cooney
>(mcooney@arctic.net)" mcooney@arctic.net>, "Russell, Pamela J (DNR)"
>pamela.russell@alaska.gov>, "Berkhahn, Patricia G (DFG)"
>patricia.berkhahn@alaska.gov>, "Paul Torgerson
>(paul@grantlakemining.com)" paul@grantlakemining.com>, "Phil Brna
>(phil_brna@fws.gov)" phil_brna@fws.gov>, "Ricky Gease
>(ricky@kenairiversportfishing.com)" ricky@kenairiversportfishing.com>,
>"Robert Stovall (rstovall@fs.fed.us)" rstovall@fs.fed.us>, "Swinford,
>Robin E (DNR)" robin.swinford@alaska.gov>, "Duvall, Shina A (DNR)"
>shina.duvall@alaska.gov>, "Sue Walker (susan.walker@noaa.gov)"
>susan.walker@noaa.gov>, "tomharkreader@gmail.com"
>tomharkreader@gmail.com>, "Travis Moseley (tmoseley@fs.fed.us)"
>tmoseley@fs.fed.us>

>Cc: Mike Salzetti msalzetti@homerelectric.com>, Emily Andersen
>emily.andersen@mcmillen-llc.net>

>
>

>Cory, Please include me in both groups. I appreciated the opportunity
>to attend the site visit. It appears that the efforts on site to
>maintain the ability to collect data have been successful. This has
>occurred under challenging conditions and I hope that the effort will
>continue long enough to collect some coho data as well. The closer to
>cold weather, the more challenging it will become to stay at the site
>and collect data. It will be very interesting to review the data
>collected. Others have probably mentioned concern regarding generator
>and fuel storage containment. There are probably some permit compliance
>issues there as well. Our concerns are with possible fuel spills into
>the watershed. Please comply with standard fuel containment practices.
>Someone stated that containment equipment was on site but had not been
>placed in use. If so, this is an easy correction. Thanks. Monte D.
>Miller

>Statewide FERC Hydropower Coordinator

>Alaska Department of Fish and Game

>Division of Sport Fish / RTS

>333 Raspberry Road

>Anchorage, Alaska, 99518-1565

>(907) 267-2312 From: Cory Warnock

>Sent: Monday, September 09, 2013 10:31 AM

>To: Alstrom, Audrey D (AIDEA); Barbara Stanley (bstanley@fs.fed.us);

>Brenda Trefon (btrefon@kenaitze.org); Goodrum, Brent W (DNR); Cassie
 >Thomas (cassie_thomas@nps.gov); Griffin, David W (DNR); Schade, David W
 >(DNR); Denise Koopman (denise.koopman@usace.army.mil);
 >douglas_mutter@ios.doi.gov; Ott, Douglas C (AIDEA); Eric Rothwell
 >(eric.rothwell@noaa.gov); Litchfield, Virginia P (DFG); Jan Konigsberg
 >(jan@hydroreform.org); Mouw, Jason E B (DFG); Jeffry Anderson
 >(Jeffry_Anderson@fws.gov); Klein, Joseph P (DFG); Bittner, Judith E
 >(DNR); K.J. Muschovic (kjmushovic@blm.gov); Katherine McCafferty
 >(katherine.a.mccafferty2@usace.army.mil); Ken Hogan
 >(kenneth.hogan@ferc.gov); Kevin Laves (klaves@fs.fed.us); Sager,
 >Kimberly R (DNR); Schick, Lesli J (DNR);lynnda_kahn@fws.gov; Walton,
 >Michael L (DNR); Mike Cooney (mcooney@arctic.net); Miller, Monte D
 >(DFG); Russell, Pamela J (DNR); Berkhahn, Patricia G (DFG); Paul
 >Torgerson (paul@grantlakemining.com); Phil Brna (phil_brna@fws.gov);
 >Ricky Gease (ricky@kenairiversportfishing.com); Robert Stovall
 >(rstovall@fs.fed.us); Swinford, Robin E (DNR); Duvall, Shina A (DNR);
 >Sue Walker (susan.walker@noaa.gov);tomharkreader@gmail.com; Travis
 >Moseley (tmoseley@fs.fed.us)

>Cc: Mike Salzetti; Emily Andersen

>Subject: Grant Lake Project Work Groups Grant Lake Hydroelectric
 >Project (FERC No. 13212) Natural Resources Study Stakeholder Group: Hi
 >all, I wanted to start by saying thank you to those who attended the
 >Grant Creek site visit and I hope that you all found it beneficial. I
 >thought it was a great turn-out and was very pleased that the weather
 >decided to cooperate! As I mentioned, if anyone has any follow-up
 >questions, please don't hesitate to let me know. I wanted to let you
 >all know about a process change that we will be implementing in the
 >interest of increased efficiency and collaboration. As I eluded to
 >during the site visit, HEA will be developing a separate "Aquatics Work
 >Group" (AWG). This group will responsible for discussing all matters
 >associated with aquatics issues (fisheries, aquatic habitat, aquatic
 >nutrients, instream flow, etc.) related to the Grant Lake Project.
 >Given the number of studies and level of interest in this specific
 >discipline, having a separate work group to discuss this area, makes
 >sense from an efficiency standpoint. As such, the AWG meeting related
 >to the upcoming 2013 study reports/data review will be held separate
 >from the other natural resource areas (Water Resources, Terrestrial,
 >Recreation/Visual), which will have their meeting in a grouped fashion.
 >For the purposes of consistency, we will begin calling this other group
 >the "Natural Resource Work Group" (NRWG). These two meetings will be
 >staggered by approximately one month (NRWG first) and both will take
 >place in the first two months of next year. One note...I definitely see
 >the potential need for our Water Resources lead to participate in some
 >of the AWG proceedings. Our lead has been prepped and will be present
 >at both sets of meetings if the need is there. I suspect it will be
 >given the relationship between hydrology and fish presence/habitat
 >quality. The only thing that I'd ask of all of you at this point is to
 >please write back and indicate which group you'd like to be a member
 >of. I fully appreciate and understand that some of you are responsible
 >for multiple natural resource areas for your agencies and may want to
 >be a part of both groups and that is fine. That said, some of you do
 >not have a vested responsibility in some areas and as such, the goal of

>the separate AWG is to create a more focused group of aquatic
>representatives to collaborate on the rather large suite of studies
>that are taking place in that area this year. So with that, please get
>back to me on the group(s) that you'd like to be a part of. To give you
>a tentative idea of our planned report distribution and meeting
>schedule, we are working toward the following: · Draft 2013 Water
>Resources, Terrestrial and Rec/Vis Reports to Stakeholders - mid to
>late December (2013)

>· Water Resources, Terrestrial and Rec/Vis Study Results Meeting - mid
>January (2014)

>· Draft 2013 Fisheries, IFIM and Aquatic Nutrients Reports to
>Stakeholders - mid to late January (2014)

>· Fisheries, IFIM and Aquatic Nutrients Study Results Meeting - mid
>February (2014)

>

>* Cultural Resources will follow the standard path for these types of projects.

>Obviously, additional detail will follow as we get closer, groups get
>established and schedules get refined. In the interim, please don't
>hesitate to shoot me an email or give me a call with any
>questions/concerns. Please get back to me related to the work group(s)
>you'd like to be a part of. Again, thank you for your attendance at the
>site visit and I look forward to continuing to establish a
>collaborative process going forward, Cory Cory WarnockSenior Licensing
>and Regulatory Consultant McMillen, LLC<http://www.mcmillen-llc.com5771>"
>target="_blank">www.mcmillen-llc.com5771 Applegrove Ln.Ferndale, Wa.
>982480 - 360-384-2662C - 360-739-0187F - 360-542-2264

No virus found in this message.

From: Ayers, Scott D (DFG) <scott.ayers@alaska.gov>
Sent: Friday, January 03, 2014 12:35 PM
To: John Stevenson
Cc: 'Mark Miller'; Cory Warnock; Emily Andersen
Subject: RE: Fish Resource Permit SF2013-105 (Salzetti/Homer Electric-grant creek/trail lake narrows-local species)
Attachments: image002.gif; image003.jpg

Thank you John, much appreciated.

From: John Stevenson [<mailto:john.stevenson@bioanalysts.net>]
Sent: Friday, January 03, 2014 11:03 AM
To: Ayers, Scott D (DFG)
Cc: 'Mark Miller'; 'Cory Warnock'; 'Emily Andersen'
Subject: RE: Fish Resource Permit SF2013-105 (Salzetti/Homer Electric-grant creek/trail lake narrows-local species)

Hi Scott,

I will include the permit number in future correspondence. Also, as you will note I did not include the completion report at this time as it is currently being reviewed internally within our research group, but a final draft will be sent to you prior to the May deadline.

Thanks, John

From: Ayers, Scott D (DFG) [<mailto:scott.ayers@alaska.gov>]
Sent: Friday, January 03, 2014 11:24 AM
To: John Stevenson
Cc: Mark Miller; 'Cory Warnock'; Emily Andersen
Subject: RE: Fish Resource Permit SF2013-105 (Salzetti/Homer Electric-grant creek/trail lake narrows-local species)

Hi John,

Thank you for the collections report for the Grant Creek project permitted under the FRP SF2013-105. I will be back in touch after I find time to review the file that you have sent. This email will serve as a confirmation of receipt. Please remember to always use the correct subject line when corresponding about this permit. I deal with upwards of 300 permits per year, with overlapping years, and so having this information with the email helps me to quickly identify the permit and relevant information.

Thank you,
-Scott

Scott D Ayers
Fish Resource Permit Program Coordinator
Alaska Department of Fish and Game
Division of Sport Fish
333 Raspberry Road
Anchorage, AK 99518

(907) 267-2517 – phone (907) 267-2464 – fax
scott.ayers@alaska.gov

From: John Stevenson [<mailto:john.stevenson@bioanalysts.net>]
Sent: Tuesday, December 31, 2013 2:35 PM
To: Ayers, Scott D (DFG)
Cc: Mark Miller; 'Cory Warnock'; Emily Andersen
Subject: Grant Creek Data Submission

Hi Scott,

Attached is our data submission form for Grant Creek. Please note that for all radio-tagged fish, I entered the channel/code in the comment column, and our tags were on 148 MHz using the channel designations developed by Lotek Engineering (i.e., channel 1 is frequency 148.320, channel 2 is 148.340, etc.). As we discussed on the phone, all juveniles that were marked using Bismark Brown dye are also identified in the comment column. If you have any questions, let me know.

Thanks, John

John R. Stevenson
Fisheries Biologist
BioAnalysts, Inc.
16541 Redmond Way, #339
Redmond, WA 98052
(425) 883-8295; (206) 390-7116 (cell)



From: Reimer, Adam M (DFG) <adam.reimer@alaska.gov>
Sent: Monday, January 06, 2014 1:54 PM
To: John Stevenson; Cory Warnock
Cc: 'Mike Salzetti'; Emily Andersen; Mark Miller
Subject: RE: Grant Lake Chinook Scale Samples

Thank you.

From: John Stevenson [mailto:john.stevenson@bioanalysts.net]
Sent: Monday, January 06, 2014 12:26 PM
To: 'Cory Warnock'
Cc: Reimer, Adam M (DFG); 'Mike Salzetti'; 'Emily Andersen'; Mark Miller
Subject: RE: Grant Lake Chinook Scale Samples

Hi Adam,

The total number of Chinook that passed upstream of the Grant Creek weir in 2013 was 33; and of those, 20 were <750 mm MEF length. I have attached an Excel spreadsheet that provides information on all 33 fish, such as weight, length, sex, the date of sampling, and floy and radio tag numbers and channel/code combinations, respectively. If you have any further questions, let me know.

Thanks, John

From: Cory Warnock [mailto:cory.warnock@mcmillen-llc.net]
Sent: Monday, January 06, 2014 11:46 AM
To: John Stevenson
Cc: Reimer, Adam M (DFG) (adam.reimer@alaska.gov); Mike Salzetti; Emily Andersen
Subject: FW: Grant Lake Chinook Scale Samples

Hi John,

Given that we are currently going through the review of the Aquatics Report and the numbers aren't truly final, I wanted to request that you please provide Adam (Cc'd) with answers to the 2 questions below (highlighted). You have my approval to do this in advance of providing the draft report to stakeholders.

Please keep Emily and I Cc'd on correspondence.

Thanks.

From: Reimer, Adam M (DFG) [mailto:adam.reimer@alaska.gov]
Sent: Monday, January 06, 2014 11:29 AM
To: Cory Warnock
Cc: Emily Andersen
Subject: RE: Grant Lake Chinook Scale Samples

Ideally we would like to know 2 things;

- 1) The total number of Chinook salmon swimming past the Grant Creek weir in 2013.

2) The total number of Chinook salmon swimming past the Grant Creek weir in 2013 that were greater than 750 mm MEF.

These quantities are inputs for an abundance estimation model we have developed over the past few years. Grant Creek Chinook salmon are genetically distinct from other stocks of Kenai River Chinook salmon and our model works by scaling genetic and radio telemetry estimates of stock composition by known abundances for genetically distinct stocks. In the case of Grant Creek we know the passage was small, and thus the effect on the model's output will be minor, however every time the model is discussed someone asks if we have included the Grant Creek weir. I'm just trying to be able to answer yes to that question.

Thanks, Adam

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Monday, January 06, 2014 10:20 AM
To: Reimer, Adam M (DFG)
Cc: Emily Andersen
Subject: RE: Grant Lake Chinook Scale Samples

Hi Adam,

You are correct and if I can, I will. Could you please let me know specifically what you are looking for (I assume just adult Chinook passage?), I'll see what I can do.

Thanks.

From: Reimer, Adam M (DFG) [<mailto:adam.reimer@alaska.gov>]
Sent: Monday, January 06, 2014 11:19 AM
To: Cory Warnock
Subject: RE: Grant Lake Chinook Scale Samples

Hi Cory, At one point (see below) you mentioned being able to get me some information before the report is released. Is that no longer possible? Thanks, Adam

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Thursday, January 02, 2014 2:28 PM
To: Reimer, Adam M (DFG)
Subject: RE: Grant Lake Chinook Scale Samples

Hi Adam,

We are currently in the process of reviewing the Aquatic Report and plan to have a draft ready for stakeholders in a couple weeks. Once ready, I'll get you a copy.

Cory

From: Reimer, Adam M (DFG) [<mailto:adam.reimer@alaska.gov>]
Sent: Tuesday, December 31, 2013 2:17 PM
To: Cory Warnock
Subject: RE: Grant Lake Chinook Scale Samples

Hi Cory, Any update of the Grant Creek passage estimate? Thanks, Adam

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Monday, December 09, 2013 8:53 AM
To: Reimer, Adam M (DFG)
Subject: RE: Grant Lake Chinook Scale Samples

Hi Adam,

That is possible. It is also possible that they didn't include jacks in their weir count but did collect scales. I'll follow up with you once I see the draft report in about a week.

That work?

Thanks.

From: Reimer, Adam M (DFG) [<mailto:adam.reimer@alaska.gov>]
Sent: Monday, December 09, 2013 9:52 AM
To: Cory Warnock
Subject: RE: Grant Lake Chinook Scale Samples

Ok thank you. I understand that you are still writing things up.

I work in the same office that aged the scales for this project. I'm told that we aged 33 Chinook salmon scale samples, ostensibly from Grant Creek. Were some of those sampled below the weir or in other locations?

Adam

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Monday, December 09, 2013 8:07 AM
To: Reimer, Adam M (DFG)
Subject: RE: Grant Lake Chinook Scale Samples

Hi Adam,

I want to caveat the number I give you by saying that our fisheries subconsultant is currently analyzing all of the data collected and developing a comprehensive report for those efforts so the number I give you is preliminary but very likely accurate given the level of detail with which our studies were implemented. The report and associated data that is included/discussed therein, will be the final numbers for weir passage and that will be available on our website once completed and vetted with stakeholders (including ADF&G). All that said, and based upon our preliminary data, a total of 23 Chinook passed the weir on Grant Creek this year. Please keep in mind that this included some jacks.

Thanks and let me know if you have any questions,

Cory

From: Reimer, Adam M (DFG) [<mailto:adam.reimer@alaska.gov>]
Sent: Wednesday, December 04, 2013 4:30 PM
To: Cory Warnock
Subject: FW: Grant Lake Chinook Scale Samples

Hi Cory,

Is there any way we could find out how many Chinook salmon passed the Grant Creek weir this year?

CIAA No.	Date	Species	Length	Weight	Sex	Floy Tag	Channel/Code
1	11-Aug	CK	641	4530	M	1	
2	12-Aug	CK	669	5300	M	2	
3	13-Aug	CK	808	8400	M	3	7/51
4	14-Aug	CK	705	5410	M	4	
6	16-Aug	CK	624	4010	M	8	
5	16-Aug	CK	609	4090	M	6	
7	17-Aug	CK	689	4810	M	9	
8	17-Aug	CK	696	5060	M	10	
14	18-Aug	CK	701	5310	M	16	
10	18-Aug	CK	689	5370	M	12	
13	18-Aug	CK	812	7560	F	15	5/12
12	18-Aug	CK	880	10510	F	14	8/72
11	18-Aug	CK	970	14280	M	13	
9	18-Aug	CK	960	14670	M	11	
15	19-Aug	CK	887	11220	F	17	6/32
16	20-Aug	CK	375	600	M		
19	22-Aug	CK	606	3310	M	20	
17	22-Aug	CK	653	3860	M	18	
18	22-Aug	CK	684	4840	M	19	
20	23-Aug	CK	681	5130	M	21	
21	23-Aug	CK	975	14500	F	22	7/52
23	24-Aug	CK	611	3840	M	25	
22	24-Aug	CK	1036	16440	M	24	
24	26-Aug	CK	574	2300	M		
26	27-Aug	CK	803	7040	M	26	5/13
25	27-Aug	CK	831	7830	F	7	8/73
27	27-Aug	CK	908	10310	M	27	
28	28-Aug	CK	645	4180	M	28	
31	30-Aug	CK	640	3320	M	31	
30	30-Aug	CK	765	5740	M	30	6/33
29	30-Aug	CK	909	11040	F	29	7/53
32	1-Sep	CK	662	4070	M		
33	5-Sep	CK	682	3720	M		

From: Emily Andersen <emily.andersen@mcmillen-llc.net>
Sent: Wednesday, January 08, 2014 7:13 PM
To: Emily Andersen
Subject: FW: Grant Lake Water Tests

From: Grant Lake Mining [<mailto:paul@grantlakemining.com>]
Sent: Wednesday, January 08, 2014 3:14 PM
To: Cory Warnock
Subject: RE: Grant Lake Water Tests

Cory,

Did you sample the water at surface level and at the 20' depth you intend to draw down the lake to construct the intake for the dam? Copper, as a heavy metal did not appear at the surface in significant quantities but was very significant at depths of 10-20 feet. We were told that was why the copper hasn't killed the fish in Grant Creek. Left to run normally, the surface water does not have enough copper in it to kill fish as the copper ions concentrate lower in the water. Drawing down the lake 20' for construction or during normal hydro dam operation could be a different matter altogether. I am concerned that if you intend to draw down the lake below the normal 2-3' that evaporate during summer that it will kill the fish in Grant Creek and possibly Trail Creek. I agree with your assessment that fish do return to Grant Creek "as-is". I am not talking about that. I am talking about you changing the quality of the water supply coming into Grant Creek from the lake. The turbulence that stirs up the water to greater depths could be a major factor I would think

If you would, could you send me copies of the reports you referred too concerning the stocking program or tell me where I can order them? I know that the powers that be back in the 80's got a real black eye over the stocking results. I work a lot with DOE and am very familiar with the government says that if you don't get the results you expect, change the targets. That is why the results from the 70's were repeated. I am interested to see how they summarized the stocking program. I can tell you this, it didn't take a rocket scientist to paddle around in a canoe amongst the dead fish floating on the surface to know something was wrong. If you say the copper isn't there, simply fly over the area. Every other lake in the area is glacier grey in color while Grant Lake in deep green from the copper.

There was a bright side from the 80's stocking program. After noting the results from dumping fish in several spots in the lake, the last drops they did dumped fish right above the falls. This acclimated the smolt to the smell of the water as they went over the falls into the creek. I imagine this is a major factor in why there are fish in Grant Creek.

I worked for Jack Merrington from the early 80's. He owned the mine from 1945 until his death in 1997. He bought it from Case and Whitney. They discovered it in 1911. I was partners with Thor Brant-Erikson from 1997 until his death in 2006, and I am a partner with Tom Harkreader now. We currently own the mine. I think we can prove that it has been a continuous chain of ownership (other than short periods following deaths of principles) since 1911 when Case and Whitney discovered gold on the claim group. As a group, we have worked since 1911 on sections 28, 29, 30 and 31, and Jack also worked on the Solar mine at the headwaters of the lake. He built cabins at the headwaters to

allow him to explore for the copper deposit. It should be obvious that we are not going away as 103 years of claim ownership proves. We intend to mine our claims and follow the vein structures until they end whether on our claims or not. This is allowed under mining law. My point is that as mine owners we have seen Homer Electric interrupt mining activities since the 60's and you still have no dam. Your latest permit has closed down staking for over five years. Even FERC has said it should not have been your intent to impede other industries.

I have experience with hydro's having help design and worked closely with USCOE in construct management on one of the largest dam's in the US, and I know what minor changes in water quality can do to fish smolt, having helped design the fish hatchery at Fort Richardson. I am not anti-hydro by any means. I am against any utility that uses a FERC permitting process to close down other job creating business enterprises. Your statements in one of your earlier letters that you need all the snow melt water from the entire watershed proves the marginal viability of the project. Grant Lake is ideal for mining because the lake is dead – not commercial or recreational fish. Any water our mining activities discharges back into the lake creates a zero negative effect. You can't kill an already dead lake. Plus any silt we would discharge has over two miles to settle before your intake.

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This has been a very good dialog.

Very Best Regards,

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Sent: Wednesday, January 08, 2014 11:46 AM
To: Grant Lake Mining
Cc: Mike Salzetti; Emily Andersen
Subject: RE: Grant Lake Water Tests

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custody information) well within the delivery and analysis parameters associated with this kind of work. Again this type of approach is the standard and widely accepted for assessments such as this.

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In the interim, if you have any more questions, let me know.

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Am I to understand that a limnologist or hydrologist will perform the same chemical examinations for heavy metals that a geochemist would?

Please give me your thoughts.

Best regards and thanks for the quick response.

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Subject: Re: Grant Lake Water Tests

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Our Water Resources Report will discuss our water sampling results along with a myriad of other analyses conducted in association with this component of our natural resource effort. The report is currently going through our internal review process after which, it will be distributed to stakeholders for their review in advance of our 2013 study results meetings. This distribution will take place in the next month. As is standard with this type of technical work, all of our study planning, technical work, analysis and report preparation was and is being conducted by professional limnologists and hydrologists that are intimately familiar with both these types of studies and hydro licensing/relicensing.

As always, if you have further questions, don't hesitate to let me know.

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Please get back to me via email or phone.

Very Best Regards,

Paul T. Torgerson
White Rock Mine
Phone: (907) 222-7685
paul@grantlakemining.com

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Version: 2014.0.4259 / Virus Database: 3658/6986 - Release Date: 01/08/14

Grant Lake Hydroelectric Project (FERC No. 13212) Licensing

Consultation Record

Phone/E-mail /One on One Meeting Log

Contact Names: Ken Hogan

Agency/Organization: FERC

Phone No./E-mail Address: 202-502-8434

Date: 1/9/14

Time: 10:00-10:40

Grant Lake Licensing Team Contact: Cory Warnock

Summary of Conversation and/or E-mail Exchange:

Mr. Warnock called Mr. Hogan to discuss 3 topics:

1. Progress update related to the overall Grant Lake licensing effort.
2. Kenai Hydro's (KHL) collaborative process development and plan with stakeholders related to a re-route of the Iditarod National Historic Trail (INHT) in the Project area.
3. Grant Lake Mining's (specifically Paul Torgerson) inquiries and accusations associated with KHL's licensing effort.

Grant Lake Licensing Effort Update

Mr. Warnock updated Mr. Hogan on progress related to the natural resources study effort. He informed him of the current development plan for resource reports and that meetings would be held (likely in March) to discuss the results of the 2013 studies with stakeholders. Mr. Warnock committed to continuing to keep Mr. Hogan updated on progress and on scheduling of the aforementioned meetings.

INHT Re-route

Mr. Warnock gave Mr. Hogan a brief description of the proposed INHT and stated that based upon the current project design, the trail (when constructed) would essentially run directly through the proposed location of the powerhouse. He continued that a series of collaborative discussions have occurred between KHL (and representatives) and the requisite stakeholders to discuss the appropriate approach for an approved re-route of the trail through the necessary area. Mr. Warnock stated that KHL had done some additional analysis to develop feasible options for the re-route that (based on recreation and visual assessment) not only moved the trail away from the powerhouse location but actually improved the user experience. These results were discussed in-depth with the stakeholders at a meeting in November and all parties began to collaboratively establish a process for reaching agreement on a re-route (see INHT meeting minutes summary).

Mr. Hogan inquired as to the ownership of the land associated with the proposed trail and Mr. Warnock informed him that it was on state land and that all of the appropriate permits and easements had been established but the actual trail was not constructed yet. Mr. Warnock went on to state that the parties had agreed to an approach that generally entailed KHL drafting a Memorandum of Understanding (MOU) documenting the specific re-route to be established along with all of the specific process aspects. KHL would also go through all of the appropriate steps to modify the easement and would likely assume some role in paying for the re-route of the trail through the area. The MOU would then need to be signed by all requisite parties:

- Kenai River Special Management Area
- US Forest Service
- Alaska Department of Natural Resources
- Kenai Peninsula Borough

Mr. Warnock stated that KHL's intent was to develop as much of an agreement with the appropriate entities as possible in advance of the development of the license application (LA). All of that agreement and associated process discussion would then be incorporated into the LA for FERC's review and approval. Then, if and when the license was approved, KHL would be able to not only move forward with development of the project but the re-route as well. Mr. Hogan stated that that sounded like a solid approach and agreed that reaching collaboration with stakeholders was the preferable approach and documentation of these efforts and the agreed upon re-route should be incorporated into the mitigation section of the LA. He then stated that if for some reason agreement couldn't be reached among the parties that KHL should still document their preferred re-route alternative in the LA. If this were the case and given that the issue falls under Section 106 jurisdiction, FERC can evaluate the proposed re-route and make an independent determination as to whether it was acceptable and include its approval (if deemed appropriate) in the license order.

Grant Lake Mining Inquiries

Mr. Warnock updated Mr. Hogan on the ongoing correspondence he (acting as a representative of KHL) is receiving from Mr. Paul Torgerson of Grant Lake Mining. Mr. Hogan stated that he had also received a call from Mr. Torgerson approximately 6 months ago inquiring about the

Bureau of Land Management (BLM) and associated processes related to mining claims. Mr. Warnock stated that initial conversations initiated by Mr. Torgerson had been in the vein of being a project proponent and potentially purchasing a large amount of the power generated by the project if it was built. Over time however, Mr. Torgerson's correspondences have become more accusatory and threatening in nature. Claims are being made that KHL is simply proposing this project in an effort to circumvent mining activities in the area and prevent other industry from developing. In addition and over time, he has approached both KHL and stakeholders (specifically ADF&G) about his perceived issues at the lake related to copper deposits and the potential for the project to negatively impact water quality in the area. Mr. Warnock stated that he has given Mr. Torgerson ample time and has provided both documentation and descriptive explanations into the overall general licensing process and the specifics related to the Grant Lake Project. In addition, he has committed to providing him access to pertinent water resource study documents and data as they become available so that he can further his understanding of the project, KHL's intent and the specific water quality parameters he has questions about.

Mr. Warnock stated that at this point, given his timely responses and comprehensive explanations and with Mr. Torgerson's more aggressive and unfounded accusatory attitude, continued correspondence is simply misdirected energy that should be used in moving the licensing process forward. As such, Mr. Warnock stated that KHL will be developing a letter to Mr. Torgerson acknowledging his concerns and committing to continued communication, as necessary. Mr. Warnock stated that he would like to include Mr. Hogan's name and email address in the letter to Mr. Torgerson to let him know who our FERC representative was. Mr. Hogan approved and stated that we should Cc the FERC Secretary and file the letter with FERC. Mr. Warnock agreed to do so.

A brief discussion regarding general project progress and next steps took place and the call was adjourned.

From: Cory Warnock
Sent: Thursday, January 09, 2014 12:23 PM
To: Ken Hogan
Subject: FW: Grant Lake Water Tests

Thanks for the call today Ken. With respect to the mining topic and Mr. Torgerson, here is the most recent email string that I referred to today. Simply providing it to you for reference. We will still be formally filing the letter we discussed soon.

Again, thanks for the discussion and I'm sure we'll be talking soon,

Cory

Cory Warnock
Senior Licensing and Regulatory Consultant

McMillen, LLC
www.mcmillen-llc.com
5771 Applegrove Ln.
Ferndale, Wa. 98248
O – 360-384-2662
C – 360-739-0187
F – 360-542-2264

From: Grant Lake Mining [mailto:paul@grantlakemining.com]
Sent: Wednesday, January 08, 2014 3:14 PM
To: Cory Warnock
Subject: RE: Grant Lake Water Tests

Cory,

Did you sample the water at surface level and at the 20' depth you intend to draw down the lake to construct the intake for the dam? Copper, as a heavy metal did not appear at the surface in significant quantities but was very significant at depths of 10-20 feet. We were told that was why the copper hasn't killed the fish in Grant Creek. Left to run normally, the surface water does not have enough copper in it to kill fish as the copper ions concentrate lower in the water. Drawing down the lake 20' for construction or during normal hydro dam operation could be a different matter altogether. I am concerned that if you intend to draw down the lake below the normal 2-3' that evaporate during summer that it will kill the fish in Grant Creek and possibly Trail Creek. I agree with your assessment that fish do return to Grant Creek "as-is". I am not talking about that. I am talking about you changing the quality of the water supply coming into Grant Creek from the lake. The turbulence that stirs up the water to greater depths could be a major factor I would think

If you would, could you send me copies of the reports you referred too concerning the stocking program or tell me where I can order them? I know that the powers that be back in the 80's got a real black eye over the stocking results. I work a lot with DOE and am very familiar with the government says that if you don't get the results you expect, change the targets. That is why the results from the 70's were repeated. I am interested to see how they summarized the stocking program. I can tell you this, it didn't take a rocket scientist to paddle around in a canoe amongst the dead fish floating on the surface to know something was wrong. If you say the copper isn't there, simply fly over the area. Every other lake in the area is glacier grey in color while Grant Lake is deep green from the copper.

There was a bright side from the 80's stocking program. After noting the results from dumping fish in several spots in the lake, the last drops they did dumped fish right above the falls. This acclimated the smolt to the smell of the water as they went over the falls into the creek. I imagine this is a major factor in why there are fish in Grant Creek.

I worked for Jack Merrington from the early 80's. He owned the mine from 1945 until his death in 1997. He bought it from Case and Whitney. They discovered it in 1911. I was partners with Thor Brant-Erikson from 1997 until his death in 2006, and I am a partner with Tom Harkreader now. We currently own the mine. I think we can prove that it has been a continuous chain of ownership (other than short periods following deaths of principles) since 1911 when Case and Whitney discovered gold on the claim group. As a group, we have worked since 1911 on sections 28, 29, 30 and 31, and Jack also worked on the Solar mine at the headwaters of the lake. He built cabins at the headwaters to allow him to explore for the copper deposit. It should be obvious that we are not going away as 103 years of claim ownership proves. We intend to mine our claims and follow the vein structures until they end whether on our claims or not. This is allowed under mining law. My point is that as mine owners we have seen Homer Electric interrupt mining activities since the 60's and you still have no dam. Your latest permit has closed down staking for over five years. Even FERC has said it should not have been your intent to impede other industries.

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Paul T. Torgerson
White Rock Mine
Phone: (907) 222-7685
paul@grantlakemining.com

Grant Lake Hydroelectric Project (FERC No. 13212)
Iditarod National Historic Trail Meeting
Girdwood Ranger District Conference Room Girdwood, AK
November 13, 2013, 1:00 pm to 3:00 pm

In Attendance

Robert Stovall, United States Forest Service (USFS)
Pam Russell, Alaska Department of Natural Resources (ADNR)
John Eavis, USFS
Kathy Van Massenhove, USFS
Lesli Schick, ADNR *[via phone]*
Shina duVall, ADNR *[via phone]*
Mike Salzetti, Kenai Hydro (KHL)
Dwayne Adams, USKH
Kim Graham, USKH
Cory Warnock, McMillen, LLC

Meeting Summary

Introductions and Agenda

Dwayne Adams (USKH) began the meeting with introductions and then reviewed the proposed meeting agenda:

- Project Overview and Update
- Licensing Status
- Iditarod National Historic Trail (INHT) Easement Alternatives
 - Review of mapped route
 - Photo tour of possible solution
- Discussion of Agency Viewpoints
- Review of steps forward for resolution
- Adjourn

Project Description

Mike Salzetti (KHL) presented an overview and history of the Grant Lake Hydroelectric Project (Project) (see PowerPoint included as [Attachment 1](#)). Mike S. gave a general description of the utility, Homer Electric Association (HEA), noting that Kenai Hydro, LLC (KHL), the applicant for the Project, is a wholly-owned subsidiary of HEA. Mike S. shared three primary reasons why HEA was pursuing the Project 1) to meet the Board of Director's and the state of Alaska's goals for an increase in its renewable energy assets; 2) that as its own power producer, HEA now has the generation portfolio and operational control to accommodate renewable energy projects, and 3) to create a long-term, stable energy source in light of higher gas prices and the potential of future gas shortages.

Mike S. briefly described the history of the proposed Project to date, explaining that feasibility studies were conducted for four potential sites (Grant Lake, Falls Creek, Ptarmigan Lake, and Crescent Lake); two of which (Grant Lake and Falls Creek) were carried forward and environmental baseline studies were conducted in 2009. Mike went on to describe why Grant Lake was selected as the preferred Project location. He described the upstream fish passage barrier at the outlet to Grant Lake (beginning of Grant Creek), the steep topography around Grant Lake and the fact that only stickleback and sculpin have ever been documented in the lake. Mike stated that aside from the obvious power potential that exists at the site, these natural resource characteristics make it an attractive site with the likelihood of minimal adverse impacts to the natural environment.

Mike went on to describe the current Project infrastructural proposal, associated operational parameters, etc. He noted that an engineering contractor has been retained and will be working with KHL to refine infrastructure and operations over the next year, in advance of the Draft License Application (DLA) being distributed for stakeholder review. The review of infrastructure included a map documenting not only specific Project operational components but the proposed access road/transmission corridor as well.

Mike then went on to describe the proposed access road and infrastructural issues associated with the INHT. He stated that the primary issues were:

- The access road and trail share a need for the same natural terrain
- Current INHT alignment is co-located with the proposed powerhouse location

Mike indicated that KHL has solved the access road issue by rerouting the proposed access road so that it has just a single 90° crossing of the INHT.

Mike finished his presentation by asking for any questions and stating that all documents related to the licensing that have developed thus far could be found on KHL's website at:

www.kenaihydro.com.

- *Comment:* Pam Russell (ADNR) asked if .pdf'd presentations could be sent to her.
Response: Cory Warnock (McMillen) stated that all meeting documents (agenda, presentations, minutes, etc.) would be posted to the KHL website.
- *Comment:* Pam Russell asked if water temperature changes as a result of turbine operation had been evaluated and if so and the temperatures were adversely impacted, would a change in turbine type be considered.
Response: Mike Salzetti stated that a combination of water quality results from 2013 work and engineering feasibility work would evaluate if any issues existed.
- *Comment:* Robert Stovall (USFS) asked who owned the land on the "Seward Highway" side of Trail Lakes Narrows.
Response: Mike Salzetti (KHL) stated that almost all of the proposed Project was located on State Land but that multiple entities within the State governed various sections of the land. He stated that the area Robert was referring to was governed by as a Kenai River Special Management Area (KRSMA). Pam Russell confirmed this. Mike went on to

state that the Kenai Peninsula Borough has selected land within the Trail Lakes area, including along the shoreline of the Trail Lakes. However, the land has not been conveyed at this point thus the land remains in State hands.

Licensing Overview

Cory Warnock (McMillen) gave a brief summary of the licensing process being utilized by KHL (Traditional Licensing Process). Cory then went on to describe KHL's current status within this process and the fact that 2013 was primarily devoted to conducting a suite of natural resource studies on Grant Creek, Grant Lake and the surrounding Project area. He stated that natural resource reports were currently being developed and next steps included internal completion of those reports and subsequent meetings with stakeholders to discuss results along with continuing engineering feasibility work. All of this is being collaboratively done in advance of the development of the DLA which is currently scheduled for draft distribution to the stakeholders for review in the first half of 2015.

INHT Easement Alternatives

Dwayne Adams (USKH) presented a description of the current INHT and Project layouts and went on to describe the issue and two proposed re-route options (see PowerPoint included as [Attachment 2](#)).

Dwayne began by displaying a map showing the current infrastructural positioning for the Project along with the proposed location for the INHT through the Project area. He went on to state that KHL evaluated the area for an INHT re-route alternative that would:

- Provide separation with Project infrastructure
- Avoid any drainage concerns
- Expose the user to a large variety of forest types
- Maximize views of surrounding lakes and mountains

Dwayne stated that KHL had previously conducted a mapping and on the ground exercise to identify a re-route option in the Project Area. He stated that as part of this recent effort, USKH also conducted an evaluation and he felt that the re-route option USKH has identified accomplishes all of the bullets listed above and, in addition and based upon professional opinion, creates a higher level of global user experience through the area.

Dwayne then displayed photos of the various segments of the preferred alternative (USKH) through the Project area. Emphasis was placed on locations showing what was assessed as improvements to the user experience based on variables such as view, terrain alteration, forest type variety, etc. Special attention was placed on certain areas that provided a unique experience.

Dwayne then went on to describe KHL's current understanding of the process for resolution with the various stakeholders. He acknowledged the somewhat unique nature of the process and opened the floor for discussion and collaboration related to refinement of the re-route process.

- *Comment:* Lesli Schick (ADNR) stated that from a process perspective, the Southcentral Regional Office would approve the re-route of the easement and the State Platting and Survey Department would issue the survey instructions and approve the plat required to issue the easement for re-route.
 - USFS
 - Kenai Peninsula Borough (KPB)
 - KRSMA
 - South Central Regional Office of ADNR

Lesli went on to say that once these four entities agreed, a public notice and agency review would take place that would involve other stakeholder agencies to some degree. She went on to say that from a KPB perspective, Marcus Mueller, KPB Land Management Officer, would be the first contact and then the habitat division would deal with any buffer issues.

A general process discussion then took place involving all parties. Once complete, Cory Warnock (McMillen) attempted to verbally outline the approach for resolution with the following steps:

1. The four principle agencies agree to the proposed reroute
2. A public notice and review period occurs
3. KHL develops a Memorandum of Understanding (MOU) to be reviewed and signed by pertinent parties
4. KHL discusses this approach with FERC to gain informal approval of process in advance of DLA submittal
5. The MOU and associated documentation is incorporated into the License Application for FERC review

The group agreed that in general, this approach was a good starting point but additional review of internal processes and discussion would be needed prior to formalizing the approach.

- *Comment:* John Eavis (USFS) stated that he appreciated Dwayne's presentation and the effort placed in identifying a re-route option that maximized the user experience. He went on to state that the "wilderness experience" associated with the trail was important and asked if the re-route would result in an audible change related to highway noise.
Response: Kim Graham (USKH) stated that during the survey, most of the noise at the site was associated with snow machines and float planes and that it was very intermittent and the noise climaxed quickly and subsided.
- *Comment:* Pam Russell (ANDR) asked if the proposed re-route would impact the money recently put into the "Vagt Lake pull-out".
Response: John Eavis (USFS) stated that it would not.

Dwayne asked if the stakeholders would like to have a site visit to review the proposed re-route location and if so, when. The group did agree that a site visit would be beneficial but the aforementioned process should progress over the winter and then the site visit could occur in late spring/early summer.

- *Comment:* John Eavis stated that there was nothing “magic” about the original route design other than the bridge location across Grant Creek which sought to minimize construction costs. There was no reason that other options couldn’t meet those same expectations with respect to user experience.
- *Comment:* Shina duVall (ADNR) asked about the Section 106 process for the Project and if the INHT trail was assessed during the 2013 Cultural work.
Response: Cory Warnock stated that the INHT was discussed to some extent and the draft Cultural Resources Report was currently in development and meeting planning would be taking place over the next month or so. Dwayne said that he had spoken to Mike Yarborough (Cultural Resource Consultants) and he stated that the proposed INHT was not cited in this area to respond to any historic location and he saw nothing from a historic perspective that would preclude a re-route.

A general process discussion then took place during which, Pam Russell (ADNR) stated that she’d need agreement from Shina’s department (State Historic Preservation Office, (SHPO)) prior to discussing the issue with KRSMA.

- *Comment:* Lesli Schick (ADNR) stated that even if it is determined that the proposed trail doesn’t invoke Section 106 measures, it will require some sort of trail agreement for what it has been designated to be as a commemorative route of the INHT.

Cory Warnock suggested that a portion of the aforementioned Cultural meeting be reserved for discussion related to the INHT. The group agreed.

A bit more global discussion related to a site visit took place and further agreement related to late spring/early summer was gained.

- *Comment:* John Eavis (USFS) stated that eventually, KHL would need to develop the MOU letter and submit to the 4 primary agencies mentioned above. He went on to ask how FERC’s NEPA process plays into things.
Response: Cory Warnock stated that KHL would begin development of the MOU letter after the Cultural (Section 106) meeting. He went on to say that once a process was fully developed with this group, he intended on calling the FERC representative for the Grant Lake Project, Ken Hogan and discussing the approach with him. Given the licensing process being used (TLP) Mr. Warnock stated that developing a collaborative approach prior to receiving FERC input would be the best approach. Mr. Warnock stated that he’d report back to the group once the FERC communication had taken place.
- *Comment:* Lesli Schick (ADNR) reiterated that KHL would also have to submit an application for an easement after the four primary parties concurred on the re-route.

Response: Cory Warnock stated that that was understood and reiterated KHL's intent to develop the MOU letter after the Cultural (Section 106) meeting.

- *Comment:* Mike Salzetti (KHL) asked what level of detail should be included in the MOU letter.

Response: John Eavis (USFS) stated that he'd do some research and get back to KHL with some specifics.

- *Comment:* Lesli Schick (ADNR) stated that she'd be the coordinator for MOU letter evaluation and that it was important to realize that this process will be reviewed as a State project separate of the Section 106 review. What eventually will be needed for formal approval, will be the four primary agencies discussed above to confirm with Lesli the re-route will not adversely impact the trail. She additionally stated that the \$100 application fee could be submitted at any time and would help in identifying it as a current project.

Response: Mike Salzetti (KHL) acknowledged that he understood and stated that KHL would be submitting the fee soon.

- *Comment:* Pam Russell (ADNR) asked if the recent State Supreme Court ruling related to the disposal of land impacted the Project.

Response: Mike Salzetti (KHL) suggested that we keep the court ruling and the INHT issue separate.

- *Comment:* John Eavis and Kathy Van Massenhove (USFS) stated that they would identify the appropriate individuals within the USFS to consult with. They stated that ultimately, the letter from a USFS perspective would be sent to Terry Marceron (Forest Supervisor).

Closing

Dwayne Adams thanked everyone for their participation, acknowledged the value of the meeting and adjourned the proceedings.

Attachments

Attachments are available on the Work Groups page at www.kenaihydro.com.

Attachment 1: KHL Project Presentation

Attachment 2: KHL Re-route Alternatives Presentation*

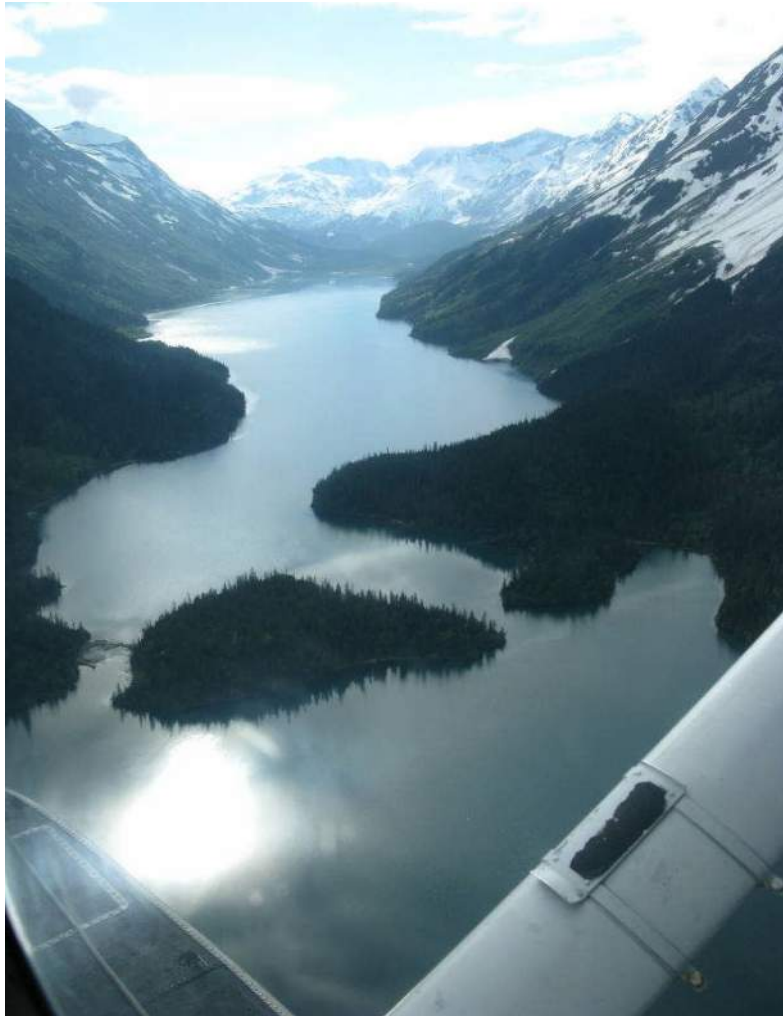
*Filed with FERC as privileged.

Attachment 1

Grant Lake Project History & Overview



GRANT LAKE PROJECT HISTORY & OVERVIEW



Kenai Hydro, LLC
Iditarod National Historic Trail
November 13, 2013
Mike Salzetti



Homer Electric
Association, Inc.
A Treadstone Energy Cooperative



PRESENTATION OVERVIEW



- Introduction to HEA
- Why we are doing this project?
- Project Selection
- Project Overview
- INHT Route Conflicts



Homer Electric
Association, Inc.
A Tractone Energy Cooperative



INTRODUCTION TO HEA



- 157 Employees
- Founded 1945
- Member-Owned Cooperative
- 32,853 Meters
- 2,392 Mile of Energized Line
- 3,166 Sq. Mile of Service Territory
- Sales of 475 GWh/year
- Governed by an Elected Board of Directors



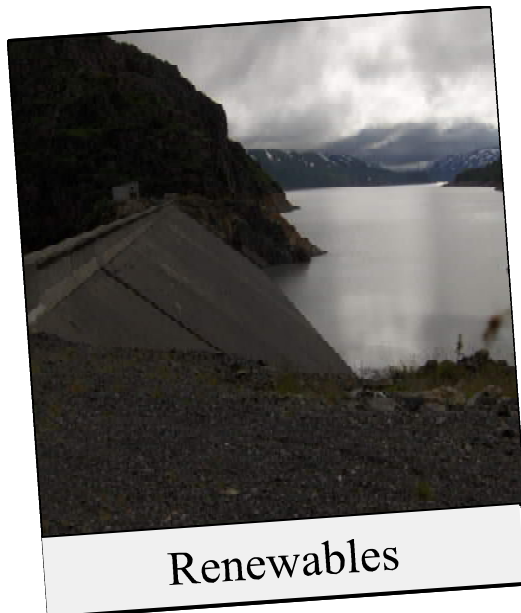
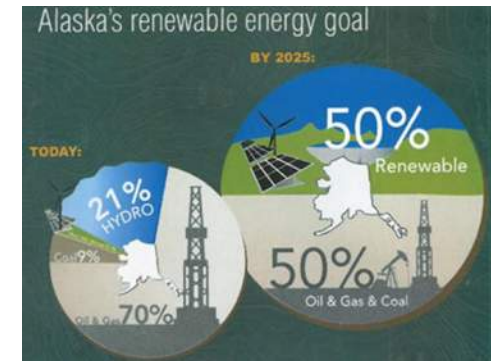
Homer Electric
Association, Inc.
A Traskline Energy Cooperative



WHY



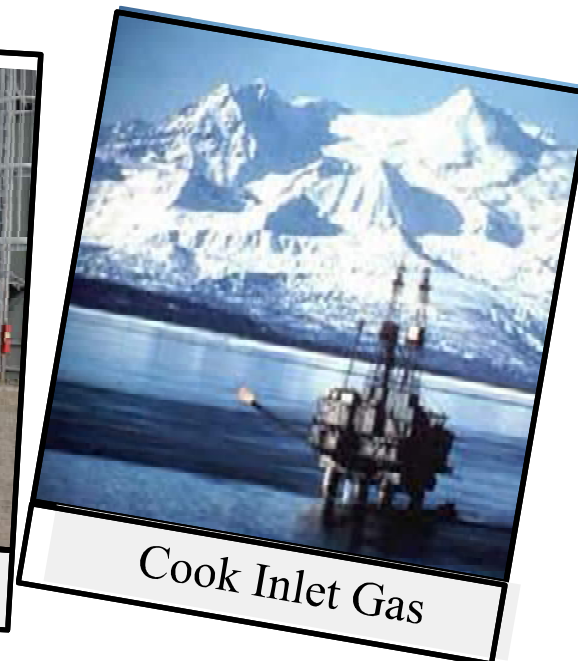
- Board of Directors Goal for Renewable Energy
- Independent Light
- Cook Inlet Gas Situation



Renewables



Independent Light



Cook Inlet Gas



RENEWABLE ENERGY



2011 HEA Demand 475,000 MWh

Grant Lake 19,700 MWh

$$\frac{19,700 \text{ MWh}}{475,000 \text{ MWh}} = 4.15\%$$

Bradley Lake

$$\frac{44,000 \text{ MWh}}{475,000 \text{ MWh}} = 9.26\%$$

Renewable Energy Increase 45



Homer Electric
Association, Inc.
A Trakstate Energy Cooperative



PROJECT SELECTION



Feasibility Studies

- Grant Lake
- Falls Creek
- Ptarmigan Lake
- Crescent Lake



Homer Electric
Association, Inc.
A "Tradition Energy" Cooperative



PROJECT SELECTION



Waterfall

There is a natural
anadromous barrier at the
outlet of Grant Lake.



Homer Electric
Association, Inc.
A Trakstate Energy Cooperative



PROJECT SELECTION



Steep Topology

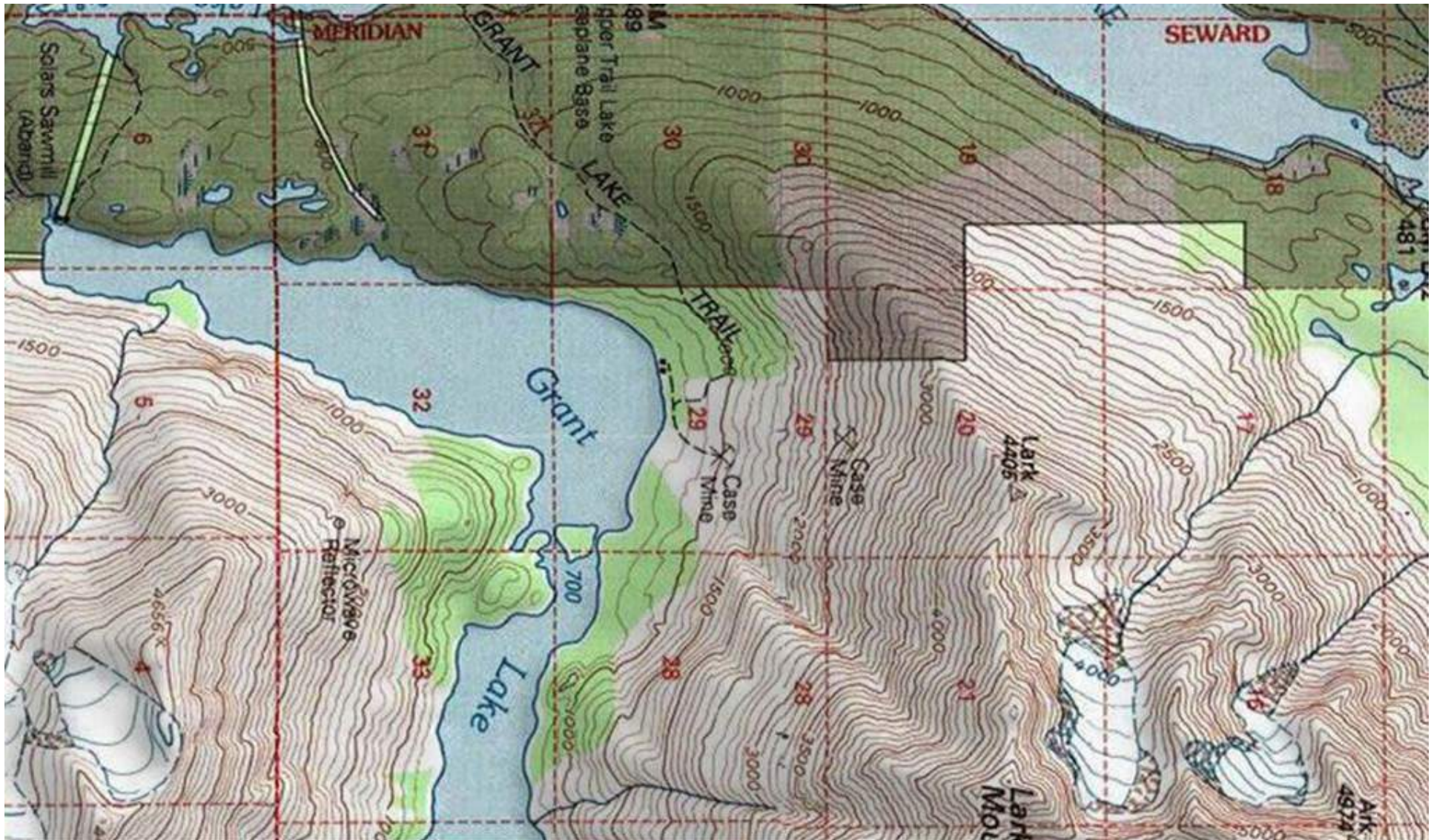
1. Very little inundation associated with lake level rise.
2. Vast majority of the potential energy occurs in the 1st 1/2 mile of stream.



Homer Electric
Association, Inc.
A Traklone Energy Cooperative

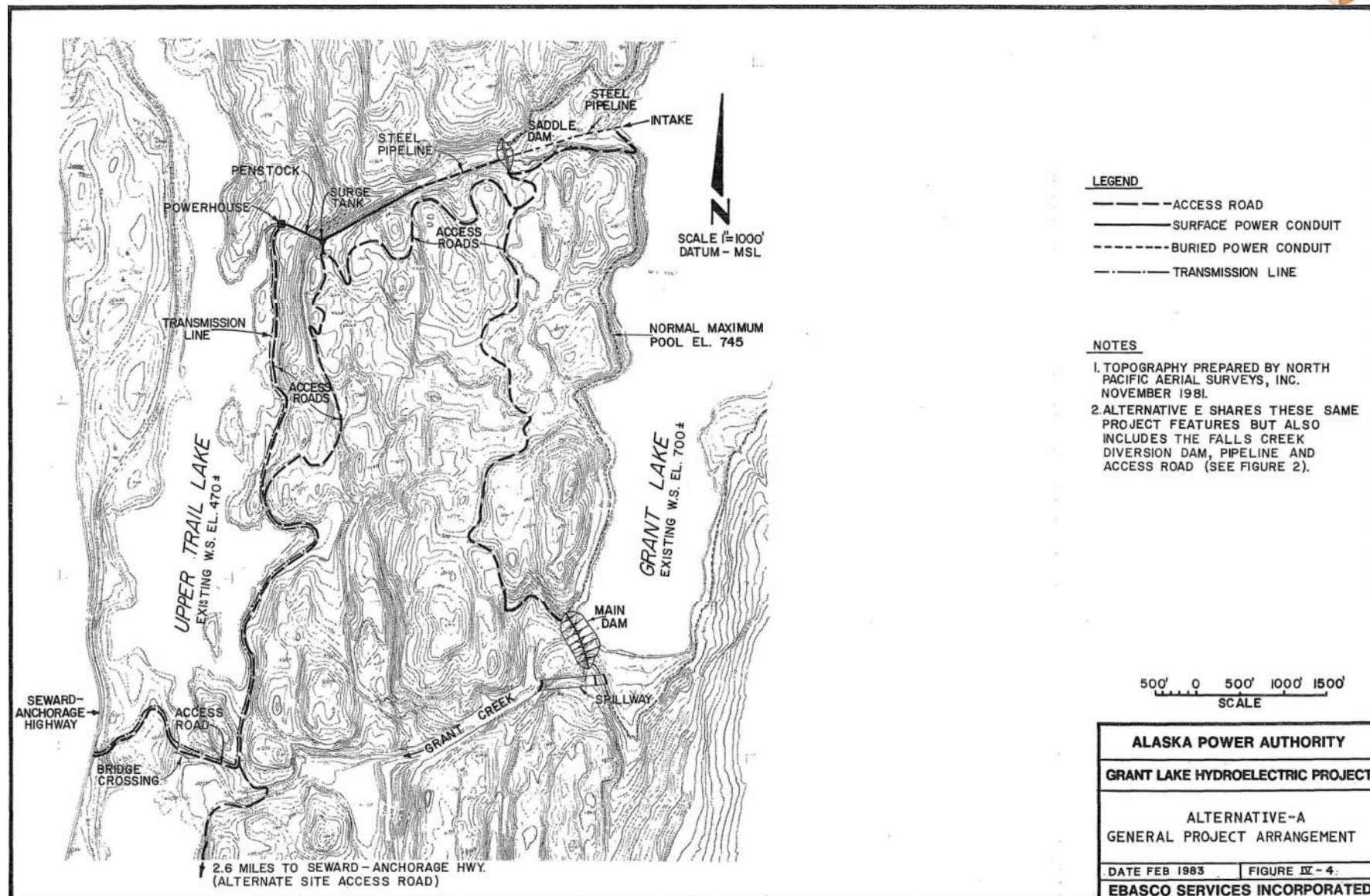


PROJECT SELECTION





PROJECT SELECTION





PROJECT OVERVIEW



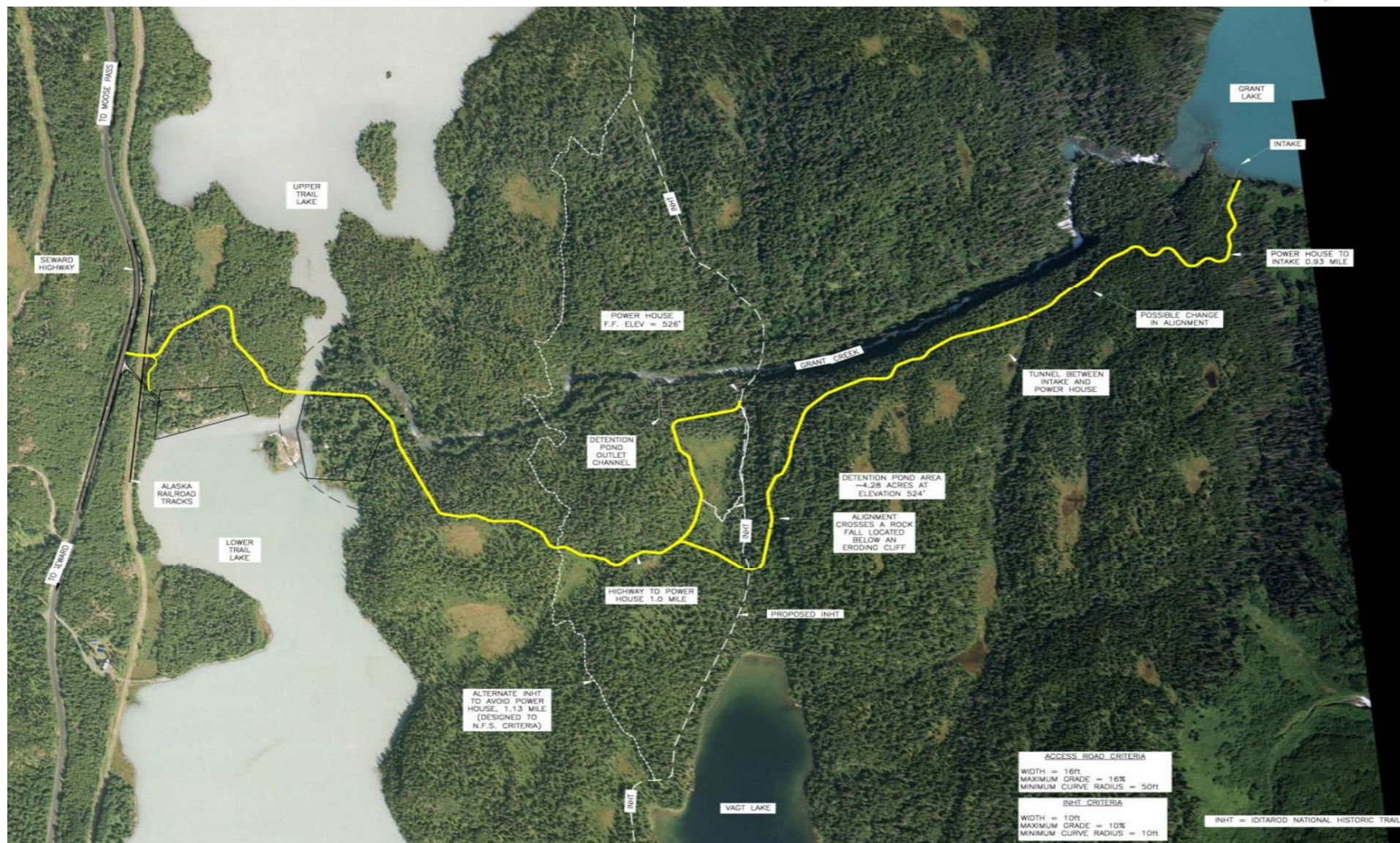
Rated Generator Output Unit 1 – 1 MW Unit 2 – 4 MW	5 MW	
Average Annual Energy	19,700 MWh	20,500 MWh
Diversion	None	2 ft x 120 ft (H) (L)
Reservoir Max Elevation	698 fmsl* (natural)	700 fmsl*
Reservoir Min Elevation	687 (-11)	687 (-13)
Tunnel Length	3200 ft	
Access Road Length	4 miles	2 miles
Transmission Line	3.5 miles	1 mile
*fmsl – feet above mean sea level		



Homer Electric
Association, Inc.
A Troutdale Energy Cooperative



PROJECT OVERVIEW





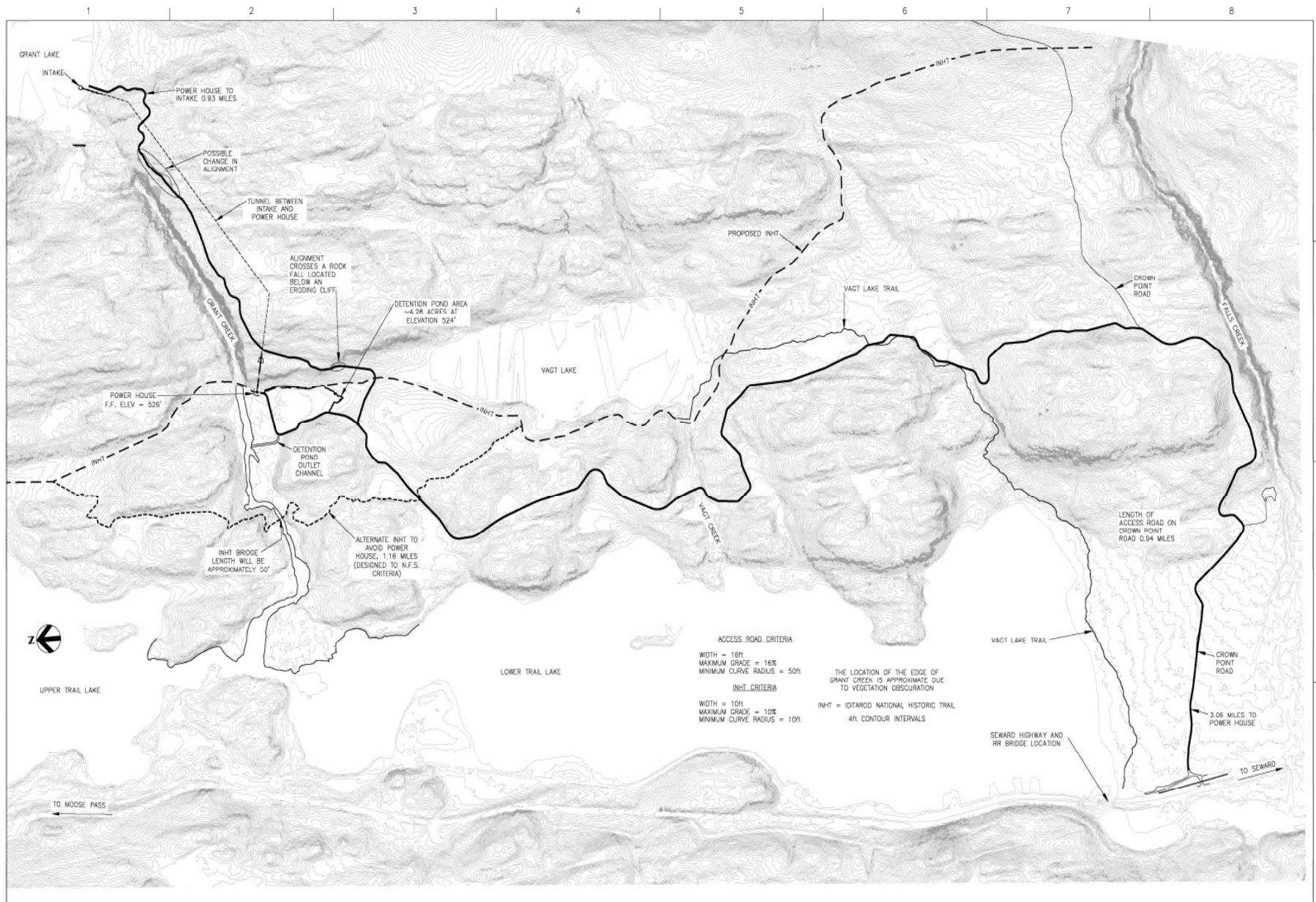
ACCESS ROAD & INHT ALIGNMENT ISSUES



- Road & Trail share a need for the same natural terrain
- Current INHT alignment co-located with the Power House



Homer Electric
Association, Inc.
A "Qualitas Energy" Cooperative



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER
DESIGNED BY
CHECKED BY
DRAWN BY
PROJECT NUMBER

**PRELIMINARY
NOT FOR
CONSTRUCTION
OR RECORDING**

**KENAI HYDRO LLC
GRANT LAKE HYDROELECTRIC
PROJECT**

**GRANT LAKE HYDROELECTRIC
ACCESS ROAD
SOUTH ALTERNATIVE**

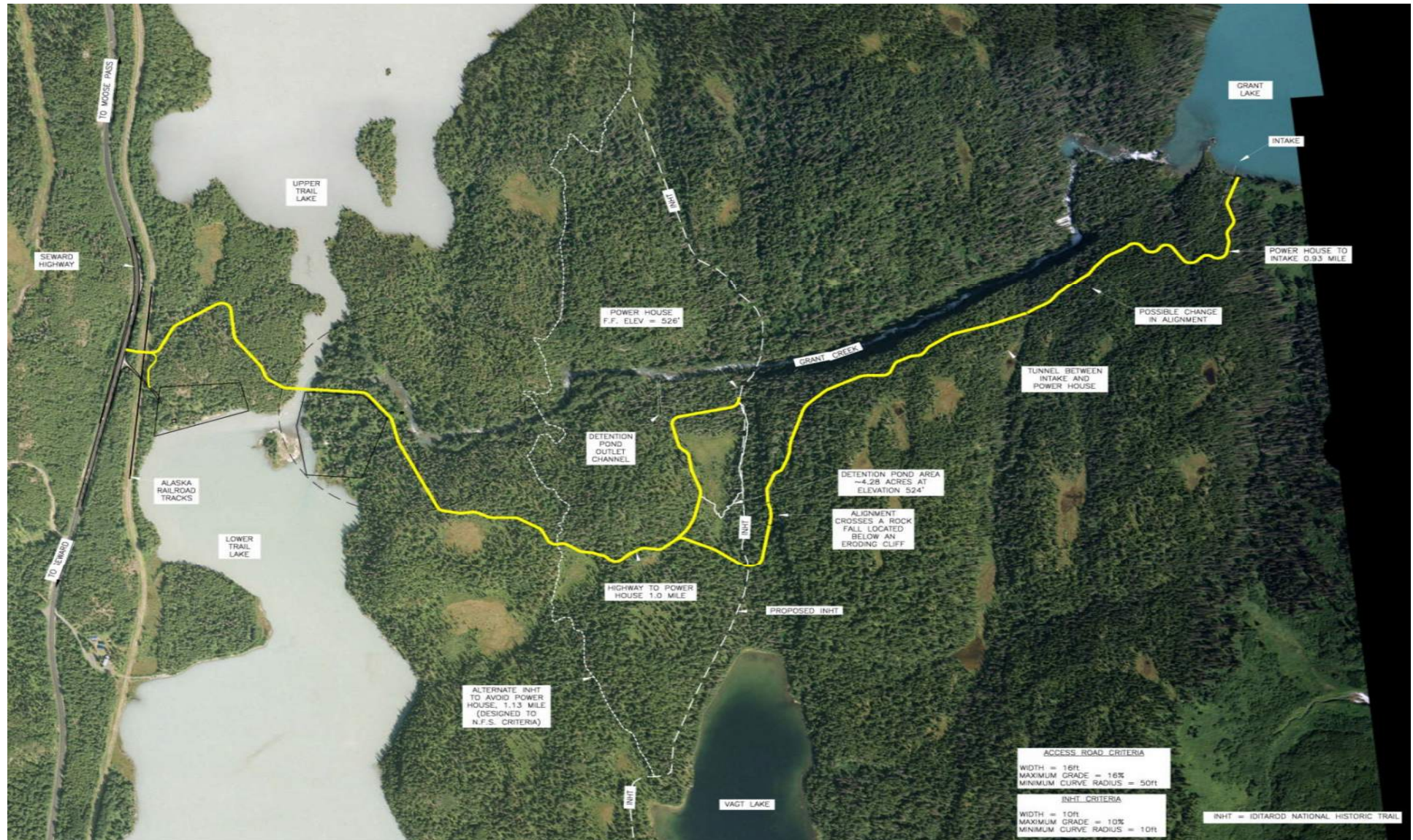


DATE	JULY 18, 2010
SCALE	1"=400'

SHEET



PROJECT OVERVIEW





TRACKING PROJECT PROGRESS & COMMENTS



Kenai Hydro, LLC website
(www.kenaihydro.com)

FERC E-Subscription Service
(www.ferc.gov)



Sign-up for Email

Receive email alerts of meetings, site updates and important milestones.

► [Sign-up](#)

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What's New

September 15, 2009
[FERC approves KHL's request to use the TLP](#)

Grant Lake/Falls Creek Project Public Meeting

November 12, 2009 6:00 pm
- 9:00 pm

Thank you for visiting the Kenai Hydro Licensing Web site!

Kenai Hydro has developed this Web site to provide a central clearinghouse for information related KHL's activities under preliminary permits for potential hydroelectric projects on the Kenai Peninsula. This Web site will be used to provide regular updates on the project, announce upcoming meetings and events, and will act as repository for documents related to the licensing effort.

Kenai Hydro LLC is jointly owned by [Wind Energy Alaska LLC](#) and [Homer Electric Association \(HEA\)](#). Wind Energy Alaska is an Alaska company dedicated to developing and operating commercial-scale wind energy projects along the state's Railbelt-energy grid and in other areas of Alaska. It is a 50-50-owned subsidiary of [CIRI](#) and [enXco, Inc.](#)

As the project progresses, this site will grow. So please check back often for updates and upcoming meetings. If you would like to receive e-mail updates please fill out our [e-mail sign-up form](#).



**Homer Electric
Association, Inc.**

A Toolik Energy Cooperative

Attachment 2

Filed as Privileged by Kenai Hydro, LLC

Grant Lake Project (P-13212)

- **Attachment 2 of Final INHT Meeting Minutes_Grant Lake_P-13212.pdf**

NOTE: Because of the potentially sensitive nature of the information regarding Cultural Resources, the presentation attached to the minutes is not being distributed to the general public. This document may be obtained by request to Kenai Hydro or FERC, subject to confidentiality provisions.

From: Cory Warnock
Sent: Monday, January 13, 2014 1:34 PM
To: Stovall, Robert -FS
Cc: Emily Andersen; Mike Salzetti
Subject: RE: Grant Lake Project Work Groups

Hi Robert,

The holidays were happy but I'm not sure if you could define them as healthy given the amount of food I chose to consume!! Likewise, I hope you had a nice break.

As to your question, things have shifted a bit due to a variety of variables (including the holidays). Our internal review of study reports is taking a bit longer than our initially established (and somewhat aggressive) schedule. As such, the accurate portrayal of dates that you mention below has had to be modified. I'm pleased to report that we are in the refinement stage of our internal report preparation and plan on getting them to the stakeholders very soon. Per my previous communication with everyone, we had planned on having our Natural Resource Work Group (NRWG) and our Aquatics Resource Work Group (ARWG) meetings approximately one month apart with the former being in late January and the latter taking place in late February. Due to our internal schedule shifting, our refined plan is to have a week blocked out in March to hold both work group's meetings. The meetings themselves would likely take up 3 consecutive days within that week if you were to attend both the NRWG and ARWG proceedings. I am currently in the process of establishing the two most desirable options (weeks in March) with our internal team and plan to have that done by COB tomorrow. I will then be polling all of the stakeholders as to their availability during those two options. I would plan on receiving that email from me by the end of the week.

Does that help with the understanding that you'll be hearing more specifics by Friday. If not or you'd like me to elaborate further, more than happy to do it.

Thanks,

Cory

From: Stovall, Robert -FS [mailto:rstovall@fs.fed.us]
Sent: Monday, January 13, 2014 1:17 PM
To: Cory Warnock
Subject: RE: Grant Lake Project Work Groups

Cory:

I hope your holiday season was a happy and healthy one.

I am putting together info for a meeting we are having for scheduling Forest Service review of the Investigative Studies. Were the planned report distribution and meeting schedule for the Water Resources, Terrestrial and Rec/Vis Reports due in – **mid to late December** occurred as scheduled? Is a Review Meeting planned for mid-January or later? Has a schedule been set for the other resource review?

Thank you for any information. It will be very helpful.

Robert

Deputy District Ranger
Chugach NF, Seward RD
Po Box 390, 334 Fourth Ave.
Seward, AK 99664
Seward office # 907 743-9474; KLWC # 288-7707
Gov. Cell # 907 399-3966

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]

Sent: Monday, September 23, 2013 2:57 PM

To: Audrey Alstrom (aalstrom@aidea.org); Stanley, Barbara -FS; Brent Goodrum (brent.goodrum@alaska.gov); David Schade (david.w.schade@alaska.gov); Doug Ott (dott@aidea.org); Ginny Litchfield (ginny.litchfield@alaska.gov); Joe Klein (joe.klein@alaska.gov); Judith Bittner (judy.bittner@alaska.gov); K.J. Muschovic (kjmushovic@blm.gov); Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil); Ken Hogan (kenneth.hogan@ferc.gov); Laves, Kevin -FS; Kim Sager (kimberly.sager@alaska.gov); Lesli Schick (lesli.schick@alaska.gov); Lynnda Kahn (Lynnda_Kahn@fws.gov); Michael Walton (michael.walton@alaska.gov); Phil Brna (phil_brna@fws.gov); Ricky Gease (ricky@kenairiversportfishing.com); Stovall, Robert -FS; Robin Swinford (robin.swinford@alaska.gov); Shina Duvall (shina.duvall@alaska.gov); susan.walker@noaa.gov

Cc: Mike Salzetti; Emily Andersen

Subject: RE: Grant Lake Project Work Groups

Hi all,

If I'm including you on this message it means I haven't heard back from you regarding the work group designation I discuss below. As you have time, it would be helpful to hear back from you related to what group(s) you'd like to be involved in. Additionally, if you don't have plans to participate in either and/or you'd like to be removed from future correspondence that will go to the Stakeholder list, please let me know.

Thanks,

Cory

Cory Warnock

Senior Licensing and Regulatory Consultant

McMillen, LLC
www.mcmillen-llc.com
5771 Applegrove Ln.
Ferndale, Wa. 98248
O – 360-384-2662
C – 360-739-0187
F – 360-542-2264

From: Cory Warnock

Sent: Monday, September 09, 2013 11:31 AM

To: Audrey Alstrom (aalstrom@aidea.org); Barbara Stanley (bstanley@fs.fed.us); Brenda Trefon (btrefon@kenaitze.org); Brent Goodrum (brent.goodrum@alaska.gov); Cassie Thomas (cassie_thomas@nps.gov); David Griffin

(david.griffin@alaska.gov); David Schade (david.w.schade@alaska.gov); Denise Koopman (denise.koopman@usace.army.mil); Doug Mutter (douglas_mutter@ios.doi.gov); Doug Ott (dott@aidea.org); Eric Rothwell (eric.rothwell@noaa.gov); Ginny Litchfield (ginny.litchfield@alaska.gov); Jan Konigsberg (jan@hydroreform.org); Jason Mouw (jason.mouw@alaska.gov); Jeffry Anderson (Jeffry_Anderson@fws.gov); Joe Klein (joe.klein@alaska.gov); Judith Bittner (judy.bittner@alaska.gov); K.J. Muschovic (kjmushovic@blm.gov); Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil); Ken Hogan (kenneth.hogan@ferc.gov); Kevin Laves (klaves@fs.fed.us); Kim Sager (kimberly.sager@alaska.gov); Lesli Schick (lesli.schick@alaska.gov); Lynnda Kahn (Lynnda_Kahn@fws.gov); Michael Walton (michael.walton@alaska.gov); Mike Cooney (mcooney@arctic.net); Monte Miller (monte.miller@alaska.gov); Pamela Russell (pamela.russell@alaska.gov); Patricia Berkahn (patricia.berkhahn@alaska.gov); Paul Torgerson (paul@grantlakemining.com); Phil Brna (phil_brna@fws.gov); Ricky Gease (ricky@kenairiversportfishing.com); Robert Stovall (rstovall@fs.fed.us); Robin Swinford (robin.swinford@alaska.gov); Shina Duvall (shina.duvall@alaska.gov); Sue Walker (susan.walker@noaa.gov); tomharkreader@gmail.com; Travis Moseley (tmoseley@fs.fed.us)

Cc: Mike Salzetti; Emily Andersen

Subject: Grant Lake Project Work Groups

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resources Study Stakeholder Group:

Hi all,

I wanted to start by saying thank you to those who attended the Grant Creek site visit and I hope that you all found it beneficial. I thought it was a great turn-out and was very pleased that the weather decided to cooperate! As I mentioned, if anyone has any follow-up questions, please don't hesitate to let me know.

I wanted to let you all know about a process change that we will be implementing in the interest of increased efficiency and collaboration. As I eluded to during the site visit, HEA will be developing a separate "Aquatics Work Group" (AWG). This group will responsible for discussing all matters associated with aquatics issues (fisheries, aquatic habitat, aquatic nutrients, instream flow, etc.) related to the Grant Lake Project. Given the number of studies and level of interest in this specific discipline, having a separate work group to discuss this area, makes sense from an efficiency standpoint. As such, the AWG meeting related to the upcoming 2013 study reports/data review will be held separate from the other natural resource areas (Water Resources, Terrestrial, Recreation/Visual), which will have their meeting in a grouped fashion. For the purposes of consistency, we will begin calling this other group the "Natural Resource Work Group" (NRWG). These two meetings will be staggered by approximately one month (NRWG first) and both will take place in the first two months of next year. One note.....I definitely see the potential need for our Water Resources lead to participate in some of the AWG proceedings. Our lead has been prepped and will be present at both sets of meetings if the need is there. I suspect it will be given the relationship between hydrology and fish presence/habitat quality.

The only thing that I'd ask of all of you at this point is to please write back and indicate which group you'd like to be a member of. I fully appreciate and understand that some of you are responsible for multiple natural resource areas for your agencies and may want to be a part of both groups and that is fine. That said, some of you do not have a vested responsibility in some areas and as such, the goal of the separate AWG is to create a more focused group of aquatic representatives to collaborate on the rather large suite of studies that are taking place in that area this year. So with that, please get back to me on the group(s) that you'd like to be a part of.

To give you a tentative idea of our planned report distribution and meeting schedule, we are working toward the following:

- Draft 2013 Water Resources, Terrestrial and Rec/Vis Reports to Stakeholders – **mid to late December (2013)**
- Water Resources, Terrestrial and Rec/Vis Study Results Meeting – **mid January (2014)**
- Draft 2013 Fisheries, IFIM and Aquatic Nutrients Reports to Stakeholders – **mid to late January (2014)**
- Fisheries, IFIM and Aquatic Nutrients Study Results Meeting – **mid February (2014)**

* Cultural Resources will follow the standard path for these types of projects.

Obviously, additional detail will follow as we get closer, groups get established and schedules get refined. In the interim, please don't hesitate to shoot me an email or give me a call with any questions/concerns. Please get back to me related to the work group(s) you'd like to be a part of. Again, thank you for your attendance at the site visit and I look forward to continuing to establish a collaborative process going forward,

Cory

Cory Warnock

Senior Licensing and Regulatory Consultant

McMillen, LLC

www.mcmillen-llc.com

5771 Applegrove Ln.

Ferndale, Wa. 98248

O – 360-384-2662

C – 360-739-0187

F – 360-542-2264

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Version: 2014.0.4259 / Virus Database: 3658/6986 - Release Date: 01/08/14

From: Cory Warnock
Sent: Tuesday, January 21, 2014 2:24 PM
To: Audrey Alstrom (aalstrom@aidea.org); Barbara Stanley (bstanley@fs.fed.us); Brenda Trefon (btrefon@kenaitze.org); Brent Goodrum (brent.goodrum@alaska.gov); Cassie Thomas (cassie_thomas@nps.gov); David Griffin (david.griffin@alaska.gov); David Schade (david.w.schade@alaska.gov); Denise Koopman (denise.koopman@usace.army.mil); Doug Mutter (douglas_mutter@ios.doi.gov); Doug Ott (dott@aidea.org); Eric Rothwell (eric.rothwell@noaa.gov); Ginny Litchfield (ginny.litchfield@alaska.gov); waterlaw@uci.net; Jan Konigsberg (jan@hydroreform.org); Jason Mouw (jason.mouw@alaska.gov); Jeffry Anderson (Jeffry_Anderson@fws.gov); Joe Klein (joe.klein@alaska.gov); Judith Bittner (judy.bittner@alaska.gov); Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil); Ken Hogan (kenneth.hogan@ferc.gov); Kevin Laves (klaves@fs.fed.us); Kim Sager (kimberly.sager@alaska.gov); Lesli Schick (lesli.schick@alaska.gov); Lynnda Kahn (Lynnda_Kahn@fws.gov); Michael Walton (michael.walton@alaska.gov); Mike Cooney (mcooney@arctic.net); Monte Miller (monte.miller@alaska.gov); Pamela Russell (pamela.russell@alaska.gov); Patricia Berkhahn (patricia.berkhahn@alaska.gov); Phil Brna (phil_brna@fws.gov); Ricky Gease (ricky@kenairiversportfishing.com); Robert Stovall (rstovall@fs.fed.us); Robin Swinford (robin.swinford@alaska.gov); Shina Duvall (shina.duvall@alaska.gov); Sue Walker (susan.walker@noaa.gov)
Cc: Mike Salzetti; Emily Andersen
Subject: Grant Lake Project (P-13212) Natural Resources Study Report Meetings

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resources Study Stakeholder Group (Natural Resource Work Group and Aquatics Resource Work Group Members):

Hi all,

As most of you are aware, HEA has been developing a series of natural resource study reports consistent with the study plans that were collaboratively developed and finalized in late 2012/early 2013 for the Grant Lake Project. HEA is now far enough along in the development process to reach out to all of you and settle on a series of dates for the upcoming study report meetings. As a reminder, late last year (see 9/9/13 email), we segregated the Aquatics component of the effort from the rest of the study areas. As such, we've created two working groups (exclusive of Cultural). The group discussing Water Resources, Terrestrial and Rec/Vis has been deemed the Natural Resource Work Group (NRWG). The Aquatics group has been named the Aquatics Resource Work Group (ARWG). It was our initial plan to have the NRWG meeting approximately one month prior to the ARWG meeting. Due to our internal schedule shifting, our refined plan is to have a week blocked out in March to hold both work group's meetings. The meetings themselves would likely take up 3 consecutive days within that week if you were to attend both the NRWG and ARWG proceedings. We will be shooting for having a one day meeting for the NRWG and two days for the ARWG. We'd like the meeting days to be Tuesday-Thursday, if at all possible. The preference would be to have the NRWG meeting on the first of the 3 meeting days with the ARWG taking up the remaining two. If for some reason the primary work group focus on a particular day has to be shifted, we can try to accommodate that. Upon hearing back from all of you, HEA will begin the logistical preparations associated with the meetings. Consistent with prior in-person consultation, we'd like to have our meetings in Anchorage. A phone bridge and webinar will be set-up for folks that would like to attend but are unable to travel. Again, further details will follow once we settle on specific dates.

As we get closer and logistics are refined, I'll be sending out two sets of emails depending on the specific work group the communication is intended for (NRWG or ARWG). My contacts for a various email are dependent upon your responses to my email request on 9/9/13. I received a good number of responses that I believe reflects a great deal of the stakeholder group. But, if I haven't heard from you, please write back and indicate which group(s) you'd like to be a member of. I fully appreciate and understand that some of you are responsible for multiple natural resource areas for your agencies and may want to be a part of both groups and that is fine. That said, some of you do not have a vested responsibility in some areas and as such, the goal of the separate ARWG is to create a more focused group of aquatic representatives to collaborate on the rather large suite of studies that are taking place in that area. So with that, please get back to me on the group(s) that you'd like to be a part of (if you haven't already).

In advance of the meeting, HEA will be providing you with the relevant study reports for your review. It is our hope that you'll be able to review them in advance of the meeting and that the combination of your internal review and the presentations given at the meetings will greatly assist in our collaborative discussions and your further understanding of the Project and the surrounding environment.

With that, the two weeks we are looking at (in order of preference) are:

1. March 3-7
2. March 17-21

Please get back to me with regard to your availability and once I have a general consensus, I'll report back to all of you on the selected week.

Thanks and I'll look forward to hearing from you,

Cory

Cory Warnock

Senior Licensing and Regulatory Consultant

McMillen, LLC

www.mcmillen-llc.com

5771 Applegrove Ln.

Ferndale, Wa. 98248

O – 360-384-2662

C – 360-739-0187

F – 360-542-2264

O

From: Mark Luttrell [mailto:prufrock@arctic.net]
Sent: Monday, January 27, 2014 11:16 AM
To: Cory Warnock
Subject: Grant Hydro meeting minutes

Hi Cory:

I noted in the meeting minutes from Grant Lake Hydroelectric Project, Iditarod National Historic Trail Meeting, Nov 13, 2013 that Attachment 2 was not included in the minutes "Because of the potentially sensitive nature of the information regarding Cultural Resources, the presentation attached to the minutes is not being distributed to the general public. This document may be obtained by request to Kenai Hydro or FERC, subject to confidentiality provisions."

Would it be OK if was sent a copy of those minutes?

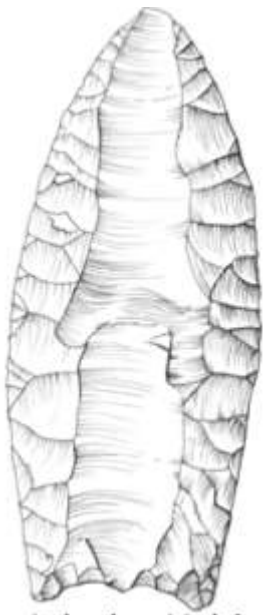
Also, over the years I've visited Grant Lake several times and have documented four historic structures along the lake, all of them will be affected by a lake level rise, even 2 feet. I could share with you and Mike Yarborough my findings if you'd like.

Cheers

Mark

Mark Luttrell
Artifact Illustration
Box 511
Seward, Alaska 99664

[907 224-5372](tel:9072245372)
prufrock@arctic.net
artifactillustration.com



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Michael R. Yarborough
Senior Archeologist

From: Cory Warnock
Sent: Monday, January 27, 2014 12:36 PM
To: Emily Andersen
Subject: FW: Grant Lake Project (P-13212) Natural Resources Study Report Meetings
Attachments: ~WRD097.jpg

FYI

From: Eric Rothwell - NOAA Federal [mailto:eric.rothwell@noaa.gov]
Sent: Monday, January 27, 2014 12:34 PM
To: Cory Warnock
Subject: Re: Grant Lake Project (P-13212) Natural Resources Study Report Meetings

Hi Cory,

When we talked previously about schedules I was just going of the draft agency that AEA sent our in their request for extension of time for the ISR (susitna). They have "additional meetings and other consultation for second-season studies" scheduled for 3/15-3/16. This is a request to FERC and certainly not scheduled, who knows when those meetings will occur. So if the week of March 17-21 works best for most then I can make it work, I think there are a lot of things in flux on that project and scheduling is likely to change.

Eric

On Mon, Jan 27, 2014 at 11:16 AM, Cory Warnock <cory.warnock@mcmillen-llc.net> wrote:

Hi Eric,

Wanted to touch base before I send out a more global email to the group related to meeting dates. Based both on responses to the initial inquiry and internal scheduling with our team, it is looking more and more like the latter week (March 17-21) is preferable. I know both during our earlier call and the email below, you stated you'd prefer the 3-7. I wanted to check with you on your availability for the later set of dates to see if you could make it and/or what your constraints are to see if we could make something work. Apologies for that but let's have some dialogue to see what we can make work as you are an integral part of the discussions and your attendance (as far as I'm concerned), is 100% mandatory.

Let me know,

Cory

From: Eric Rothwell - NOAA Federal [mailto:eric.rothwell@noaa.gov]
Sent: Thursday, January 23, 2014 10:37 AM
To: Cory Warnock
Subject: Re: Grant Lake Project (P-13212) Natural Resources Study Report Meetings

Hi Cory,

Looks like March 3-7 works better for me.

Thanks,

Eric

On Tue, Jan 21, 2014 at 1:24 PM, Cory Warnock <cory.warnock@mcmillen-llc.net> wrote:

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resources Study Stakeholder Group (Natural Resource Work Group and Aquatics Resource Work Group Members):

Hi all,

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With that, the two weeks we are looking at (in order of preference) are:

1. March 3-7
2. March 17-21

Please get back to me with regard to your availability and once I have a general consensus, I'll report back to all of you on the selected week.

Thanks and I'll look forward to hearing from you,

Cory

Cory Warnock

Senior Licensing and Regulatory Consultant

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O – [360-384-2662](tel:360-384-2662)

C – [360-739-0187](tel:360-739-0187)

F – [360-542-2264](tel:360-542-2264)

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Eric Rothwell

Hydrologist

NOAA Fisheries

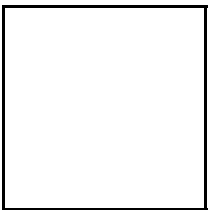
U.S. Department of Commerce

eric.rothwell@noaa.gov

[907.271.1937](tel:907.271.1937)

www.nmfs.noaa.gov

www.alaskafisheries.noaa.gov



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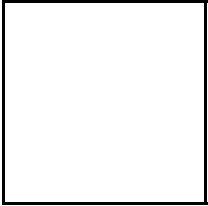
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From: Cory Warnock
Sent: Monday, January 27, 2014 4:32 PM
To: Audrey Alstrom (aalstrom@aidea.org); Barbara Stanley (bstanley@fs.fed.us); Brenda Trefon (btrefon@kenaitze.org); Brent Goodrum (brent.goodrum@alaska.gov); Cassie Thomas (cassie_thomas@nps.gov); David Griffin (david.griffin@alaska.gov); David Schade (david.w.schade@alaska.gov); Denise Koopman (denise.koopman@usace.army.mil); Doug Mutter (douglas_mutter@ios.doi.gov); Eric Rothwell (eric.rothwell@noaa.gov); Ginny Litchfield (ginny.litchfield@alaska.gov); waterlaw@uci.net; Jan Konigsberg (jan@hydroreform.org); Jason Mouw (jason.mouw@alaska.gov); Jeffry Anderson (Jeffry_Anderson@fws.gov); Joe Klein (joe.klein@alaska.gov); Judith Bittner (judy.bittner@alaska.gov); Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil); Ken Hogan (kenneth.hogan@ferc.gov); Kevin Laves (klaves@fs.fed.us); Kim Sager (kimberly.sager@alaska.gov); Lesli Schick (lesli.schick@alaska.gov); Lynnda Kahn (Lynnda_Kahn@fws.gov); Michael Walton (michael.walton@alaska.gov); Mike Cooney (mcooney@arctic.net); Monte Miller (monte.miller@alaska.gov); Pamela Russell (pamela.russell@alaska.gov); Patricia Berkhahn (patricia.berkhahn@alaska.gov); Phil Brna (phil_brna@fws.gov); Ricky Gease (ricky@kenairiversportfishing.com); Robert Stovall (rstovall@fs.fed.us); Robin Swinford (robin.swinford@alaska.gov); Shina Duvall (shina.duvall@alaska.gov); Sue Walker (susan.walker@noaa.gov)
Cc: Mike Salzetti; Emily Andersen
Subject: RE: Grant Lake Project (P-13212) Natural Resources Study Report Meetings

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resources Study Stakeholder Group (Natural Resource Work Group and Aquatics Resource Work Group Members):

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Thanks and I'll look forward to hearing from you,

Cory

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C – 360-739-0187

F – 360-542-2264

From: Cory Warnock
Sent: Friday, January 31, 2014 10:50 AM
To: Miller, Monte D (DFG)
Subject: RE: Update

Thanks, Monte. I received a note from Barb but didn't have the contact information you provide below.

Appreciate it.

Cory

From: Miller, Monte D (DFG) [mailto:monte.miller@alaska.gov]
Sent: Monday, January 27, 2014 5:14 PM
To: Cory Warnock
Subject: Update

Cory,
Just a note to let you know that Barbara Stanley of the USFS has retired. She provided us with new contacts as follows:

Plans for filling my position are uncertain at this time, but Melissa Dinsmore and Roger Birk will be your interim contacts.

 Melissa Dinsmore will be the contact for Tongass hydropower projects and issues. She works in the Sitka Office of the Tongass NF as the special uses program manager, and is experienced in hydropower and FERC projects.

 phone: (907) 747-4201

 e-mail: mdinsmore@fs.fed.us

 Roger Birk will be the contact for Chugach NF projects, region-wide issues, and FERC filings. Roger works in Juneau as the special uses program manager for the Alaska Region and has previously served as the Forest Service Regional Hydropower Coordinator.

 phone: (907) 586-8843

 e-mail: rbirk@fs.fed.us

I hope that this helps with your notifications on projects in Alaska.

Monte D. Miller
Statewide FERC Hydropower Coordinator
Alaska Department of Fish and Game
Division of Sport Fish / RTS
333 Raspberry Road
Anchorage, Alaska, 99518-1565

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From: Cory Warnock
Sent: Monday, February 03, 2014 12:14 PM
To: Van Massenhove, Katherine B -FS
Cc: Birk, Roger -FS; Emily Andersen
Subject: RE: Grant Lake Project (P-13212) Natural Resources Study Report Meetings

Yeah, I already know you!! ☺

Thanks for the heads up and things have been updated.

Cory

From: Van Massenhove, Katherine B -FS [mailto:kvanmassenhove@fs.fed.us]
Sent: Monday, February 03, 2014 12:05 PM
To: Cory Warnock
Cc: Birk, Roger -FS
Subject: RE: Grant Lake Project (P-13212) Natural Resources Study Report Meetings

Hi Cory,

With Barb Stanley's retirement I will be assuming her responsibilities for the Grant Lake Project, and not Roger Birk.
Please update your records.
Thanks!

Kathy Van Massenhove
Special Uses Team Leader
Chugach National Forest
(907) 743-9542
kvanmassenhove@fs.fed.us

From: Birk, Roger -FS
Sent: Friday, January 31, 2014 10:32 AM
To: Van Massenhove, Katherine B -FS
Subject: FW: Grant Lake Project (P-13212) Natural Resources Study Report Meetings

From: Cory Warnock [mailto:cory.warnock@mcmillen-llc.net]
Sent: Friday, January 31, 2014 10:01 AM
To: Birk, Roger -FS
Cc: Emily Andersen
Subject: FW: Grant Lake Project (P-13212) Natural Resources Study Report Meetings

Hello Mr. Birk,

Based upon an email I received from Barb Stanley (regarding retirement), you are the closest contact to the regional area that I could send the message below to. If you are going to be a representative with respect to this project, welcome and let me know if you need any information. If not, my apologies. Simply trying to be thorough and make all appropriate communications.

Sincerely,

Cory Warnock

Senior Licensing and Regulatory Consultant

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Ferndale, Wa. 98248

O – 360-384-2662

C – 360-739-0187

F – 360-542-2264

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From: Cory Warnock
Sent: Tuesday, February 11, 2014 7:04 PM
To: Monte Miller; Cassie Thomas; Brenda Trefon; Eric Rothwell; David Griffin (david.griffin@alaska.gov); pamela.russell@alaska.gov; Jason Mouw; mcooney@arctic.net; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); Shina Duvall; waterlaw@uci.net; 'kenailake@arctic.net'
Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen
Subject: Grant Lake Resource Reports

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resource Work Group Members (NRWG):

Hello Grant Lake Project NRWG Members,

Per earlier communications and as promised, I wanted to let you know that we have begun posting Natural Resource Reports related to the Grant Lake Project to an ftp site for your download and review (instructions below). Currently, the Water Quality/Hydrology and Recreational and Visual Resources Reports are posted to the site. Over the next two to three weeks, we will be posting the remainder of the reports (Terrestrial, Geomorphology, Fisheries, Instream Flow, Macroinvertebrates) to the site as well. As that occurs, the appropriate set of work group representatives will be notified of the upload so that they have ample time to review in advance of the meetings that will be occurring during the week of March 17th (per previous communications). To that end, the global group (NRWG and ARWG) will be receiving additional logistical information related to the meetings in the coming weeks as well. As a reminder, the NRWG meeting will occur on March 18th and the ARWG meetings will be on the 19th and 20th.

Please note that the contacts receiving this email are directly related to my previous requests for notification of representatives for the respective work groups. If someone has either not responded to those requests or someone else within your respective agencies would like to be involved for technical reasons, please let me know and I'll get the appropriate information distributed.

Thank you, let me know if you have any questions and instructions for accessing the appropriate folder on our ftp site are below.

To access the McMillen, LLC FTP site:

- 1. Select the following link or type it in your internet browser, <http://mcmillen-llc.com/>***
- 2. Select the "Client Login" from the upper right corner.***
- 3. Use the username and password provided below (they are both case sensitive).***
- 4. Be sure that pop-ups are allowed or that they are temporarily allowed to access the FTP site.***
- 5. Once complete, the main folder and files for the project should be viewable.***
- 6. If there are multiple folders on the site, you must click on the plus (+) sign to the left of the main folder in order to view all other folders.***

***Username – Grant Lake1
Password – Reports_2014***

Cory Warnock

Senior Licensing and Regulatory Consultant

McMillen, LLC

www.mcmillen-llc.com

5771 Applegrove Ln.

Ferndale, Wa. 98248

O – 360-384-2662

C – 360-739-0187

F – 360-542-2264

From: salvagerecovery@gmail.com on behalf of Michael R Yarborough <mry@crcalaska.com>
Sent: Tuesday, February 18, 2014 12:34 PM
To: Frank Winchell; Judith Bittner; Shina Duvall; Robert Stovall; Ed DeCleva; Sherry D Nelson; Katherine B Van Massenhove; Lesli Schick; Ben Ellis; Sheri D. Buretta; Lee Stephan; R. Greg Encelewski; Jaylene Peterson-Nyren; Penny Carty; Vernon Stanford; Dara Glass; Karen Rogina; Arne Hatch; Mark Luttrell
Cc: Mike Salzetti; Cory Warnock; Emily Andersen; Kim Graham
Subject: Grant Lake Hydroelectric Project (FERC No. 13212) archaeological and historic study report

All,

I am sending this email on behalf of Homer Electric Association, Inc. to propose a meeting to discuss the 2014 archaeological and historic study report for the Grant Lake Hydroelectric Project^[1]. Our last discussion, on

April 3, 2013, focused on establishing an appropriate area of potential effects for the project.

Based upon internal discussions, we have identified March 21, 2014, as the meeting date. For individuals who are able to attend in person, HEA will provide a space in Anchorage for the meeting, which will begin at 9:00 am and hopefully adjourn at or before 11:00 am. For those who are unable to travel to Anchorage, we will provide a link and instructions that will allow you to participate via a webinar. In addition, a toll free number will be provided for the audio portion of the meeting. The link and phone number will be provided in a future email.

The electronic versions of the report (22.6 mb) and associated maps (63 mb) are too large to include with this email. However, if you will let me know an appropriate way to get the files to you (ftp, Dropbox, or on a CD), I will be sure you receive them in plenty of time to review before the meeting.

Thank you in advance for your ongoing participation,

Mike

^[1] *Grant Lake Hydroelectric Project (FERC No. 13212) Cultural Resources Study.*

Prepared for Kenai Hydro, LLC by S. Meitl, A. Morrison, M. Yarborough, and C. Kennedy. Cultural Resource Consultants LLC, January 2014.

--
Michael R. Yarborough
Senior Archeologist
Cultural Resource Consultants LLC
3504 E. 67th Avenue
Anchorage, Alaska 99507

From: Amal Ajmi <amal.ajmi@erm.com>
Sent: Tuesday, February 25, 2014 9:33 AM
To: Emily Andersen; Emily Andersen
Cc: Jeannette Blank; Levia Shoutis
Subject: FW: Winter moose flights
Attachments: goat_nofly.jpg

From: Amal Ajmi
Sent: Tuesday, February 18, 2014 10:20 AM
To: 'Benoit, Mary A -FS'
Cc: Jeannette Blank
Subject: RE: Winter moose flights

Hello Ms. Benoit. I am contacting you with regards to the 2nd and final winter aerial survey for moose in the Grant Lake area. I will utilize the same pilot out of Palmer I flew with during the 1st survey in December. I will be coordinating the flight efforts with ADF&G to make sure to reduce aerial activity in the area during our survey. I plan on flying the survey on 17 or 19 March (weather depending). I have the "Mt. Goat no fly Zone" map you provided and again will have that in the plane to make sure we maintain the no fly zone as required.

Again, I plan on using standard ADF&G protocol for moose surveys in the area.


Thanks for your attention. Regards,

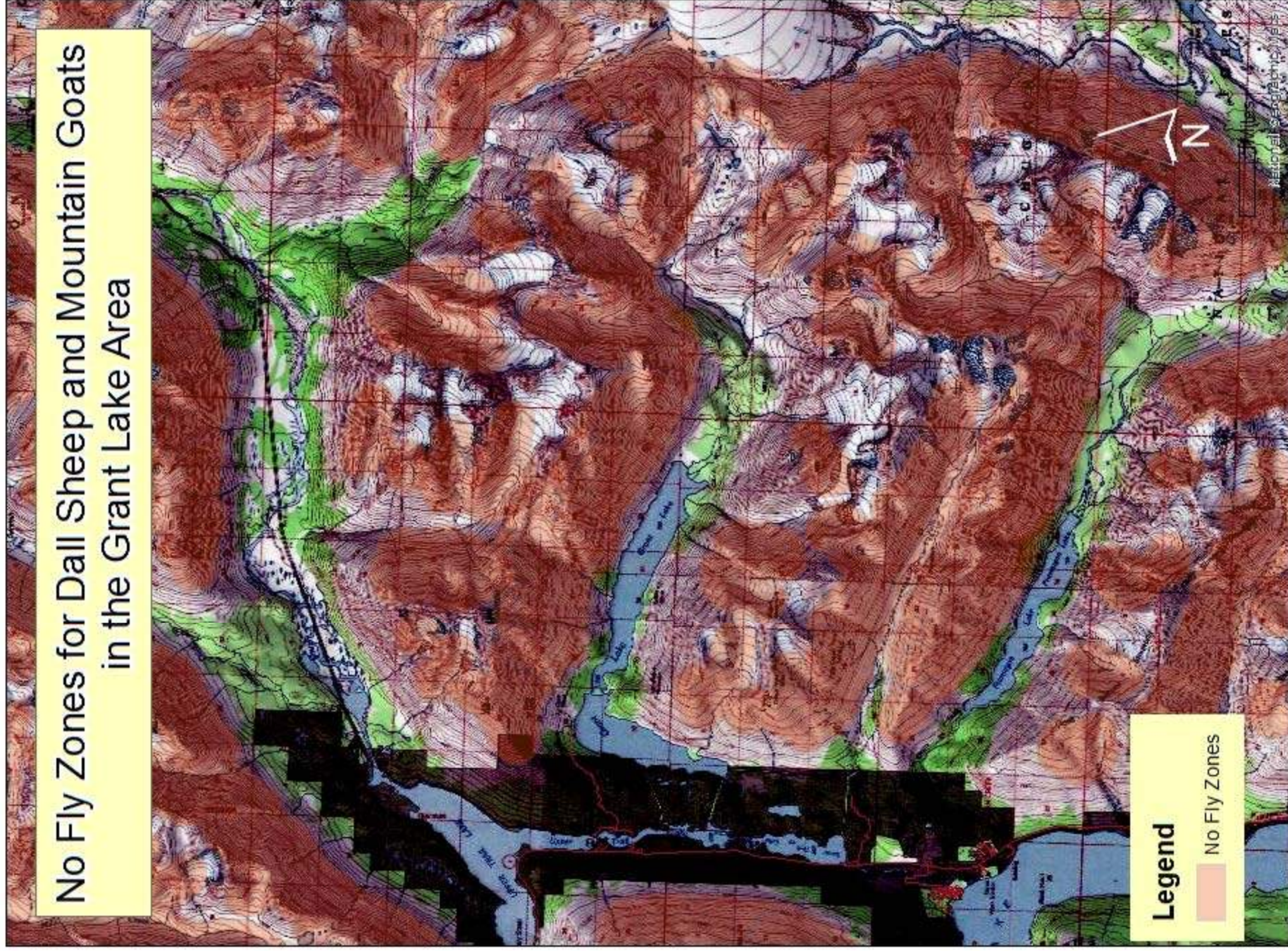
Amal Ajmi
Senior Wildlife Scientist

ERM, Alaska Inc.
748 Gaffney Rd., Suite 102
Fairbanks, AK 99701
907-458-8273
amal.ajmi@erm.com
www.erm.com

No Fly Zones for Dall Sheep and Mountain Goats in the Grant Lake Area

Legend

 No Fly Zones



Emily Andersen

From: Mark Luttrell <prufrock@arctic.net>
Sent: Thursday, February 20, 2014 12:04 AM
To: Michael R Yarborough
Cc: Dara Glass; Frank Winchell; Judith Bittner; Shina Duvall; Robert Stovall; Ed DeCleva; Sherry D Nelson; Katherine B Van Massenhove; Lesli Schick; Ben Ellis; Sheri D. Buretta; Lee Stephan; R. Greg Encelewski; Jaylene Peterson-Nyren; Penny Carty; Vernon Stanford; Karen Rogina; Arne Hatch; Mike Salzetti; Cory Warnock; Emily Andersen; Kim Graham
Subject: Re: Grant Lake Hydroelectric Project (FERC No. 13212) archaeological and historic study report
Attachments: PastedGraphic-1.tiff

Hey Mike:

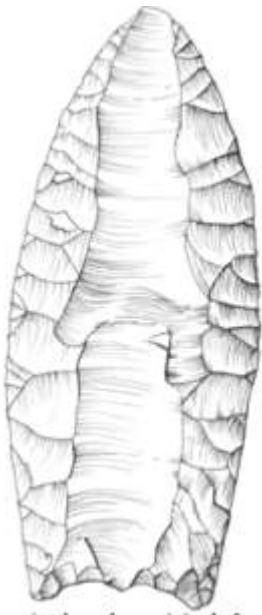
I'd like to be a part of this meeting and agree with Dara that the more stakeholders the better. Could you postal mail me a CD of the report and associated maps? I'm at Box 511 Seward 99664.

Thanks Mike

Mark

Mark Luttrell
Artifact Illustration
Box 511
Seward, Alaska 99664

907 224-5372
prufrock@arctic.net
artifactillustration.com



On Feb 18, 2014, at 1:52 PM, Dara Glass <dglass@ciri.com> wrote:

Hi Mike,

While I greatly appreciate being invited to this meeting, wouldn't it make more sense to find a time which the majority of those involved can attend? CIRI is not available on March 21 and would very much like to be a part of this. If I recall correctly, we ran into this same issue last year. Would it be possible to provide us with several different dates and times as possibilities?

Also, please keep in mind the Susitna-Watana project is kicking into full gear in March with FERC meetings and many of us are also involved with that (I think that's why we had issues with scheduling last year as well.)

Thank you.

Dara

Dara Glass
CIRI Land Manager
Direct: 907.263.5140
Cell: 907.229.7052

From: salvagerecovery@gmail.com [mailto:salvagerecovery@gmail.com] **On Behalf Of** Michael R Yarborough
Sent: Tuesday, February 18, 2014 11:34 AM
To: Frank Winchell; Judith Bittner; Shina Duvall; Robert Stovall; Ed DeCleva; Sherry D Nelson; Katherine B Van Massenhove; Lesli Schick; Ben Ellis; Sheri D. Buretta; Lee Stephan; R. Greg Encelewski; Jaylene Peterson-Nyren; Penny Carty; Vernon Stanford; Dara Glass; Karen Rogina; Arne Hatch; Mark Luttrell
Cc: Mike Salzetti; Cory Warnock; Emily Andersen; Kim Graham
Subject: Grant Lake Hydroelectric Project (FERC No. 13212) archaeological and historic study report

All,

I am sending this email on behalf of Homer Electric Association, Inc. to propose a meeting to discuss the 2014 archaeological and historic study report for the Grant Lake Hydroelectric Project^[1]. Our last discussion, on April 3, 2013, focused on establishing an appropriate area of potential effects for the project.

Based upon internal discussions, we have identified March 21, 2014, as the meeting date. For individuals who are able to attend in person, HEA will provide a space in Anchorage for the meeting, which will begin at 9:00 am and hopefully adjourn at or before 11:00 am. For those who are unable to travel to Anchorage, we will provide a link and instructions that will allow you to participate via a webinar. In addition, a toll free number will be provided for the audio portion of the meeting. The link and phone number will be provided in a future email.

The electronic versions of the report (22.6 mb) and associated maps (63 mb) are too large to include with this email. However, if you will let me know an appropriate way to get the files to you (ftp, Dropbox, or on a CD), I will be sure you receive them in plenty of time to review before the meeting.

Thank you in advance for your ongoing participation,

Mike

[\[1\]](#) *Grant Lake Hydroelectric Project (FERC No. 13212) Cultural Resources Study.*

Prepared for Kenai Hydro, LLC by S. Meitl, A. Morrison, M. Yarborough, and C. Kennedy. Cultural Resource Consultants LLC, January 2014.

--
Michael R. Yarborough
Senior Archeologist
Cultural Resource Consultants LLC
3504 E. 67th Avenue
Anchorage, Alaska 99507

Anchorage: (907) 349-3445
Cell: (907) 306-6069

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----- Forwarded message -----

From: **Frank Winchell** <frank.winchell@ferc.gov>

Date: Thu, Feb 20, 2014 at 3:00 AM

Subject: RE: Grant Lake Hydroelectric Project (FERC No. 13212) archaeological and historic study report

To: Michael R Yarborough <mry@crcalaska.com>

Hello, Mike.

I'd love to come up, but let's start with a telephone line for me.

I take it that you'll need to file the study report with us at FERC, but if you like, you can send me a hard copy.

Otherwise, I can download it off of FERC eLibrary once it gets filed.

Thanks,

Frank

No virus found in this message.

Checked by AVG - www.avg.com

Version: 2014.0.4259 / Virus Database: 3705/7100 - Release Date: 02/17/14

Grant Lake Hydroelectric Project (FERC No. 13212) Licensing

Consultation Record

Phone/E-mail/One-on-One Meeting Log

Contact Name: Monte Miller

Agency/Organization: Alaska Department of Fish and Game (ADF&G)

Phone No./E-mail Address: 907-267-2312

Date: February 26, 2014

Time:

Grant Lake Licensing Team Contact: Mike Salzetti, Homer Electric Association (HEA)

Summary of Conversation and/or E-mail Exchange:

I had a voicemail from Monte Miller regarding the FERC progress report that was just filed. His voice mail said that he liked the fact that HEA stated that the resource agencies toured the Grant Lake Hydroelectric Project infrastructure. Then he read the statement on the voice mail exactly as written and it said the project infrastructure on the creek. His voice mail went on to say that the creek is the appropriate modifier so it was probably ok. I called him back as requested and left a message reiterating that the statement was specific to infrastructure along the creek and that he could call back if further explanation was needed.

Kenai Hydro, LLC

3977 Lake Street
Homer, AK 99603

February 26, 2014

Secretary Kimberly D. Bose
Federal Energy Regulatory Commission
Attn: DHAC, PJ-12.2
888 First Street, NE
Washington, DC 20426

- FILED ELECTRONICALLY -

**RE: Fourth Six-Month Preliminary Permit Progress Report for the Grant Lake
(Project No. 13212), September 1, 2013 – February 28, 2014**

Dear Secretary Bose:

Kenai Hydro, LLC (KHL) hereby submits its fourth six-month progress report, for the period of September 1, 2013 through February 28, 2014 for the proposed Grant Lake Project.

A second Preliminary Permit Application was submitted to the Federal Energy Regulatory Commission (FERC) and subsequently granted on March 23, 2012. KHL devoted the remainder of 2012 to hiring a natural resource consultant, refining study plans and working with stakeholders to comprehensively update them on developments related to more quantitative study plans and Project infrastructure. As a result, KHL adjusted the study schedule to allow resource studies to begin with the winter studies in 2012/2013 and the spring/summer/fall work to occur in 2013.

From January to May of 2013, KHL acquired all necessary permits for the field season and worked with their natural resource consultant to develop a sound logistical approach for completing all field work outlined in its 2013 study plans. Field work commenced in late March and has continued to date. The bulk of the studies were completed by late 2013 for all resource areas (Aquatics, Water Resources, Terrestrial, Recreation/Visual and Cultural). Remaining tasks are primarily associated with the Terrestrial aspect of the studies and will be completed in seasonal accordance with the final study plans that have been filed with FERC (March 21, 2013).

KHL has scheduled its Natural Resource Report Meetings for the week of March 17, 2014 and is in the process of finalizing Draft Resource Reports for distribution to the stakeholders in advance of the meetings for their review. The interim between now and the meeting week will be spent developing resource specific presentations and formalizing logistics and schedules. In addition to the presentation of the natural resource study results, KHL has been working with their selected engineering contractor on refinements to the infrastructural Project layout and operational conditions. Presentations related to engineering progress will also be given during the Resource Report Meetings to engage stakeholders in the engineering phase of the Project and begin dialogue with stakeholders related to Project and operational design. To date a generation/operations model has been developed and geotechnical, hydraulic, and hydrologic

Kenai Hydro, LLC

3977 Lake Street
Homer, AK 99603

technical memos have been drafted. All of this work and pending stakeholder consultation and collaboration will continue KHL on its path to the development of Draft and Final License Applications.

ACTIVITIES DURING THE REPORTING PERIOD (September 2013 – February 2014)

Stakeholder Outreach and Consultation

- KHL held a Grant Creek site visit on September 5, 2013. Multiple agency representatives attended representing ADF&G, ADNR, National Park Service, NMFS, USFS and AEA. The entire project infrastructure (study and proposed project plan) on the creek was toured.
- On November 13, 2013 KHL met with the USFS, Alaska State Parks, and ADNR to propose two alternative routes for the (yet to be constructed) commemorative Iditarod National Historic Trail (INHT) that would accommodate proposed project infrastructure. In addition to the alternative routes, the administrative process to reroute the trail was discussed.
- On November 21, 2013 KHL held a follow up conference call to the INHT meeting with ADNR regarding the implications of the realignment of the INHT under Section 106 of the State Historic Preservation Act.
- On November 27, 2013 KHL held a conference call with NOAA, ADF&G and USFWS regarding the appropriate species specific preference curves for use in the Grant Creek Instream Flow modeling effort.
- KHL continued collaboration with requisite resource agencies (Alaska Department of Fish & Game, Alaska Department of Natural Resources, Forest Service, State Historical Preservation Office, Kenai Peninsula Borough, Army Corps of Engineers, etc.) related to Natural Resources Study activities, permit compliance and study protocols.
- KHL coordinated with stakeholders and settled on meeting dates for the Aquatic, Natural Resource and Cultural Resource Working Group meetings to be held in Anchorage during the week of March 17th.
- KHL gave a presentation documenting the Grant Lake Project and associated progress made toward licensing in 2013/2014 at the Northwest Hydroelectric Association Conference in Seattle on February 20, 2014.
- KHL maintained the Kenai Hydro website (www.kenaihydro.com) by posting the latest announcements and documents for public access. This site continues to serve as a conduit for information, including a library of existing information, a calendar of events, and a repository for contact information for interested parties.

Environmental Studies

KHL continued work related to the following resource areas:

- Aquatic Resources
 - Aquatic Resource field studies conducted during the reporting period included:
 - Fish weir operation on Grant Creek
 - Anadromous and resident juvenile outmigration monitoring and habitat utilization via incline plane and minnow trapping
 - Grant Creek aquatic habitat mapping

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- Grant Creek instream flow study
 - Trail Lake Narrows fish and aquatic habitat assessments
 - Salmon escapement and distribution of spawning salmon analysis which included radio tagging of adult salmon, radio telemetry surveys and fixed telemetry analysis.
 - Carcass surveys
 - Radio tagging and tracking of Adult Dolly Varden
 - November 4, 2013; equipment and personnel were demobilized from sight.
 - Fish scale aging analysis
 - Completed a draft Fisheries Assessment Study Report
 - Grant Creek instream flow modeling & data analysis
 - Completed a draft Instream Flow Study Report
 - Completed a draft Macroinvertebrates Study Report
- Water Resources
 - Water Resource field studies conducted during the reporting period included:
 - Data collection from thermologgers in Grant Creek and Trail Lake Narrows
 - Data collection from the thermistor string in Grant Lake
 - Collection of water quality samples in multiple locations on Grant Creek
 - Collection of water quality samples on Grant Lake
 - Collection of water quality samples in the Trail Lake Narrows area
 - Monitoring and maintenance of the Grant Creek stream gauge including regular downloads and discharge measurements at a variety of flows
 - Grant Lake shoreline erosion inventory
 - Grant Creek spawning substrate recruitment assessment
 - Completed a draft Water Quality/Hydrology Study Report
 - Completed a draft Geomorphology Study Report
- Terrestrial Resources
 - Terrestrial Resource field studies conducted during the reporting period included:
 - Vegetation mapping survey
 - Sensitive plant survey
 - Invasive plant survey
 - Wetland mapping surveys
 - Wetland secondary impact surveys
 - Raptor nesting surveys
 - 1st of two winter water bird surveys
 - 1st of two winter moose surveys
 - Completed a draft Terrestrial Resources Study Report
- Cultural Resources
 - Completed a draft Cultural Resources Study Report

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3977 Lake Street
Homer, AK 99603

- *Recreation and Visual Resources*
 - Completed a draft Recreation & Visual Resources Study Report

Engineering

- KHL selected an engineering consultant to conduct the preliminary engineering feasibility work required for a FERC license application. A contract was negotiated and awarded for this work
- On October 17, 2013 KHL conducted an internal preliminary engineering feasibility kickoff meeting
- KHL began hydrologic analysis and drafted a technical memo
- KHL began hydraulic analysis and drafted a technical memo
- KHL developed a generation/operations model for the Project
- KHL began integration of the engineering team into the overall process by developing a presentation for the March Natural Resource Meetings in Anchorage

CONTINUING ACTIVITIES IN SUPPORT OF LICENSE APPLICATION DEVELOPMENT

Over the course of the next six-month period, KHL anticipates finalization of the Natural Resource Study Reports once review and dialogue has been completed with stakeholders. These documents will be filed with FERC as part of a package that will also contain meeting minutes, agendas, presentations, etc. Winter and spring terrestrial work will be completed per the existing Terrestrial Resources Study Plan and associated data will be analyzed and documented. Engineering feasibility work in preparation for drafting that portion of the Draft License Application will continue as scheduled. As plans associated with the aforementioned efforts are refined, KHL will continue to be committed to keeping FERC apprised of all developments and scheduled activities.

Environmental Studies

- KHL will hold Natural Resource Study Meetings in Anchorage during the week of March 17, 2014.
- KHL and their licensing and natural resource project manager will organize and lead the aforementioned study meetings.
- KHL and their licensing and natural resource project manager will work with stakeholders after the meeting to reach agreement on any outstanding issues and begin working toward the collaborative development of a Draft License Application.

Kenai Hydro, LLC

3977 Lake Street
Homer, AK 99603

- KHL will continue efforts to engage the appropriate agencies in discussions related to the re-route of a small portion of the INHT.

Engineering

- As mentioned above, KHL has begun analysis and development of required variables of the engineering feasibility piece of the License Application. Integration with requisite stakeholders has begun and will progress over the course of the next reporting period. KHL anticipates regular consultation and collaboration with stakeholders as key components of the engineering work are developed and drafted. KHL anticipates completing the remainder of this infrastructural and operational work in parallel with the natural resource investigations.

Stakeholder Outreach and Consultation

- KHL plans to continue consultation with the public, resource agencies and other stakeholders on Project plans and resource studies.
- KHL plans to continue to work on the proposed rerouting of the INHT.
- As momentum continues to progress related to the development of a License Application, KHL anticipates continued regular and perhaps, more frequent consultation with FERC in an effort to both provide regular updates and request advice related to approach and process, as needed.
- KHL will remain committed to keeping FERC apprised of all developments and scheduled events associated with the licensing effort.

Please feel free to contact me (907.283.2375 or msalzetti@homerelectric.com) with any questions regarding this filing.

Sincerely,



/s/ Mike Salzetti

Mike Salzetti
Project Manager
Kenai Hydro,
LLC

cc: Service List and Mailing List for Project No. 13212

Attachments: KEEP_SEW594KenaiHydro Permit.docx; SEW594_AppendixA1_MAP.pdf; SEW594_AppendixA2_MAP.pdf; SEW594_AppendixA3_MAP.pdf

From: Salzetti, Mikel [mailto:MSalzetti@HomerElectric.com]
Sent: Wednesday, February 26, 2014 5:34 PM
To: Cory Warnock
Subject: FW: Kenai Hydro, LLC permit renewal documents

Cory:

Not sure why I didn't receive this the first time. Will you please check it out to make sure it is what we need and then I will sign it and get it returned. \

Thanks,

Mike

From: Sagner, Helen -FS [mailto:hsagner@fs.fed.us]
Sent: Wednesday, February 26, 2014 4:15 PM
To: Salzetti, Mikel
Subject: FW: Kenai Hydro, LLC permit renewal documents

Hi Mike; just checking in to verify that you received my previous email. I have not received your document or heard back from you.

Helen Sagner, hsagner@fs.fed.us

*(Detail) Special Uses Permit Administrator
Alaska Region, R10 | Chugach NF | Seward Ranger District
(907) 743-9494 Direct Line*

From: Sagner, Helen -FS
Sent: Thursday, February 13, 2014 1:16 PM
To: 'msalzetti@HomerElectric.com'
Subject: Kenai Hydro, LLC permit renewal documents

Hi Mike;

Enclosed is a copy of your new Special Use Permit #594, which authorizes the continued investigative studies for hydropower on Grant Lake.

Please review this document, and if acceptable sign, and return to the Seward Ranger District, Po Box 390, Seward, AK 99664, or electronically to my attention at hsagner@fs.fed.us.

After you have returned the signed permit an executed copy will be sent to you.

Remember, the authorization is not valid unless signed by both parties.

If you have any further questions, please contact Kathy Van Massenhove at kvanmassenhove@fs.fed.us.

Thanks in advance, Helen

*Helen Sagner, hsagner@fs.fed.us
(Detail) Special Uses Permit Administrator
Alaska Region, R10 | Chugach NF | Seward Ranger District
(907) 743-9494 Direct Line*

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Version: 2014.0.4259 / Virus Database: 3705/7124 - Release Date: 02/25/14

**U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE**

SPECIAL USE PERMIT

Authority: FEDERAL LAND POLICY AND MGMT ACT, AS AMENDED October 21, 1976

Kenai Hydro, LLC of 3977 LAKE ST HOMER AK UNITED STATES 99603 (hereinafter "the holder") is authorized to use or occupy National Forest System lands in the Chugach National Forest on the Seward Ranger District of the National Forest System, subject to the terms and conditions of this special use permit (the permit).

This permit covers 2 acres or 0 miles in the Sec. 8, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 21, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 20, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 17, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 16, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 5, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 3, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 2, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 1, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 36, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 35, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 34, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 33, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 26, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 32, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 29, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 28, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 27, T. 5 N., R. 1 E., SEWARD MERIDIAN, ("the permit area"), as shown on the map attached as Appendix A. This permit issued for the purpose of:

to conduct investigative studies related to the Grant Lake/Grant Creek hydroelectric proposals. The proposals received preliminary permits from FERC on December 29, 2014.

Studies include fish presence, aquatic macroinvertebrate sampling, fish habitat mapping, water quality sampling, stream discharge measurements, wildlife observations, wetland and vegetation surveys, and cultural resource surveys. Permit area includes National Forest System lands surrounding Grant Lake as shown in Appendix A-1.

Access to the permit area is by the same means as is available to the public as outlined in the Chugach National Forest Land Resource Management Plan and noted on Appendix A -2 and A -3.

TERMS AND CONDITIONS

I. GENERAL TERMS

A. AUTHORITY. This permit is issued pursuant to FEDERAL LAND POLICY AND MGMT ACT, AS AMENDED October 21, 1976 and 36 CFR Part 251, Subpart B, as amended, and is subject to their provisions.

B. AUTHORIZED OFFICER. The authorized officer is the Forest or Grassland Supervisor or a subordinate officer with delegated authority.

C. TERM. This permit shall expire at midnight on 12/31/2018, 4 years or 11 months from the date of issuance.

D. RENEWAL. This permit is not renewable. Prior to expiration of this permit, the holder may apply for a new permit that would renew the use and occupancy authorized by this permit. Applications for a new permit must be submitted at least 6 months prior to expiration of this permit. Renewal of the use and occupancy authorized by this permit shall be at the sole discretion of the authorized officer. At a minimum, before renewing the use and occupancy authorized by this permit, the authorized officer shall require that (1) the use and occupancy to be authorized by the new permit is consistent with the standards and guidelines in the applicable land management plan; (2) the type of use and occupancy to be authorized by the new permit is the same as the type of use and occupancy authorized by this permit; and (3) the holder is in compliance with all the terms of this permit. The authorized officer may prescribe new terms and conditions when a new permit is issued.

E. AMENDMENT. This permit may be amended in whole or in part by the Forest Service when, at the discretion of the authorized officer, such action is deemed necessary or desirable to incorporate new terms that may be required by law, regulation, directive, the applicable forest land and resource management plan, or projects and activities implementing a land management plan pursuant to 36 CFR Part 215.

F. COMPLIANCE WITH LAWS, REGULATIONS, AND OTHER LEGAL REQUIREMENTS. In exercising the rights and privileges

granted by this permit, the holder shall comply with all present and future federal laws and regulations and all present and future state, county, and municipal laws, regulations, and other legal requirements that apply to the permit area, to the extent they do not conflict with federal law, regulation, or policy. The Forest Service assumes no responsibility for enforcing laws, regulations, and other legal requirements that fall under the jurisdiction of other governmental entities.

G. NON-EXCLUSIVE USE. The use or occupancy authorized by this permit is not exclusive. The Forest Service reserves the right of access to the permit area, including a continuing right of physical entry to the permit area for inspection, monitoring, or any other purpose consistent with any right or obligation of the United States under any law or regulation. The Forest Service reserves the right to allow others to use the permit area in any way that is not inconsistent with the holder's rights and privileges under this permit, after consultation with all parties involved. Except for any restrictions that the holder and the authorized officer agree are necessary to protect the installation and operation of authorized temporary improvements, the lands and waters covered by this permit shall remain open to the public for all lawful purposes.

H. ASSIGNABILITY. This permit is not assignable or transferable.

I. CHANGE IN CONTROL OF THE BUSINESS ENTITY.

1. Notification of Change in Control. The holder shall notify the authorized officer when a change in control of the business entity that holds this permit is contemplated.

a. In the case of a corporation, control is an interest, beneficial or otherwise, of sufficient outstanding voting securities or capital of the business so as to permit the exercise of managerial authority over the actions and operations of the corporation or election of a majority of the board of directors of the corporation.

b. In the case of a partnership, limited partnership, joint venture, or individual entrepreneurship, control is a beneficial ownership of or interest in the entity or its capital so as to permit the exercise of managerial authority over the actions and operations of the entity.

c. In other circumstances, control is any arrangement under which a third party has the ability to exercise management authority over the actions or operations of the business.

2. Effect of Change in Control. Any change in control of the business entity as defined in paragraph 1 of this clause shall result in termination of this permit. The party acquiring control must submit an application for a special use permit. The Forest Service is not obligated to issue a new permit to the party who acquires control. The authorized officer shall determine whether the applicant meets the requirements established by applicable federal regulations.

II. IMPROVEMENTS

A. LIMITATIONS ON USE. Nothing in this permit gives or implies permission to build or maintain any structure or facility or to conduct any activity, unless specifically authorized by this permit. Any use not specifically authorized by this permit must be proposed in accordance with 36 CFR 251.54. Approval of such a proposal through issuance of a new permit or permit amendment is at the sole discretion of the authorized officer.

B. PLANS. All plans for development, layout, construction, reconstruction, or alteration of improvements in the permit area, as well as revisions to those plans must be prepared by a professional engineer, architect, landscape architect, or other qualified professional based on federal employment standards acceptable to the authorized officer. These plans and plan revisions must have written approval from the authorized officer before they are implemented. The authorized officer may require the holder to furnish as-built plans, maps, or surveys upon completion of the work.

B. CONSTRUCTION. Any construction authorized by this permit shall commence by N/A and shall be completed by N/A.

III. OPERATIONS.

A. PERIOD OF USE. Use or occupancy of the permit area shall be exercised at least 2 days each year.

B. CONDITION OF OPERATIONS. The holder shall maintain the authorized improvements and permit area to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer and consistent with other provisions of this permit. Standards are subject to periodic change by the authorized officer when deemed necessary to meet statutory, regulatory, or policy requirements or to protect national forest resources. The holder shall comply with inspection requirements deemed appropriate by the authorized officer.

C. INSPECTION BY THE FOREST SERVICE. The Forest Service shall monitor the holder's operations and reserves the right to

inspect the permit area and transmission facilities at any time for compliance with the terms of this permit. The holder's obligations under this permit are not contingent upon any duty of the Forest Service to inspect the permit area or transmission facilities. A failure by the Forest Service or other governmental officials to inspect is not a justification for noncompliance with any of the terms and conditions of this permit.

IV. RIGHTS AND LIABILITIES

A. LEGAL EFFECT OF THE PERMIT. This permit, which is revocable and terminable, is not a contract or a lease, but rather a federal license. The benefits and requirements conferred by this authorization are reviewable solely under the procedures set forth in 36 CFR Part 251, Subpart C, and 5 U.S.C. 704. This permit does not constitute a contract for purposes of the Contract Disputes Act, 41 U.S.C. 601. The permit is not real property, does not convey any interest in real property, and may not be used as collateral for a loan.

B. VALID OUTSTANDING RIGHTS. This permit is subject to all valid outstanding rights. Valid outstanding rights include those derived under mining and mineral leasing laws of the United States. The United States is not liable to the holder for the exercise of any such right.

C. ABSENCE OF THIRD-PARTY BENEFICIARY RIGHTS. The parties to this permit do not intend to confer any rights on any third party as a beneficiary under this permit.

D. SERVICES NOT PROVIDED. This permit does not provide for the furnishing of road or trail maintenance, water, fire protection, search and rescue, or any other such service by a government agency, utility, association, or individual.

E. RISK OF LOSS. The holder assumes all risk of loss associated with use or occupancy of the permit area, including but not limited to theft, vandalism, fire and any fire-fighting activities (including prescribed burns), avalanches, rising waters, winds, falling limbs or trees, and other forces of nature. If authorized temporary improvements in the permit area are destroyed or substantially damaged, the authorized officer shall conduct an analysis to determine whether the improvements can be safely occupied in the future and whether rebuilding should be allowed. If rebuilding is not allowed, the permit shall terminate.

F. DAMAGE TO UNITED STATES PROPERTY. The holder has an affirmative duty to protect from damage the land, property, and other interests of the United States. Damage includes but is not limited to fire suppression costs, damage to government-owned improvements covered by this permit, and all costs and damages associated with or resulting from the release or threatened release of a hazardous material occurring during or as a result of activities of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees on, or related to, the lands, property, and other interests covered by this permit. For purposes of clause IV.F and section V, "hazardous material" shall mean (a) any hazardous substance under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601(14); (b) any pollutant or contaminant under section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (c) any petroleum product or its derivative, including fuel oil, and waste oils; and (d) any hazardous substance, extremely hazardous substance, toxic substance, hazardous waste, ignitable, reactive or corrosive materials, pollutant, contaminant, element, compound, mixture, solution or substance that may pose a present or potential hazard to human health or the environment under any applicable environmental laws.

1. The holder shall avoid damaging or contaminating the environment, including but not limited to the soil, vegetation (such as trees, shrubs, and grass), surface water, and groundwater, during the holder's use or occupancy of the permit area. If the environment or any government property covered by this permit becomes damaged during the holder's use or occupancy of the permit area, the holder shall immediately repair the damage or replace the damaged items to the satisfaction of the authorized officer and at no expense to the United States.

2. The holder shall be liable for all injury, loss, or damage, including fire suppression, prevention and control of the spread of invasive species, or other costs in connection with rehabilitation or restoration of natural resources associated with the use or occupancy authorized by this permit. Compensation shall include but not be limited to the value of resources damaged or destroyed, the costs of restoration, cleanup, or other mitigation, fire suppression or other types of abatement costs, and all administrative, legal (including attorney's fees), and other costs. Such costs may be deducted from a performance bond required under clause IV.I.

3. The holder shall be liable for damage caused by use of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees to all roads and trails of the United States to the same extent as provided under clause IV.F.1, except that liability shall not include reasonable and ordinary wear and tear

G. HEALTH, SAFETY, AND ENVIRONMENTAL PROTECTION. The holder shall promptly abate as completely as possible and in compliance with all applicable laws and regulations any activity or condition arising out of or relating to the authorized use or occupancy that causes or threatens to cause a hazard to public health or the safety of the holder's employees or agents or harm to the environment (including areas of vegetation or timber, fish or other wildlife populations, their habitats, or any other natural

resources). The holder shall prevent impacts to the environment and cultural resources by implementing actions identified in the operating plan to prevent establishment and spread of invasive species. The holder shall immediately notify the authorized officer of all serious accidents that occur in connection with such activities. The responsibility to protect the health and safety of all persons affected by the use or occupancy authorized by this permit is solely that of the holder. The Forest Service has no duty under the terms of this permit to inspect the permit area or operations and activities of the holder for hazardous conditions or compliance with health and safety standards.

H. INDEMNIFICATION OF THE UNITED STATES. The holder shall indemnify, defend, and hold harmless the United States for any costs, damages, claims, liabilities, and judgments arising from past, present, and future acts or omissions of the holder in connection with the use or occupancy authorized by this permit. This indemnification provision includes but is not limited to acts and omissions of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees in connection with the use or occupancy authorized by this permit which result in (1) violations of any laws and regulations which are now or which may in the future become applicable, and including but not limited to those environmental laws listed in clause V.A of this permit; (2) judgments, claims, demands, penalties, or fees assessed against the United States; (3) costs, expenses, and damages incurred by the United States; or (4) the release or threatened release of any solid waste, hazardous waste, hazardous materials, pollutant, contaminant, oil in any form, or petroleum product into the environment. The authorized officer may prescribe terms that allow the holder to replace, repair, restore, or otherwise undertake necessary curative actions to mitigate damages in addition to or as an alternative to monetary indemnification.

I. BONDING. The authorized officer may require the holder to furnish a surety bond or other security for any of the obligations imposed by the terms and conditions of this permit or any applicable law, regulation, or order.

V. RESOURCE PROTECTION

A. COMPLIANCE WITH ENVIRONMENTAL LAWS. The holder shall in connection with the use or occupancy authorized by this permit comply with all applicable federal, state, and local environmental laws and regulations, including but not limited to those established pursuant to the Resource Conservation and Recovery Act, as amended, 42 U.S.C. 6901 et seq., the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq., the Oil Pollution Act, as amended, 33 U.S.C. 2701 et seq., the Clean Air Act, as amended, 42 U.S.C. 7401 et seq., CERCLA, as amended, 42 U.S.C. 9601 et seq., the Toxic Substances Control Act, as amended, 15 U.S.C. 2601 et seq., the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, 7 U.S.C. 136 et seq., and the Safe Drinking Water Act, as amended, 42 U.S.C. 300f et seq.

B. VANDALISM. The holder shall take reasonable measures to prevent and discourage vandalism and disorderly conduct and when necessary shall contact the appropriate law enforcement officer.

C. PESTICIDE USE. Pesticides may not be used outside of buildings to control undesirable woody and herbaceous vegetation (including aquatic plants), insects, rodents, fish, and other pests and weeds without prior written approval from the authorized officer. A request for approval of planned uses of pesticides shall be submitted annually by the holder on the due date established by the authorized officer. The report shall cover a 12-month period of planned use beginning 3 months after the reporting date. Information essential for review shall be provided in the form specified. Exceptions to this schedule may be allowed, subject to emergency request and approval, only when unexpected outbreaks of pests or weeds require control measures that were not anticipated at the time an annual report was submitted. Only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned shall be considered for use on National Forest System lands. Label instructions and all applicable laws and regulations shall be strictly followed in the application of pesticides and disposal of excess materials and containers.

D. ARCHAEOLOGICAL-PALEONTOLOGICAL DISCOVERIES. The holder shall immediately notify the authorized officer of all antiquities or other objects of historic or scientific interest, including but not limited to historic or prehistoric ruins, fossils, or artifacts discovered in connection with the use and occupancy authorized by this permit. The holder shall leave these discoveries intact and in place until directed otherwise by the authorized officer. Protective and mitigative measures specified by the authorized officer shall be the responsibility of the holder.

E. NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION. In accordance with 25 U.S.C. 3002(d) and 43 CFR 10.4, if the holder inadvertently discovers human remains, funerary objects, sacred objects, or objects of cultural patrimony on National Forest System lands, the holder shall immediately cease work in the area of the discovery and shall make a reasonable effort to protect and secure the items. The holder shall immediately notify the authorized officer by telephone of the discovery and shall follow up with written confirmation of the discovery. The activity that resulted in the inadvertent discovery may not resume until 30 days after the authorized officer certifies receipt of the written confirmation, if resumption of the activity is otherwise lawful, or at any time if a binding written agreement has been executed between the Forest Service and the affiliated Indian tribes that adopts a recovery plan for the human remains and objects.

F. PROTECTION OF HABITAT OF THREATENED, ENDANGERED, AND SENSITIVE SPECIES. The location of sites within the

permit area needing special measures for protection of plants or animals listed as threatened or endangered under the Endangered Species Act (ESA) of 1973, 16 U.S.C. 1531 et seq., as amended, or identified as sensitive or otherwise requiring special protection by the Regional Forester under Forest Service Manual (FSM) 2670, pursuant to consultation conducted under section 7 of the ESA, may be shown on the ground or on a separate map. The map shall be attached to this permit as an appendix. The holder shall take any protective and mitigative measures specified by the authorized officer. If protective and mitigative measures prove inadequate, if other sites within the permit area containing threatened, endangered, or sensitive species or species otherwise requiring special protection are discovered, or if new species are listed as threatened or endangered under the ESA or identified as sensitive or otherwise requiring special protection by the Regional Forester under the FSM, the authorized officer may specify additional protective and mitigative measures. Discovery of these sites by the holder or the Forest Service shall be promptly reported to the other party.

G. CONSENT TO STORE HAZARDOUS MATERIALS. The holder shall not store any hazardous materials at the site without prior written approval from the authorized officer. This approval shall not be unreasonably withheld. If the authorized officer provides approval, this permit shall include, or in the case of approval provided after this permit is issued, shall be amended to include specific terms addressing the storage of hazardous materials, including the specific type of materials to be stored, the volume, the type of storage, and a spill plan. Such terms shall be proposed by the holder and are subject to approval by the authorized officer.

H. CLEANUP AND REMEDIATION

1. The holder shall immediately notify all appropriate response authorities, including the National Response Center and the authorized officer or the authorized officer's designated representative, of any oil discharge or of the release of a hazardous material in the permit area in an amount greater than or equal to its reportable quantity, in accordance with 33 CFR Part 153, Subpart B, and 40 CFR Part 302. For the purposes of this requirement, "oil" is as defined by section 311(a)(1) of the Clean Water Act, 33 U.S.C. 1321(a)(1). The holder shall immediately notify the authorized officer or the authorized officer's designated representative of any release or threatened release of any hazardous material in or near the permit area which may be harmful to public health or welfare or which may adversely affect natural resources on federal lands.

2. Except with respect to any federally permitted release as that term is defined under Section 101(10) of CERCLA, 42 U.S.C. 9601(10), the holder shall clean up or otherwise remediate any release, threat of release, or discharge of hazardous materials that occurs either in the permit area or in connection with the holder's activities in the permit area, regardless of whether those activities are authorized under this permit. The holder shall perform cleanup or remediation immediately upon discovery of the release, threat of release, or discharge of hazardous materials. The holder shall perform the cleanup or remediation to the satisfaction of the authorized officer and at no expense to the United States. Upon revocation or termination of this permit, the holder shall deliver the site to the Forest Service free and clear of contamination.

I. CERTIFICATION UPON REVOCATION OR TERMINATION. If the holder uses or stores hazardous materials at the site, upon revocation or termination of this permit the holder shall provide the Forest Service with a report certified by a professional or professionals acceptable to the Forest Service that the permit area is uncontaminated by the presence of hazardous materials and that there has not been a release or discharge of hazardous materials upon the permit area, into surface water at or near the permit area, or into groundwater below the permit area during the term of the permit. This certification requirement may be waived by the authorized officer when the Forest Service determines that the risks posed by the hazardous material are minimal. If a release or discharge has occurred, the professional or professionals shall document and certify that the release or discharge has been fully remediated and that the permit area is in compliance with all federal, state, and local laws and regulations.

VI. LAND USE FEE AND ACCOUNTING ISSUES

A. LAND USE FEES. The holder shall pay an initial annual land use fee of \$200.00 for the period from 01/01/2014 to 12/31/2014, and thereafter on January 1, shall pay an annual land use fee of \$200.00. The annual land use fee shall be adjusted annually using the IDP-GNP.

B. MODIFICATION OF THE LAND USE FEE. The land use fee may be revised whenever necessary to reflect the market value of the authorized use or occupancy or when the fee system used to calculate the land use fee is modified or replaced.

C. FEE PAYMENT ISSUES.

1. Crediting of Payments. Payments shall be credited on the date received by the deposit facility, except that if a payment is received on a non-workday, the payment shall not be credited until the next workday.

2. Disputed Fees. Fees are due and payable by the due date. Disputed fees must be paid in full. Adjustments will be made if dictated by an administrative appeal decision, a court decision, or settlement terms.

3. Late Payments

(a) Interest. Pursuant to 31 U.S.C. 3717 et seq., interest shall be charged on any fee amount not paid within 30 days from the date it became due. The rate of interest assessed shall be the higher of the Prompt Payment Act rate or the rate of the current value of funds to the Treasury (i.e., the Treasury tax and loan account rate), as prescribed and published annually or quarterly by the Secretary of the Treasury in the Federal Register and the Treasury Fiscal Requirements Manual Bulletins. Interest on the principal shall accrue from the date the fee amount is due.

(b) Administrative Costs. If the account becomes delinquent, administrative costs to cover processing and handling the delinquency shall be assessed.

(c) Penalties. A penalty of 6% per annum shall be assessed on the total amount that is more than 90 days delinquent and shall accrue from the same date on which interest charges begin to accrue.

(d) Termination for Nonpayment. This permit shall terminate without the necessity of prior notice and opportunity to comply when any permit fee payment is 90 calendar days from the due date in arrears. The holder shall remain responsible for the delinquent fees.

4. Administrative Offset and Credit Reporting. Delinquent fees and other charges associated with the permit shall be subject to all rights and remedies afforded the United States pursuant to 31 U.S.C. 3711 et seq. and common law. Delinquencies are subject to any or all of the following:

(a) Administrative offset of payments due the holder from the Forest Service.

(b) If in excess of 60 days, referral to the Department of the Treasury for appropriate collection action as provided by 31 U.S.C. 3711(g)(1).

(c) Offset by the Secretary of the Treasury of any amount due the holder, as provided by 31 U.S.C. 3720 et seq.

(d) Disclosure to consumer or commercial credit reporting agencies.

VII. REVOCATION, SUSPENSION, AND TERMINATION

A. REVOCATION AND SUSPENSION. The authorized officer may revoke or suspend this permit in whole or in part:

1. For noncompliance with federal, state, or local law.
2. For noncompliance with the terms of this permit.
3. For abandonment or other failure of the holder to exercise the privileges granted.
4. With the consent of the holder.
5. For specific and compelling reasons in the public interest.

Prior to revocation or suspension, other than immediate suspension under clause VI.B, the authorized officer shall give the holder written notice of the grounds for revocation or suspension. In the case of revocation or suspension based on clause VII.A.1, 2, or 3, the authorized officer shall give the holder a reasonable time, typically not to exceed 90 days, to cure any noncompliance.

B. IMMEDIATE SUSPENSION. The authorized officer may immediately suspend this permit in whole or in part when necessary to protect public health or safety or the environment. The suspension decision shall be in writing. The holder may request an on-site review with the authorized officer's supervisor of the adverse conditions prompting the suspension. The authorized officer's supervisor shall grant this request within 48 hours. Following the on-site review, the authorized officer's supervisor shall promptly affirm, modify, or cancel the suspension.

C. APPEALS AND REMEDIES. Written decisions by the authorized officer relating to administration of this permit are subject to administrative appeal pursuant to 36 CFR Part 251, Subpart C, as amended. Revocation or suspension of this permit shall not give rise to any claim for damages by the holder against the Forest Service.

D. TERMINATION. This permit shall terminate when by its terms a fixed or agreed upon condition, event, or time occurs without any action by the authorized officer. Examples include but are not limited to expiration of the permit by its terms on a specified date

and termination upon change of control of the business entity. Termination of this permit shall not require notice, a decision document, or any environmental analysis or other documentation. Termination of this permit is not subject to administrative appeal and shall not give rise to any claim for damages by the holder against the Forest Service.

E. RIGHTS AND RESPONSIBILITIES UPON REVOCATION OR TERMINATION WITHOUT RENEWAL. Upon revocation or termination of this permit without renewal of the authorized use, the holder shall remove all structures and improvements, except those owned by the United States, within a reasonable period prescribed by the authorized officer and shall restore the site to the satisfaction of the authorized officer. If the holder fails to remove all structures and improvements within the prescribed period, they shall become the property of the United States and may be sold, destroyed, or otherwise disposed of without any liability to the United States. However, the holder shall remain liable for all costs associated with their removal, including costs of sale and impoundment, cleanup, and restoration of the site.

VIII. MISCELLANEOUS PROVISIONS

A. MEMBERS OF CONGRESS. No member of or delegate to Congress or resident commissioner shall benefit from this permit either directly or indirectly, except to the extent the authorized use provides a general benefit to a corporation.

B. CURRENT ADDRESSES. The holder and the Forest Service shall keep each other informed of current mailing addresses, including those necessary for billing and payment of land use fees.

C. SUPERSEDED PERMIT. This permit supersedes a special use permit designated Kenai Hydro, LLC, SEW457, dated 06/24/2009.

D. SUPERIOR CLAUSES. If there is a conflict between any of the preceding printed clauses and any of the following clauses, the preceding printed clauses shall control.

E. ARCHAEOLOGICAL-PALEONTOLOGICAL DISCOVERIES (R10-X106). Items of historic, prehistoric, or paleontological value are protected under various Federal laws, including the Antiquities Act of 1906 (16 U.S.C. 433), the Archaeological Resource Protection Act of 1979 (16 U.S.C. 47033) as amended, and Federal regulations. If historic, prehistoric, or paleontological objects or sites are discovered during activities under this permit, the holder is responsible for assuring that those objects or sites are not disturbed during the course of the activities of the holder or the holder's clients. The holder must notify the Forest Service of such discovery at the earliest opportunity. Failure to comply with this clause may result in criminal prosecution of the holder for violation of a Federal law or regulation.

This permit is accepted subject to the conditions set out above.

HOLDER: Kenai Hydro, LLC

U.S. DEPARTMENT OF AGRICULTURE
Forest Service

By: _____
(Holder Signature)

By: _____
TOM MALECEK, District Ranger

Date: _____

Date: _____

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond, to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and, where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

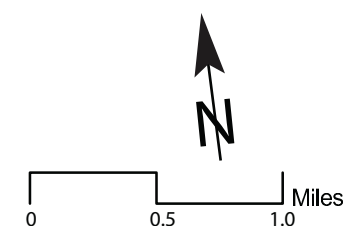
KENAI HYDRO

FIGURE 1

Appendix A-1
SEW594 Kenai Hydro, LLC.

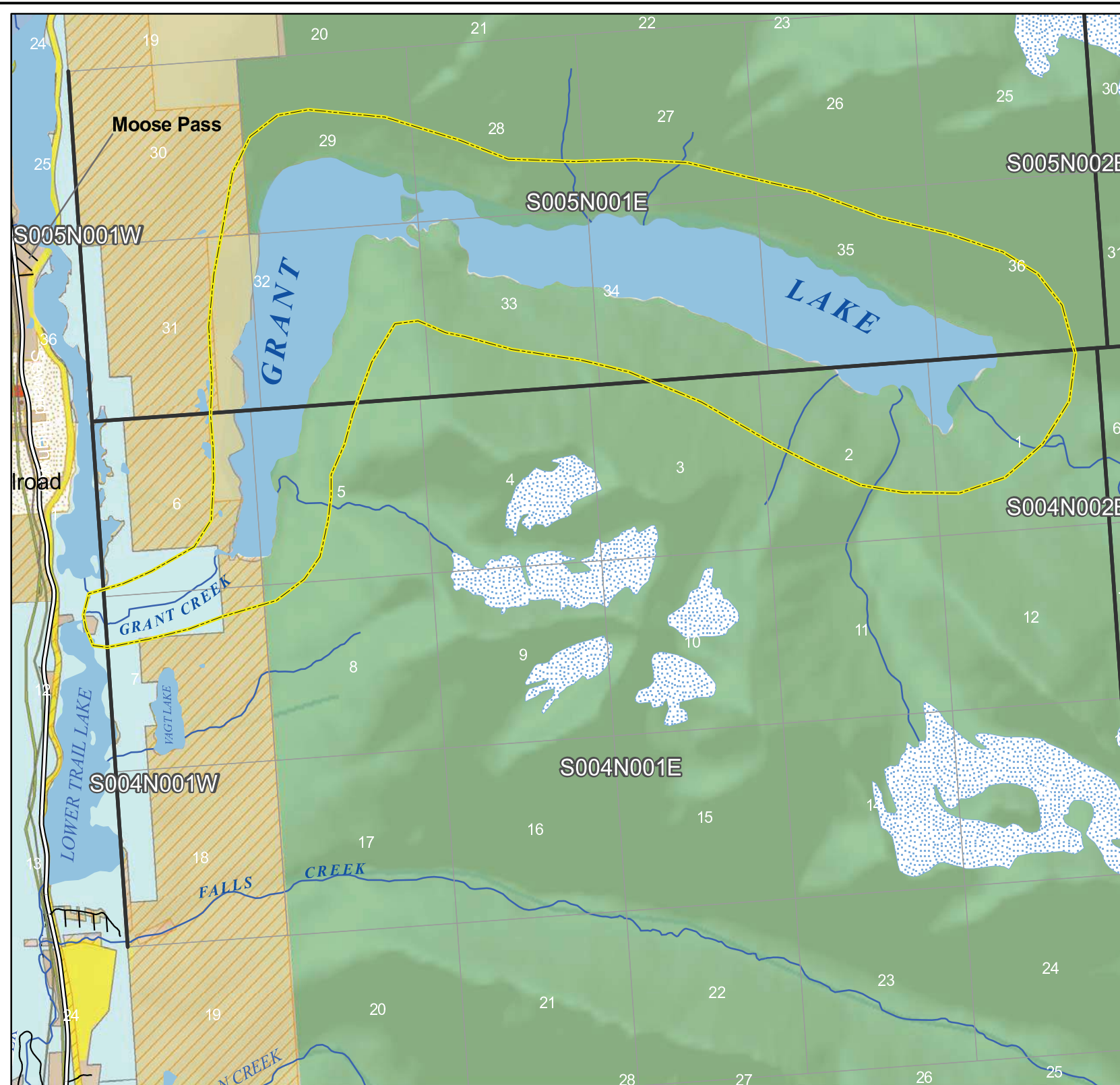
Legend

- Project Area
- Lakes
- Glaciers
- Rivers
- Easement
- Mental HealthTrust
- Management Agreement
- Permit/Lease
- Municipal Entitlement
- Alaska Railroad
- Chugach National Forest
- State



Date: 07 April 2009
Author: HDR Alaska
Sources: ADNR, USFS





HDR

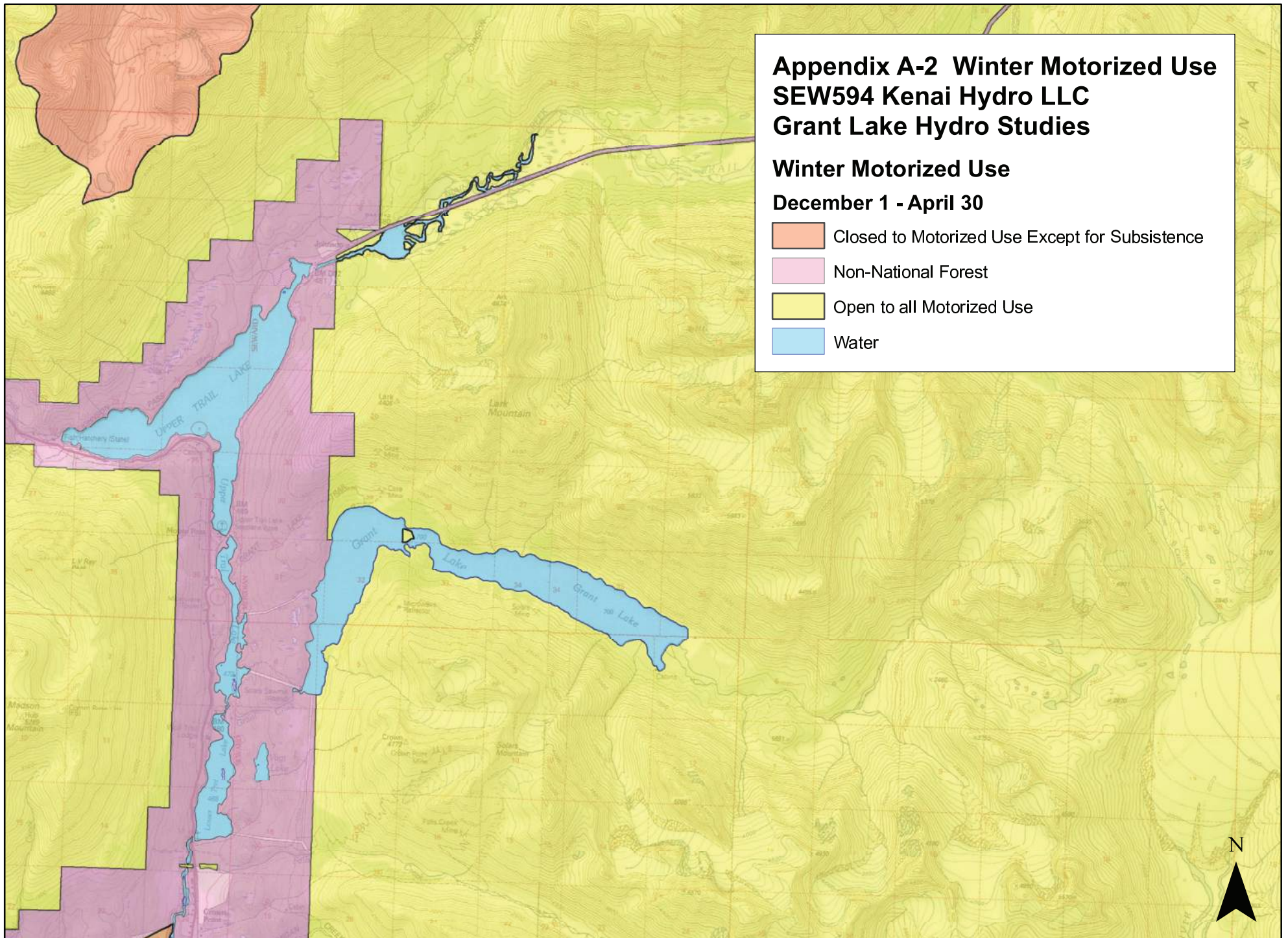


Appendix A-2 Winter Motorized Use SEW594 Kenai Hydro LLC Grant Lake Hydro Studies

Winter Motorized Use






December 1 - April 30

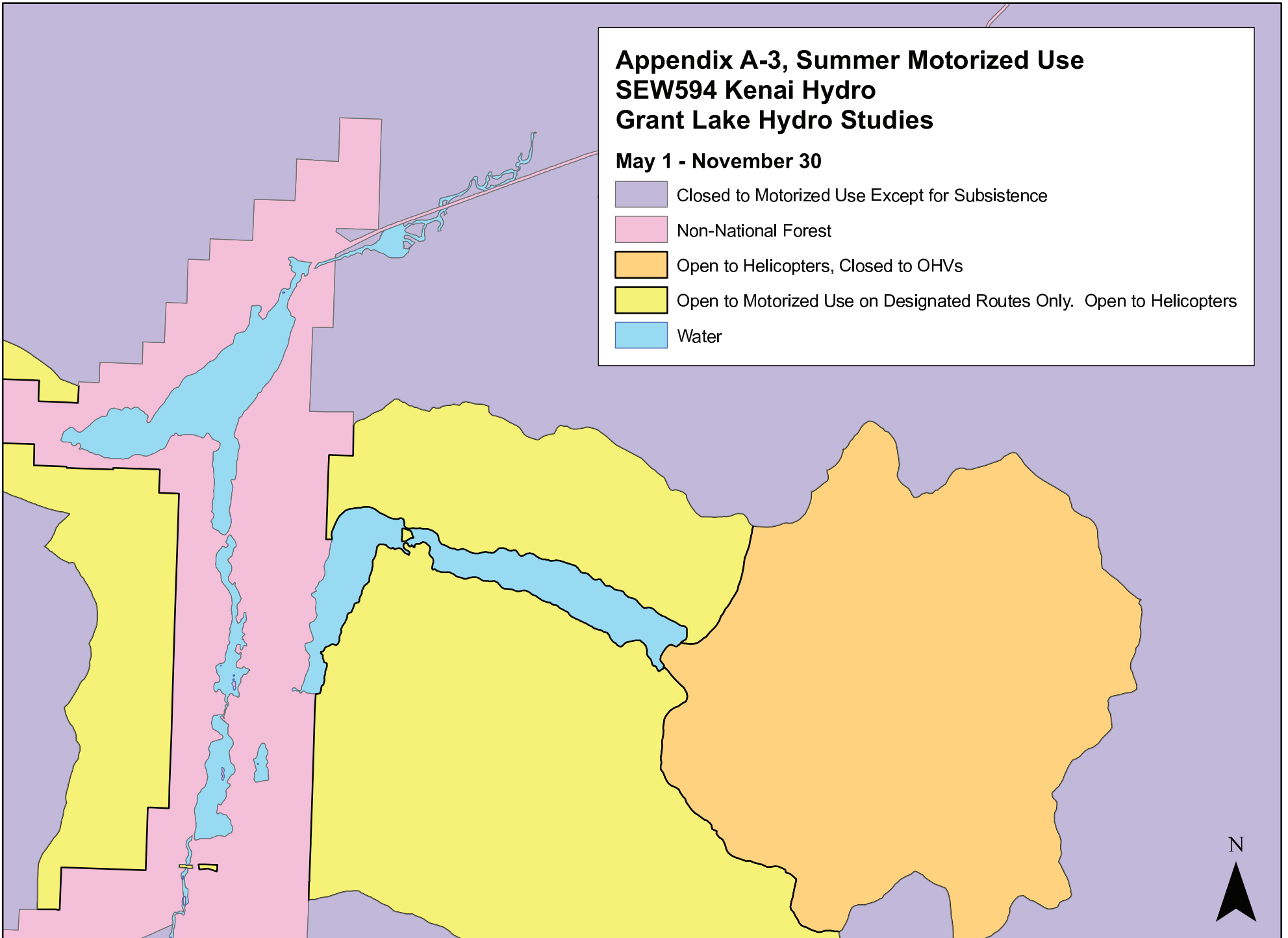
-  Closed to Motorized Use Except for Subsistence
-  Non-National Forest
-  Open to all Motorized Use
-  Water



Appendix A-3, Summer Motorized Use SEW594 Kenai Hydro Grant Lake Hydro Studies

May 1 - November 30

-  Closed to Motorized Use Except for Subsistence
-  Non-National Forest
-  Open to Helicopters, Closed to OHVs
-  Open to Motorized Use on Designated Routes Only. Open to Helicopters
-  Water



From: Cory Warnock
Sent: Thursday, February 27, 2014 7:48 PM
To: Mike Salzetti
Cc: Emily Andersen
Subject: FW: March meeting schedule
Attachments: ~WRD000.jpg

From: Thomas, Cassie [mailto:cassie_thomas@nps.gov]
Sent: Thursday, February 27, 2014 12:04 PM
To: Eric Rothwell - NOAA Federal
Cc: Steve Padula; Cory Warnock; Betsy McGregor; Susan Walker - NOAA Federal
Subject: Re: March meeting schedule

Hi Eric and others,

AEA did consult with me before rescheduling the rec and aesthetics meeting for May 1st, which I appreciated due to my busy spring schedule. Like you, I am already committed to attend the Grant Lake consultations, and made that commitment well before FERC's decision on AEA's request to delay the ISR had been made. So I agree that, at this point, AEA should defer to the previously-scheduled Grant Lake meetings and find new times for the TWG meetings on the Susitna project. Not only is Grant Lake being handled by the same consultant, but its license and study process is more dependent on the results of this March's consultation meetings than the Susitna project would be at this point, due to the delay in the latter's ISR and studies.

My 2¢ worth . . .

Cassie Thomas
Program Analyst

WASO Park Planning & Special Studies Division
[Park Planning Website](#)

AK Coordinator, NPS Hydropower Assistance Program
[NPS Hydropower Program website](#) (NOTE: the contact info for me on this website is outdated. Please use the phone number below, instead.)

11081 Glazanof Dr. Rm. 108
Anchorage AK 99507

Work Cell 907 350-4139 Note: Alaska is four hours behind Eastern time

`.._.._`.._.._>((((>`.._.._`.._.._`.._.._

On Thu, Feb 27, 2014 at 10:44 AM, Eric Rothwell - NOAA Federal <eric.rothwell@noaa.gov> wrote:
Hi all.

I just noticed that AEA has put up Susitna meetings during the week of March 17th. This coincides with previously scheduled meetings for the Grant Lake project, which a number of us are scheduled to attend. The Grant Lake meetings were scheduled in January, I responded to McMillan (who was scheduling the meetings) about my attendance to these meetings specifically because there were no longer Susitna meetings on those dates. We have requested, and I vaguely remember AEA agreeing, that the protocol for scheduling the Susitna meetings was to give at least a months notice? I suggest AEA reschedule the Susitna meetings.

Best regards,
Eric

--

Eric Rothwell

Hydrologist

NOAA Fisheries

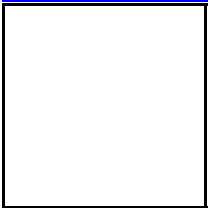
U.S. Department of Commerce

eric.rothwell@noaa.gov

907.271.1937

www.nmfs.noaa.gov

www.alaskafisheries.noaa.gov



No virus found in this message.

Checked by AVG - www.avg.com

Version: 2014.0.4259 / Virus Database: 3705/7130 - Release Date: 02/27/14

From: Cory Warnock
Sent: Thursday, February 27, 2014 9:05 PM
To: Monte Miller; Cassie Thomas; Brenda Trefon; Eric Rothwell; David Griffin (david.griffin@alaska.gov); pamela.russell@alaska.gov; Jason Mouw; mcooney@arctic.net; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); Shina Duvall; waterlaw@uci.net; 'kenailake@arctic.net'
Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen
Subject: NRWG Resource Reports (Grant Lake)

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resource Work Group Members (NRWG):

Hello Grant Lake Project NRWG Members,

I wanted to let you know that additional draft study reports have been posted to the ftp site for review. They are the:

- Grant Lake Terrestrial Resources Draft Study Report
- Grant Lake Geomorphology Draft Study Report

As a reminder I've posted the instructions for accessing the ftp site below. In addition, I wanted to let you know that I am in the process of finalizing meeting logistics and you will be receiving an email from me shortly with the details. Thanks and as always, please don't hesitate to let me know if you have any questions.

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5. ***Once complete, the main folder and files for the project should be viewable.***
6. ***If there are multiple folders on the site, you must click on the plus (+) sign to the left of the main folder in order to view all other folders.***

Username – Grant Lake1
Password – Reports_2014

Cory Warnock
Senior Licensing and Regulatory Consultant

McMillen, LLC
www.mcmillen-llc.com
5771 Applegrove Ln.
Ferndale, Wa. 98248
O – 360-384-2662
C – 360-739-0187
F – 360-542-2264

From: Cory Warnock
Sent: Thursday, February 27, 2014 9:06 PM
To: Monte Miller; Jeffry Anderson (Jeffry_Anderson@fws.gov); Eric Rothwell; pamelarussell@alaska.gov; Patricia Berkahn (patricia.berkahn@alaska.gov); Jason Mouw; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Joe Klein; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); kenailake@arctic.net; mcooney@arctic.net
Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen
Subject: ARWG Resource Reports (Grant Lake)

Grant Lake Hydroelectric Project (FERC No. 13212) Aquatic Resource Work Group Members (NRWG):

Hello Grant Lake Project ARWG Members,

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Please note that the contacts receiving this email are directly related to my previous requests for notification of representatives for the respective work groups. If someone has either not responded to those requests or someone else within your respective agencies would like to be involved for technical reasons, please let me know and I'll get the appropriate information distributed.

Thank you, let me know if you have any questions and instructions for accessing the appropriate folder on our ftp site are below.

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From: salvagerecovery@gmail.com on behalf of Michael R Yarborough
<mry@crcalaska.com>
Sent: Friday, February 28, 2014 2:34 PM
To: Dara Glass
Subject: Re: Grant Lake Hydroelectric Project (FERC No. 13212) archaeological and historic study report
Attachments: agreeviewreport.pdf

Dara

I am sorry to hear that you have a conflict and will not be able to participate in the Grant Lake cultural resources discussion on March 21. However, please understand that we do not have much flexibility on the date, as our working group is but one of several project stakeholder meetings going on in Anchorage Tuesday - Friday of that week. Cory Warnock of McMillen did want me to let you know that you are welcome to participate in any of the other natural resource discussions earlier in the week.

If there is a chance that someone from CIRI could participate, we will have both a webinar and conference call set up, in addition to the physical meeting space in Anchorage. I do have a CD of the report and maps for you to comment on, although could you please sign and return the attached form if CIRI does not already have an AHRs user agreement with OHA.

Thank you, and please let me know if you have any questions.

Mike

--

Michael R. Yarborough
Senior Archeologist
Cultural Resource Consultants LLC
3504 E. 67th Avenue
Anchorage, Alaska 99507

Anchorage: [\(907\) 349-3445](tel:(907)349-3445)
Cell: [\(907\) 306-6069](tel:(907)306-6069)

On Tue, Feb 18, 2014 at 1:52 PM, Dara Glass <dglass@ciri.com> wrote:

Hi Mike,

While I greatly appreciate being invited to this meeting, wouldn't it make more sense to find a time which the majority of those involved can attend? CIRI is not available on March 21 and would very much like to be a part of this. If I recall correctly, we ran into

this same issue last year. Would it be possible to provide us with several different dates and times as possibilities?

Also, please keep in mind the Susitna-Watana project is kicking into full gear in March with FERC meetings and many of us are also involved with that (I think that's why we had issues with scheduling last year as well.)

Thank you.

Dara

Dara Glass

CIRI Land Manager

Direct: [907.263.5140](tel:907.263.5140)

Cell: [907.229.7052](tel:907.229.7052)

AGREEMENT FOR VIEWING REPORTS

☐ New

☐ Renewal

☐ Changed Affiliation

The Alaska Heritage Resources Survey (AHRS) is an inventory of **reported** historic, prehistoric, and paleontological sites within the State of Alaska and is maintained by the Office of History and Archaeology (OHA). This is a restricted data set only available to authorized users under a signed User Agreement with the Alaska Office of History and Archaeology. The data is restricted to protect sensitive cultural sites against unauthorized disturbance. Access to AHRS and related information is closed to the general public. Restricted or confidential site information is withheld from public records disclosure under state law (AS 40.25.110) and under the federal Freedom of Information Act (PL 89-554). The restriction of site inventory information is allowed by AS 40.25.120(a)(4), Alaska State Parks Policy and Procedure No. 50200, the National Historic Preservation Act (PL 89-665, 16 U.S.C. 470), and the Archaeological Resources Protection Act (PL 96-95).

Authorized users include, but are not limited to representatives of federal, state or local governments or agencies, scientific researchers, or organizations or individuals conducting cultural resource surveys aimed at fulfilling federal and state cultural resource protection activities.

Please list your report request here or attach a list.

Grant Lake Hydroelectric Project (FERC No. 13212) Cultural Resources Study Draft Report. Prepared for Kenai Hydro, LLC. Prepared by S. Meitl, A. Morrison, M. Yarborough, and C. Kennedy. Cultural Resource Consultants LLC. February 2014.

Reports associated with the AHRS data set contain confidential information. This agreement allows for the sharing of specified reports with those that do not require access to the entire AHRS dataset.

By signing this agreement:

☐ I acknowledge that I understand the confidential nature of the information contained in cultural resource reports associated with the AHRS.

☐ I will keep the report confidential and not copy or share the report with unauthorized persons.

Applicant Signature: _____ Date: _____

Name: _____

Job Title: _____

Affiliation: _____

email: _____

Phone Number: _____

OHA Use Only----- ☐ Approved ☐ Disapproved

Approved By: _____

Date: _____ Access Expiration Date: _____

From: Emily Andersen
Sent: Friday, February 28, 2014 1:33 PM
To: Cory Warnock; Stovall, Robert -FS
Cc: Mike Salzetti
Subject: RE: Grant Lake Report Meeting
Attachments: NRWG Resource Reports (Grant Lake); ARWG Resource Reports (Grant Lake); Grant Lake Resource Reports

Hello Robert. Attached are the emails that have gone out regarding reports. Reports provided to date include, macroinvertebrates/periphyton, water quality/hydrology, geomorphology, terrestrial, and recreation/visual. Still to come are fisheries and instream flow.

All reports are available on McMillen's ftp site (access instructions below).

To access the McMillen, LLC FTP site:

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Username – Grant Lake1
Password – Reports_2014

If any questions, please let me know. Thank you.

Emily Andersen
Senior Licensing and Regulatory Specialist

McMillen, LLC
2525 NW Raleigh Street, Portland, OR 97210
p 503.827.8089 | f 503.827.8048 | c 503.799.4189
emily.andersen@mcmillen-llc.com | www.mcmillen-llc.com

From: Cory Warnock
Sent: Friday, February 28, 2014 1:24 PM
To: Stovall, Robert -FS
Cc: Emily Andersen; Mike Salzetti
Subject: RE: Grant Lake Report Meeting

Thanks Robert for the response. I've Cc'd Emily on this response and she will provided you with access to the reports that have been distributed to stakeholders thus far. The remainder will come out early next week. We will hold the meetings as planned and as details related to comments and next steps develop, I'll keep you posted.

Cory

From: Stovall, Robert -FS [<mailto:rstovall@fs.fed.us>]
Sent: Friday, February 28, 2014 1:13 PM
To: Cory Warnock
Subject: RE: Grant Lake Report Meeting

Cory:

I apologize for not getting back to you as I was waiting for when the actual reports would be released prior to the scheduled meetings. The Forest Service has been meeting to discuss the level of involvement and funding mechanism for completing the review of the investigative studies and attendance at the meeting. Some of our key specialist have been very busy with providing input to the Forest Assessment portion of the Forest Plan Revision, which is the highest priority on the Forest. The Final review of the assessment will happen March 7-21 and therefore the Forest Hydrologist and District Fish and Wildlife Biologists would not be able to attend the meetings scheduled for the week of March 17-21

If the Reports are available for review we could let the other specialist begin their review process. Do you folks have a time frame for when you want to have comments back as I will be consolidating our responses. How will you folks be distributing the Study reports and when will this occur?

I have received your emails (last one dated January 27th) and have been working with a very busy staff keeping them and our Forest Supervisor abreast of the Grant Lake Hydro Investigative Studies.

Please feel free to call me if you feel I am not being responsive and I will attempt to keep you folks better informed as to the Forest Service interactions with this project.

Thank you for your update.

Robert

Deputy District Ranger
Chugach NF, Seward RD
Po Box 390, 334 Fourth Ave.
Seward, AK 99664
Seward office # 907 743-9474; KLWC # 288-7707
Gov. Cell # 907 399-3966

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Thursday, February 27, 2014 8:13 PM
To: Stovall, Robert -FS
Subject: Grant Lake Report Meeting

Hi Robert,

I haven't spoken to you in a while and am somewhat concerned regarding the USFS's lack of response related to proceedings with Grant Lake. I know we spoke late last year regarding your staff's allocation of resources and your inquiry/request related to my approximation of level of effort that should be assigned by the USFS to adequately review/consult on the project. Based on that conversation, I was expecting to hear back from you regarding what you had internally determined. In addition, I've sent a number of emails related to our ongoing study effort, plans for resource report meetings and designation of working groups to you but haven't heard back. Per those emails and subsequent agreements, we've moved forward with planning but I did want to check in with you and inquire one last time if you had any questions or would like to be involved in the meetings.

Hope all is well,

Cory

Cory Warnock

Senior Licensing and Regulatory Consultant

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No virus found in this message.

Checked by AVG - www.avg.com

Version: 2014.0.4259 / Virus Database: 3705/7134 - Release Date: 02/28/14

From: Cory Warnock
Sent: Tuesday, February 11, 2014 7:04 PM
To: Monte Miller; Cassie Thomas; Brenda Trefon; Eric Rothwell; David Griffin (david.griffin@alaska.gov); pamela.russell@alaska.gov; Jason Mouw; mcooney@arctic.net; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); Shina Duvall; waterlaw@uci.net; 'kenailake@arctic.net'
Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen
Subject: Grant Lake Resource Reports

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resource Work Group Members (NRWG):

Hello Grant Lake Project NRWG Members,

Per earlier communications and as promised, I wanted to let you know that we have begun posting Natural Resource Reports related to the Grant Lake Project to an ftp site for your download and review (instructions below). Currently, the Water Quality/Hydrology and Recreational and Visual Resources Reports are posted to the site. Over the next two to three weeks, we will be posting the remainder of the reports (Terrestrial, Geomorphology, Fisheries, Instream Flow, Macroinvertebrates) to the site as well. As that occurs, the appropriate set of work group representatives will be notified of the upload so that they have ample time to review in advance of the meetings that will be occurring during the week of March 17th (per previous communications). To that end, the global group (NRWG and ARWG) will be receiving additional logistical information related to the meetings in the coming weeks as well. As a reminder, the NRWG meeting will occur on March 18th and the ARWG meetings will be on the 19th and 20th.

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Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen
Subject: NRWG Resource Reports (Grant Lake)

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resource Work Group Members (NRWG):

Hello Grant Lake Project NRWG Members,

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- Grant Lake Terrestrial Resources Draft Study Report
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As a reminder I've posted the instructions for accessing the ftp site below. In addition, I wanted to let you know that I am in the process of finalizing meeting logistics and you will be receiving an email from me shortly with the details. Thanks and as always, please don't hesitate to let me know if you have any questions.

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Sent: Thursday, February 27, 2014 9:06 PM
To: Monte Miller; Jeffry Anderson (Jeffry_Anderson@fws.gov); Eric Rothwell; pamelarussell@alaska.gov; Patricia Berkahn (patricia.berkahn@alaska.gov); Jason Mouw; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Joe Klein; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); kenailake@arctic.net; mcooney@arctic.net
Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen
Subject: ARWG Resource Reports (Grant Lake)

Grant Lake Hydroelectric Project (FERC No. 13212) Aquatic Resource Work Group Members (NRWG):

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F – 360-542-2264

From: Cory Warnock
Sent: Tuesday, March 04, 2014 2:12 PM
To: Mouw, Jason E B (DFG)
Cc: Emily Andersen
Subject: RE: ARWG Resource Reports (Grant Lake)

I can send you some of the reports (one by one) via email. There are a couple however, that I can't that I need to think about. You don't by chance have dropbox do you?

From: Mouw, Jason E B (DFG) [<mailto:jason.mouw@alaska.gov>]
Sent: Tuesday, March 04, 2014 2:08 PM
To: Cory Warnock
Cc: Emily Andersen
Subject: RE: ARWG Resource Reports (Grant Lake)

Hi Corey,

5 megs.

Jason

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Tuesday, March 04, 2014 12:31 PM
To: Mouw, Jason E B (DFG)
Cc: Emily Andersen
Subject: RE: ARWG Resource Reports (Grant Lake)

Hi Jason,

What file size will your email allow?

From: Mouw, Jason E B (DFG) [<mailto:jason.mouw@alaska.gov>]
Sent: Tuesday, March 04, 2014 12:47 PM
To: Cory Warnock
Subject: RE: ARWG Resource Reports (Grant Lake)

Hi Corey,

We don't have access to your client login pop-up box (your ftp site), even after disabling the pop-up blocker. I am trying to reconcile this. In the mean time, let me know if you can think of another way to get these documents to us.

Thanks,

Jason

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Thursday, February 27, 2014 8:06 PM
To: Miller, Monte D (DFG); Jeffry Anderson (Jeffry_Anderson@fws.gov); Eric Rothwell; Russell, Pamela J (DNR); Berkahn, Patricia G (DFG); Mouw, Jason E B (DFG); 'Katherine McCafferty' (katherine.a.mccafferty2@usace.army.mil)';

Klein, Joseph P (DFG); Schade, David W (DNR); Alstrom, Audrey D (AIDEA); kenailake@arctic.net; mcooney@arctic.net

Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen

Subject: ARWG Resource Reports (Grant Lake)

Grant Lake Hydroelectric Project (FERC No. 13212) Aquatic Resource Work Group Members (NRWG):

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Ferndale, Wa. 98248

O – 360-384-2662

C – 360-739-0187

From: Cory Warnock
Sent: Tuesday, March 04, 2014 2:27 PM
To: Mouw, Jason E B (DFG)
Cc: Emily Andersen
Subject: RE: FTP Site

Just tried logging on several times and it doesn't like that user name and/or password.

From: Mouw, Jason E B (DFG) [mailto:jason.mouw@alaska.gov]
Sent: Tuesday, March 04, 2014 2:21 PM
To: Cory Warnock
Cc: Emily Andersen
Subject: FW: FTP Site

Corey,

How about if you upload it to our ftp site? See below for login and password.

Thanks,

Jason

From: Houston, Linda L (DFG)
Sent: Tuesday, March 04, 2014 1:18 PM
To: Mouw, Jason E B (DFG)
Subject: FTP Site

Click on link - <ftp://dfgshare@transfer.state.ak.us>

Provide login/pass

Login: dfgshare

Password: dfgsharePW

Linda Houston
Microcomputer/Network Technician II
State of Alaska, Dept. of Fish and Game

No virus found in this message.

Checked by AVG - www.avg.com

Version: 2014.0.4259 / Virus Database: 3705/7145 - Release Date: 03/03/14

From: Cory Warnock
Sent: Tuesday, March 04, 2014 3:47 PM
To: Jason Mouw
Cc: Emily Andersen
Subject: Email #1 (Geomorph)
Attachments: Grant Lk Geomorphology Draft Report Feb 2014 FINAL.pdf

Categories: Green Category

Cory Warnock
Senior Licensing and Regulatory Consultant

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F – 360-542-2264

From: Cory Warnock
Sent: Tuesday, March 04, 2014 3:47 PM
To: Jason Mouw
Cc: Emily Andersen
Subject: Email #2 (Macroinverts)
Attachments: Grant Lk Macroinvertebrate Draft Report Feb 2014 FINAL.pdf

Cory Warnock
Senior Licensing and Regulatory Consultant

McMillen, LLC
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F – 360-542-2264

From: Cory Warnock
Sent: Tuesday, March 04, 2014 3:47 PM
To: Jason Mouw
Cc: Emily Andersen
Subject: Email #3 (Rec/Vis)
Attachments: Grant Lk RecVis Draft Report Feb 2014 FINAL.pdf

Cory Warnock
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From: Mouw, Jason E B (DFG) <jason.mouw@alaska.gov>
Sent: Tuesday, March 04, 2014 3:57 PM
To: Cory Warnock
Cc: Emily Andersen
Subject: RE: Email #4 (WQ/Hydrology)

All came through.

Thanks!

From: Cory Warnock [mailto:cory.warnock@mcmillen-llc.net]
Sent: Tuesday, March 04, 2014 2:48 PM
To: Mouw, Jason E B (DFG)
Cc: Emily Andersen
Subject: Email #4 (WQ/Hydrology)

Cory Warnock
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From: Cory Warnock
Sent: Tuesday, March 04, 2014 3:48 PM
To: Jason Mouw
Cc: Emily Andersen
Subject: Email #4 (WQ/Hydrology)
Attachments: Grant Lk WQ-Hydrology Draft Report Feb 2014 FINAL.pdf

Cory Warnock
Senior Licensing and Regulatory Consultant

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C – 360-739-0187
F – 360-542-2264

From: Cory Warnock
Sent: Tuesday, March 04, 2014 3:38 PM
To: Monte Miller; Cassie Thomas; Brenda Trefon; Eric Rothwell; David Griffin (david.griffin@alaska.gov); pamela.russell@alaska.gov; Jason Mouw; mcooney@arctic.net; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); Shina Duvall; waterlaw@uci.net; 'kenailake@arctic.net'; 'rstovall@fs.fed.us'
Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen
Subject: Grant Lake Natural Resource Work Group Meeting Agenda
Attachments: Grant Lake Hydroelectric Project Natural Resources Study Report Meeting Agenda (NRWG).pdf

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resource Work Group Members (NRWG):

Hello Grant Lake Project NRWG Members,

Attached is the agenda and logistical information for the Tuesday, March 18th Grant Lake meeting. After the agenda, the information related to remotely connecting to the meeting (webinar) is also included.

As always, let me know if you have any questions and I'll look forward to seeing you on the 18th.

Cory

Cory Warnock

Senior Licensing and Regulatory Consultant

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Grant Lake Hydroelectric Project (FERC No. 13212)
Grant Lake Project Aquatic Resource Work Group Meeting
March 19, 2014
Aspen Suites Hotel, 100 E. Tudor Rd., Anchorage, AK
8:00 am to 5:00 pm

8:00am – 8:30am

- **Introductions and Agenda (C. Warnock/ M. Salzetti)**
 - Introductions
 - Progress summary
 - Meeting intent
 - Agenda

8:30am – 10:30am

- **Grant Lake Engineering Feasibility Presentation (M. McMillen)**
 - Historical review
 - Itemized status of tasks
 - Current infrastructural and operational scenarios
 - Deliverables
 - Next steps
 - Questions/comments

10:30am – 10:45am

- **Break**

10:45am – 12:15pm

- **Macroinvertebrate Study Results Presentation (S. Morsell/C. Sauvageau)**
 - 2013 studies list
 - Methods
 - Results
 - Impacts discussion
 - Questions/comments
 - Next steps

12:15pm – 1:15pm

- **Lunch (on your own)**

*Snacks to be provided during the day

1:15pm – 3:15pm

- **Fisheries Study Results Presentation (J. Stevenson)**
 - 2013 studies list
 - Methods
 - Results
 - Impacts discussion
 - Questions/comments

- Next steps
- Questions/comments

3:15pm – 3:30pm

- **Break**

3:30pm – 4:30pm

- **General Aquatics Discussion**
 - Integrated questions/comments/concerns
 - Impacts discussion
 - Next steps

4:30pm-5:00pm

- **Licensing Path Forward (C. Warnock)**
 - Where are we in the process?
 - Path forward
 - Anticipated Schedule
 - Next steps
 - Website and SharePoint posting
 - Global questions/comments

5:00pm

- **Adjourn**

*For those participating via webinar, the information below will allow you to see and hear the proceedings.

1. Please join my meeting.

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2. Use your microphone and speakers (VoIP) - a headset is recommended. Or, call in using your telephone.

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Meeting ID: 155-606-509

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From: Cory Warnock
Sent: Tuesday, March 04, 2014 3:51 PM
To: Monte Miller; Jeffry Anderson (Jeffry_Anderson@fws.gov); Eric Rothwell; pamelarussell@alaska.gov; Patricia Berkhahn (patricia.berkhahn@alaska.gov); Jason Mouw; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Joe Klein; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); kenailake@arctic.net; mcooney@arctic.net; 'rstovall@fs.fed.us'
Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen
Subject: Grant Lake Aquatic Resource Work Group Meeting Agenda
Attachments: Grant Lake Hydroelectric Project Natural Resources Study Report Meeting Agenda (ARWG Day 1).pdf; Grant Lake Hydroelectric Project Natural Resources Study Report Meeting Agenda (ARWG Day 2).pdf

Grant Lake Hydroelectric Project (FERC No. 13212) Aquatic Resource Work Group Members (ARWG):

Hello Grant Lake Project ARWG Members,

Attached are the agendas and logistical information for the Wednesday and Thursday(March 19th and 20th) Grant Lake Aquatic Resource Meetings. After the agenda, the information related to remotely connecting to the meetings (webinar) is also included.

As always, let me know if you have any questions and I'll look forward to seeing you on the 19th and 20th.

Cory

Cory Warnock
Senior Licensing and Regulatory Consultant

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Grant Lake Hydroelectric Project (FERC No. 13212)
Grant Lake Project Aquatic Resource Work Group Meeting (Day 2)
March 20, 2014
Aspen Suites Hotel, 100 E. Tudor Rd., Anchorage, AK
8:00 am to 3:00 pm

8:00am – 8:30am

- **Introductions and Agenda (C. Warnock/ M. Salzetti)**
 - Introductions
 - Day 2 Meeting intent
 - Agenda

8:30 – 10:30am

- **Instream Flow Study Results (J. Blum)**
 - Methods
 - Results
 - Impacts discussion
 - Questions/comments
 - Next steps
 - Directed instream flow meeting?

10:30am – 10:45am

- **Break**

10:45am – 12:15pm

- **Integrated Natural Resources/Engineering Discussion**
 - KHL's general operational approach
 - Benefit to Grant Creek habitat
 - Mainstem
 - Reach 5
 - Side channel
 - Questions/concerns
 - Next steps
 -
 - Directed engineering meetings?
 - Instream flow discussions?

12:15pm – 1:15pm

- **Lunch (on your own)**

*Snacks to be provided during the day

1:15pm – 3:00pm

- **Continued Global Discussion and Scheduling (as needed)**

3:00pm

- **Adjourn**

*For those participating via webinar, the information below will allow you to see and hear the proceedings.

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<https://global.gotomeeting.com/join/225688029>

2. Use your microphone and speakers (VoIP) - a headset is recommended. Or, call in using your telephone.

Dial +1 (773) 945-1030

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Grant Lake Hydroelectric Project (FERC No. 13212)
Grant Lake Project Natural Resource Work Group Meeting
March 18, 2014
Aspen Suites Hotel, 100 E. Tudor Rd., Anchorage, AK
8:00 am to 5:30 pm

8:00am – 8:30am

- **Introductions and Agenda (C. Warnock/ M. Salzetti)**
 - Introductions
 - Progress summary
 - Meeting intent
 - Agenda

8:30am – 10:30am

- **Grant Lake Engineering Feasibility Presentation (M. McMillen)**
 - Historical review
 - Itemized status of tasks
 - Current infrastructural and operational scenarios
 - Deliverables
 - Next steps
 - Questions/comments

10:30am – 10:45am

- **Break**

10:45am – 12:45pm

- **Terrestrial Resources Presentation (L. Shoutis/A. Ajmi/K. Beck)**
 - 2013 studies list
 - Methods
 - Results
 - Impacts discussion
 - Questions/comments
 - Next steps

12:45pm – 1:45pm

- **Lunch (on your own)**

*Snacks to be provided during the day

1:45pm – 3:30pm

- **Water Resources Presentation (C. Sauvageau/P. Pittman)**
 - 2013 studies list
 - Methods
 - Results
 - Impacts discussion
 - Questions/comments
 - Next steps

3:30pm – 3:45pm

- Break

3:45pm – 5:00pm

- **Recreational and Visual Resources Presentation (D. Adams)**
 - 2013 studies list
 - Methods
 - Results
 - Impacts discussion
 - Questions/comments
 - Next steps

5:00pm-5:30pm

- **Licensing Path Forward (C. Warnock)**
 - Where are we in the process?
 - Path forward
 - Anticipated Schedule
 - Next steps
 - Website and SharePoint posting
 - Global questions/comments

5:30pm

- Adjourn

*For those participating via webinar, the information below will allow you to see and hear the proceedings.

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Meeting ID: 347-961-549

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From: Emily Andersen
Sent: Tuesday, March 04, 2014 6:32 AM
To: Stovall, Robert -FS; Coleman, Angela J -FS; Clark, Paul D -FS; Eavis, John -FS; Fitzpatrick, Mike -FS; Ilse, Jessica K -FS; Klein, Amy -FS; Lang, John S -FS; Kime, Sherry D -FS; Rowe, William L -FS; Laves, Kevin -FS
Cc: Van Massenhove, Katherine B -FS; Malecek, Thomas -FS; Kromrey, Karen -FS
Subject: RE: Grant Lake Report Meeting

Hello Robert et al. Per previous emails, the Natural Resources Work Group (NRWG) meeting will occur on March 18th and the Aquatic Resources Work Group (ARWG) meetings will be on the 19th and 20th –NRWG covering water resources, terrestrial, and recreation/visual, and ARWG covering fish, instream flow and macroinvertebrates. Also, the Cultural Resources Work Group (CRWG) is meeting on the morning of the 21st.

Agendas for the 18th-20th are forthcoming for exactly when each study area will be discussed on the given day. If any more questions, just let me know. Thanks, Emily

From: Stovall, Robert -FS [mailto:rstovall@fs.fed.us]
Sent: Monday, March 03, 2014 5:58 PM
To: Coleman, Angela J -FS; Clark, Paul D -FS; Eavis, John -FS; Fitzpatrick, Mike -FS; Ilse, Jessica K -FS; Klein, Amy -FS; Lang, John S -FS; Kime, Sherry D -FS; Rowe, William L -FS; Laves, Kevin -FS
Cc: Emily Andersen; Van Massenhove, Katherine B -FS; Malecek, Thomas -FS; Kromrey, Karen -FS
Subject: FW: Grant Lake Report Meeting

Folks:

This is the site and access to find the Grant Lake Hydro Project Pre FERC Investigative Study Reports for Terrestrial and Water Resources. A PIL will be coming out soon for FS review of these reports and our subsequent comments. I will be coordinating our response and comments once received.

Folks, I realize that the Forest has higher priorities and therefore you may not be able to complete this review. If so please let me know. I will work with Staff and Supervisors to find someone who would be able to. We should have 30-60 days to complete our review and get comments back to McMillen/HEA.

McMillen/HEA is planning to have stakeholders meetings scheduled for the week of March 17-21 but I have not been given a specific schedule for when the studies will be discussed for that week. Emily if you have that information could you please share that with folks on this email.

Those Forest Service Staff that has the time to commit to these meetings should plan to attend. I will plan to attend, after consultation with FS Staff who have reviewed the reports, those sessions which are most pertinent to the FS. At this meeting I will be able to monitor comments from the other Stake holders for this project. (ADF&G, DNR/Permits, SHPO, and FWS)

Thank you all for any help with reviewing this project.

Robert

Deputy District Ranger

Chugach NF, Seward RD
Po Box 390, 334 Fourth Ave.
Seward, AK 99664
Seward office # 907 743-9474; KLWC # 288-7707
Gov. Cell # 907 399-3966

From: Emily Andersen [<mailto:emily.andersen@mcmillen-llc.net>]
Sent: Friday, February 28, 2014 12:33 PM
To: Cory Warnock; Stovall, Robert -FS
Cc: Mike Salzetti
Subject: RE: Grant Lake Report Meeting

Hello Robert. Attached are the emails that have gone out regarding reports. Reports provided to date include, macroinvertebrates/periphyton, water quality/hydrology, geomorphology, terrestrial, and recreation/visual. Still to come are fisheries and instream flow.

All reports are available on McMillen's ftp site (access instructions below).

To access the McMillen, LLC FTP site:

- 1. Select the following link or type it in your internet browser, <http://mcmillen-llc.com/>***
- 2. Select the "Client Login" from the upper right corner.***
- 3. Use the username and password provided below (they are both case sensitive).***
- 4. Be sure that pop-ups are allowed or that they are temporarily allowed to access the FTP site.***
- 5. Once complete, the main folder and files for the project should be viewable.***
- 6. If there are multiple folders on the site, you must click on the plus (+) sign to the left of the main folder in order to view all other folders.***

Username – Grant Lake1
Password – Reports_2014

If any questions, please let me know. Thank you.

Emily Andersen
Senior Licensing and Regulatory Specialist

McMillen, LLC
2525 NW Raleigh Street, Portland, OR 97210
p 503.827.8089 | f 503.827.8048 | c 503.799.4189
emily.andersen@mcmillen-llc.com | www.mcmillen-llc.com

From: Cory Warnock
Sent: Friday, February 28, 2014 1:24 PM
To: Stovall, Robert -FS
Cc: Emily Andersen; Mike Salzetti
Subject: RE: Grant Lake Report Meeting

Thanks Robert for the response. I've Cc'd Emily on this response and she will provided you with access to the reports that have been distributed to stakeholders thus far. The remainder will come out early next week. We will hold the meetings as planned and as details related to comments and next steps develop, I'll keep you posted.

Cory

From: Stovall, Robert -FS [<mailto:rstovall@fs.fed.us>]
Sent: Friday, February 28, 2014 1:13 PM
To: Cory Warnock
Subject: RE: Grant Lake Report Meeting

Cory:

I apologize for not getting back to you as I was waiting for when the actual reports would be released prior to the scheduled meetings. The Forest Service has been meeting to discuss the level of involvement and funding mechanism for completing the review of the investigative studies and attendance at the meeting. Some of our key specialist have been very busy with providing input to the Forest Assessment portion of the Forest Plan Revision, which is the highest priority on the Forest. The Final review of the assessment will happen March 7-21 and therefore the Forest Hydrologist and District Fish and Wildlife Biologists would not be able to attend the meetings scheduled for the week of March 17-21

If the Reports are available for review we could let the other specialist begin their review process. Do you folks have a time frame for when you want to have comments back as I will be consolidating our responses. How will you folks be distributing the Study reports and when will this occur?

I have received your emails (last one dated January 27th) and have been working with a very busy staff keeping them and our Forest Supervisor abreast of the Grant Lake Hydro Investigative Studies.

Please feel free to call me if you feel I am not being responsive and I will attempt to keep you folks better informed as to the Forest Service interactions with this project.

Thank you for your update.

Robert

Deputy District Ranger
Chugach NF, Seward RD
Po Box 390, 334 Fourth Ave.
Seward, AK 99664
Seward office # 907 743-9474; KLWC # 288-7707
Gov. Cell # 907 399-3966

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Thursday, February 27, 2014 8:13 PM
To: Stovall, Robert -FS
Subject: Grant Lake Report Meeting

Hi Robert,

I haven't spoken to you in a while and am somewhat concerned regarding the USFS's lack of response related to proceedings with Grant Lake. I know we spoke late last year regarding your staff's allocation of resources and your inquiry/request related to my approximation of level of effort that should be assigned by the USFS to adequately review/consult on the project. Based on that conversation, I was expecting to hear back from you regarding what you had internally determined. In addition, I've sent a number of emails related to our ongoing study effort, plans for resource report meetings and designation of working groups to you but haven't heard back. Per those emails and

subsequent agreements, we've moved forward with planning but I did want to check in with you and inquire one last time if you had any questions or would like to be involved in the meetings.

Hope all is well,

Cory

Cory Warnock

Senior Licensing and Regulatory Consultant

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From: Cory Warnock
Sent: Wednesday, March 05, 2014 4:29 PM
To: Ken Hogan
Cc: Mike Salzetti; Emily Andersen
Subject: Grant Lake Meetings (P-13212)
Attachments: Grant Lake Hydroelectric Project Natural Resources Study Report Meeting Agenda (NRWG).pdf; Grant Lake Hydroelectric Project Natural Resources Study Report Meeting Agenda (ARWG Day 1).pdf; Grant Lake Hydroelectric Project Natural Resources Study Report Meeting Agenda (ARWG Day 2).pdf

Hi Ken,

Just checking in with you to see if you were planning on calling in to the Grant Lake Resource Report Meetings. I wanted to get you copies of the agendas so that you had the information if you had the inclination to join at some point. I fully appreciate that three straight days listening to the meetings may not fit into your existing schedule! Regardless, Mike Salzetti (HEA) and I would also like to set up a time to talk the week after the meetings to give you a general summary of how they went and have a bit of process discussion. If you could give me an idea of a day/time that might work during the week of March 24th, Mike and I will coordinate our schedules and I'll get a reminder sent out. In the meantime, let me know if you have any questions about the attached agendas or anything else.

Thanks,

Cory

Cory Warnock
Senior Licensing and Regulatory Consultant

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From: Cory Warnock
Sent: Wednesday, March 05, 2014 12:54 PM
To: Monte Miller; Jeffry Anderson (Jeffry_Anderson@fws.gov); Eric Rothwell; pamelarussell@alaska.gov; Patricia Berkhahn (patricia.berkhahn@alaska.gov); Jason Mouw; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Joe Klein; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); kenailake@arctic.net; mcooney@arctic.net; 'rstovall@fs.fed.us'
Cc: Mike Salzetti; Emily Andersen
Subject: Aquatic Resources Study Report (Grant Lake)

Grant Lake Hydroelectric Project (FERC No. 13212) Aquatic Resource Work Group Members (NRWG):

Hello Grant Lake Project ARWG Members,

The Aquatic Resources Study (Fisheries Assessment) Report has been posted to the FTP site (access instructions below). The Instream Flow Report will follow shortly. I'll notify you all when it has been uploaded and this will complete the report uploads prior to the meeting. I believe at this point, you also have all logistical information associated with the meetings.

Thank you, let me know if you have any questions and instructions for accessing the appropriate folder on our ftp site are below.

To access the McMillen, LLC FTP site:

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- 3. Use the username and password provided below (they are both case sensitive).***
- 4. Be sure that pop-ups are allowed or that they are temporarily allowed to access the FTP site.***
- 5. Once complete, the main folder and files for the project should be viewable.***
- 6. If there are multiple folders on the site, you must click on the plus (+) sign to the left of the main folder in order to view all other folders.***

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Password – Reports_2014

Cory Warnock
Senior Licensing and Regulatory Consultant

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From: Cory Warnock
Sent: Wednesday, March 05, 2014 1:15 PM
To: Monte Miller; Jeffry Anderson (Jeffry_Anderson@fws.gov); Eric Rothwell; pamelarussell@alaska.gov; Patricia Berkhahn (patricia.berkhahn@alaska.gov); Jason Mouw; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Joe Klein; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); kenailake@arctic.net; mcooney@arctic.net; 'rstovall@fs.fed.us'
Cc: Mike Salzetti; Emily Andersen
Subject: Instream Flow Study Report (Grant Lake)

Grant Lake Hydroelectric Project (FERC No. 13212) Aquatic Resource Work Group Members (NRWG):

Hello Grant Lake Project ARWG Members,

The Instream Flow Report is now available on the FTP site.

Thank you, let me know if you have any questions and instructions for accessing the appropriate folder on our FTP site are below.

To access the McMillen, LLC FTP site:

- 1. Select the following link or type it in your internet browser, <http://mcmillen-llc.com/>***
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Ferndale, Wa. 98248

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C – 360-739-0187

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From: Cory Warnock
Sent: Wednesday, March 05, 2014 11:33 AM
To: Emily Andersen
Subject: FW: Grant Lake Natural Resource Work Group Meeting Agenda
Attachments: Grant Lake Hydroelectric Project Natural Resources Study Report Meeting Agenda (NRWG).pdf

From: Stovall, Robert -FS [mailto:rstovall@fs.fed.us]
Sent: Wednesday, March 05, 2014 11:31 AM
To: Clark, Paul D -FS; Eavis, John -FS; Fitzpatrick, Mike -FS; Ilse, Jessica K -FS; Klein, Amy -FS; Rowe, William L -FS; Laves, Kevin -FS
Cc: Malecek, Thomas -FS; Van Massenhove, Katherine B -FS; Kromrey, Karen -FS; Cory Warnock; Chilcote, Mark W -FS; Coleman, Angela J -FS
Subject: FW: Grant Lake Natural Resource Work Group Meeting Agenda

Folks:

Attached is the Agenda for the Grant Lake Hydroelectric Project, Natural Resource Work Group meeting (Mar 18th). Please not you can attend by webinar. I will plan to attend by webinar to monitor the working group comments for the various studies. Please let me know if you plan to attend in person or by webinar. As POC, If you do review these studies please send me your comments so I can complete a consolidated Forest Response. We will probably need the comments before the end of April.

If you have any questions please feel free to give Kathy Van Massenhove, Karen Kromrey, or myself a call.

Thank you for any participation that you can give these study reviews.

Robert

Deputy District Ranger
Chugach NF, Seward RD
Po Box 390, 334 Fourth Ave.
Seward, AK 99664
Seward office # 907 743-9474; KLWC # 288-7707
Gov. Cell # 907 399-3966

From: Cory Warnock [mailto:cory.warnock@mcmillen-llc.net]
Sent: Tuesday, March 04, 2014 2:38 PM
To: Monte Miller; Cassie Thomas; Brenda Trefon; Eric Rothwell; David Griffin (david.griffin@alaska.gov); pamela.russell@alaska.gov; Jason Mouw; mcooney@arctic.net; 'Katherine McCafferty (katherine.a.mccafferty2@usace.army.mil)'; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom (aalstrom@aidea.org); Shina Duvall; waterlaw@uci.net; 'kenailake@arctic.net'; Stovall, Robert -FS
Cc: Ken Hogan; Mike Salzetti; Emily Andersen; Morton Mcmillen
Subject: Grant Lake Natural Resource Work Group Meeting Agenda

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resource Work Group Members (NRWG):

Hello Grant Lake Project NRWG Members,

Attached is the agenda and logistical information for the Tuesday, March 18th Grant Lake meeting. After the agenda, the information related to remotely connecting to the meeting (webinar) is also included.

As always, let me know if you have any questions and I'll look forward to seeing you on the 18th.

Cory

Cory Warnock

Senior Licensing and Regulatory Consultant

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From: Mouw, Jason E B (DFG) <jason.mouw@alaska.gov>
Sent: Friday, March 07, 2014 10:47 AM
To: Cory Warnock
Cc: Emily Andersen
Subject: RE: Email #4 (WQ/Hydrology)

Cory and Emily,

Yes, this worked!

Talk with you soon,

Jason

From: Cory Warnock [mailto:cory.warnock@mcmillen-llc.net]
Sent: Friday, March 07, 2014 9:40 AM
To: Mouw, Jason E B (DFG)
Cc: Emily Andersen
Subject: RE: Email #4 (WQ/Hydrology)

Jason,

I was unable to open the ftp site in windows format but my colleague, Emily, was able to get the other three reports (IFIM, Fish and Terrestrial) uploaded. Please check on your end in a few minutes (upload time), make sure you can access and let me know.

Thanks and let me know if you need anything else.

From: Mouw, Jason E B (DFG) [mailto:jason.mouw@alaska.gov]
Sent: Friday, March 07, 2014 10:26 AM
To: Cory Warnock
Subject: RE: Email #4 (WQ/Hydrology)

Cory,

I've looked into this a bit more and I was instructed that you have to be using Internet Explorer in order for these FTP instructions to work.

Click on link - <ftp://dfgshare@transfer.state.ak.us>

Provide login/pass
Login: dfgshare
Password: dfgsharePW

Try this in Windows Explorer, and let me know if it works.

Keeping my fingers crossed. Thanks.

Jason

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Tuesday, March 04, 2014 2:58 PM
To: Mouw, Jason E B (DFG)
Subject: RE: Email #4 (WQ/Hydrology)

Yep.

Let me know how to handle the other two and I'll get right on it.

From: Mouw, Jason E B (DFG) [<mailto:jason.mouw@alaska.gov>]
Sent: Tuesday, March 04, 2014 3:57 PM
To: Cory Warnock
Cc: Emily Andersen
Subject: RE: Email #4 (WQ/Hydrology)

All came through.

Thanks!

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Tuesday, March 04, 2014 2:48 PM
To: Mouw, Jason E B (DFG)
Cc: Emily Andersen
Subject: Email #4 (WQ/Hydrology)

Cory Warnock
Senior Licensing and Regulatory Consultant

McMillen, LLC
www.mcmillen-llc.com
5771 Applegrove Ln.
Ferndale, Wa. 98248
O – 360-384-2662
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F – 360-542-2264

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From: Cory Warnock
Sent: Friday, March 07, 2014 10:44 AM
To: Kenneth Hogan
Cc: Mike Salzetti; Emily Andersen
Subject: RE: Grant Lake Meetings (P-13212)

Thanks Ken. I'll check with Mike as to his availability and get you an invite for a call.

Cory

From: Kenneth Hogan [mailto:kenneth.hogan@ferc.gov]
Sent: Thursday, March 06, 2014 7:01 AM
To: Cory Warnock
Cc: Mike Salzetti; Emily Andersen
Subject: RE: Grant Lake Meetings (P-13212)

Cory,

I am available March 26-28 from 9 AM – 3:30 pm eastern. I will also try to have some participation during the study report meetings on the 18th, 19th, and 20th. Thanks for keeping me in the loop.

Ken

From: Cory Warnock [mailto:cory.warnock@mcmillen-llc.net]
Sent: Wednesday, March 05, 2014 7:29 PM
To: Ken Hogan
Cc: Mike Salzetti; Emily Andersen
Subject: Grant Lake Meetings (P-13212)

Hi Ken,

Just checking in with you to see if you were planning on calling in to the Grant Lake Resource Report Meetings. I wanted to get you copies of the agendas so that you had the information if you had the inclination to join at some point. I fully appreciate that three straight days listening to the meetings may not fit into your existing schedule! Regardless, Mike Salzetti (HEA) and I would also like to set up a time to talk the week after the meetings to give you a general summary of how they went and have a bit of process discussion. If you could give me an idea of a day/time that might work during the week of March 24th, Mike and I will coordinate our schedules and I'll get a reminder sent out. In the meantime, let me know if you have any questions about the attached agendas or anything else.

Thanks,

Cory

Cory Warnock
Senior Licensing and Regulatory Consultant

McMillen, LLC
www.mcmillen-llc.com

From: Cory Warnock
Sent: Monday, March 10, 2014 6:27 PM
To: Emily Andersen
Subject: FW: Kenai Hydro, LLC permit renewal documents
Attachments: SEW594_AppendixA1_MAP.pdf; SEW594_AppendixA2_MAP.pdf; SEW594_AppendixA3_MAP.pdf; KEEP_SEW594KenaiHydro Permit Signed.pdf; KEEP_SEW594KenaiHydro Permit Redlined.docx

FYI

From: Salzetti, Mikel [mailto:MSalzetti@HomerElectric.com]
Sent: Monday, March 10, 2014 6:21 PM
To: Sagner, Helen -FS
Cc: Cory Warnock
Subject: FW: Kenai Hydro, LLC permit renewal documents

Helen:

Attached is a redlined copy of the permit in which I corrected the date on which we received our FERC preliminary permit and fixed an apparent error on the expiration date (changing an OR to an AND). I have attached a signed clean copy of the permit as a pdf document. Please give me a call if I have somehow misinterpreted your intent.

I would appreciate it if you could email me a counter signed copy of the permit in addition to the traditional mailed version. We hope to do a little work in this area late next week and would need the counter signed copy in hand before we proceed.

Thanks,

Mike Salzetti

Manager of Fuel Supply & Renewable Energy Development
(907) 283-2375 *work*
(907) 398-5073 *Mobile*

From: Sagner, Helen -FS [mailto:hsagner@fs.fed.us]
Sent: Wednesday, February 26, 2014 4:15 PM
To: Salzetti, Mikel
Subject: FW: Kenai Hydro, LLC permit renewal documents

Hi Mike; just checking in to verify that you received my previous email. I have not received your document or heard back from you.

*Helen Sagner, hsagner@fs.fed.us
(Detail) Special Uses Permit Administrator
Alaska Region, R10 | Chugach NF | Seward Ranger District
(907) 743-9494 Direct Line*

From: Sagner, Helen -FS
Sent: Thursday, February 13, 2014 1:16 PM
To: 'msalzetti@HomerElectric.com'
Subject: Kenai Hydro, LLC permit renewal documents

Hi Mike;

Enclosed is a copy of your new Special Use Permit #594, which authorizes the continued investigative studies for hydropower on Grant Lake.

Please review this document, and if acceptable sign, and return to the Seward Ranger District, Po Box 390, Seward, AK 99664, or electronically to my attention at hsagner@fs.fed.us.

After you have returned the signed permit an executed copy will be sent to you.

Remember, the authorization is not valid unless signed by both parties.

If you have any further questions, please contact Kathy Van Massenhove at kvanmassenhove@fs.fed.us.

Thanks in advance, Helen

*Helen Sagner, hsagner@fs.fed.us
(Detail) Special Uses Permit Administrator
Alaska Region, R10 | Chugach NF | Seward Ranger District
(907) 743-9494 Direct Line*

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**U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE**

SPECIAL USE PERMIT

Authority: FEDERAL LAND POLICY AND MGMT ACT, AS AMENDED October 21, 1976

Kenai Hydro, LLC of 3977 LAKE ST HOMER AK UNITED STATES 99603 (hereinafter "the holder") is authorized to use or occupy National Forest System lands in the Chugach National Forest on the Seward Ranger District of the National Forest System, subject to the terms and conditions of this special use permit (the permit).

This permit covers 2 acres or 0 miles in the Sec. 8, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 21, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 20, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 17, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 16, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 5, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 3, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 2, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 1, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 36, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 35, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 34, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 33, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 26, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 32, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 29, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 28, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 27, T. 5 N., R. 1 E., SEWARD MERIDIAN, ("the permit area"), as shown on the map attached as Appendix A. This permit issued for the purpose of:

to conduct investigative studies related to the Grant Lake/Grant Creek hydroelectric proposals. The proposals received preliminary permits from FERC on March 23, 2012.

Studies include fish presence, aquatic macroinvertebrate sampling, fish habitat mapping, water quality sampling, stream discharge measurements, wildlife observations, wetland and vegetation surveys, and cultural resource surveys. Permit area includes National Forest System lands surrounding Grant Lake as shown in Appendix A-1.

Access to the permit area is by the same means as is available to the public as outlined in the Chugach National Forest Land Resource Management Plan and noted on Appendix A -2 and A -3.

TERMS AND CONDITIONS

I. GENERAL TERMS

A. AUTHORITY. This permit is issued pursuant to FEDERAL LAND POLICY AND MGMT ACT, AS AMENDED October 21, 1976 and 36 CFR Part 251, Subpart B, as amended, and is subject to their provisions.

B. AUTHORIZED OFFICER. The authorized officer is the Forest or Grassland Supervisor or a subordinate officer with delegated authority.

C. TERM. This permit shall expire at midnight on 12/31/2018, 4 years and 11 months from the date of issuance.

D. RENEWAL. This permit is not renewable. Prior to expiration of this permit, the holder may apply for a new permit that would renew the use and occupancy authorized by this permit. Applications for a new permit must be submitted at least 6 months prior to expiration of this permit. Renewal of the use and occupancy authorized by this permit shall be at the sole discretion of the authorized officer. At a minimum, before renewing the use and occupancy authorized by this permit, the authorized officer shall require that (1) the use and occupancy to be authorized by the new permit is consistent with the standards and guidelines in the applicable land management plan; (2) the type of use and occupancy to be authorized by the new permit is the same as the type of use and occupancy authorized by this permit; and (3) the holder is in compliance with all the terms of this permit. The authorized officer may prescribe new terms and conditions when a new permit is issued.

E. AMENDMENT. This permit may be amended in whole or in part by the Forest Service when, at the discretion of the authorized officer, such action is deemed necessary or desirable to incorporate new terms that may be required by law, regulation, directive, the applicable forest land and resource management plan, or projects and activities implementing a land management plan pursuant to 36 CFR Part 215.

F. COMPLIANCE WITH LAWS, REGULATIONS, AND OTHER LEGAL REQUIREMENTS. In exercising the rights and privileges

granted by this permit, the holder shall comply with all present and future federal laws and regulations and all present and future state, county, and municipal laws, regulations, and other legal requirements that apply to the permit area, to the extent they do not conflict with federal law, regulation, or policy. The Forest Service assumes no responsibility for enforcing laws, regulations, and other legal requirements that fall under the jurisdiction of other governmental entities.

G. NON-EXCLUSIVE USE. The use or occupancy authorized by this permit is not exclusive. The Forest Service reserves the right of access to the permit area, including a continuing right of physical entry to the permit area for inspection, monitoring, or any other purpose consistent with any right or obligation of the United States under any law or regulation. The Forest Service reserves the right to allow others to use the permit area in any way that is not inconsistent with the holder's rights and privileges under this permit, after consultation with all parties involved. Except for any restrictions that the holder and the authorized officer agree are necessary to protect the installation and operation of authorized temporary improvements, the lands and waters covered by this permit shall remain open to the public for all lawful purposes.

H. ASSIGNABILITY. This permit is not assignable or transferable.

I. CHANGE IN CONTROL OF THE BUSINESS ENTITY.

1. Notification of Change in Control. The holder shall notify the authorized officer when a change in control of the business entity that holds this permit is contemplated.

a. In the case of a corporation, control is an interest, beneficial or otherwise, of sufficient outstanding voting securities or capital of the business so as to permit the exercise of managerial authority over the actions and operations of the corporation or election of a majority of the board of directors of the corporation.

b. In the case of a partnership, limited partnership, joint venture, or individual entrepreneurship, control is a beneficial ownership of or interest in the entity or its capital so as to permit the exercise of managerial authority over the actions and operations of the entity.

c. In other circumstances, control is any arrangement under which a third party has the ability to exercise management authority over the actions or operations of the business.

2. Effect of Change in Control. Any change in control of the business entity as defined in paragraph 1 of this clause shall result in termination of this permit. The party acquiring control must submit an application for a special use permit. The Forest Service is not obligated to issue a new permit to the party who acquires control. The authorized officer shall determine whether the applicant meets the requirements established by applicable federal regulations.

II. IMPROVEMENTS

A. LIMITATIONS ON USE. Nothing in this permit gives or implies permission to build or maintain any structure or facility or to conduct any activity, unless specifically authorized by this permit. Any use not specifically authorized by this permit must be proposed in accordance with 36 CFR 251.54. Approval of such a proposal through issuance of a new permit or permit amendment is at the sole discretion of the authorized officer.

B. PLANS. All plans for development, layout, construction, reconstruction, or alteration of improvements in the permit area, as well as revisions to those plans must be prepared by a professional engineer, architect, landscape architect, or other qualified professional based on federal employment standards acceptable to the authorized officer. These plans and plan revisions must have written approval from the authorized officer before they are implemented. The authorized officer may require the holder to furnish as-built plans, maps, or surveys upon completion of the work.

B. CONSTRUCTION. Any construction authorized by this permit shall commence by N/A and shall be completed by N/A.

III. OPERATIONS.

A. PERIOD OF USE. Use or occupancy of the permit area shall be exercised at least 2 days each year.

B. CONDITION OF OPERATIONS. The holder shall maintain the authorized improvements and permit area to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer and consistent with other provisions of this permit. Standards are subject to periodic change by the authorized officer when deemed necessary to meet statutory, regulatory, or policy requirements or to protect national forest resources. The holder shall comply with inspection requirements deemed appropriate by the authorized officer.

C. INSPECTION BY THE FOREST SERVICE. The Forest Service shall monitor the holder's operations and reserves the right to

inspect the permit area and transmission facilities at any time for compliance with the terms of this permit. The holder's obligations under this permit are not contingent upon any duty of the Forest Service to inspect the permit area or transmission facilities. A failure by the Forest Service or other governmental officials to inspect is not a justification for noncompliance with any of the terms and conditions of this permit.

IV. RIGHTS AND LIABILITIES

A. LEGAL EFFECT OF THE PERMIT. This permit, which is revocable and terminable, is not a contract or a lease, but rather a federal license. The benefits and requirements conferred by this authorization are reviewable solely under the procedures set forth in 36 CFR Part 251, Subpart C, and 5 U.S.C. 704. This permit does not constitute a contract for purposes of the Contract Disputes Act, 41 U.S.C. 601. The permit is not real property, does not convey any interest in real property, and may not be used as collateral for a loan.

B. VALID OUTSTANDING RIGHTS. This permit is subject to all valid outstanding rights. Valid outstanding rights include those derived under mining and mineral leasing laws of the United States. The United States is not liable to the holder for the exercise of any such right.

C. ABSENCE OF THIRD-PARTY BENEFICIARY RIGHTS. The parties to this permit do not intend to confer any rights on any third party as a beneficiary under this permit.

D. SERVICES NOT PROVIDED. This permit does not provide for the furnishing of road or trail maintenance, water, fire protection, search and rescue, or any other such service by a government agency, utility, association, or individual.

E. RISK OF LOSS. The holder assumes all risk of loss associated with use or occupancy of the permit area, including but not limited to theft, vandalism, fire and any fire-fighting activities (including prescribed burns), avalanches, rising waters, winds, falling limbs or trees, and other forces of nature. If authorized temporary improvements in the permit area are destroyed or substantially damaged, the authorized officer shall conduct an analysis to determine whether the improvements can be safely occupied in the future and whether rebuilding should be allowed. If rebuilding is not allowed, the permit shall terminate.

F. DAMAGE TO UNITED STATES PROPERTY. The holder has an affirmative duty to protect from damage the land, property, and other interests of the United States. Damage includes but is not limited to fire suppression costs, damage to government-owned improvements covered by this permit, and all costs and damages associated with or resulting from the release or threatened release of a hazardous material occurring during or as a result of activities of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees on, or related to, the lands, property, and other interests covered by this permit. For purposes of clause IV.F and section V, "hazardous material" shall mean (a) any hazardous substance under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601(14); (b) any pollutant or contaminant under section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (c) any petroleum product or its derivative, including fuel oil, and waste oils; and (d) any hazardous substance, extremely hazardous substance, toxic substance, hazardous waste, ignitable, reactive or corrosive materials, pollutant, contaminant, element, compound, mixture, solution or substance that may pose a present or potential hazard to human health or the environment under any applicable environmental laws.

1. The holder shall avoid damaging or contaminating the environment, including but not limited to the soil, vegetation (such as trees, shrubs, and grass), surface water, and groundwater, during the holder's use or occupancy of the permit area. If the environment or any government property covered by this permit becomes damaged during the holder's use or occupancy of the permit area, the holder shall immediately repair the damage or replace the damaged items to the satisfaction of the authorized officer and at no expense to the United States.

2. The holder shall be liable for all injury, loss, or damage, including fire suppression, prevention and control of the spread of invasive species, or other costs in connection with rehabilitation or restoration of natural resources associated with the use or occupancy authorized by this permit. Compensation shall include but not be limited to the value of resources damaged or destroyed, the costs of restoration, cleanup, or other mitigation, fire suppression or other types of abatement costs, and all administrative, legal (including attorney's fees), and other costs. Such costs may be deducted from a performance bond required under clause IV.I.

3. The holder shall be liable for damage caused by use of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees to all roads and trails of the United States to the same extent as provided under clause IV.F.1, except that liability shall not include reasonable and ordinary wear and tear

G. HEALTH, SAFETY, AND ENVIRONMENTAL PROTECTION. The holder shall promptly abate as completely as possible and in compliance with all applicable laws and regulations any activity or condition arising out of or relating to the authorized use or occupancy that causes or threatens to cause a hazard to public health or the safety of the holder's employees or agents or harm to the environment (including areas of vegetation or timber, fish or other wildlife populations, their habitats, or any other natural

resources). The holder shall prevent impacts to the environment and cultural resources by implementing actions identified in the operating plan to prevent establishment and spread of invasive species. The holder shall immediately notify the authorized officer of all serious accidents that occur in connection with such activities. The responsibility to protect the health and safety of all persons affected by the use or occupancy authorized by this permit is solely that of the holder. The Forest Service has no duty under the terms of this permit to inspect the permit area or operations and activities of the holder for hazardous conditions or compliance with health and safety standards.

H. INDEMNIFICATION OF THE UNITED STATES. The holder shall indemnify, defend, and hold harmless the United States for any costs, damages, claims, liabilities, and judgments arising from past, present, and future acts or omissions of the holder in connection with the use or occupancy authorized by this permit. This indemnification provision includes but is not limited to acts and omissions of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees in connection with the use or occupancy authorized by this permit which result in (1) violations of any laws and regulations which are now or which may in the future become applicable, and including but not limited to those environmental laws listed in clause V.A of this permit; (2) judgments, claims, demands, penalties, or fees assessed against the United States; (3) costs, expenses, and damages incurred by the United States; or (4) the release or threatened release of any solid waste, hazardous waste, hazardous materials, pollutant, contaminant, oil in any form, or petroleum product into the environment. The authorized officer may prescribe terms that allow the holder to replace, repair, restore, or otherwise undertake necessary curative actions to mitigate damages in addition to or as an alternative to monetary indemnification.

I. BONDING. The authorized officer may require the holder to furnish a surety bond or other security for any of the obligations imposed by the terms and conditions of this permit or any applicable law, regulation, or order.

V. RESOURCE PROTECTION

A. COMPLIANCE WITH ENVIRONMENTAL LAWS. The holder shall in connection with the use or occupancy authorized by this permit comply with all applicable federal, state, and local environmental laws and regulations, including but not limited to those established pursuant to the Resource Conservation and Recovery Act, as amended, 42 U.S.C. 6901 et seq., the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq., the Oil Pollution Act, as amended, 33 U.S.C. 2701 et seq., the Clean Air Act, as amended, 42 U.S.C. 7401 et seq., CERCLA, as amended, 42 U.S.C. 9601 et seq., the Toxic Substances Control Act, as amended, 15 U.S.C. 2601 et seq., the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, 7 U.S.C. 136 et seq., and the Safe Drinking Water Act, as amended, 42 U.S.C. 300f et seq.

B. VANDALISM. The holder shall take reasonable measures to prevent and discourage vandalism and disorderly conduct and when necessary shall contact the appropriate law enforcement officer.

C. PESTICIDE USE. Pesticides may not be used outside of buildings to control undesirable woody and herbaceous vegetation (including aquatic plants), insects, rodents, fish, and other pests and weeds without prior written approval from the authorized officer. A request for approval of planned uses of pesticides shall be submitted annually by the holder on the due date established by the authorized officer. The report shall cover a 12-month period of planned use beginning 3 months after the reporting date. Information essential for review shall be provided in the form specified. Exceptions to this schedule may be allowed, subject to emergency request and approval, only when unexpected outbreaks of pests or weeds require control measures that were not anticipated at the time an annual report was submitted. Only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned shall be considered for use on National Forest System lands. Label instructions and all applicable laws and regulations shall be strictly followed in the application of pesticides and disposal of excess materials and containers.

D. ARCHAEOLOGICAL-PALEONTOLOGICAL DISCOVERIES. The holder shall immediately notify the authorized officer of all antiquities or other objects of historic or scientific interest, including but not limited to historic or prehistoric ruins, fossils, or artifacts discovered in connection with the use and occupancy authorized by this permit. The holder shall leave these discoveries intact and in place until directed otherwise by the authorized officer. Protective and mitigative measures specified by the authorized officer shall be the responsibility of the holder.

E. NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION. In accordance with 25 U.S.C. 3002(d) and 43 CFR 10.4, if the holder inadvertently discovers human remains, funerary objects, sacred objects, or objects of cultural patrimony on National Forest System lands, the holder shall immediately cease work in the area of the discovery and shall make a reasonable effort to protect and secure the items. The holder shall immediately notify the authorized officer by telephone of the discovery and shall follow up with written confirmation of the discovery. The activity that resulted in the inadvertent discovery may not resume until 30 days after the authorized officer certifies receipt of the written confirmation, if resumption of the activity is otherwise lawful, or at any time if a binding written agreement has been executed between the Forest Service and the affiliated Indian tribes that adopts a recovery plan for the human remains and objects.

F. PROTECTION OF HABITAT OF THREATENED, ENDANGERED, AND SENSITIVE SPECIES. The location of sites within the

permit area needing special measures for protection of plants or animals listed as threatened or endangered under the Endangered Species Act (ESA) of 1973, 16 U.S.C. 1531 et seq., as amended, or identified as sensitive or otherwise requiring special protection by the Regional Forester under Forest Service Manual (FSM) 2670, pursuant to consultation conducted under section 7 of the ESA, may be shown on the ground or on a separate map. The map shall be attached to this permit as an appendix. The holder shall take any protective and mitigative measures specified by the authorized officer. If protective and mitigative measures prove inadequate, if other sites within the permit area containing threatened, endangered, or sensitive species or species otherwise requiring special protection are discovered, or if new species are listed as threatened or endangered under the ESA or identified as sensitive or otherwise requiring special protection by the Regional Forester under the FSM, the authorized officer may specify additional protective and mitigative measures. Discovery of these sites by the holder or the Forest Service shall be promptly reported to the other party.

G. CONSENT TO STORE HAZARDOUS MATERIALS. The holder shall not store any hazardous materials at the site without prior written approval from the authorized officer. This approval shall not be unreasonably withheld. If the authorized officer provides approval, this permit shall include, or in the case of approval provided after this permit is issued, shall be amended to include specific terms addressing the storage of hazardous materials, including the specific type of materials to be stored, the volume, the type of storage, and a spill plan. Such terms shall be proposed by the holder and are subject to approval by the authorized officer.

H. CLEANUP AND REMEDIATION

1. The holder shall immediately notify all appropriate response authorities, including the National Response Center and the authorized officer or the authorized officer's designated representative, of any oil discharge or of the release of a hazardous material in the permit area in an amount greater than or equal to its reportable quantity, in accordance with 33 CFR Part 153, Subpart B, and 40 CFR Part 302. For the purposes of this requirement, "oil" is as defined by section 311(a)(1) of the Clean Water Act, 33 U.S.C. 1321(a)(1). The holder shall immediately notify the authorized officer or the authorized officer's designated representative of any release or threatened release of any hazardous material in or near the permit area which may be harmful to public health or welfare or which may adversely affect natural resources on federal lands.

2. Except with respect to any federally permitted release as that term is defined under Section 101(10) of CERCLA, 42 U.S.C. 9601(10), the holder shall clean up or otherwise remediate any release, threat of release, or discharge of hazardous materials that occurs either in the permit area or in connection with the holder's activities in the permit area, regardless of whether those activities are authorized under this permit. The holder shall perform cleanup or remediation immediately upon discovery of the release, threat of release, or discharge of hazardous materials. The holder shall perform the cleanup or remediation to the satisfaction of the authorized officer and at no expense to the United States. Upon revocation or termination of this permit, the holder shall deliver the site to the Forest Service free and clear of contamination.

I. CERTIFICATION UPON REVOCATION OR TERMINATION. If the holder uses or stores hazardous materials at the site, upon revocation or termination of this permit the holder shall provide the Forest Service with a report certified by a professional or professionals acceptable to the Forest Service that the permit area is uncontaminated by the presence of hazardous materials and that there has not been a release or discharge of hazardous materials upon the permit area, into surface water at or near the permit area, or into groundwater below the permit area during the term of the permit. This certification requirement may be waived by the authorized officer when the Forest Service determines that the risks posed by the hazardous material are minimal. If a release or discharge has occurred, the professional or professionals shall document and certify that the release or discharge has been fully remediated and that the permit area is in compliance with all federal, state, and local laws and regulations.

VI. LAND USE FEE AND ACCOUNTING ISSUES

A. LAND USE FEES. The holder shall pay an initial annual land use fee of \$200.00 for the period from 01/01/2014 to 12/31/2014, and thereafter on January 1, shall pay an annual land use fee of \$200.00. The annual land use fee shall be adjusted annually using the IDP-GNP.

B. MODIFICATION OF THE LAND USE FEE. The land use fee may be revised whenever necessary to reflect the market value of the authorized use or occupancy or when the fee system used to calculate the land use fee is modified or replaced.

C. FEE PAYMENT ISSUES.

1. Crediting of Payments. Payments shall be credited on the date received by the deposit facility, except that if a payment is received on a non-workday, the payment shall not be credited until the next workday.

2. Disputed Fees. Fees are due and payable by the due date. Disputed fees must be paid in full. Adjustments will be made if dictated by an administrative appeal decision, a court decision, or settlement terms.

3. Late Payments

(a) Interest. Pursuant to 31 U.S.C. 3717 et seq., interest shall be charged on any fee amount not paid within 30 days from the date it became due. The rate of interest assessed shall be the higher of the Prompt Payment Act rate or the rate of the current value of funds to the Treasury (i.e., the Treasury tax and loan account rate), as prescribed and published annually or quarterly by the Secretary of the Treasury in the Federal Register and the Treasury Fiscal Requirements Manual Bulletins. Interest on the principal shall accrue from the date the fee amount is due.

(b) Administrative Costs. If the account becomes delinquent, administrative costs to cover processing and handling the delinquency shall be assessed.

(c) Penalties. A penalty of 6% per annum shall be assessed on the total amount that is more than 90 days delinquent and shall accrue from the same date on which interest charges begin to accrue.

(d) Termination for Nonpayment. This permit shall terminate without the necessity of prior notice and opportunity to comply when any permit fee payment is 90 calendar days from the due date in arrears. The holder shall remain responsible for the delinquent fees.

4. Administrative Offset and Credit Reporting. Delinquent fees and other charges associated with the permit shall be subject to all rights and remedies afforded the United States pursuant to 31 U.S.C. 3711 et seq. and common law. Delinquencies are subject to any or all of the following:

(a) Administrative offset of payments due the holder from the Forest Service.

(b) If in excess of 60 days, referral to the Department of the Treasury for appropriate collection action as provided by 31 U.S.C. 3711(g)(1).

(c) Offset by the Secretary of the Treasury of any amount due the holder, as provided by 31 U.S.C. 3720 et seq.

(d) Disclosure to consumer or commercial credit reporting agencies.

VII. REVOCATION, SUSPENSION, AND TERMINATION

A. REVOCATION AND SUSPENSION. The authorized officer may revoke or suspend this permit in whole or in part:

1. For noncompliance with federal, state, or local law.
2. For noncompliance with the terms of this permit.
3. For abandonment or other failure of the holder to exercise the privileges granted.
4. With the consent of the holder.
5. For specific and compelling reasons in the public interest.

Prior to revocation or suspension, other than immediate suspension under clause VI.B, the authorized officer shall give the holder written notice of the grounds for revocation or suspension. In the case of revocation or suspension based on clause VII.A.1, 2, or 3, the authorized officer shall give the holder a reasonable time, typically not to exceed 90 days, to cure any noncompliance.

B. IMMEDIATE SUSPENSION. The authorized officer may immediately suspend this permit in whole or in part when necessary to protect public health or safety or the environment. The suspension decision shall be in writing. The holder may request an on-site review with the authorized officer's supervisor of the adverse conditions prompting the suspension. The authorized officer's supervisor shall grant this request within 48 hours. Following the on-site review, the authorized officer's supervisor shall promptly affirm, modify, or cancel the suspension.

C. APPEALS AND REMEDIES. Written decisions by the authorized officer relating to administration of this permit are subject to administrative appeal pursuant to 36 CFR Part 251, Subpart C, as amended. Revocation or suspension of this permit shall not give rise to any claim for damages by the holder against the Forest Service.

D. TERMINATION. This permit shall terminate when by its terms a fixed or agreed upon condition, event, or time occurs without any action by the authorized officer. Examples include but are not limited to expiration of the permit by its terms on a specified date

and termination upon change of control of the business entity. Termination of this permit shall not require notice, a decision document, or any environmental analysis or other documentation. Termination of this permit is not subject to administrative appeal and shall not give rise to any claim for damages by the holder against the Forest Service.

E. RIGHTS AND RESPONSIBILITIES UPON REVOCATION OR TERMINATION WITHOUT RENEWAL. Upon revocation or termination of this permit without renewal of the authorized use, the holder shall remove all structures and improvements, except those owned by the United States, within a reasonable period prescribed by the authorized officer and shall restore the site to the satisfaction of the authorized officer. If the holder fails to remove all structures and improvements within the prescribed period, they shall become the property of the United States and may be sold, destroyed, or otherwise disposed of without any liability to the United States. However, the holder shall remain liable for all costs associated with their removal, including costs of sale and impoundment, cleanup, and restoration of the site.

VIII. MISCELLANEOUS PROVISIONS

A. MEMBERS OF CONGRESS. No member of or delegate to Congress or resident commissioner shall benefit from this permit either directly or indirectly, except to the extent the authorized use provides a general benefit to a corporation.

B. CURRENT ADDRESSES. The holder and the Forest Service shall keep each other informed of current mailing addresses, including those necessary for billing and payment of land use fees.

C. SUPERSEDED PERMIT. This permit supersedes a special use permit designated Kenai Hydro, LLC, SEW457, dated 06/24/2009.

D. SUPERIOR CLAUSES. If there is a conflict between any of the preceding printed clauses and any of the following clauses, the preceding printed clauses shall control.

E. ARCHAEOLOGICAL-PALEONTOLOGICAL DISCOVERIES (R10-X106). Items of historic, prehistoric, or paleontological value are protected under various Federal laws, including the Antiquities Act of 1906 (16 U.S.C. 433), the Archaeological Resource Protection Act of 1979 (16 U.S.C. 47033) as amended, and Federal regulations. If historic, prehistoric, or paleontological objects or sites are discovered during activities under this permit, the holder is responsible for assuring that those objects or sites are not disturbed during the course of the activities of the holder or the holder's clients. The holder must notify the Forest Service of such discovery at the earliest opportunity. Failure to comply with this clause may result in criminal prosecution of the holder for violation of a Federal law or regulation.

This permit is accepted subject to the conditions set out above.

HOLDER: Kenai Hydro, LLC

U.S. DEPARTMENT OF AGRICULTURE
Forest Service

By: 
(Holder Signature)

By: _____
TOM MALECEK, District Ranger

Date: 3/10/2014

Date: _____

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond, to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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**U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE**

SPECIAL USE PERMIT

Authority: FEDERAL LAND POLICY AND MGMT ACT, AS AMENDED October 21, 1976

Kenai Hydro, LLC of 3977 LAKE ST HOMER AK UNITED STATES 99603 (hereinafter "the holder") is authorized to use or occupy National Forest System lands in the Chugach National Forest on the Seward Ranger District of the National Forest System, subject to the terms and conditions of this special use permit (the permit).

This permit covers 2 acres or 0 miles in the Sec. 8, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 21, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 20, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 17, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 16, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 5, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 3, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 2, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 1, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 36, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 35, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 34, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 33, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 26, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 32, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 29, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 28, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 27, T. 5 N., R. 1 E., SEWARD MERIDIAN, ("the permit area"), as shown on the map attached as Appendix A. This permit issued for the purpose of:

to conduct investigative studies related to the Grant Lake/Grant Creek hydroelectric proposals. The proposals received preliminary permits from FERC on ~~December 29~~ March 23, 2014~~2~~.

Studies include fish presence, aquatic macroinvertebrate sampling, fish habitat mapping, water quality sampling, stream discharge measurements, wildlife observations, wetland and vegetation surveys, and cultural resource surveys. Permit area includes National Forest System lands surrounding Grant Lake as shown in Appendix A-1.

Access to the permit area is by the same means as is available to the public as outlined in the Chugach National Forest Land Resource Management Plan and noted on Appendix A -2 and A -3.

TERMS AND CONDITIONS

I. GENERAL TERMS

A. AUTHORITY. This permit is issued pursuant to FEDERAL LAND POLICY AND MGMT ACT, AS AMENDED October 21, 1976 and 36 CFR Part 251, Subpart B, as amended, and is subject to their provisions.

B. AUTHORIZED OFFICER. The authorized officer is the Forest or Grassland Supervisor or a subordinate officer with delegated authority.

C. TERM. This permit shall expire at midnight on 12/31/2018, 4 years ~~or~~ and 11 months from the date of issuance.

D. RENEWAL. This permit is not renewable. Prior to expiration of this permit, the holder may apply for a new permit that would renew the use and occupancy authorized by this permit. Applications for a new permit must be submitted at least 6 months prior to expiration of this permit. Renewal of the use and occupancy authorized by this permit shall be at the sole discretion of the authorized officer. At a minimum, before renewing the use and occupancy authorized by this permit, the authorized officer shall require that (1) the use and occupancy to be authorized by the new permit is consistent with the standards and guidelines in the applicable land management plan; (2) the type of use and occupancy to be authorized by the new permit is the same as the type of use and occupancy authorized by this permit; and (3) the holder is in compliance with all the terms of this permit. The authorized officer may prescribe new terms and conditions when a new permit is issued.

E. AMENDMENT. This permit may be amended in whole or in part by the Forest Service when, at the discretion of the authorized officer, such action is deemed necessary or desirable to incorporate new terms that may be required by law, regulation, directive, the applicable forest land and resource management plan, or projects and activities implementing a land management plan pursuant to 36 CFR Part 215.

F. COMPLIANCE WITH LAWS, REGULATIONS, AND OTHER LEGAL REQUIREMENTS. In exercising the rights and privileges

From: Benoit, Mary A -FS [<mailto:mbenoit@fs.fed.us>]
Sent: Monday, March 10, 2014 1:16 PM
To: Amal Ajmi
Cc: Ilse, Jessica K -FS
Subject: RE: Winter moose flights

Thanks for the update and safe flying. Mary Ann

Mary Ann Benoit
Wildlife Biologist
Seward Ranger District
Chugach National Forest
mbenoit@fs.fed.us
907-288-7747

334 Fourth Ave
Seward Alaska 99664

From: Amal Ajmi [<mailto:amal.ajmi@erm.com>]
Sent: Tuesday, February 18, 2014 10:20 AM
To: Benoit, Mary A -FS
Cc: Jeannette Blank
Subject: RE: Winter moose flights

Hello Ms. Benoit. I am contacting you with regards to the 2nd and final winter aerial survey for moose in the Grant Lake area. I will utilize the same pilot out of Palmer I flew with during the 1st survey in December. I will be coordinating the flight efforts with ADF&G to make sure to reduce aerial activity in the area during our survey. I plan on flying the survey on 17 or 19 March (weather depending). I have the "Mt. Goat no fly Zone" map you provided and again will have that in the plane to make sure we maintain the no fly zone as required.

Again, I plan on using standard ADF&G protocol for moose surveys in the area.

Thanks for your attention. Regards,

Amal Ajmi
Senior Wildlife Scientist

ERM, Alaska Inc.
748 Gaffney Rd., Suite 102
Fairbanks, AK 99701
907-458-8273
amal.ajmi@erm.com
www.erm.com

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Please visit ERM's web site: <http://www.erm.com>

From: Michael Yarborough <salvagerecovery@gmail.com>
Sent: Wednesday, March 12, 2014 11:56 AM
To: Emily Andersen
Subject: Fwd: Grant Lake Hydroelectric Project (FERC No. 13212) archaeological and historic study report
Attachments: agreeviewreport.pdf

My more recent communication with Mark.

----- Forwarded message -----

From: **Michael Yarborough** <salvagerecovery@gmail.com>
Date: Tue, Feb 25, 2014 at 11:29 AM
Subject: Grant Lake Hydroelectric Project (FERC No. 13212) archaeological and historic study report
To: Mark Luttrell <prufrock@arctic.net>

Mark

I hope you can make the meeting in Anchorage on March 21, but, if not, we will have both a webinar and conference call set up so you can link in from Seward. I have a CD of the report and maps for you, although could you please sign and return the attached form if you do not already have an AHRs user agreement with OHA.

I too hope that Dara and some of the other tribal groups will be able to participate in our discussion, along with the agency archaeologists who have already said they are available. However, we do not have much flexibility on the meeting date, as the cultural working group is but one of several stakeholder meetings going on in Anchorage that week. I will send Dara a copy of our report so she can provide comments even if she has a conflict and cannot attend in person.

Mike

--
Michael R. Yarborough
Senior Archeologist
Cultural Resource Consultants LLC
3504 E. 67th Avenue
Anchorage, Alaska 99507
Anchorage: [\(907\) 349-3445](tel:(907)349-3445)
Cell: [\(907\) 306-6069](tel:(907)306-6069)

Hey Mike:

I'd like to be a part of this meeting and agree with Dara that the more stakeholders the better. Could you postal mail me a CD of the report and associated maps? I'm at Box 511 Seward 99664.

Thanks Mike

Mark

Mark Luttrell
Artifact Illustration
Box 511
Seward, Alaska 99664

[907 224-5372](tel:9072245372)
prufrock@arctic.net
artifactillustration.com

AGREEMENT FOR VIEWING REPORTS

☐ New

☐ Renewal

☐ Changed Affiliation

The Alaska Heritage Resources Survey (AHRS) is an inventory of **reported** historic, prehistoric, and paleontological sites within the State of Alaska and is maintained by the Office of History and Archaeology (OHA). This is a restricted data set only available to authorized users under a signed User Agreement with the Alaska Office of History and Archaeology. The data is restricted to protect sensitive cultural sites against unauthorized disturbance. Access to AHRS and related information is closed to the general public. Restricted or confidential site information is withheld from public records disclosure under state law (AS 40.25.110) and under the federal Freedom of Information Act (PL 89-554). The restriction of site inventory information is allowed by AS 40.25.120(a)(4), Alaska State Parks Policy and Procedure No. 50200, the National Historic Preservation Act (PL 89-665, 16 U.S.C. 470), and the Archaeological Resources Protection Act (PL 96-95).

Authorized users include, but are not limited to representatives of federal, state or local governments or agencies, scientific researchers, or organizations or individuals conducting cultural resource surveys aimed at fulfilling federal and state cultural resource protection activities.

Please list your report request here or attach a list.

Grant Lake Hydroelectric Project (FERC No. 13212) Cultural Resources Study Draft Report. Prepared for Kenai Hydro, LLC. Prepared by S. Meitl, A. Morrison, M. Yarborough, and C. Kennedy. Cultural Resource Consultants LLC. February 2014.

Reports associated with the AHRS data set contain confidential information. This agreement allows for the sharing of specified reports with those that do not require access to the entire AHRS dataset.

By signing this agreement:

☐ I acknowledge that I understand the confidential nature of the information contained in cultural resource reports associated with the AHRS.

☐ I will keep the report confidential and not copy or share the report with unauthorized persons.

Applicant Signature: _____ Date: _____

Name: _____

Job Title: _____

Affiliation: _____

email: _____

Phone Number: _____

OHA Use Only----- ☐ Approved ☐ Disapproved

Approved By: _____

Date: _____ Access Expiration Date: _____

From: Michael Yarborough <salvagerecovery@gmail.com>
Sent: Thursday, March 13, 2014 5:11 PM
To: Frank Winchell; Duvall, Shina A (DNR); Sherry D Nelson; Lesli Schick; Ed DeCleva; Mark Luttrell; Judy Bittner; Dara Glass
Cc: Salzetti, Mikel; Cory Warnock; Kim Graham; Dwayne Adams; Emily Andersen
Subject: Agenda and meeting details for the March 21 cultural resources meeting
Attachments: Grant Lake Survey Report discussion Agenda.docx

All

Attached is the agenda for the March 21st discussion of our Grant Lake cultural resources survey report. It also includes details on the meeting place and time, plus information on how to connect in if you can not attend in person. Please call or email me if you have any questions.

Mike

--

Michael R. Yarborough
Senior Archeologist
Cultural Resource Consultants LLC
3504 E. 67th Avenue
Anchorage, Alaska 99507
Anchorage: (907) 349-3445
Cell: (907) 306-6069

*2014 Archaeological and Historic Study Report
Grant Lake Hydroelectric Project*

Aspen Suites Hotel Anchorage
100 E Tudor Road, Anchorage

March 21, 2014, 9:00 am AKST

1. Introductions (Michael Yarborough, CRC)
2. Brief outline of past consultations (Michael Yarborough & Cory Warnock, McMillen LLC)
3. PowerPoint presentation of survey results (Michael Yarborough and Sarah Meitl, CRC)
4. Discussion of 2014 study report (Participants)
5. Iditarod National Historic Trail (Participants)
6. Concluding remarks

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for those who can not attend in person

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**Final Grant Lake Project Natural Resource Study Report Meeting Minutes
(March 18-20, 2014)**

**Grant Lake Hydroelectric Project (FERC No. 13212)
Natural Resources Work Group (NRWG) Meeting
Aspen Suites Hotel, 100 E. Tudor Rd., Anchorage, AK
March 18, 2014, 8:00 am to 5:30 pm**

In Attendance

Dwayne Adams, USKH
Amal Ajmi, ERM
Emily Andersen, McMillen LLC (McMillen)
Katy Beck, Beck Botanicals
John Eavis, U.S. Forest Service (USFS) *[via phone]*
Kim Graham, USKH
Jessica Ilse, USFS *[via phone]*
Joe Klein, Alaska Department of Fish and Game (ADF&G) *[via phone]*
Kevin Laves, USFS *[via phone]*
Katie McCafferty, Army Corps of Engineers (USACE)
Mort McMillen, McMillen
Monte Miller, ADF&G

Jason Mouw, ADF&G
Paul Pittman, Element Solutions
Eric Rothwell, National Oceanic and Atmospheric Administration (NOAA Fisheries) *[via phone in afternoon]*
Mike Salzetti, Kenai Hydro, LLC (KHL)
Charles Sauvageau, McMillen
Lesli Schick, Alaska Department of Natural Resources (ADNR) *[morning only]*
Levia Shoutis, ERM
Robert Stovall, USFS *[via phone]*
Cassie Thomas, National Park Service (NPS)
Kelly Tilford, McMillen
Cory Warnock, McMillen

Meeting Summary

Introductions and Agenda

Mike Salzetti (KHL) began the meeting with introductions and Cory Warnock (McMillen) reviewed the proposed meeting agenda (see Attachment 1):

- Engineering Feasibility
- Terrestrial Resources
- Water Resources
- Recreation and Visual Resources
- Licensing Path Forward

Cory noted that all materials from the meeting (agenda and presentations) will be posted to the Grant Lake Hydroelectric Project (Project) website (<http://www.kenaihydro.com/index.php>) after the meeting.

Engineering Feasibility

Mort McMillen (McMillen) presented the engineering feasibility work done to date (see PowerPoint included as Attachment 2).

- *Comment:* With respect to the map showing proposed Project infrastructure (*Slide 6¹*), Cassie Thomas (NPS) asked if the detention pond is a new feature.

¹ For all PowerPoint presentations given during the meeting, slide numbers refer to the PDF page number.

- *Response:* Mike Salzetti (KHL) stated that the pond was part of the modified Project proposal in 2010. The intent of the pond is to provide spinning reserve to the power system (in the event of a disruption to the power supply).
- *Comment:* With respect to the hydrologic characteristics of the Project (*Slide 13*), Monte Miller (ADF&G) asked whether the values were correlated with the Trail River USGS stream gauge.
- *Response:* Mort responded that they were.
- *Comment:* Eric Rothwell (NOAA Fisheries) asked if the flow duration values (*Slide 14*) were based on actual flow discharge measurements for a complete calendar year.
- *Response:* Mort responded that they were.
- *Comment:* With respect to the conclusions of the Project's hydrologic review (*Slide 18*), Eric Rothwell asked if there is any concern about the accuracy of the 20% exceedance flow (the target flow for the beginning of analyzing powerhouse sizing,) given that it is based on a relatively short record (1948-1958).
- *Response:* Mort indicated that the analysis will be run with the 20% exceedance value "bumped" up/down on each side.
- *Comment:* With respect to the discussion of the HECRAS model (*Slide 20*), Eric Rothwell noted that at the study plan meeting (December 12, 2012), the methodology for evaluating operational impacts downstream of the Project was unknown, and asked if that is better understood now.
- *Response:* Mort replied that hydraulic impacts can be evaluated using the HECRAS model, and impacts to other factors, like water temperature, would be discussed during the respective resource presentation.
- *Comment:* During the discussion of the HECRAS model calibration (*Slide 22*), Monte Miller noted that the Instream Flow Incremental Methodology (IFIM) cross sections were defined by fish presence, but the preferred methodology is to tie the cross sections to fish habitat and asked whether that is of concern for the hydraulic analysis.
- *Response:* Mort responded that they are not currently working on water surface area calculations, but rather, trying to establish the rating curve. That said, for the final analysis, the HECRAS model will be updated with the bathymetry and topographic data that will be collected in summer 2014.
- *Comment:* With respect to the geotechnical update (*Slide 28*), Monte Miller asked whether the tunnel will be bored or blasted.
- *Response:* Mort indicated that it would be blasted.
- *Comment:* As part of the operational model demonstration (*Slide 33*), Eric Rothwell asked if the HECRAS model is ready to run IFIM constraints.
- *Response:* Mort indicated that the model is at a point of being fully functional and ready to start running scenarios.

- *Comment:* With respect to the engineering schedule (*Slide 35*), Monte Miller asked about the timing for issuing the Draft License Application (DLA) for stakeholder comment.
- *Response:* Cory Warnock (McMillen) indicated that KHL is targeting end of 2014/early 2015.

Katie McCafferty (USACE) asked if that would be the same timing as submittal of the Section 404 application to USACE, to which, Cory replied yes.

Cory asked that if there is other staff within a resource agency that should be reviewing the engineering deliverables, to provide him the contact information.

- *Comment:* Cassie Thomas stated that understanding that the HECRAS model is still under development, what are the preliminary thought regarding the degree of Grant Lake elevation fluctuation during Project operations.
- *Response:* Mort indicated that the current target is 11 feet without a dam, and 13 feet with one.

Terrestrial Resources Study Results

Levia Shoutis (ERM) presented an overview of the terrestrial resources studies (see PowerPoint included as [Attachment 3, Slides 1-6](#)).

Katy Beck (Beck Botanicals) presented the vegetation, sensitive plant, and invasive plant components of the terrestrial resources study results (see PowerPoint included as [Attachment 3, Slides 7-41](#)).

- *Comment:* With respect to the discussion of potential qualitative impacts on vegetation (*Slide 21*), Cassie Thomas (NPS) asked whether there is vulnerability due to wind throw.
- *Response:* Katy Beck replied yes, but no more than other areas of the Kenai Peninsula.
- *Comment:* With respect to the discussion of next steps for the vegetation and sensitive/invasive plant components (*Slide 40*), Cassie Thomas (NPS) noted that she could envision a scenario where the Project is operating on/off in the fall when ice is developing, potentially resulting in scouring downstream.
- *Response:* Mort noted that the engineers will run the HECRAS model taking into consideration the “shoulder” seasons (i.e., ice formation in the fall and ice melt in the spring), with an intake and without (i.e., the natural outlet), and provide that output to the natural resource leads for impacts analysis.
- *Comment:* Monte Miller (ADF&G) noted that based on the engineering presentation, normal pool elevation of Grant Lake is ± 2 feet of natural pool elevation (i.e., 703 feet) and asked what, if anything, would be the impacts to plants with a 13-foot elevation fluctuation.
- *Response:* Katy Beck replied that the plants can already withstand some inundation given the natural fluctuation of approximately 7 feet.

- *Comment:* Robert Stovall (USFS) noted that relative to development of management plans (*Slide 40*), KHL would want to consult with Betty Charnon (USFS).
- *Response:* Katy Beck agreed and noted that she has been in contact with Betty already during the study phase.

Levia Shoutis presented the wetlands component of the terrestrial resources study results (see PowerPoint included as Attachment 3, Slides 42-67).

- *Comment:* Katie McCafferty clarified that the study area for the wetlands component (*Slide 44*) went to elevation 705 feet, which is the entire area of lake if dam in place (i.e., +2 feet of natural pool elevation, i.e., 703 feet).
- *Response:* Levia replied yes, and noted that the study plan had indicated up to 703 feet.
- *Comment:* Katie McCafferty asked the percentage of wetlands within the wetland/non-wetland mosaic areas on the south side of Grant Creek (*Slide 60*).
- *Response:* Levia replied 20%.
- *Comment:* Katie McCafferty indicated that the 15 functional classes were established as part of the functional assessment of all “waters” within the study area (e.g. Trail Lakes Narrows) (*Slide 62*) and asked if any specific wetlands appeared to exhibit human disturbance.
- *Response:* Levia replied no.
- *Comment:* Katie McCafferty stated that the wetland analysis should include a functional assessment of Grant Creek and Grant Lake and the streams associated thereof.
- *Response:* Levia clarified that such an analysis had not yet been conducted. Cory Warnock (McMillen) requested that Katie include the request with informal written comments and suggested that Katie and Levia further discuss details about such an analysis following the meeting.
- *Comment:* Cassie Thomas asked about the scope of the wetlands study area relative to the proposed Iditarod National Historic Trail (INHT) re-alignment and whether any wetlands impacts are associated with that effort.
- *Response:* Levia indicated that they briefly looked at this, and did not believe that the INHT crossed any wetlands, but could confirm during the recreation and visual resources presentation.

Amal Ajmi (ERM) presented the wildlife components of the terrestrial resources study results (see PowerPoint included as Attachment 3, Slides 68-104).

- *Comment:* Cassie Thomas noted that with the short-term construction activity and long-term increased public access that could result from the Project, there is the potential for increased hunting.
- *Response:* Cory acknowledged the comment and indicated that public access would be further discussed during the recreation and visual resources presentation and that cross resource issues would be discussed at the end of the day.

<<LUNCH BREAK>>

Water Resources Study Results

Chuck Sauvageau (McMillen) presented the water quality and hydrology components of the water resources study results (see PowerPoint included as [Attachment 4](#)).

- *Comment:* Monte Miller (ADF&G) stated that the questionable 2009 dissolved oxygen data due to potentially faulty equipment (see *Slide 6*), maybe does not belong in the data set at all.
- *Response:* Chuck acknowledged comment.

- *Comment:* Monte Miller noted that on the graph showing water temperature results in Grant Creek in 2014 (*Slide 10*), there was an apparent dip in April to near 0 °C at all but the GC 600 station and asked if a thermistor was out of the water.
Response: Chuck responded that they are certain all thermistors remained in the water because they weighted the thermistor housings to insure they remained on the bottom of the channel.
- *Comment:* With respect to the water temperature results for the Grant Creek off-channel areas (*Slide 12*), Monte Miller recalled that during the September 2013 Project site visit the crossing at the Reach 2 backwater area (“moose pond”) was at the shallowest 2.5-3 feet deep, and asked whether backwater into the off-channel from the creek could impact the water temperatures.
- *Response:* Chuck responded that groundwater seeps on the adjacent hillside and hyporheic flow are what fill the pond. The main channel of Grant Creek flowing past the moose pond outlet controls the depth of the back water with minimal main channel infiltration. No impact.

- *Comment:* Relative to water temperature study conclusions (*Slide 20*), Monte Miller asked whether the mixing period in Grant Lake was determined.
- *Response:* Chuck replied that the mixing period was not looked at, but believes it to occur early to mid-September.

- *Comment:* With respect to the re-established U.S. Geological Survey (USGS) gaging station (*Slide 21*), Monte Miller asked if measurements were taken in Grant Lake to correlate to the collected gage data in order to determine whether there is accretion.
- *Response:* Chuck responded no.

- *Comment:* With respect to the historic and 2013 hydrology results (*Slide 24*), Monte Miller noted that it appears that one year of data (2013) potentially shows the extremes, whereas the historic record (1948-1958) shows the average over time.
- *Response:* Chuck agreed with the comment.

- *Comment:* Relative to the accretion study results (*Slide 25*), Monte Miller commented that there is an apparent accretion rate of 0.2 cfs.

- *Response:* Chuck concurred, saying that, in other words, a difference due to measurement error. Cassie Thomas (NPS) asked whether they considered measuring flows in the fall when ground is not frozen to confirm the conclusion. Chuck replied that the fall flows (200 cfs) become too hazardous for trying to acquire the data and at these higher flow volumes it would be difficult to accurately quantify small flow differences within the canyon reach of Grant Creek. Monte commented that accretion will become a factor, if Project operations remove water from Grant Creek.

Paul Pittman (Element Solutions) presented the geomorphology component of the water resources study results (see PowerPoint included as [Attachment 5](#)).

- *Comment:* Relative to the observations of the Grant Creek sediment transport (*Slide 19*, Eric Rothwell (NOAA Fisheries) asked whether the sediment deposition also demonstrated spawning in isolated pockets behind “lunkers”.
- *Response:* Paul responded yes.
- *Comment:* With respect to potential mitigation actions (*Slide 24*), Eric Rothwell asked if that could involve gravel augmentation.
- *Response:* Paul responded yes.
- *Comment:* Cassie Thomas (NPS) asked when the southeast corner of Grant Creek was diverted, and whether the diversion could have created a sediment source.
- *Response:* Paul indicated that based on the existing vegetation, the diversion likely occurred from decades, up to a century ago, and that it is not believed to be a source of sediment.

Recreation and Visual Resources Study Results

Dwayne Adams (USKH) presented the recreation and visual resources study results (see PowerPoint included as [Attachment 6](#)).

- *Comment:* Relative to the discussion of the study’s scope of work (*Slide 4*), Cassie Thomas (NPS) asked if field staff of other resource studies documented observations of recreational use.
- *Response:* Dwayne replied that the aquatics staff, who was on site for the entire study period, emailed him details regarding fishing activity, which was mostly during the summer.
- *Comment:* With respect to the dates of study site visits (*Slide 5*), Cassie Thomas noted that March 3 and July 12 were weekends (Saturday and Friday, respectively), and asked if there appeared to be more recreational activity then versus a week day.
- *Response:* Kim Graham (USKH) concurred.
- *Comment:* Monte Miller (ADF&G) asked if there was concern with having only one summer site visit.

- *Response:* Dwayne clarified that there were two summer visits (July 12 survey and August 25 aircraft flight). Monte noted that those dates would not fall on the angling season though. Dwayne said that they primarily relied on the aquatics field staff for that information.
- *Comment:* When reviewing the potential Project impacts to the recreation and visual resources (*Slide 12*), specifically the possible increase of access, Cassie Thomas asked if KHL has considered gating the primary proposed access road.
- *Response:* Cory Warnock (McMillen) indicated that specific to access, KHL has made no decision and is open to considering all potential options, including gating of the access road. Mike Salzetti (KHL) added that KHL will want to take into account the various resource agencies' needs as they relate to their respective land management goals and objectives. Cassie recommended that the process for determining the solution for access be collaborative and that it include the public. Cory and Mike agreed with both suggestions.

Dwayne indicated that if there are additional information needs relative to winter recreation that it would be good to understand now, in order to try to coordinate data gathering with USKH's existing plan to survey supplemental areas soon. John Eavis (USFS) commented that two days of recreational use survey work is insufficient and suggested installing trail cameras to collect additional data in order to justify the existing conclusions regarding recreation use. John also indicated that information on the ice condition for winter motor use on Grant Lake would be useful. In general, Cassie Thomas replied that it would be good to understand the competing recreational needs of various agencies/groups. Cory suggested a call to discuss additional recreation information needs. Individuals identified as potential participants included, Cassie Thomas, Robert Stovall (USFS), John Eavis, and Lesli Schick (ADNR).

Licensing Path Forward/Closing

Cory Warnock (McMillen) stated that KHL welcomes informal written comments on the draft study reports, and requests that they be provided by Friday, April 25, at which point, KHL will work to finalize the reports and file them, along with the meeting notes, with the Federal Energy Regulatory Commission (FERC). Cassie Thomas (NPS) noted that she will be traveling most of the next four weeks but will try to provide the minor comments that she has by the deadline. Robert Stovall (USFS) noted that he has asked his staff to provide him comments on the relevant study reports by April 25. Monte noted that despite the internal glitch with ADF&G being able to receive the draft study reports electronically, he should be able to meet that deadline.

Mike Salzetti (KHL) stated that KHL's primary objectives over the next few months are to continue with the momentum gained from the engineering progress made thus far, and to start to integrate operational scenarios across the various resource disciplines. Cory noted that consistent with the engineering schedule, which has a number of deliverables due by May, KHL anticipates holding the next agency meeting in the June/July timeframe, with the primary focus being on 1) progress made with the operations modeling; 2) outstanding significant resource issues; and 3) exploring potential options for addressing Project impacts. Cassie suggested a more collaborative, "workshop" format for the June/July meeting, rather than presentations.

Cory indicated that except for maybe the need to present engineering information, that is what KHL envisions as well. Monte stated that ADF&G recognizes that the licensing process is transitioning from the studies to license application development.

<<ADJOURN 4:00PM>>

Action Items

- If there is other staff within a resource agency that should be reviewing engineering deliverables, **resource agency representatives** to provide Cory Warnock (McMillen) the contact information.
- **Levia Shoutis (ERM) and Katie McCafferty (USACE)** to coordinate on a functional assessment for Grant Creek, Grant Lake, and the associated streams thereof.
- **KHL** to schedule a call to discuss additional recreation information needs.
- **Stakeholders** to provide informal comments on the draft study reports by Friday, April 25.

Attachments

Attachments are available on the March 18-20, 2014 Natural Resources Study Report Meetings page at www.kenaihydro.com.

Attachment 1: Meeting Agenda

Attachment 2: Grant Lake Engineering Feasibility PowerPoint presentation

Attachment 3: Terrestrial Resources Study Results PowerPoint presentation

Attachment 4: Water Resources, Water Quality and Hydrology Study Results PowerPoint presentation

Attachment 5: Water Resources, Geomorphology Study Results presentation

Attachment 6: Recreation and Visual Resources Study Results PowerPoint presentation

**Grant Lake Hydroelectric Project (FERC No. 13212)
Aquatic Resources Work Group (ARWG) Meeting
Aspen Suites Hotel, 100 E. Tudor Rd., Anchorage, AK
March 19, 2014, 8:00 am to 5:00 pm**

In Attendance

Emily Andersen, McMillen LLC (McMillen)
Jeff Anderson, U.S. Fish and Wildlife Service
(USFWS) *[via phone]*
Patti Berkahn, Alaska Department of Fish and
Game (ADF&G) *[via phone]*
John Blum, McMillen
Gary Fandrei, Cook Inlet Aquaculture
Association (CIAA) *[via phone]*
Kevin Laves, USFS *[via phone]*
Katie McCafferty, Army Corps of Engineers
(USACE)
Mark Miller, BioAnalysts (BA) *[via phone]*
Monte Miller, Alaska Department of Fish and
Game (ADF&G)

Sally Morsell, Northern Ecological Services
(NES) *[via phone]*
Jason Mouw, ADF&G
Carl Reese, ADNR *[via phone]*
Eric Rothwell, National Oceanic and
Atmospheric Administration (NOAA
Fisheries)
Mike Salzetti, Kenai Hydro, LLC (KHL)
Charles Sauvageau, McMillen
John Stevenson, BA
Kelly Tilford, McMillen
Cory Warnock, McMillen

Meeting Summary

Introductions and Agenda

Mike Salzetti (KHL) began the meeting with introductions and Cory Warnock (McMillen) reviewed the proposed meeting agenda (see Attachment 1):

- Engineering Feasibility
- Aquatic Resources, Macroinvertebrates and Periphyton
- Aquatic Resources, Fisheries Assessment
- Licensing Path Forward

Cory noted that all materials from the meeting (agenda and presentations) will be posted to the Grant Lake Hydroelectric Project (Project) website (<http://www.kenaihydro.com/index.php>) after the meeting.

Engineering Feasibility

Kelly Tilford presented the engineering feasibility work done to date (see PowerPoint included as Attachment 2).

- *Comment:* With respect to the discussion of flood water surface elevations (*Slide 26¹*), Eric Rothwell (NOAA Fisheries) asked whether the flow of record is observed or an extrapolation.

¹ For all PowerPoint presentations given during the meeting, slide numbers refer to the PDF page number.

- *Response:* Kelly responded (and Chuck Sauvageau confirmed) that it was not preferable to extrapolate flow readings above 1,000 cfs since the highest measured discharge value was ~700 cfs. Therefore, HECRAS modeling output was utilized.
- *Comment:* Jason Mouw (ADF&G) expressed two concerns with the proposed detention pond (shown on *Slide 6*), 1) temperature control impacts (heating up in summer and freezing of the pond in the winter); and 2) temperature issues with potential flow back into Grant Creek.
- *Response:* Kelly noted that the detention pond is intended to absorb discharge during high, pulse flows. It is anticipated that there would be flow through under the ice cover. Mike Salzetti (KHL) added that the initial purpose of the pond was to provide spinning reserve for the power system (in the event of a disruption to the power supply), but now integrating in the environmental impacts, could possibly also serve as a temperature control (e.g., install a bubbler to draw in cold winter air). Cory stated that the plan is to provide refined details about the Project infrastructure at the next agency meeting (in the June/July timeframe).
- *Comment:* Katie McCafferty (USACE) stated that now having heard the wetlands discussion (at the March 18 Natural Resources Work Group [NRWG] meeting), she can see that the location of the detention pond is in close proximity to an identified patch of wetlands and asked if more details about the detention pond are known yet (i.e., will there be an outfall pipe or natural drainage, is the wetlands connected to Grant Creek, will the pond be lined).
- *Response:* Kelly said the details about the pond have yet to be determined. Cory Warnock (McMillen) suggested conferring with Levia Shoutis (ERM) regarding the connectivity of the relevant wetlands to Grant Creek.
- *Comment:* Monte Miller commented that the tailrace outfall could attract upstream migrating fish from Grant Creek, which should be taken into account with the design of the outfall.
- *Response:* Cory indicated that there have been preliminary internal discussions about the outfall design. The preference would be to not use any screens, but no decisions have been made thus far. Mike Salzetti added that one option is an elevated outfall. Mike also noted that KHL has been in discussions with the Kenai Peninsula Borough about this topic relative to their Anadromous Fish Habitat Protection ordinance. Monte stated that the potential for back flow into the Project outflow during extreme flow events should be considered relative to the design. Kelly replied that the tunnel would be designed to be hydraulically isolated for a 100-year flood event.
- *Comment:* Relative to the discussion of the current potential scenarios for the Project layout (*Slide 7*), Monte Miller (ADF&G) asked how a lake tap would work if water needed to be drawn from different levels based on the temperature discussion from the water resources presentation at the March 18 NRWG meeting.
- *Response:* Kelly replied that if necessary, the structure could include a multi-variable level intake system.

- *Comment:* Eric Rothwell asked what the active storage capacity of the Project would be.
- *Response:* Mike Salzetti replied that he did not know the estimate off hand, but it should be available in the 2010 revised Project description [*the value was later confirmed during the meeting to be 15,900 acre-feet with the no dam alternative (between elevation 692 and 703 feet)*].

Aquatic Resources Study Results, Macroinvertebrates/Periphyton

Chuck Sauvageau (McMillen) presented the macroinvertebrate and periphyton study results (see PowerPoint included as Attachment 3), and pointed out that Sally Morsell from Northern Ecological Services (NES), who conducted the study, is on the phone to answer questions.

- *Comment:* Monte Miller (ADF&G) asked if the notable fewer Chironomidae in 2009 at GC300 relative to other samples (*Slide 10*) could have been due to weather conditions in that year that may have resulted in fewer flies/mosquitoes.
- *Response:* Sally indicated that they tried to assess whether the relatively low numbers were due to an environmental cause or sampling conditions, but could not definitively conclude either way. She noted that in general, it is challenging to sample in the Project area. Flows in 2009 were comparable to those in other sampling periods; however, how comfortable an individual technician was to wade out into Grant Creek where Chironomidae prefer to over winter may have been a factor.
- *Comment:* Relative to comparing the Grant Creek data with other streams in Cook Inlet (*Slide 18*), Monte Miller asked whether stream gradient, which can impact various population density and taxa richness metrics, was taken into account.
- *Response:* Sally stated that some Alaska Stream Condition Index (ASCI) data was available from the Kenai for high gradient streams such as Grant Creek. Grant Creek habitat scored low, however the best use of the Grant Creek baseline data is for comparison to future conditions in Grant Creek.
- *Comment:* Monte Miller stated, relative to differences seen in density and taxa numbers between GC100 and GC 300, generally density and taxa numbers increase as one moves downstream and so GC100 would likely be a better monitoring location.
- *Response:* Sally responded yes, that was a reasonable conclusion given the results to date.
- *Comment:* Jason Mouw (ADF&G) asked if individual species by sample are detailed in the report.
- *Response:* Sally responded yes, that raw data tables are provided in a report appendix.

Aquatic Resources Study Results, Fisheries Assessment

John Stevenson (BioAnalysts) presented the fisheries assessment results (see PowerPoint included as Attachment 4).

- *Comment:* Monte Miller (ADF&G) commented that it was unfortunate the incline plane design (i.e., 1/4" mesh; *Slide 9*) did not allow for capturing of smaller fish.
- *Response:* John S. agreed. Monte added that it was unfortunate that the upper incline plane malfunctioned (*Slides 9 and 39*). John S. clarified that the incline plane did not malfunction, but rather, had to be shut down intermittently due to high flows and debris and not having a suitable alternate location to move it to during these events.
- *Comment:* With respect to the discussion of potential impacts, specific to juvenile rearing habitat (*Slide 63*), Eric Rothwell (NOAA Fisheries) asked at what flow does the Reach 2 distributary become watered.
- *Response:* John S. replied 420 cfs. Monte Miller noted that it was de-watered during the September 2013 site visit.
- *Comment:* Monte Miller asked whether fish can get out of Reach 2 distributary when it is cut off from the main channel.
- *Response:* John S. stated no, once loss of connectivity, fish are trapped from getting back into Grant Creek, although they can swim through to Trail Lake Narrows at the other end.
- *Comment:* Monte Miller asked if there was a known reason for the relatively low Chinook counts in 2013.
- *Response:* John S. said that they did not know for sure, although he noted that timing of installation of the adult weir (May 23, 2013; *Slide 4*) was based on 2009 distribution data, which was later than is generally typical, so may have missed capturing and tagging some of the early returns. John S. added that the goal was to tag 65 fish, but only 9 were tagged.
- *Comment:* Eric Rothwell asked if there was a general sense of where the rearing mesohabitats (like tiny alcoves and glides/pools) were located in Reaches 1-4.
- *Response:* John S. replied that based on the snorkeling, ideal mesohabitats were consistently found in deeper, quiet side channels and ice shelves in Reach 3 as well as right back above the adult weir, which was particularly quiet in April. Jason Mouw (ADF&G) added that similarly with spawning, he has observed it consistently occurring in the same areas of the creek each of the last four years. Cory Warnock noted that mesohabitats and definitions thereof would be discussed in more detail during the instream flow study presentation (at the March 20 Aquatic Resources Work Group [ARWG] meeting).
- *Comment:* Jeff Anderson (USFWS) asked about the level of confidence in the observed redd counts (*Slide 26*).
- *Response:* John S. noted that there is always an inherent risk of not observing all redds and explained that while water clarity decreased near the end of the study period, potentially impairing ability to see all of the redds, the field staff did weekly counts of redds, and since actively working in the field seven days a week, any new redds observed in between official counts were included in the dataset.

- *Comment:* Jeff Anderson asked if the relatively low number of radio-tagged Dolly Varden (*Slide 14*) could be due to the pickets on the adult weir that tend to attract smaller sized fish.
- *Response:* John S. replied yes that is possible. He added that another possibility is that it was a low migration year for the species.
- *Comment:* Jeff Anderson asked if the peak movement of parr/early smolts was observed in fall, prior to overwintering.
- *Response:* Referring to *Slide 50*, Monte Miller pointed out that he believes some fingerlings move into Grant Creek from Trail Lake Narrows.
- *Comment:* Referring to Table 5.1-10 of the Fisheries Assessment, Draft Report (February 2014), Jeff Anderson stated that the approximately 20% estimate of 0.x aged Chinook and coho seems high.
- *Response:* John S. replied that they will check with the ADF&G staff that performed the age analysis using scale samples to confirm the findings. Monte Miller noted that it is possible the apparent 0.x migrate out to the Trail Lake Narrows, rather than out to sea, and therefore, only temporarily fall out of the system. John S. concurred with that possibility and admitted that it is not possible to say with 100% that fish that apparently migrate downstream, return upstream.
- *Comment:* Jeff Anderson asked about potential impacts to habitat in the tailrace.
- *Response:* Kelly Tilford (McMillen) responded that the impacts cannot be determined until the Project operations scenario and detention pond design are further refined. Cory Warnock indicated that more should be known by the next agency meeting in June/July.
- *Comment:* Jeff Anderson asked if there are plans to provide the fisheries assessment data to Jay Johnson (ADF&G) for the “*Atlas and Catalogue of Waters Important for Spawning, Rearing, or Migration of Anadromous Fish*”.
- *Response:* John S. replied no, but can do so if deemed appropriate. John S. noted that consistent with the terms of the fish resource permit, a summary report has been provided to Scott Ayers (ADF&G). Monte Miller added that Robert Begich should also receive the relevant data.

Licensing Path Forward/Closing

Mike Salzetti (KHL) stated that KHL’s primary objectives over the next few months are to continue with the momentum gained from the engineering progress made thus far, and to start to integrate operational scenarios across the various resource disciplines. Cory Warnock noted that consistent with the engineering schedule, which has a number of deliverables due by May, KHL anticipates holding the next agency meeting in the June/July timeframe, with the primary focus being on 1) progress made with the operations modeling; 2) outstanding significant resource issues; and 3) exploring potential options for addressing Project impacts.

[Note explicitly stated at the March 19 meeting, but mentioned in other agency meetings that same week, KHL welcomes informal written comments on the draft study reports, and requests

that they be provided by Friday, April 25, at which point, KHL will work to finalize the reports and file them, along with the meeting notes, with the Federal Energy Regulatory Commission (FERC).]

<<ADJOURN 1:00PM>>

Action Items

- **BioAnalysts** to check with ADF&G about fish scale age analysis.
- **BioAnalysts** to provide relevant fisheries assessment data to Jay Johnson (ADF&G).
- **Stakeholders** to provide informal comments on the draft study reports by Friday, April 25.

Attachments

Attachments are available on the March 18-20, 2014 Natural Resources Study Report Meetings page at www.kenaihydro.com.

Attachment 1: Meeting Agenda

Attachment 2: Grant Lake Engineering Feasibility PowerPoint presentation

Attachment 3: Aquatic Resources, Macroinvertebrate and Periphyton Study Results PowerPoint presentation

Attachment 4: Aquatic Resources, Fisheries Assessment Results PowerPoint presentation

**Grant Lake Hydroelectric Project (FERC No. 13212)
Aquatic Resources Work Group (ARWG) Meeting
Aspen Suites Hotel, 100 E. Tudor Rd., Anchorage, AK
March 20, 2014, 8:00 am to 3:00 pm**

In Attendance

Emily Andersen, McMillen LLC (McMillen)
Jeff Anderson, U.S. Fish and Wildlife Service
(USFWS) *[via phone]*
Patti Berkahn, Alaska Department of Fish and
Game (ADF&G) *[via phone]*
John Blum, McMillen
Joe Klein, ADF&G
Katie McCafferty, Army Corps of Engineers
(USACE)
Mark Miller, BioAnalysts (BA) *[via phone]*
Monte Miller, Alaska Department of Fish and
Game (ADF&G)

Jason Mouw, ADF&G
Eric Rothwell, National Oceanic and
Atmospheric Administration (NOAA
Fisheries)
Kim Sager, Alaska Department of Natural
Resources (ADNR) *[via phone]*
Mike Salzetti, Kenai Hydro, LLC (KHL)
Hal Shepherd, Center for Water Advocacy
(CWA) *[via phone]*
John Stevenson, BA
Kelly Tilford, McMillen
Cory Warnock, McMillen

Meeting Summary

Introductions and Agenda

Mike Salzetti (KHL) began the meeting with introductions and Cory Warnock (McMillen) reviewed the proposed meeting agenda (see Attachment 1):

- Aquatic Resources, Instream Flow
- Integrated Natural Resources/Engineering Discussion

Cory noted that all materials from the meeting (agenda and presentations) will be posted to the Grant Lake Hydroelectric Project (Project) website (<http://www.kenaihydro.com/index.php>) after the meeting.

Aquatic Resources Study Results, Instream Flow

John Blum (McMillen) presented the instream flow study results (see PowerPoint included as Attachment 2).

- *Comment:* Monte Miller (ADF&G) commented that it has been understood that Reach 5 would be de-watered at certain times of the year, but given the current location of the tailrace outfall from the detention pond at the Reach 4/5 break (*Slide 12¹*), it appears that Reach 4 could be periodically de-watered as well.
- *Response:* Mike Salzetti (KHL) re-iterated that it is likely that the detention pond would not be used most of the year. Cory noted that while the location of powerhouse is fairly set, the orientation of the outfall is still to be determined. Kelly Tilford (McMillen)

¹ For all PowerPoint presentations given during the meeting, slide numbers refer to the PDF page number.

added that there are many options to ensure proper conditions (e.g., angle of flow, type of habitat where the flow is released, etc.).

- *Comment:* Katie McCafferty (USACE) asked if it is known how often the detention pond might be utilized in a given year.
- *Response:* Mike Salzetti replied no, but spin is only required if a [generating] unit fails on the Railbelt grid. Historical failure rates could be determined based on the Railbelt regional power data.
- *Comment:* In reference to the discussion about mesohabitats in Grant Creek (*Slide 14*), Eric Rothwell (NOAA Fisheries) asked at what flows the mesohabitats were determined at.
- *Response:* John Blum answered that the flows were between 150 and 250 cfs.
- *Comment:* Jason Mouw (ADF&G) commented that there are several habitat types discussed relative to mesohabitats (*Slide 14*), and asked if the definitions are provided somewhere.
- *Response:* John Blum indicated that the terms are defined in the Aquatic Resources study plan (March 2013).
- *Comment:* Jason Mouw asked how the transects (the basis of the Habitat Suitability Index [HSI] curves) relate to documented fish utilization/spawning areas.
- *Response:* John Blum indicated that transects were prioritized for that reason, but also noted that while in the field, the crew walked the entire stream, not just transects, to note observed fish and redds within 10 to 15 feet of a given transect. Mike Salzetti asked Jason if there was a deliverable (e.g., a map) that could provide the desired information. Jason indicated that he would detail what information he is looking for in his informal written comments.
- *Comment:* Jason Mouw asked about the distribution of HSI curves throughout Reaches 1-4 and other relevant data (e.g., at what flows measurements taken at, distance from shore, etc.).
- *Response:* John Blum said that he could provide the relevant data as it is all detailed in a spreadsheet.
- *Comment:* Jeff Anderson (USFWS) pointed out that the species and life history stage table (*Slide 17*) does not appear to match with Table 4.2-4 in the Instream Flow/Aquatic Habitat Mapping Study, Draft Report (February 2014). He also asked why fry rearing sockeye salmon was not checked yes.
- *Response:* John Blum stated that juvenile rearing coho salmon should have been checked in the report (Table 4.2-4), and same for juvenile Chinook salmon in the table in the presentation. He agreed to correct any discrepancies in the final report. Regarding the fry rearing sockeye, John Blum replied that they believe the species to migrate out quickly, and therefore, there would not be any apparent rearing.

- *Comment:* Specific to connectivity in Reach 5 (*Slides 30-33*), Monte Miller asked why the average of the T510 and 520 site flow data was calculated.
- *Response:* John Blum stated that it is the approach used by Thompson (1972), but agrees that it may not be the ideal approach when assessing connectivity of a stream.
- *Comment:* Relative to the Reach 5 connectivity analysis, Jeff Anderson asked whether habitat quality of the reach was determined.
- *Response:* John Stevenson reiterated that a total of 5 redds were observed in the reach, 16 fish observed (rearing) during snorkeling, and 36 salmonids captured in minnow traps. John Blum indicated that the flow information needs to be integrated with the fish timing data to start to get at the habitat quality of Reach 5. Mike Salzetti pointed out that in order for the Project to work properly, a significant amount of the Reach 5 flow will need to be bypassed through the Project.
- *Comment:* Jeff Anderson asked how the substrate in the Reach 5 canyon may impact sediment recruitment.
- *Response:* Cory Warnock indicated that the Geomorphology study presentation (given at the March 18 Natural Resources Work Group [NRWG] meeting), goes into detail about this, but provided a few highlights: 1) gravel recruitment would be episodic (100s to 1,000 years), likely due to a major slide; 2) any sediment recruitment will come from Reach 5, and not Grant Lake; and 3) the observed flaking of gravel may be more due to fish spawning activity than from high flows. Jeff Anderson stated that based on this, then there is evidence that flows due to Project operations will affect Reach 5 habitat, but there would be no impact on sediment transport. Mike Salzetti clarified that the geomorphology study showed that sediment transport in Reach 5 *would* be impacted by Project operations.
- *Comment:* Specific to potential habitat enhancements in the side channels at the Reach 2/3 break (*Slides 34-44*), Jason Mouw commented that while the side channels generally offer good habitat, except for at the head of the island complex, few fish are observed there. He added that it would seem utilization of the side channels could be limited by the relatively low winter flows and temperature controlling bedrock.
- *Response:* John Blum re-iterated that the next step with the instream flow work is to overlay the fish presence information with the habitat delineations to explore these theories.
- *Comment:* Specific to the discussion regarding the Reach 1 distributary (*Slides 45-53*), Patti Berkahn (ADF&G) asked about the flow during the September 2013 Project site visit.
- *Response:* Cory Warnock (McMillen) indicated that the flow in Grant Creek was approximately 400 cfs, and thus the distributary approximately 4 cfs.
- *Comment:* Eric Rothwell asked whether there is a rating curve for the Reach 1 distributary.
- *Response:* John Blum replied, no, its calculation is being based on stage/discharge data.

- *Comment:* Eric Rothwell observed that based on the information presented for the resources at the various meetings (March 18-20), integration of natural resources with the proposed Project operation scenarios is the next logical step. And added that there are still some questions to be answers (e.g., utilization of winter flows). Also, in general, Project operations will be constrained by the relatively small useable storage area of Grant Lake.
- *Response:* The group generally concurred.

- *Comment:* Eric Rothwell asked about the Q2 of the 11-year (1948-1958) plus 1 year (2013) record and its duration.
- *Response:* Mike Salzetti indicated that per Ebasco (1984), it is 1,000 cfs, and with regression, station weighted at 961 cfs. Eric replied that with the limited usable storage capacity that exists, it would seem difficult to prevent significant flow events from spilling into Reach 5 (e.g., 10 days of 1,000-cfs flows would fill Grant Lake).

- *Comment:* Monte Miller asked about the current thoughts regarding maximum operational flows.
- *Response:* Mike Salzetti stated that the current proposal is around 385 cfs and added that KHL plans to manage the lake levels to keep from [unnecessarily] spilling water.

- *Comment:* Joe Klein (ADF&G) commented that there are two apparent pieces missing from the evaluation thus far: 1) an estimate of effective spawning habitat; and 2) when comparing the Project operations scenarios, development of a habitat timing series.
- *Response:* John Blum agreed and stated that both would be done, likely ahead of the next agency meetings (likely in the June/July timeframe), provided the relevant hydrologic data and operations model output are available.

- *Comment:* Joe Klein recommended that for IFIM modeling, a record longer than 11 + years (1948-1958) should be utilized and asked what the potential correlation between Grant Creek and the Kenai River might be.
- *Response:* John Blum stated that he would review the Kenai River gauge at Cooper Landing data with an engineer to verify its correlation potential and if it was determined to be adequate, use it to extend the record.

- *Comment:* Jeff Anderson asked how the substrate utilized by sockeye and Chinook in Grant Creek compares to that in other streams.
- *Response:* John Blum responded that the size is generally similar; however, the substrate in Grant Creek is predominantly fractured or jointed bedrock.

- *Comment:* Jeff Anderson noted that he did not see a discussion in the Instream Flow/Aquatic Habitat Mapping Study, Draft Report, about the overflow into the adjacent trees/forest at the Reach 1/2 break.
- *Response:* Referring to the flow partitioning information (*Slide 21*), John Blum noted that the Reach 2 tributary activates starting at 450 cfs.

Cory Warnock stated that from a process perspective, as discussed at this meeting and those on March 18 and 19, KHL sees the next steps as continuing with the engineering feasibility work, beginning to integrate the operations modeling output with the natural resource study information, and meeting again with stakeholders in the June/July timeframe to discuss the progress made, but asked how the group wanted to proceed specific to the instream flow work. Jeff Anderson asked what field work would continue in 2014. Cory explained that there would be spring and summer wildlife surveys (consistent with the current scope of the terrestrial resources study plan) and continued collection of hydrology data. Jeff suggested further study of coho rearing/overwintering (per the fisheries assessment results discussion at the March 19 Aquatic Resources Work Group [ARWG] meeting) to better understand what was observed in 2013, building upon the single year of Chinook and coho escapement data, which will ultimately inform development of protection, mitigation and enhancement (PM&E) measures. Monte agreed with the request and noted that he has a general concern with having to base PM&E decisions on a limited and possibly incomplete data set. Cory suggested the use of 1980s data (Ebasco 1984) when a weir was also in place and incorporating it in with the 2013 information. Monte agreed with proposal as long as the methodologies were similar. Eric Rothwell alternatively recommended allowing the engineering feasibility work to proceed with the existing information, reserving the right that if the output shows that more habitat information is required to fully understand Project impacts, then the case for more study can be made at that time. Eric stated that if HEA was documenting “full utilization” of the species documented in Grant Creek, that this approach seemed appropriate.

In light of the various additional information requests made during the day’s meeting, Cory proposed a bi-weekly Instream Flow Subgroup call that would utilize an iterative approach (question, analysis, discussion, etc.). The group concurred with the proposal. The group agreed to March 27 for the first subgroup call. John Blum indicated that he would circulate a draft agenda.

Integrated Natural Resources/Engineering Discussion

Mike Salzetti gave a brief history of how the Grant Lake Project came about. The utility, Homer Electric Association (HEA)², traditionally dealing only in power transmission, decided to evaluate generation when its wholesale power purchase agreement with Chugach Electric Association, Inc. was set to expire in 2013. Most generation thus far is natural gas-fired, but with the changing price of gas, hydropower has become more economically viable. KHL considers the Grant Lake Project a great opportunity. Because the Project would be a minor percentage of KHL’s portfolio, KHL is open to considering operational scenarios that maximizes the benefit to natural resources (e.g., not maximize generation in winter in order to mimic natural flows in order to protect aquatic habitat). Based on the study results to date, Mike Salzetti indicated that KHL believes that the Project could be designed to have a net neutral impact to the environment.

Eric Rothwell (NOAA Fisheries) recommended building upon that foundation, and to come back for the next meetings with output from proposed operational scenarios and preliminary PM&Es, including associated rationale. Monte Miller (ADF&G) added that once there are actual

² KHL, the applicant for the Project, is a wholly-owned subsidiary of HEA.

operational scenarios to discuss, the group can move away from speculation and towards viable solutions.

Licensing Path Forward/Closing

Cory Warnock (McMillen) stated that KHL welcomes informal written comments on the draft study reports, and requests that they be provided by Friday, April 25, at which point, KHL will work to finalize the reports and file them, along with the meeting notes, with the Federal Energy Regulatory Commission (FERC).

Mike Salzetti (KHL) stated that KHL's primary objectives over the next few months are to continue with the momentum gained from the engineering progress made thus far, and to start to integrate operational scenarios across the various resource disciplines. Cory noted that consistent with the engineering schedule, which has a number of deliverables due by May, KHL anticipates holding the next agency meeting in the June/July timeframe, with the primary focus being on 1) progress made with the operations modeling; 2) outstanding significant resource issues; and 3) exploring potential options for addressing Project impacts. Monte recommended setting the meeting as soon as possible, and to try to avoid scheduling meetings the last week of June/first week of July due to the Fourth of July holiday.

<<ADJOURN 11:30AM>>

Action Items

- **John Blum (McMillen)** to provide Jason Mouw (ADF&G) relevant data about the HSI curves.
- **John Blum** to correct the inconsistencies between the table in Slide 17 and the same table in the Instream Flow/Aquatics Habitat Mapping Study, Draft Report (Table 4.2-4).
- **John Blum** to develop effective spawning habitat estimates and habitat timing series information.
- **Mike Salzetti (KHL)** to determine how often the detention pond may be utilized annually.
- **John Blum** to circulate a draft agenda for the March 27 Instream Flow Subgroup meeting.
- **Stakeholders** to provide informal comments on the draft study reports by Friday, April 25.

Attachments

Attachments are available on March 18-20, 2014 Natural Resources Study Report Meetings page at www.kenaihydro.com.

Attachment 1: Meeting Agenda

Attachment 2: Aquatic Resources, Instream Flow Study Results PowerPoint presentation

From: Cory Warnock
Sent: Wednesday, March 19, 2014 11:23 AM
To: Audrey Alstrom
Cc: Emily Andersen
Subject: Re: Instream Flow Study Report (Grant Lake)

Thanks for the heads-up. We'll definitely get you the minutes.

On Mar 19, 2014, at 9:23 AM, "Audrey Alstrom" <aalstrom@aidea.org> wrote:

Cory,
I'm not able to make the meetings. Just so much other stuff going on. If possible, please email me the minutes.
Thank you, Audrey

From: Cory Warnock [<mailto:cory.warnock@mcmillen-llc.net>]
Sent: Wednesday, March 05, 2014 12:15 PM
To: Monte Miller; Jeffry Anderson (Jeffry_Anderson@fws.gov); eric Rothwell; pamela.russell@alaska.gov; Patricia Berkhahn (patricia.berkhahn@alaska.gov); Jason Mouw; 'Katherine McCafferty' (katherine.a.mccafferty2@usace.army.mil); Joe Klein; Schade, David W (DNR) (david.w.schade@alaska.gov); Audrey Alstrom; kenailake@arctic.net; mcooney@arctic.net; rstovall@fs.fed.us
Cc: Mike Salzetti; Emily Andersen
Subject: Instream Flow Study Report (Grant Lake)

Grant Lake Hydroelectric Project (FERC No. 13212) Aquatic Resource Work Group Members (NRWG):

Hello Grant Lake Project ARWG Members,

The Instream Flow Report is now available on the FTP site.

Thank you, let me know if you have any questions and instructions for accessing the appropriate folder on our FTP site are below.

To access the McMillen, LLC FTP site:

- 1. Select the following link or type it in your internet browser, <http://mcmillen-llc.com/>***
- 2. Select the "Client Login" from the upper right corner.***
- 3. Use the username and password provided below (they are both case sensitive).***
- 4. Be sure that pop-ups are allowed or that they are temporarily allowed to access the FTP site.***
- 5. Once complete, the main folder and files for the project should be viewable.***
- 6. If there are multiple folders on the site, you must click on the plus (+) sign to the left of the main folder in order to view all other folders.***

Username – Grant Lake1

NOTE: Because of the potentially sensitive nature of the information regarding Cultural Resources, the final March 21, 2014 Cultural Resources Work Group (CRWG) meeting notes are not being distributed to the general public. This document may be obtained by request to Homer Electric Association (HEA) or Federal Energy Regulatory Commission (FERC), subject to confidentiality provisions.

From: Cory Warnock
Sent: Monday, March 24, 2014 10:31 AM
To: Miller, Monte D (DFG)
Subject: RE: GoToMeeting Invitation - Grant Lake Instream Flow Committee Call

Thanks Monte. I think we discussed 10am PST because we'd have AK folks calling in as well as someone from the Mtn time zone.

Talk to you Thursday and thanks for all of your input last week.

Cory

From: Miller, Monte D (DFG) [mailto:monte.miller@alaska.gov]
Sent: Monday, March 24, 2014 10:08 AM
To: Cory Warnock
Subject: RE: GoToMeeting Invitation - Grant Lake Instream Flow Committee Call

Thanks for the call in information. My notes from the meeting last week identified 10 AM, but 9 AM will work also.

Monte D. Miller
Statewide FERC Hydropower Coordinator
Alaska Department of Fish and Game
Division of Sport Fish / RTS
333 Raspberry Road
Anchorage, Alaska, 99518-1565

907 267-2312

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

From: Cory Warnock [mailto:cory.warnock@mcmillen-llc.net]
Sent: Monday, March 24, 2014 7:34 AM
To: Eric Rothwell; Klein, Joseph P (DFG); Miller, Monte D (DFG); Mouw, Jason E B (DFG); Jeffry Anderson (Jeffry_Anderson@fws.gov); dglass@ciri.com; John Blum; 'Mark Miller (mark.miller@bioanalysts.net)'
Subject: GoToMeeting Invitation - Grant Lake Instream Flow Committee Call
When: Thursday, March 27, 2014 10:00 AM-11:30 AM (UTC-08:00) Pacific Time (US & Canada).
Where:

Hi All,

Per our meetings last week, looking forward to talking this Thursday. As opposed to sending out an invite that is recurring every two weeks, I assume we'll schedule the next call while on the phone.

Thanks!

1. Please join my meeting.

<https://global.gotomeeting.com/join/517317997>

2. Use your microphone and speakers (VoIP) - a headset is recommended. Or, call in using your telephone.

Dial +1 (630) 869-1013

Access Code: 517-317-997

Audio PIN: Shown after joining the meeting

Meeting ID: 517-317-997

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Not at your computer? Click the link to join this meeting from your iPhone®, iPad®, Android® or Windows Phone® device via the GoToMeeting app.

Subject: FW: GoToMeeting Invitation - Grant Lake Instream Flow Committee Call

Start: Thu 3/27/2014 10:00 AM
End: Thu 3/27/2014 11:30 AM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Cory Warnock

FYI

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

From: Cory Warnock
Sent: Monday, March 24, 2014 8:34 AM
To: Cory Warnock; Eric Rothwell; Joe Klein; Monte Miller; Jason Mouw; Jeffry Anderson (Jeffry_Anderson@fws.gov); dglass@ciri.com; John Blum; Mark Miller (mark.miller@bioanalysts.net)
Subject: GoToMeeting Invitation - Grant Lake Instream Flow Committee Call
When: Thursday, March 27, 2014 10:00 AM-11:30 AM (UTC-08:00) Pacific Time (US & Canada).
Where:

Hi All,

Per our meetings last week, looking forward to talking this Thursday. As opposed to sending out an invite that is recurring every two weeks, I assume we'll schedule the next call while on the phone.

Thanks!

1. Please join my meeting.

<https://global.gotomeeting.com/join/517317997>

2. Use your microphone and speakers (VoIP) - a headset is recommended. Or, call in using your telephone.

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From: Cory Warnock <cory.warnock@mcmillen-llc.com>
Sent: Monday, March 24, 2014 12:42 PM
To: Monte Miller; Cassie Thomas; Brenda Trefon; Eric Rothwell; 'David Griffin';
pamela.russell@alaska.gov; Jason Mouw; mcooney@arctic.net; 'Katherine McCafferty';
Schade, David W (DNR); 'Audrey Alstrom'; rstovall@fs.fed.us; waterlaw@uci.net; 'Susan
Walker'; 'Lesli Schick'; Jeffry Anderson; 'Patricia Berkhahn'; 'Joe Klein'; dglass@ciri.com;
kenailake@arctic.net; Ken Hogan
Cc: Mike Salzetti; Emily Andersen
Subject: Grant Lake Meetings

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resources Study Stakeholder Group (Natural Resource Work Group , Aquatics Resource Work Group Members):

Hello,

Wanted to drop you all a quick note to say thank you for attending the Grant Lake Project Meetings last week. I hope you found them informative and beneficial. As you are all aware, there are resource specific action items (calls, follow-up, etc.) that have been identified and those will be more specifically plan/addressed with the identified individuals. From a more global perspective, there were 3 items that I wanted to remind everyone of:

1. Study Report Comments – Per our discussions at the meetings, we'd appreciate any informal comments to the reports by April 25th. After KHL has reviewed and amended the reports according to best technical judgment, we will be filing a package with FERC that includes:
 - Natural Resource Reports
 - Meeting Presentations and Agendas
 - Meeting Minutes***Minutes will be distributed for agency review prior to filing*
2. Meeting Presentations – All of the presentations for the meetings will be going up on KHL's website (<http://www.kenaihydro.com/>) early this week.
3. Next Workgroup Meeting – As discussed at the meetings last week, over the course of the next couple of weeks, KHL will be working with all of you to set dates for a Grant Lake Project Workshop which will be intended to collaboratively discuss engineering progress, likely operational scenarios, integration with natural resources, impacts and mitigation options, etc. The specific agenda items will develop over the next few months but the primary intent will be to meet again with all of you and collaboratively work through these types of items in advance of KHL preparing a Draft License Application for your formal review.

Again, thank you all very much for your attendance and I'm sure we'll be talking very soon,

Cory

Cory Warnock
Senior Licensing and Regulatory Consultant

McMillen, LLC
www.mcmillen-llc.com
5771 Applegrove Ln.

From: Cory Warnock
Sent: Monday, March 24, 2014 1:13 PM
To: Emily Andersen
Subject: FW: Kenai Hydro, LLC permit renewal documents

FYI

From: Salzetti, Mikel [<mailto:MSalzetti@HomerElectric.com>]
Sent: Monday, March 24, 2014 1:09 PM
To: Sagner, Helen -FS
Cc: Cory Warnock
Subject: RE: Kenai Hydro, LLC permit renewal documents

Helen:

Was this permit signed?

Thanks,

Mike Salzetti

Manager of Fuel Supply & Renewable Energy Development
(907) 283-2375 *work*
(907) 398-5073 *Mobile*

From: Sagner, Helen -FS [<mailto:hsagner@fs.fed.us>]
Sent: Tuesday, March 18, 2014 1:43 PM
To: Salzetti, Mikel
Subject: RE: Kenai Hydro, LLC permit renewal documents

Hi Mikel; I am still awaiting the signed copy from the District Ranger. He is in the office today and I hope to receive the final signed copy then and will send it your way asap. Thanks in advance and I appreciate your patience. Helen

*Helen Sagner, hsagner@fs.fed.us
(Detail) Special Uses Permit Administrator
Alaska Region, R10 | Chugach NF | Seward Ranger District
(907) 743-9494 Direct Line*

From: Salzetti, Mikel [<mailto:MSalzetti@HomerElectric.com>]
Sent: Thursday, March 13, 2014 12:20 PM
To: Sagner, Helen -FS
Cc: Cory Warnock (cory.warnock@mcmillen-llc.net)
Subject: RE: Kenai Hydro, LLC permit renewal documents

Excellent, thank you very much.

From: Sagner, Helen -FS [<mailto:hsagner@fs.fed.us>]
Sent: Wednesday, March 12, 2014 4:30 PM
To: Salzetti, Mikel
Cc: Cory Warnock (cory.warnock@mcmillen-llc.net)
Subject: RE: Kenai Hydro, LLC permit renewal documents

Thanks Mikel. This will work and I will have your executed copy emailed per your request by Friday.

*Helen Sagner, hsagner@fs.fed.us
(Detail) Special Uses Permit Administrator
Alaska Region, R10 | Chugach NF | Seward Ranger District
(907) 743-9494 Direct Line*

From: Salzetti, Mikel [<mailto:MSalzetti@HomerElectric.com>]
Sent: Monday, March 10, 2014 5:21 PM
To: Sagner, Helen -FS
Cc: Cory Warnock (cory.warnock@mcmillen-llc.net)
Subject: FW: Kenai Hydro, LLC permit renewal documents

Helen:

Attached is a redlined copy of the permit in which I corrected the date on which we received our FERC preliminary permit and fixed an apparent error on the expiration date (changing an OR to an AND). I have attached a signed clean copy of the permit as a pdf document. Please give me a call if I have somehow misinterpreted your intent.

I would appreciate it if you could email me a counter signed copy of the permit in addition to the traditional mailed version. We hope to do a little work in this area late next week and would need the counter signed copy in hand before we proceed.

Thanks,

Mike Salzetti
Manager of Fuel Supply & Renewable Energy Development
(907) 283-2375 *work*
(907) 398-5073 *Mobile*

From: Sagner, Helen -FS [<mailto:hsagner@fs.fed.us>]
Sent: Wednesday, February 26, 2014 4:15 PM
To: Salzetti, Mikel
Subject: FW: Kenai Hydro, LLC permit renewal documents

Hi Mike; just checking in to verify that you received my previous email. I have not received your document or heard back from you.

*Helen Sagner, hsagner@fs.fed.us
(Detail) Special Uses Permit Administrator
Alaska Region, R10 | Chugach NF | Seward Ranger District*

From: Sagner, Helen -FS
Sent: Thursday, February 13, 2014 1:16 PM
To: 'msalzetti@HomerElectric.com'
Subject: Kenai Hydro, LLC permit renewal documents

Hi Mike;

Enclosed is a copy of your new Special Use Permit #594, which authorizes the continued investigative studies for hydropower on Grant Lake.

Please review this document, and if acceptable sign, and return to the Seward Ranger District, Po Box 390, Seward, AK 99664, or electronically to my attention at hsagner@fs.fed.us.

After you have returned the signed permit an executed copy will be sent to you.

Remember, the authorization is not valid unless signed by both parties.

If you have any further questions, please contact Kathy Van Massenhove at kvanmassenhove@fs.fed.us.

Thanks in advance, Helen

*Helen Sagner, hsagner@fs.fed.us
(Detail) Special Uses Permit Administrator
Alaska Region, R10 | Chugach NF | Seward Ranger District
(907) 743-9494 Direct Line*

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From: Mark Miller <mark.miller@bioanalysts.net>
Sent: Tuesday, March 25, 2014 11:19 AM
To: Mark Willette
Cc: Emily Andersen; Cory Warnock
Subject: Re: Age Analysis
Attachments: Chinook and Coho Age Analysis Follow up.xlsx

Hello Mark,

Attached is a spreadsheet developed from the scale age analysis for returning Chinook and coho salmon in Grant Creek 2013. At a recent stakeholders meeting, one of the biologist attending the meeting thought the percentage of zero check (0.x) fish returning to Grant Creek was fairly high.

Could you please take a look at the age analysis for those fish (highlighted green) and let me know if they are correct or if I have misinterpreted the nomenclature for the age designation on those fish or any other fish?

Best Regards,

Mark Miller
BioAnalysts, Inc.
4725 N. Cloverdale Rd.
Boise, ID 83713
Phone: (208) 321-0363
Cell: (208) 890-4038

No.	Date	Species	Sex	Length	Weight	Age	Total Age	Mark
1	8/11/2013	CK	M	641	4.53	1.2	4	1
2	8/12/2013	CK	M	669	5.3	1.3	5	2
3	8/13/2013	CK	M	808	8.4	0.3	4	3
4	8/14/2013	CK	M	705	5.41	1.3	5	4
5	8/16/2013	CK	M	609	4.09	1.2	4	6
6	8/16/2013	CK	M	624	4.01	1.2	4	8
7	8/17/2013	CK	M	689	4.81	0.3	4	9
8	8/17/2013	CK	M	696	5.06	0.3	4	10
9	8/18/2013	CK	M	960	14.67	0.3	4	11
10	8/18/2013	CK	M	689	5.37	1.2	4	12
11	8/18/2013	CK	M	970	14.28	1.4	6	13
12	8/18/2013	CK	F	880	10.51	0.3	4	14
13	8/18/2013	CK	F	812	7.56	1.3	5	15
14	8/18/2013	CK	M	701	5.31	0.3	4	16
15	8/19/2013	CK	F	887	11.22	1.3	5	17
16	8/20/2013	CK	M	375	0.6	1.1	3	
17	8/22/2013	CK	M	653	3.86	1.2	4	18
18	8/22/2013	CK	M	684	4.84	1.2	4	19
19	8/22/2013	CK	M	606	3.31	1.2	4	20
20	8/23/2013	CK	M	681	5.13	1.2	4	21
21	8/23/2013	CK	F	975	15.4	1.4	6	22
22	8/24/2013	CK	M	1036	16.44	1.4	6	24
23	8/24/2013	CK	M	611	3.84	0.3	4	25
25	8/27/2013	CK	F	831	7.83	1.3	5	7
26	8/27/2013	CK	M	803	7.04	1.3	5	26
27	8/27/2013	CK	M	908	10.31	1.3	5	27
28	8/28/2013	CK	M	645	4.18	1.2	4	28
29	8/30/2013	CK	F	909	11.04	1.3	5	29
30	8/30/2013	CK	M	765	5.74	1.3	5	30
31	8/30/2013	CK	M	640	3.32	1.2	4	31
32	9/1/2013	CK	M	662	4.07	1.2	4	32
33	9/5/2013	CK	M	682	3.72	1.2	4	

24	8/26/2013	CK	M	574	2.3	0.6	7	
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From: hshepherd@uci.net
Sent: Tuesday, March 25, 2014 7:57 PM
To: hshepherd@uci.net; Cory Warnock
Cc: Emily Andersen
Subject: Re: Grant Lake Meetings

Thanks Cory. OK to use this e-mail address for me from now on.

Hal

On Tue 25/03/14 8:49 AM , "Cory Warnock" cory.warnock@mcmillen-llc.com sent:

Hi Hal,

I will be using this email address going forward as the other periodically tells me it is full and I can't be confident that you are getting everything that I send your way. As to your report question, instructions for accessing the draft reports are below.

Thank you, let me know if you have any questions.

To access the McMillen, LLC FTP site:

1. Select the following link or type it in your internet browser, <http://mcmillen-llc.com/>
2. Select the "Client Login" from the upper right corner.
3. Use the username and password provided below (they are both case sensitive).
4. Be sure that pop-ups are allowed or that they are temporarily allowed to access the FTP site.
5. Once complete, the main folder and files for the project should be viewable.
6. If there are multiple folders on the site, you must click on the plus (+) sign to the left of the main folder in order to view all other folders.

Username – Grant Lake1
Password – Reports_2014

Cory Warnock
Senior Licensing and Regulatory Consultant

McMillen, LLC
www.mcmillen-llc.com
5771 Applegrove Ln.
Ferndale, Wa. 98248
O – 360-384-2662
C – 360-739-0187
F – 360-542-2264

From: salvagerecovery@gmail.com on behalf of Michael R Yarborough
<mry@crcalaska.com>
Sent: Tuesday, March 25, 2014 5:20 PM
To: Frank Winchell
Subject: Re: cultural resources meeting for the Grant Lake Hydroelectric Project (FERC No. 13212)
Attachments: Cultural Resources PowerPoint_2.pdf

Frank

I'm glad we had a chance to catch up this afternoon. The presentation that I gave at the meeting is attached. I'll send the meeting notes along as soon as they are available.

Mike

On Tue, Mar 25, 2014 at 7:32 AM, Frank Winchell <frank.winchell@ferc.gov> wrote:

Mike:

I just wanted to make sure I'm current, but is there going to be an up-coming cultural resources meeting soon on Grant Lake?

I don't think I've got anything on my calendar yet.

Thanks,

Frank

--
--

Michael R. Yarborough
Senior Archeologist
Cultural Resource Consultants LLC
3504 E. 67th Avenue
Anchorage, Alaska 99507

NOTE: Because of the potentially sensitive nature of the information regarding Cultural Resources, the March 21, 2014 Cultural Resources Work Group meeting PowerPoint presentation attached to the March 25, 2014 email is not being distributed to the general public. This document may be obtained by request to Homer Electric Association (HEA) or Federal Energy Regulatory Commission (FERC), subject to confidentiality provisions.

From: Cory Warnock
Sent: Tuesday, March 25, 2014 9:23 AM
To: Amal Ajmi; Levia Shoutis
Cc: Emily Andersen; Mike Salzetti
Subject: FW: SEW594 - Fully Executed Copy Agreement
Attachments: SEW594 Kenai Hydro, LLC 2014.pdf

ner, Helen -FS [<mailto:hsagner@fs.fed.us>]

Sent: Monday, March 24, 2014 11:26 PM

To: Salzetti, Mikel

Subject: SEW594 - Fully Executed Copy Agreement

Hi Mikel;

Thank you in advance for your patience. Here is your fully executed signed copy of your new agreement for your records.

If you would since your preference is to receive this via email...reply back to me to acknowledge receipt for my records.

Again, thank you and let me know if you have any further questions, Helen

Helen Sagner, hsagner@fs.fed.us

(Detail) Special Uses Permit Administrator

Alaska Region, R10 | Chugach NF | Seward Ranger District

(907) 743-9494 Direct Line

Seward Ranger District

Authorization ID: SEW594
Contact ID: KENAI HYDRO LLC
Expiration Date: 12/31/2018
Use Code: 413

MAR 10 2014

FS-2700-4 (10/09)
OMB No. 0596-0082

Received

U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE

SPECIAL USE PERMIT

Authority: FEDERAL LAND POLICY AND MGMT ACT, AS AMENDED October 21, 1976

Kenai Hydro, LLC of 3977 LAKE ST HOMER AK UNITED STATES 99603 (hereinafter "the holder") is authorized to use or occupy National Forest System lands in the Chugach National Forest on the Seward Ranger District of the National Forest System, subject to the terms and conditions of this special use permit (the permit).

This permit covers 2 acres or 0 miles in the Sec. 8, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 21, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 20, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 17, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 16, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 5, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 3, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 2, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 1, T. 4 N., R. 1 E., SEWARD MERIDIAN, Sec. 36, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 35, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 34, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 33, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 26, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 32, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 29, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 28, T. 5 N., R. 1 E., SEWARD MERIDIAN, Sec. 27, T. 5 N., R. 1 E., SEWARD MERIDIAN, ("the permit area"), as shown on the map attached as Appendix A. This permit issued for the purpose of:

to conduct investigative studies related to the Grant Lake/Grant Creek hydroelectric proposals. The proposals received preliminary permits from FERC on March 23, 2012.

Studies include fish presence, aquatic macroinvertebrate sampling, fish habitat mapping, water quality sampling, stream discharge measurements, wildlife observations, wetland and vegetation surveys, and cultural resource surveys. Permit area includes National Forest System lands surrounding Grant Lake as shown in Appendix A-1.

Access to the permit area is by the same means as is available to the public as outlined in the Chugach National Forest Land Resource Management Plan and noted on Appendix A-2 and A-3.

TERMS AND CONDITIONS

I. GENERAL TERMS

A. AUTHORITY. This permit is issued pursuant to FEDERAL LAND POLICY AND MGMT ACT, AS AMENDED October 21, 1976 and 36 CFR Part 251, Subpart B, as amended, and is subject to their provisions.

B. AUTHORIZED OFFICER. The authorized officer is the Forest or Grassland Supervisor or a subordinate officer with delegated authority.

C. TERM. This permit shall expire at midnight on 12/31/2018, 4 years and 11 months from the date of issuance.

D. RENEWAL. This permit is not renewable. Prior to expiration of this permit, the holder may apply for a new permit that would renew the use and occupancy authorized by this permit. Applications for a new permit must be submitted at least 6 months prior to expiration of this permit. Renewal of the use and occupancy authorized by this permit shall be at the sole discretion of the authorized officer. At a minimum, before renewing the use and occupancy authorized by this permit, the authorized officer shall require that (1) the use and occupancy to be authorized by the new permit is consistent with the standards and guidelines in the applicable land management plan; (2) the type of use and occupancy to be authorized by the new permit is the same as the type of use and occupancy authorized by this permit; and (3) the holder is in compliance with all the terms of this permit. The authorized officer may prescribe new terms and conditions when a new permit is issued.

E. AMENDMENT. This permit may be amended in whole or in part by the Forest Service when, at the discretion of the authorized officer, such action is deemed necessary or desirable to incorporate new terms that may be required by law, regulation, directive, the applicable forest land and resource management plan, or projects and activities implementing a land management plan pursuant to 36 CFR Part 215.

F. COMPLIANCE WITH LAWS, REGULATIONS, AND OTHER LEGAL REQUIREMENTS. In exercising the rights and privileges

granted by this permit, the holder shall comply with all present and future federal laws and regulations and all present and future state, county, and municipal laws, regulations, and other legal requirements that apply to the permit area, to the extent they do not conflict with federal law, regulation, or policy. The Forest Service assumes no responsibility for enforcing laws, regulations, and other legal requirements that fall under the jurisdiction of other governmental entities.

G. NON-EXCLUSIVE USE. The use or occupancy authorized by this permit is not exclusive. The Forest Service reserves the right of access to the permit area, including a continuing right of physical entry to the permit area for inspection, monitoring, or any other purpose consistent with any right or obligation of the United States under any law or regulation. The Forest Service reserves the right to allow others to use the permit area in any way that is not inconsistent with the holder's rights and privileges under this permit, after consultation with all parties involved. Except for any restrictions that the holder and the authorized officer agree are necessary to protect the installation and operation of authorized temporary improvements, the lands and waters covered by this permit shall remain open to the public for all lawful purposes.

H. ASSIGNABILITY. This permit is not assignable or transferable.

I. CHANGE IN CONTROL OF THE BUSINESS ENTITY.

1. Notification of Change in Control. The holder shall notify the authorized officer when a change in control of the business entity that holds this permit is contemplated.

a. In the case of a corporation, control is an interest, beneficial or otherwise, of sufficient outstanding voting securities or capital of the business so as to permit the exercise of managerial authority over the actions and operations of the corporation or election of a majority of the board of directors of the corporation.

b. In the case of a partnership, limited partnership, joint venture, or individual entrepreneurship, control is a beneficial ownership of or interest in the entity or its capital so as to permit the exercise of managerial authority over the actions and operations of the entity.

c. In other circumstances, control is any arrangement under which a third party has the ability to exercise management authority over the actions or operations of the business.

2. Effect of Change in Control. Any change in control of the business entity as defined in paragraph 1 of this clause shall result in termination of this permit. The party acquiring control must submit an application for a special use permit. The Forest Service is not obligated to issue a new permit to the party who acquires control. The authorized officer shall determine whether the applicant meets the requirements established by applicable federal regulations.

II. IMPROVEMENTS

A. LIMITATIONS ON USE. Nothing in this permit gives or implies permission to build or maintain any structure or facility or to conduct any activity, unless specifically authorized by this permit. Any use not specifically authorized by this permit must be proposed in accordance with 36 CFR 251.54. Approval of such a proposal through issuance of a new permit or permit amendment is at the sole discretion of the authorized officer.

B. PLANS. All plans for development, layout, construction, reconstruction, or alteration of improvements in the permit area, as well as revisions to those plans must be prepared by a professional engineer, architect, landscape architect, or other qualified professional based on federal employment standards acceptable to the authorized officer. These plans and plan revisions must have written approval from the authorized officer before they are implemented. The authorized officer may require the holder to furnish as-built plans, maps, or surveys upon completion of the work.

B. CONSTRUCTION. Any construction authorized by this permit shall commence by N/A and shall be completed by N/A.

III. OPERATIONS.

A. PERIOD OF USE. Use or occupancy of the permit area shall be exercised at least 2 days each year.

B. CONDITION OF OPERATIONS. The holder shall maintain the authorized improvements and permit area to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer and consistent with other provisions of this permit. Standards are subject to periodic change by the authorized officer when deemed necessary to meet statutory, regulatory, or policy requirements or to protect national forest resources. The holder shall comply with inspection requirements deemed appropriate by the authorized officer.

C. INSPECTION BY THE FOREST SERVICE. The Forest Service shall monitor the holder's operations and reserves the right to

inspect the permit area and transmission facilities at any time for compliance with the terms of this permit. The holder's obligations under this permit are not contingent upon any duty of the Forest Service to inspect the permit area or transmission facilities. A failure by the Forest Service or other governmental officials to inspect is not a justification for noncompliance with any of the terms and conditions of this permit.

IV. RIGHTS AND LIABILITIES

A. LEGAL EFFECT OF THE PERMIT. This permit, which is revocable and terminable, is not a contract or a lease, but rather a federal license. The benefits and requirements conferred by this authorization are reviewable solely under the procedures set forth in 36 CFR Part 251, Subpart C, and 5 U.S.C. 704. This permit does not constitute a contract for purposes of the Contract Disputes Act, 41 U.S.C. 601. The permit is not real property, does not convey any interest in real property, and may not be used as collateral for a loan.

B. VALID OUTSTANDING RIGHTS. This permit is subject to all valid outstanding rights. Valid outstanding rights include those derived under mining and mineral leasing laws of the United States. The United States is not liable to the holder for the exercise of any such right.

C. ABSENCE OF THIRD-PARTY BENEFICIARY RIGHTS. The parties to this permit do not intend to confer any rights on any third party as a beneficiary under this permit.

D. SERVICES NOT PROVIDED. This permit does not provide for the furnishing of road or trail maintenance, water, fire protection, search and rescue, or any other such service by a government agency, utility, association, or individual.

E. RISK OF LOSS. The holder assumes all risk of loss associated with use or occupancy of the permit area, including but not limited to theft, vandalism, fire and any fire-fighting activities (including prescribed burns), avalanches, rising waters, winds, falling limbs or trees, and other forces of nature. If authorized temporary improvements in the permit area are destroyed or substantially damaged, the authorized officer shall conduct an analysis to determine whether the improvements can be safely occupied in the future and whether rebuilding should be allowed. If rebuilding is not allowed, the permit shall terminate.

F. DAMAGE TO UNITED STATES PROPERTY. The holder has an affirmative duty to protect from damage the land, property, and other interests of the United States. Damage includes but is not limited to fire suppression costs, damage to government-owned improvements covered by this permit, and all costs and damages associated with or resulting from the release or threatened release of a hazardous material occurring during or as a result of activities of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees on, or related to, the lands, property, and other interests covered by this permit. For purposes of clause IV.F and section V, "hazardous material" shall mean (a) any hazardous substance under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601(14); (b) any pollutant or contaminant under section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (c) any petroleum product or its derivative, including fuel oil, and waste oils; and (d) any hazardous substance, extremely hazardous substance, toxic substance, hazardous waste, ignitable, reactive or corrosive materials, pollutant, contaminant, element, compound, mixture, solution or substance that may pose a present or potential hazard to human health or the environment under any applicable environmental laws.

1. The holder shall avoid damaging or contaminating the environment, including but not limited to the soil, vegetation (such as trees, shrubs, and grass), surface water, and groundwater, during the holder's use or occupancy of the permit area. If the environment or any government property covered by this permit becomes damaged during the holder's use or occupancy of the permit area, the holder shall immediately repair the damage or replace the damaged items to the satisfaction of the authorized officer and at no expense to the United States.

2. The holder shall be liable for all injury, loss, or damage, including fire suppression, prevention and control of the spread of invasive species, or other costs in connection with rehabilitation or restoration of natural resources associated with the use or occupancy authorized by this permit. Compensation shall include but not be limited to the value of resources damaged or destroyed, the costs of restoration, cleanup, or other mitigation, fire suppression or other types of abatement costs, and all administrative, legal (including attorney's fees), and other costs. Such costs may be deducted from a performance bond required under clause IV.I.

3. The holder shall be liable for damage caused by use of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees to all roads and trails of the United States to the same extent as provided under clause IV.F.1, except that liability shall not include reasonable and ordinary wear and tear.

G. HEALTH, SAFETY, AND ENVIRONMENTAL PROTECTION. The holder shall promptly abate as completely as possible and in compliance with all applicable laws and regulations any activity or condition arising out of or relating to the authorized use or occupancy that causes or threatens to cause a hazard to public health or the safety of the holder's employees or agents or harm to the environment (including areas of vegetation or timber, fish or other wildlife populations, their habitats, or any other natural

resources). The holder shall prevent impacts to the environment and cultural resources by implementing actions identified in the operating plan to prevent establishment and spread of invasive species. The holder shall immediately notify the authorized officer of all serious accidents that occur in connection with such activities. The responsibility to protect the health and safety of all persons affected by the use or occupancy authorized by this permit is solely that of the holder. The Forest Service has no duty under the terms of this permit to inspect the permit area or operations and activities of the holder for hazardous conditions or compliance with health and safety standards.

H. INDEMNIFICATION OF THE UNITED STATES. The holder shall indemnify, defend, and hold harmless the United States for any costs, damages, claims, liabilities, and judgments arising from past, present, and future acts or omissions of the holder in connection with the use or occupancy authorized by this permit. This indemnification provision includes but is not limited to acts and omissions of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees in connection with the use or occupancy authorized by this permit which result in (1) violations of any laws and regulations which are now or which may in the future become applicable, and including but not limited to those environmental laws listed in clause V.A of this permit; (2) judgments, claims, demands, penalties, or fees assessed against the United States; (3) costs, expenses, and damages incurred by the United States; or (4) the release or threatened release of any solid waste, hazardous waste, hazardous materials, pollutant, contaminant, oil in any form, or petroleum product into the environment. The authorized officer may prescribe terms that allow the holder to replace, repair, restore, or otherwise undertake necessary curative actions to mitigate damages in addition to or as an alternative to monetary indemnification.

I. BONDING. The authorized officer may require the holder to furnish a surety bond or other security for any of the obligations imposed by the terms and conditions of this permit or any applicable law, regulation, or order.

V. RESOURCE PROTECTION

A. COMPLIANCE WITH ENVIRONMENTAL LAWS. The holder shall in connection with the use or occupancy authorized by this permit comply with all applicable federal, state, and local environmental laws and regulations, including but not limited to those established pursuant to the Resource Conservation and Recovery Act, as amended, 42 U.S.C. 6901 et seq., the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq., the Oil Pollution Act, as amended, 33 U.S.C. 2701 et seq., the Clean Air Act, as amended, 42 U.S.C. 7401 et seq., CERCLA, as amended, 42 U.S.C. 9601 et seq., the Toxic Substances Control Act, as amended, 15 U.S.C. 2601 et seq., the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, 7 U.S.C. 136 et seq., and the Safe Drinking Water Act, as amended, 42 U.S.C. 300f et seq.

B. VANDALISM. The holder shall take reasonable measures to prevent and discourage vandalism and disorderly conduct and when necessary shall contact the appropriate law enforcement officer.

C. PESTICIDE USE. Pesticides may not be used outside of buildings to control undesirable woody and herbaceous vegetation (including aquatic plants), insects, rodents, fish, and other pests and weeds without prior written approval from the authorized officer. A request for approval of planned uses of pesticides shall be submitted annually by the holder on the due date established by the authorized officer. The report shall cover a 12-month period of planned use beginning 3 months after the reporting date. Information essential for review shall be provided in the form specified. Exceptions to this schedule may be allowed, subject to emergency request and approval, only when unexpected outbreaks of pests or weeds require control measures that were not anticipated at the time an annual report was submitted. Only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned shall be considered for use on National Forest System lands. Label instructions and all applicable laws and regulations shall be strictly followed in the application of pesticides and disposal of excess materials and containers.

D. ARCHAEOLOGICAL-PALEONTOLOGICAL DISCOVERIES. The holder shall immediately notify the authorized officer of all antiquities or other objects of historic or scientific interest, including but not limited to historic or prehistoric ruins, fossils, or artifacts discovered in connection with the use and occupancy authorized by this permit. The holder shall leave these discoveries intact and in place until directed otherwise by the authorized officer. Protective and mitigative measures specified by the authorized officer shall be the responsibility of the holder.

E. NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION. In accordance with 25 U.S.C. 3002(d) and 43 CFR 10.4, if the holder inadvertently discovers human remains, funerary objects, sacred objects, or objects of cultural patrimony on National Forest System lands, the holder shall immediately cease work in the area of the discovery and shall make a reasonable effort to protect and secure the items. The holder shall immediately notify the authorized officer by telephone of the discovery and shall follow up with written confirmation of the discovery. The activity that resulted in the inadvertent discovery may not resume until 30 days after the authorized officer certifies receipt of the written confirmation, if resumption of the activity is otherwise lawful, or at any time if a binding written agreement has been executed between the Forest Service and the affiliated Indian tribes that adopts a recovery plan for the human remains and objects.

F. PROTECTION OF HABITAT OF THREATENED, ENDANGERED, AND SENSITIVE SPECIES. The location of sites within the

permit area needing special measures for protection of plants or animals listed as threatened or endangered under the Endangered Species Act (ESA) of 1973, 16 U.S.C. 1531 et seq., as amended, or identified as sensitive or otherwise requiring special protection by the Regional Forester under Forest Service Manual (FSM) 2670, pursuant to consultation conducted under section 7 of the ESA, may be shown on the ground or on a separate map. The map shall be attached to this permit as an appendix. The holder shall take any protective and mitigative measures specified by the authorized officer. If protective and mitigative measures prove inadequate, if other sites within the permit area containing threatened, endangered, or sensitive species or species otherwise requiring special protection are discovered, or if new species are listed as threatened or endangered under the ESA or identified as sensitive or otherwise requiring special protection by the Regional Forester under the FSM, the authorized officer may specify additional protective and mitigative measures. Discovery of these sites by the holder or the Forest Service shall be promptly reported to the other party.

G. CONSENT TO STORE HAZARDOUS MATERIALS. The holder shall not store any hazardous materials at the site without prior written approval from the authorized officer. This approval shall not be unreasonably withheld. If the authorized officer provides approval, this permit shall include, or in the case of approval provided after this permit is issued, shall be amended to include specific terms addressing the storage of hazardous materials, including the specific type of materials to be stored, the volume, the type of storage, and a spill plan. Such terms shall be proposed by the holder and are subject to approval by the authorized officer.

H. CLEANUP AND REMEDIATION

1. The holder shall immediately notify all appropriate response authorities, including the National Response Center and the authorized officer or the authorized officer's designated representative, of any oil discharge or of the release of a hazardous material in the permit area in an amount greater than or equal to its reportable quantity, in accordance with 33 CFR Part 153, Subpart B, and 40 CFR Part 302. For the purposes of this requirement, "oil" is as defined by section 311(a)(1) of the Clean Water Act, 33 U.S.C. 1321(a)(1). The holder shall immediately notify the authorized officer or the authorized officer's designated representative of any release or threatened release of any hazardous material in or near the permit area which may be harmful to public health or welfare or which may adversely affect natural resources on federal lands.

2. Except with respect to any federally permitted release as that term is defined under Section 101(10) of CERCLA, 42 U.S.C. 9601(10), the holder shall clean up or otherwise remediate any release, threat of release, or discharge of hazardous materials that occurs either in the permit area or in connection with the holder's activities in the permit area, regardless of whether those activities are authorized under this permit. The holder shall perform cleanup or remediation immediately upon discovery of the release, threat of release, or discharge of hazardous materials. The holder shall perform the cleanup or remediation to the satisfaction of the authorized officer and at no expense to the United States. Upon revocation or termination of this permit, the holder shall deliver the site to the Forest Service free and clear of contamination.

I. CERTIFICATION UPON REVOCATION OR TERMINATION. If the holder uses or stores hazardous materials at the site, upon revocation or termination of this permit the holder shall provide the Forest Service with a report certified by a professional or professionals acceptable to the Forest Service that the permit area is uncontaminated by the presence of hazardous materials and that there has not been a release or discharge of hazardous materials upon the permit area, into surface water at or near the permit area, or into groundwater below the permit area during the term of the permit. This certification requirement may be waived by the authorized officer when the Forest Service determines that the risks posed by the hazardous material are minimal. If a release or discharge has occurred, the professional or professionals shall document and certify that the release or discharge has been fully remediated and that the permit area is in compliance with all federal, state, and local laws and regulations.

VI. LAND USE FEE AND ACCOUNTING ISSUES

A. LAND USE FEES. The holder shall pay an initial annual land use fee of \$200.00 for the period from 01/01/2014 to 12/31/2014, and thereafter on January 1, shall pay an annual land use fee of \$200.00. The annual land use fee shall be adjusted annually using the IDP-GNP.

B. MODIFICATION OF THE LAND USE FEE. The land use fee may be revised whenever necessary to reflect the market value of the authorized use or occupancy or when the fee system used to calculate the land use fee is modified or replaced.

C. FEE PAYMENT ISSUES.

1. **Crediting of Payments.** Payments shall be credited on the date received by the deposit facility, except that if a payment is received on a non-workday, the payment shall not be credited until the next workday.

2. **Disputed Fees.** Fees are due and payable by the due date. Disputed fees must be paid in full. Adjustments will be made if dictated by an administrative appeal decision, a court decision, or settlement terms.

3. Late Payments

(a) Interest. Pursuant to 31 U.S.C. 3717 et seq., interest shall be charged on any fee amount not paid within 30 days from the date it became due. The rate of interest assessed shall be the higher of the Prompt Payment Act rate or the rate of the current value of funds to the Treasury (i.e., the Treasury tax and loan account rate), as prescribed and published annually or quarterly by the Secretary of the Treasury in the Federal Register and the Treasury Fiscal Requirements Manual Bulletins. Interest on the principal shall accrue from the date the fee amount is due.

(b) Administrative Costs. If the account becomes delinquent, administrative costs to cover processing and handling the delinquency shall be assessed.

(c) Penalties. A penalty of 6% per annum shall be assessed on the total amount that is more than 90 days delinquent and shall accrue from the same date on which interest charges begin to accrue.

(d) Termination for Nonpayment. This permit shall terminate without the necessity of prior notice and opportunity to comply when any permit fee payment is 90 calendar days from the due date in arrears. The holder shall remain responsible for the delinquent fees.

4. Administrative Offset and Credit Reporting. Delinquent fees and other charges associated with the permit shall be subject to all rights and remedies afforded the United States pursuant to 31 U.S.C. 3711 et seq. and common law. Delinquencies are subject to any or all of the following:

(a) Administrative offset of payments due the holder from the Forest Service.

(b) If in excess of 60 days, referral to the Department of the Treasury for appropriate collection action as provided by 31 U.S.C. 3711(g)(1).

(c) Offset by the Secretary of the Treasury of any amount due the holder, as provided by 31 U.S.C. 3720 et seq.

(d) Disclosure to consumer or commercial credit reporting agencies.

VII. REVOCATION, SUSPENSION, AND TERMINATION

A. REVOCATION AND SUSPENSION. The authorized officer may revoke or suspend this permit in whole or in part:

1. For noncompliance with federal, state, or local law.
2. For noncompliance with the terms of this permit.
3. For abandonment or other failure of the holder to exercise the privileges granted.
4. With the consent of the holder.
5. For specific and compelling reasons in the public interest.

Prior to revocation or suspension, other than immediate suspension under clause VI.B, the authorized officer shall give the holder written notice of the grounds for revocation or suspension. In the case of revocation or suspension based on clause VII.A.1, 2, or 3, the authorized officer shall give the holder a reasonable time, typically not to exceed 90 days, to cure any noncompliance.

B. IMMEDIATE SUSPENSION. The authorized officer may immediately suspend this permit in whole or in part when necessary to protect public health or safety or the environment. The suspension decision shall be in writing. The holder may request an on-site review with the authorized officer's supervisor of the adverse conditions prompting the suspension. The authorized officer's supervisor shall grant this request within 48 hours. Following the on-site review, the authorized officer's supervisor shall promptly affirm, modify, or cancel the suspension.

C. APPEALS AND REMEDIES. Written decisions by the authorized officer relating to administration of this permit are subject to administrative appeal pursuant to 36 CFR Part 251, Subpart C, as amended. Revocation or suspension of this permit shall not give rise to any claim for damages by the holder against the Forest Service.

D. TERMINATION. This permit shall terminate when by its terms a fixed or agreed upon condition, event, or time occurs without any action by the authorized officer. Examples include but are not limited to expiration of the permit by its terms on a specified date.

and termination upon change of control of the business entity. Termination of this permit shall not require notice, a decision document, or any environmental analysis or other documentation. Termination of this permit is not subject to administrative appeal and shall not give rise to any claim for damages by the holder against the Forest Service.

E. RIGHTS AND RESPONSIBILITIES UPON REVOCATION OR TERMINATION WITHOUT RENEWAL. Upon revocation or termination of this permit without renewal of the authorized use, the holder shall remove all structures and improvements, except those owned by the United States, within a reasonable period prescribed by the authorized officer and shall restore the site to the satisfaction of the authorized officer. If the holder fails to remove all structures and improvements within the prescribed period, they shall become the property of the United States and may be sold, destroyed, or otherwise disposed of without any liability to the United States. However, the holder shall remain liable for all costs associated with their removal, including costs of sale and impoundment, cleanup, and restoration of the site.

VIII. MISCELLANEOUS PROVISIONS

A. MEMBERS OF CONGRESS. No member of or delegate to Congress or resident commissioner shall benefit from this permit either directly or indirectly, except to the extent the authorized use provides a general benefit to a corporation.

B. CURRENT ADDRESSES. The holder and the Forest Service shall keep each other informed of current mailing addresses, including those necessary for billing and payment of land use fees.

C. SUPERSEDED PERMIT. This permit supersedes a special use permit designated Kenai Hydro, LLC, SEW457, dated 06/24/2009.

D. SUPERIOR CLAUSES. If there is a conflict between any of the preceding printed clauses and any of the following clauses, the preceding printed clauses shall control.

E. ARCHAEOLOGICAL-PALEONTOLOGICAL DISCOVERIES (R10-X106). Items of historic, prehistoric, or paleontological value are protected under various Federal laws, including the Antiquities Act of 1906 (16 U.S.C. 433), the Archaeological Resource Protection Act of 1979 (16 U.S.C. 47033) as amended, and Federal regulations. If historic, prehistoric, or paleontological objects or sites are discovered during activities under this permit, the holder is responsible for assuring that those objects or sites are not disturbed during the course of the activities of the holder or the holder's clients. The holder must notify the Forest Service of such discovery at the earliest opportunity. Failure to comply with this clause may result in criminal prosecution of the holder for violation of a Federal law or regulation.

This permit is accepted subject to the conditions set out above.

HOLDER: Kenai Hydro, LLC

U.S. DEPARTMENT OF AGRICULTURE
Forest Service

By:

Michel L. Letti
(Holder Signature)

By:

Robert A. Stovall FOR
TOM MALECEK, District Ranger

Date:

3/10/2014

Date:

3/24/2014

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond, to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0598-0082. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.






The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and, where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

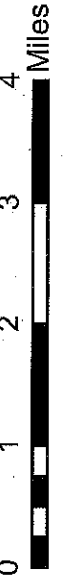
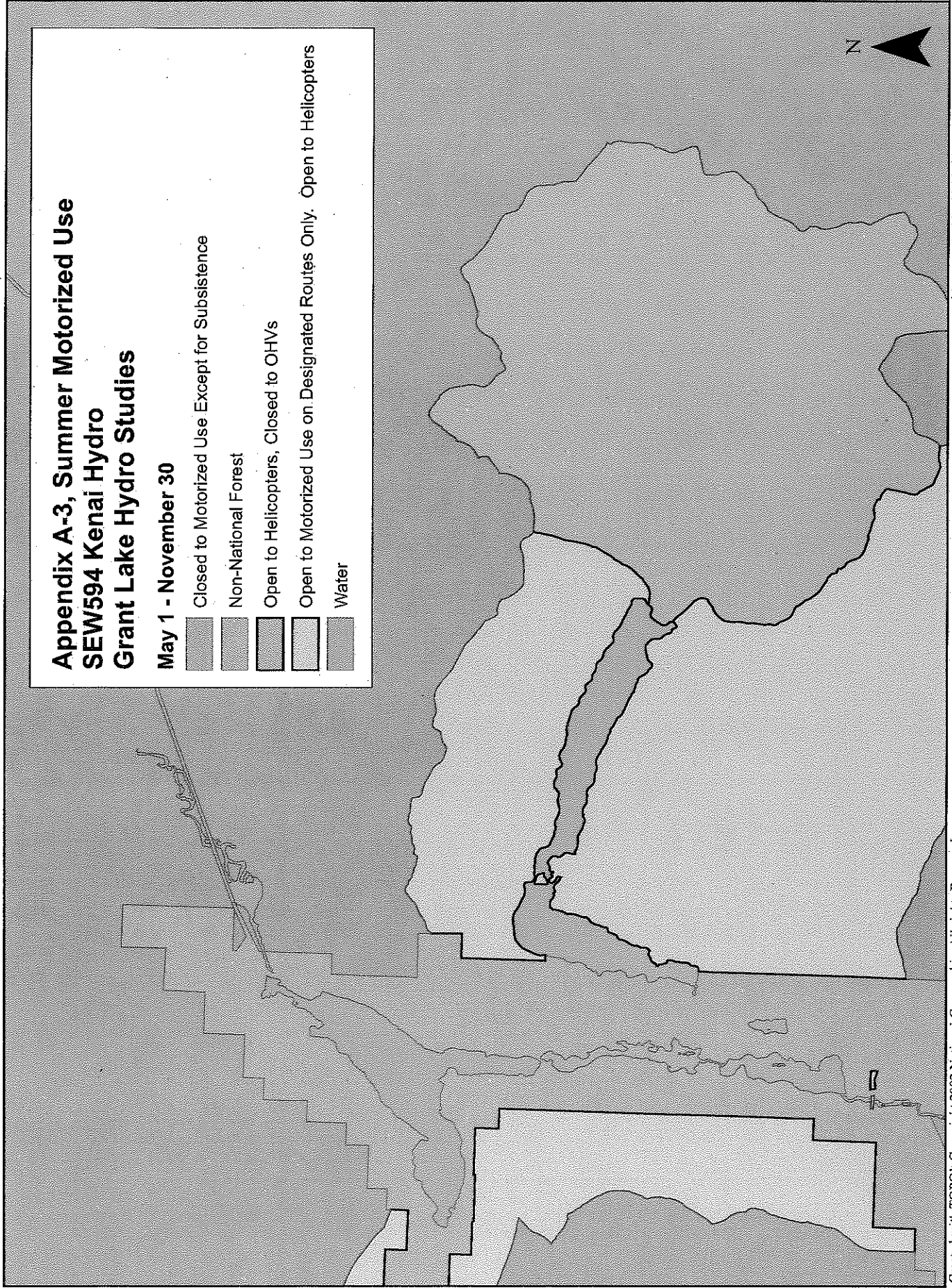
To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Appendix A-3, Summer Motorized Use SEW594 Kenai Hydro Grant Lake Hydro Studies

May 1 - November 30





-  Closed to Motorized Use Except for Subsistence
-  Non-National Forest
-  Open to Helicopters, Closed to OHVs
-  Open to Motorized Use on Designated Routes Only. Open to Helicopters
-  Water

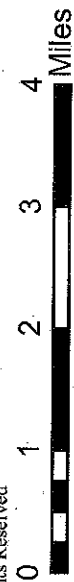


Appendix A-2 Winter Motorized Use SEW594 Kenai Hydro LLC Grant Lake Hydro Studies

Winter Motorized Use

December 1 - April 30

-  Closed to Motorized Use Except for Subsistence
-  Non-National Forest
-  Open to all Motorized Use
-  Water



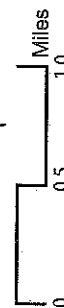
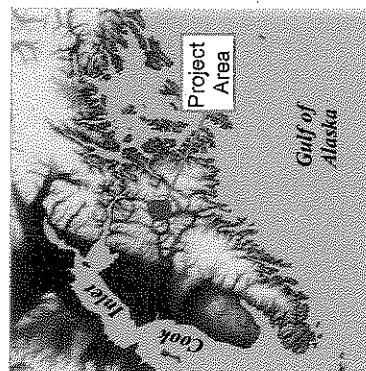
KENAI HYDRO

FIGURE 1

Appendix A-1
SEW594 Kenai Hydro, LLC.

Legend

- Project Area
- Lakes
- Glaciers
- Rivers
- Easement
- Mental Health Trust
- Management Agreement
- Permit/Lease
- Municipal Entitlement
- Alaska Railroad
- Chugach National Forest
- State



Date: 07 April 2009
Author: HDR Alaska
Sources: ADNIR, USFS

HDR



Grant Lake Hydroelectric Project (FERC No. 13212) Licensing

Consultation Record

Phone/E-mail /One on One Meeting Log

Contact Name: Jeffry Anderson

Agency/Organization: USFWS, Kenai Fish & Wildlife Field Office

Phone No./E-mail Address: (907) 260-0132/ jeffry_anderson@fws.gov

Date: 3-25-14

Time: 12:15 MST

Grant Lake Licensing Team Contact: Mark Miller, Fisheries Biologist, BioAnalysts

Summary of Conversation and/or E-mail Exchange:

Jeff and I discussed overwintering coho in Grant Creek as well as pertinent rainbow trout and Dolly vardern literature. Jeff noted that the report (fisheries assessment) did acknowledge overwintering coho salmon. We discussed length-at-age for juvenile coho from the Carlon Report.

Scale analysis was also discussed for zero check (0.x) adult Chinook and coho salmon noted in the samples collected on Grant Creek, 2013. I let Jeff know that the age analysis had been sent back to Alaska Department of Fish and Game (ADFG) to see if the data or nomenclature had been interpreted correctly.

Jeff sent an email with three reports attached covering rainbow trout migration, Dolly Varden migration and rainbow trout genetics in the Kenai River system. I returned an email thanking Jeff for the literature.

From: Cory Warnock
Sent: Tuesday, March 25, 2014 1:16 PM
To: Emily Andersen
Subject: FW: contact info for Mark Miller

FYI

From: Mark Miller [mailto:mark.miller@bioanalysts.net]
Sent: Tuesday, March 25, 2014 1:11 PM
To: 'Anderson, Jeffry'; Cory Warnock
Subject: RE: contact info for Mark Miller

Hi Jeff,

Thanks for the reports.

Mark Miller
BioAnalysts, Inc.
4725 N. Cloverdale Rd.
Boise, ID 83713
Phone: (208) 321-0363
Cell: (208) 890-4038

From: Anderson, Jeffry [mailto:jeffry_anderson@fws.gov]
Sent: Tuesday, March 25, 2014 12:21 PM
To: Cory Warnock
Cc: Mark Miller (mark.miller@bioanalysts.net)
Subject: Re: contact info for Mark Miller

Thanks, Cory.

Mark: here are the links to the rainbow trout and Dolly Varden reports:

Rainbow distribution: http://www.fws.gov/alaska/fisheries/fish/Technical_Reports/t_1998_46.pdf

Rainbow genetics: http://www.fws.gov/alaska/fisheries/fish/Technical_Reports/t_1999-51.PDF

Dolly distribution: http://www.fws.gov/alaska/fisheries/fish/Technical_Reports/t_2005_86.pdf

Jeffry Anderson
Field Supervisor
USFWS, Kenai Fish & Wildlife Field Office
43655 Kalifornsky Beach Road, Soldotna, AK 99669
Office: 907-260-0132
Cell: 907-252-4896

On Tue, Mar 25, 2014 at 10:14 AM, Cory Warnock <cory.warnock@mcmillen-llc.net> wrote:

Here ya go.....I've Cc'd him here and included his address below.

mark.miller@bioanalysts.net

From: Anderson, Jeffry [mailto:jeffry_anderson@fws.gov]
Sent: Tuesday, March 25, 2014 10:59 AM
To: Cory Warnock
Subject: contact info for Mark Miller

Hi Cory. I'm trying to send an e-mail to Mark Miller following up on a phone conversation we just had, but I don't have his e-mail address. Can you please connect us? Thanks!

-- Jeff

Jeffry Anderson

Field Supervisor

USFWS, Kenai Fish & Wildlife Field Office

43655 Kalifornsky Beach Road, Soldotna, AK 99669

Office: 907-260-0132

Cell: 907-252-4896

On Wed, Mar 5, 2014 at 11:53 AM, Cory Warnock <cory.warnock@mcmillen-llc.net> wrote:

Grant Lake Hydroelectric Project (FERC No. 13212) Aquatic Resource Work Group Members (NRWG):

Hello Grant Lake Project ARWG Members,

The Aquatic Resources Study (Fisheries Assessment) Report has been posted to the FTP site (access instructions below). The Instream Flow Report will follow shortly. I'll notify you all when it has been uploaded and this will complete the report uploads prior to the meeting. I believe at this point, you also have all logistical information associated with the meetings.

Thank you, let me know if you have any questions and instructions for accessing the appropriate folder on our ftp site are below.

To access the McMillen, LLC FTP site:

1. *Select the following link or type it in your internet browser, <http://mcmillen-llc.com/>*
2. *Select the "Client Login" from the upper right corner.*
3. *Use the username and password provided below (they are both case sensitive).*
4. *Be sure that pop-ups are allowed or that they are temporarily allowed to access the FTP site.*
5. *Once complete, the main folder and files for the project should be viewable.*
6. *If there are multiple folders on the site, you must click on the plus (+) sign to the left of the main folder in order to view all other folders.*

Username – Grant Lake1

Password – Reports_2014

Cory Warnock

Senior Licensing and Regulatory Consultant

McMillen, LLC

www.mcmillen-llc.com

From: Cory Warnock
Sent: Wednesday, March 26, 2014 2:49 PM
To: Emily Andersen
Subject: FW: Flows for HSI work in Grant Creek

FYI

From: Mouw, Jason E B (DFG) [mailto:jason.mouw@alaska.gov]
Sent: Wednesday, March 26, 2014 2:24 PM
To: John Blum
Cc: Cory Warnock; Miller, Monte D (DFG)
Subject: RE: Flows for HSI work in Grant Creek

Thanks John. This is will be very helpful.

Looking forward to talking more about this with you tomorrow,

Jason

From: John Blum [mailto:john.blum@mcmillen-llc.com]
Sent: Wednesday, March 26, 2014 1:21 PM
To: Mouw, Jason E B (DFG)
Cc: 'Cory Warnock'
Subject: Flows for HSI work in Grant Creek

Hi, Jason:

Good chatting with you last week!

I was going through my notes and you had asked the range of flows that we were able to take measurements for the HSI work in Grant Creek. I've listed the dates, flows, and species observed at these times (all spawning life stage):

Date	Flow (cfs)	Sockeye	Chinook	Coho
8/30/2013	389	✓	✓	
8/31/2013	389	✓	✓	
9/2/2013	338	✓		
9/3/2013	360-363	✓		
9/10/2013	469	✓		
9/24/2013	187	✓		
10/11/2013	179			✓
10/12/2013	169			✓
10/21/2013	263			✓

Let me know if there is anything else that you need. Talk to you tomorrow!

Cheers

John

John Blum

Sr. Fisheries Scientist

McMillen, LLC

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f 360.734.5918 | c 360.220.0694

john.blum@mcmillen-llc.com | www.mcmillen-llc.com

From: Cory Warnock <cory.warnock@mcmillen-llc.net>
Sent: Wednesday, March 26, 2014 2:49 PM
To: Emily Andersen
Subject: FW: Agenda for Grant Lake Instream Flow Meeting for Thursday, March 27 - Time Correction

Importance: High

FYI

From: John Blum [mailto:john.blum@mcmillen-llc.com]
Sent: Wednesday, March 26, 2014 1:57 PM
To: 'John Blum'; 'Eric Rothwell'; 'Klein, Joseph P (DFG)'; 'Mouw, Jason E B (DFG)'; 'Miller, Monte D (DFG)'; jeffry_anderson@fws.gov; dglass@ciri.com; Cory Warnock; 'Mark Miller'
Cc: 'John Blum'; 'John Stevenson'
Subject: RE: Agenda for Grant Lake Instream Flow Meeting for Thursday, March 27 - Time Correction
Importance: High

Good afternoon:

I misspoke re: the time for the call tomorrow. It is at 10am, Pacific time, which translates to 9am in AK and 11 am in Boise.

I apologize for the confusion.

John

John Blum
Sr. Fisheries Scientist

From: John Blum [mailto:john.blum@mcmillen-llc.com]
Sent: Wednesday, March 26, 2014 1:42 PM
To: 'Eric Rothwell'; 'Klein, Joseph P (DFG)'; 'Mouw, Jason E B (DFG)'; 'Miller, Monte D (DFG)'; 'jeffry_anderson@fws.gov'; 'dglass@ciri.com'; 'Cory Warnock'; 'Mark Miller'
Cc: 'John Blum'; 'John Stevenson'
Subject: Agenda for Grant Lake Instream Flow Meeting for Thursday, March 27

Good Afternoon:

I want to thank you all for agreeing to be part of this Instream Flow process. I anticipate that tomorrow's call will be relatively short; our expectation is that you will provide us with data requests to answer pertinent questions related to the instream study and its integration with other disciplines. These data requests will establish the framework for future calls.

From our discussions last week, I have heard a need for the following discussions:

- Periodicity of Grant Lake salmonids
- Identification of priority species and life history stages

- Transects
 - What kind of analysis would be helpful
 - Transect Weighting - currently modeled independently with equal weighting
 - Analysis by reach, or are there transects that the Instream Flow Work Group see as being more critical
- Effective Spawning Analysis
- Ramping rates
- Habitat time series

This list is not inclusive, but is presented as a beginning point for analysis and discussion.

In preparation for our call tomorrow, I am providing a draft Grant Creek periodicity table produced by Mark Miller at BioAnalysts. Notes re: Mark's assumptions are provided on the second page of the spreadsheet.

Please give me a call if you have any questions. We'll talk tomorrow at 10am (AK time).

Thank you,

John

John Blum
Sr. Fisheries Scientist

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john.blum@mcmillen-llc.com | www.mcmillen-llc.com

Final
Conference call with the Grant Creek Instream Flow Work Group
March 27, 2014

Those attending via conference call:

- Eric Rothwell (NOAA)
- Monte Miller (ADFG)
- Jason Mouw (ADFG)
- Jeff Anderson (USFWS)
- Mark Miller (BioAnalysts)
- Cory Warnock (McMillen, LLC)
- John Blum (McMillen, LLC)

The conference call with the Instream Flow Work Group (Work Group) began at 10:00 am PDT. John mentioned that the purpose of this, and subsequent meetings, was to provide data to the resource managers to answer questions related to the proposed Grant Lake Hydroelectric Project. It is KHL's intent to provide this information in a timely fashion, so that subsequent meetings with the Aquatic Work Group (AWG), to be held in June/July, can focus on different operating scenarios and potential PM&E measures, rather than use the meetings to present data.

To start the process, John sent out a draft agenda on Wednesday, March 26. Agenda items are briefly detailed below.

PERIODICITY OF GRANT LAKE SALMONIDS

Mark Miller reviewed the periodicity chart that he had put together for Grant Creek; these data were derived from Grant Creek observations in 2009 and 2013. Jeff requested that Sockeye Salmon fry be added to the periodicity chart. *[Note: draft periodicity for Sockeye Salmon fry from mid-May through the end of the first week of August.]*

Emergence Timing: Unsure of emergence timing for Sockeye Salmon fry; DTU's to be determined.

Coho juvenile rearing: Jeff stated his concern that we still don't know where juvenile Coho are located nor do we know what habitat types they are using. This is an unresolved issue. Monte said that since we have made Coho juvenile rearing to extend year round, we are taking a conservative approach and that addresses ADFG's concerns.

To Do:

- Mark to add row for Sockeye Salmon fry to periodicity chart

- Jason to provide Robert Begich a copy of the periodicity chart, so that Robert can tweak it. Jason will then provide this revised table to the group
- Jason to ask Robert Begich about Kenai River Sockeye Salmon DTUs for incubation
- Monte to ask Hatchery group about Sockeye Salmon DTUs, and
- John to ask Tom Prochazka (CIAA Trail Lakes Hatchery) re: Trail Lakes Sockeye Salmon DTUs

PRIORITY SPECIES

Discussion centered on developing a priority species list, with the goal of streamlining the analysis process. The group agreed that, for different time periods, different species and life stages may take precedence, and that providing flows that maximized spawning habitat, for example, might be deleterious to other life history stages. It was determined that, for the time being, John would run all species and life stages for the time periods (to be established once the periodicity chart is finalized); once that is done, the group would then make decisions re: priority species and life history stages.

TRANSECT SELECTION AND WEIGHTING

One of John's questions was how to weight and consider different transects. As an initial cut, John produced WUA curves for all species and life history stages at all transects. John asked if there were priority transects, and a way that we could drill down into the data and produce information the group wanted.

Jason suggested that, for spawning, a broad brush overview would be a good starting point. Cory mentioned that our database allows us to superimpose layers of spawning salmonids over the transects, to determine where the majority of the spawning was occurring, and which transects were most important (from a spawning perspective). Once that was done, John will produce transect profiles, showing the bed, locations of spawning substrates and spawning salmonids. This will provide information re: how heavily spawned areas are, as well as impacts (i.e., potential susceptibility of eggs deposited along the margins to reduction in flows).

Eric also asked that we use the IFIM data to put Grant Creek juvenile habitat in context. One area of examination is the ability to have lateral connectivity during the summer, although it may not be as important in the winter with the reduced flows.

To Do:

- Cory to produce GIS layers superimposing Grant Creek spawning over IFIM transects
- Mark, John Stevenson and John B to get together to refine those layers and select transects and areas of most importance (both for spawning and juvenile rearing)
- John B to produce cross sectional detail re: position of spawners in location to stream (i.e., along banks, middle of the channel, etc.)

- John B to produce the same analysis for juveniles, with special attention to lateral connectivity, and
- John B to provide Wetted Perimeter (WP) vs. flow graphs for each transect.

EFFECTIVE SPAWNING ANALYSIS

There was a good discussion, lead by Monte and Jason re: effective spawning analysis in streams in Alaska, where winter ice provides pressure across the entire stream and provides inter-gravel flow even when there is little surface water. Monte mentioned that sockeye eggs are typically deposited about 1.2 ft below the stream bed's surface, and in other systems, fry may burrow down to a depth of 3 feet prior to emergence. That may not be the case here, however, due to stream armoring.

John mentioned that there are several components that need to be in place before the effective spawning analysis can be conducted:

- We will need spawning periodicity finalized, so that we can break out those time periods
- Hydrologic record
- Incubation periodicity for all species

John mentioned that he would like to be able to examine effective spawning analysis over a range of flows. He suggested that there were likely wet, normal and dry years, and that he'd like to the three scenarios for the group. He suggested looking at Grant Lake hydrology, and running the 20%, 50% and 80% exceedance values to cover the range of extremes that might be encountered.

There was the concern expressed that the period of record for Grant Creek (11 years historically, and the current year of data) should be expanded. Monte suggested using the Kenai River gage, since it had a strong correlation to Grant Creek and has an overlapping 60 year period of record. Another option might be the use of the Trail River data; however, the period of record is longer for the Kenai River. Joe Klein had also recommended this at the meeting last week.

To Do:

- McMillen to expand the period of record for Grant Creek.
- John to produce effective spawning analysis once periodicity, transects, and hydrology have been finalized.
- Jason to provide a copy of the study examining ice pressure and incubation on Alaska streams.

RAMPING RATES

John asked if there was a standard in Alaska for ramping rates for salmonids. Both Monte and Eric stated that usually, projects ended up using Hunter (1992) for ramping rate analyses in Alaska. John said he had a copy of this report and would use it for the analysis, once the operational plan and flows were established. Even though Grant Creek has a fairly stable base flow, which would lessen the impacts, the bigger issue might be spin.

To Do:

- John will use Hunter (1992) to examine ramping rates for the Grant Creek project. He will conduct the analysis once the range of operational flows are established.

HABITAT TIME SERIES

John agreed to do a habitat time series analysis for the species and life history stages that the group wants analyzed. In order to do this analysis, he will need:

- Finalized periodicity for the species and life history stages of concern in Grant Creek
- Identified transects to use for spawning and rearing
- Long term synthesized hydrologic record, and
- Long term synthesized hydrologic record for operational flows.

OTHER DATA REQUIRED BY INSTREAM FLOW WORK GROUP

- Operational Plan. Monte requested a copy of the operational plan as it is developed
- Tailrace Impacts on Reach 4. The last series of maps (presented at the meeting last week) indicated that the return flows from the powerhouse could impact the upper extent of rearing in spawning in Grant Creek.

INCLUSION IN THE INSTREAM FLOW WORK GROUP

- Eric requested that Sue Walker be added to the Instream Flow Work Group
- Monte was going to check with Robert Begich and Jenny Litchfield to find out if they wanted to be part of this group as well.

NEXT MEETING

John suggested that the next meeting be held sometime during the week of April 14; due to potential conflicts with another project (April 15 – 17), this might have to be delayed.

To Do:

- John will send out a notice for the next meeting, asking when people will be available

From: Cory Warnock
Sent: Thursday, March 27, 2014 2:41 PM
To: Emily Andersen; Mike Salzetti
Subject: FW: Grant Lk Waters FA
Attachments: Fischenich 2006 Functional Objectives for Stream Restoration.pdf

From: Levia Shoutis [mailto:Levia.Shoutis@erm.com]
Sent: Thursday, March 27, 2014 10:12 AM
To: McCafferty, Katherine
Cc: Cory Warnock; John Gangemi
Subject: Grant Lk Waters FA

Hi Katie- So nice to meet you in person last week. I've started strategizing our approach to the requested waters FA for the Grant Lk hydro project. I've reviewed a few existing stream functional assessment frameworks, including the Harman et al 2012, and the Fischenich 2006 (on which Harman et al 2012 is based, attached for your reference). As you said, both provide an excellent base for developing our waters functional assessment.

I'm thinking of using the following approach and wanted to run it by you for input. I've divided the waters into five functional classes (see table below, a reminder that there are no ponds in the wetland assessment area). I then ran each functional class through the functions listed in Harman et al 2012, and Fischenich 2006, using the detailed descriptions, indicators, and measurements in Fischenich 2006 Tables 2-6. Per my understanding of the level of detail that you're interested in (not as detailed as the vegetated wetlands assessment), I've done a presence/absence assessment, rather than rating low, mod, high. Although the FA is developed for moving waters, as I went through the functions, I think it fits for the lakes as well, with some 'NA' functions for the lakes.

This table is preliminary, with the purpose of presenting the approach to you. The presence/absence results are my first crack based on my site knowledge, but I'll run the entire table by our subject matter experts (with the highlights being functions for a given class where I know I need more input to determine presence/absence). After confirming agreement with the teams, I'll write up a brief narrative. I would also reference the detailed descriptions in Fischenich 2006 (published and publically available) rather than presenting them again in our report.

Please let me know your initial thoughts on this approach. Do you have time later today to discuss? I'm in until 3 pm AK time.

Thanks in advance!
Levia Shoutis

Functional Class

	Waters Function	Small streams	Grant Creek	Inlet Creek	Grant Lake	Trail Lake
System Dynamics	Stream evolution processes	○	X	X	NA	NA
	Energy management	○	X	X	X	X

	Riparian succession	○	X	X	○	○
Hydrologic Balance	Surface water storage processes	○	○	○	X	X
	Surface/ subsurface water exchange	○	X	X	○	○
	Hydrodynamic character	○	X	X	NA	NA
Sediment Processes and Character	Sediment continuity	X	X	X	X	X
	Substrate and structural processes	X	X	X	○	○
	Quality and quantity of sediments	X	X	X	X	X
Biological Support	Biological communities and processes	○	X	○	X	X
	Necessary aquatic and riparian habitats	X	X	X	X	X
	Trophic structures and processes	X	X	X	X	X
Chemical Processes and Pathways	Water and soil quality	X	X	○	X	X
	Chemical processes and nutrient cycles	X	X	○	X	X
	Landscape pathways	X	X	X	X	X

X Function present
 ○ Function not present
 NA Function not applicable to the functional class

Levia Shoutis

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Functional Objectives for Stream Restoration



by J. Craig Fischenich¹

September 2006

Complexity

Low	Moderate	High		

Value as Planning Tool

Low	Moderate	High		

Cost

Low	Moderate	High		

OVERVIEW

The National Research Council (1996) defined restoration as “the return of the form and function of an ecosystem to its pre-disturbance condition...” This definition presents two challenges when working in today’s environment.

First, the significant hydrological changes and infrastructure encroachments found in many watersheds often prevent the reestablishment of the stream form to a condition prior to disturbance. These streams have a new form consistent with the altered conditions, and may not be able to maintain functions associated with a pre-disturbance condition.

Second, while the general concept of “functions” can be grasped by most, the specific functions provided by streams and riparian corridors have yet to be defined in a manner that can serve as a basis for assessment, design, and management.

The recommendations presented in this document center on the recognition that the character of stream systems (and, thus, their value or potential to support certain uses) is a result of a set of dynamic and interrelated processes referred to as functions in this report. Fifteen critical functions were identified by a committee of U.S. and international scientists, engineers, and practitioners, and were synthesized into a framework for ecosystem evaluation.

Understanding the basic functions of streams and riparian corridors provides planners and designers with a concise and effective basis from which to evaluate proposed projects, and offers several powerful advantages over assessments that focus upon beneficial uses. Use of functions and processes can be elegantly incorporated within a systems approach, enhancing understanding, enabling predictions, and supporting management decisions.

This report presents the functional framework and discusses ways in which the framework can be applied to support the Corps’ Ecosystem Restoration and Urban Flood Damage Reduction Programs.



Figure 1. Healthy streams and riparian zones support important functions, even if their form has been altered from historic conditions.

¹ USAE Research and Development Center, 3909 Halls Ferry Rd., Vicksburg, MS 39180

FUNCTIONAL FRAMEWORK

Watersheds are often viewed in terms of the uses they support. This viewpoint stems from the philosophy that all watersheds can provide certain uses within limits. Current concepts of sustainability - i.e. "meeting the needs of current generations without compromising the needs of future generations" - center on this notion (United Nations 1992). Beneficial uses and values, however, are not consistent across political boundaries, change with public perception and with time, and are difficult or impossible to measure (Brinson 1993, Brinson et al. 1995). Objective decisions regarding the implications of proposed ecosystem alterations thus require consideration of factors beyond an assessment of the potential impacts to users.

Although watershed characteristics vary from one area to another and over time, all watersheds support common physical, chemical, and biological processes that interact to form and maintain streams and riparian areas. These processes, and certain characteristics of the ecosystems, can be termed ecological functions. The functional viewpoint evolves from the recognition that watersheds support ecosystem components that interact in complex ways to contribute to the continual restructuring of the watershed and its associated elements and features. This is a dynamic, variability-based concept.

A shift within the scientific community is underway in which a functional approach (rather than a beneficial use approach) is being advocated for stream restoration planning and design because this approach:

- a. Has a scientific basis, and can be measured using established ecological and physical methods. This scientific basis is compared to beneficial use assessments, which are based on public perceptions and politics, and, unlike functions, can change with public perception or political entities.
- b. Is based on processes and interactions and is capable of targeting the cause of impairment within a watershed, providing a sound basis to evaluate projects at the initial purpose and need level.

- c. Can identify similarities and dissimilarities among stream reaches, watersheds, and stream classes in order to establish reference conditions, prioritize watersheds for preservation or restoration, document and account for scale issues, and reduce error associated with natural variation in aquatic ecosystems.

- d. Strengthens the prediction and quantification of short- and long-term effects on ecosystem quality and quantity, the determination of appropriate restoration that restores functionality, and identification of success criteria.

- e. Permits the aggregation of process alterations to assess cumulative impacts, and fosters the evaluation of ecosystem interdependencies.

- f. Has the unique ability to address impairment caused by maximum loading and can be used to identify thresholds.

- g. Can be used to formulate hypotheses and identify research needs if it is based on direct measures and surrogates of those measures.

Assessments based on beneficial uses do not offer these powerful capabilities.

The primary advantage of this functional systems approach is that it permits the rapid identification of practicable alternatives and the assessment of potential impacts from each. At the same time, the functional approach expands perspective from 1) a species to an ecosystem level, 2) considering a specific site to the role of the site within the broader watershed, and 3) focusing on end products to focusing on the processes that created them. Viewing watersheds in terms of beneficial uses can result in unclear and often conflicting planning and management direction. Conversely, viewing them in terms of the functions they support can allow for a clear, consistent assessment of status and effects. This paper proposes the use of a functional framework as a basis for assessing watershed conditions and likely responses to management activities.

Function Categories

Healthy streams support and maintain basic functions associated with either structure or processes that result in a continual development or evolution of the watershed. These functions relate to the physical, biological, and chemical nature of waterways but do not relate directly to their social context, which is addressed later in the category of beneficial uses. The basic functions that streams and riparian corridors support can be divided into five categories:

- System dynamics.
- Hydrologic balance.
- Sediment processes and character.
- Biological support.
- Chemical processes and landscape pathways.

Within each of these categories, three key functions, components and processes (Table 1) were compiled from a preliminary list of over 60 functions identified by a scientific committee. The committee was well aware of the interconnection, interdependence, and integration of functionality expressed in aquatic ecosystems. To reduce bias, this technical note discusses each function independently. An attempt is then made to

recouple the interdependence of functions. It is important to note also that not all functions will be of equal importance in individual watersheds, so interpretation of this framework will be required for each situation.

Tables 2 through 6 present an overview of each of the 15 primary functions. This overview is supported and augmented by the references provided in the bibliography at the end of this technical note, and is expanded upon in another document (Fischenich 2003).

Generally speaking, an individual will be knowledgeable about only a few of these functions, but the team involved in planning and design for the project should be comprised of individuals that collectively possess expertise in all the functional categories. Understanding ecosystem functions will help planners and designers formulate alternatives and assess the relative benefits and impacts of each. To help with this need, Tables 2 through 6 present lists of indicators commonly used to determine the presence/absence of a particular function, as well as lists of measures used to quantify the degree to which the functions are present.

Table 1. Summary of Primary Functions.

System Dynamics	Hydrologic Balance	Sediment Processes and Character	Biological Support	Chemical Processes and Pathways
Stream Evolution Processes	Surface Water Storage Processes	Sediment Continuity	Biological Communities and Processes	Water and Soil Quality
Energy Management	Surface / Subsurface Water Exchange	Substrate and Structural Processes	Necessary Habitats for all Life Cycles	Chemical Processes and Nutrient Cycles
Riparian Succession	Hydrodynamic Character	Quality and Quantity of Sediments	Trophic Structures and Processes	Landscape Pathways

Indicators and Measures of Functions

There is consensus that the world's streams and riparian corridors are of fundamental importance to human health, that they are increasingly threatened by economic change and by environmental degradation, and that, consequentially, urgent and effective attention is needed. To provide this, it is important to assess accurately the current state of these

aquatic and semi-aquatic systems, through the indicators and measurements provided, and to predict system trends inclusive of the consequences of various management alternatives. Addressing these needs requires both qualitative and quantitative approaches, through which the sustainability of relevant systems can be assessed and sometimes measured.

Indicators are variables, features or attributes that allow for a reasonable and practical means of identifying the presence or absence of a particular function. They also serve to foster an understanding of cause/response relations at and between the various scales present on aquatic systems - not a simple matter given the complexity of ecosystems. Processes operate across scales and thus define critical linkages (e.g. runoff generation, sediment load and transport, erosion/deposition, and plant interaction/succession). These processes are assessed in terms of the physical variables, features and attributes that are manifest at the scales of watershed, reach and site. Indicators are generally qualitative, though they can be semi-quantitative as well.

Measurement of certain attributes allows quantification of the degree to which a particular function is achieved in an ecosystem. Measures can be physical, ecological, economic, or social. Indicators and measures for the primary functions identified in the previous section are summarized in Tables 2 through 6.

Beneficial Uses Perspective

The social aspects of stream and riparian ecosystems are addressed in this report as beneficial uses. Uses are classified as a sink, a source (consumptive use), or indifferent (non-consumptive). Table 7 lists common uses of rivers and riparian corridors and how they affect or are affected by the function categories. Beneficial uses are presented without regard for priority or value, which varies with time and by region.

Table 7 demonstrates the considerable interrelation between the functions and the common beneficial uses ascribed to the resource. A particular use can impact one or more functions, with consequent impacts

upon other potential uses. Uses are not consistent across political boundaries, change with public perception or time, and are difficult or impossible to measure, but the fundamental processes (i.e. functions) that support them are less susceptible to these variations and difficulties.

Many of the functions are interrelated such that impacts to one function can cause a cascade of impacts to other functions and to multiple uses. For example, actions that impact the surface/subsurface exchange of water will almost certainly impact the stream's hydrodynamic character, riparian succession, water quality, and habitat. Depending upon the nature and magnitude of the impact, surface water storage, chemical processes, biological communities and trophic structure might also be impacted, but the other functions are likely to remain largely unaffected.

Establishing a hierarchy of functions is difficult because no single function is unaffected by the others. The relative significance of each function can be inferred by assessing the interrelations among functions. The results of such an assessment are presented in Table 8. In this regard, the hydrodynamic character of the system may be the most significant of the functions as it directly or indirectly affects all other functions.

Habitat – the focus of most restoration efforts – is the lowest ranked function in this analysis because it affects only three other functions, suggesting that the remaining functions are relatively insensitive to habitat changes. On the other hand, habitat is directly influenced by all but three of the other functions. This implies that habitat may be a good indicator of an impacted system, but impacts to habitat may provide little insight into the causal mechanism of the disturbance.

Table 2. System Dynamics.

Function	Description	Indicators	Measurements
Maintain stream evolution processes	<ul style="list-style-type: none"> ➤ Necessary process to maintain appropriate energy levels in the system. ➤ Promotes normally occurring change necessary to maintain diversity and succession. ➤ Provides for genetic variability and species diversity of biotic communities. 	<p>Systemic changes to channel cross-section, planform, or grade.</p> <p>Magnitude, frequency, and duration of flow changes.</p> <p>Bed armoring or sorting.</p> <p>Evidence of bed erosion or deposition.</p> <p>Bank erosion.</p> <p>Diverse riparian vegetation and aquatic biota.</p> <p>Presence of pioneer vegetation species.</p> <p>Stream stability.</p> <p>Changes in the composition of the aquatic community.</p>	<p>Stability assessment techniques that quantify bed and bank stability.</p> <p>Channel evolution model stage and change.</p> <p>Rates of change of channel geometry parameters.</p> <p>Time-series aerial photo analysis of stream pattern.</p> <p>Quantity, densities, ages, types, % cover of different vegetation.</p> <p>Abundance and distribution of pioneer species, as well as rate of succession.</p> <p>Flood history polygons (exceedance intervals).</p> <p>Other disturbance process measures (e.g., fire).</p>
Energy management processes	<ul style="list-style-type: none"> ➤ Spatial and temporal variability in cross section, grade, and resistance allows for conversion between potential energy and kinetic energy through changes in physical features, hydraulic characteristics, and sediment transport processes. ➤ Provides habitat, generates heat, oxygenates flows. 	<p>Changes in physical stream features, such as width, depth, slope, and bed and/or bank roughness.</p> <p>Changes in flow state or condition.</p> <p>Erosion/deposition pattern change.</p> <p>Alternate and diverse reach classifications (riffle, pool, run).</p> <p>Watershed disturbance patterns.</p> <p>Changes in terrestrial and aquatic biota.</p>	<p>Determine energy grade line and hydraulic grade line and compare with bed slope at different flows.</p> <p>Quantify variability in physical stream features or hydraulic features along the channel and compare to reference channels.</p> <p>Measure channel/floodplain constrictions.</p>
Provide for riparian succession	<ul style="list-style-type: none"> ➤ Changes in vegetation structure and age promote diversity and ecological vigor by initiating change, which is important to long-term adaptation of ecosystems. ➤ Zones of mature riparian vegetation are necessary for system stability, LWD recruitment, and nutrient cycling. 	<p>Presence of pioneer species.</p> <p>Diversity of vegetation.</p> <p>Varied age classes.</p> <p>New sediment deposition and active erosion.</p>	<p>Measures of species diversity, composition, age, and structure.</p> <p>Riparian zone width.</p> <p>Seedling distribution.</p> <p>LWD recruitment rate.</p>

Table 3. Hydrologic Balance.

Function	Description	Indicators	Measurements
Surface water storage processes	<ul style="list-style-type: none"> ➤ Provides temporary water storage during high flows. ➤ Regulates discharge and replenishes soil moisture. ➤ Provides pathways for fish and macroinvertebrate movement. ➤ Provides low-velocity habitats. ➤ Maintains base flow and soil moisture. ➤ Provides contact time for biogeochemical processes. 	<p>Presence of perennial floodplain topographic features, such as floodplain lakes, ponds, oxbows, wetlands, and sloughs.</p> <p>Riparian wetlands, depressions, and microtopographic changes in active floodplain.</p> <p>Presence of floodplain-spawning fishes.</p> <p>Presence of macroinvertebrate and amphibian indicator species.</p> <p>Watershed % impervious surface.</p> <p>Riparian debris patterns.</p> <p>Detrital accumulations.</p>	<p>Backwater computations.</p> <p>Hydrologic routing models.</p> <p>Stream entrenchment surveys.</p> <p>Rating curves.</p> <p>Floodplain species spawning success.</p> <p>Topographic surveys.</p> <p>Infiltration rates, compaction surveys.</p> <p>Gage and well records.</p>
Maintain surface / subsurface water connections and processes	<ul style="list-style-type: none"> ➤ Provides bi-directional flow pathways from open channel to subsurface soils. ➤ Allows exchange of chemicals, nutrients, and water. ➤ Moderates low and high in-channel flows. ➤ Provides habitat and pathways for organisms. ➤ Maintains subsurface capacity to store water for long durations. ➤ Maintains base flow, seasonal flow, and soil moisture. 	<p>Invertebrates found in the hyporheic zone under floodplains.</p> <p>Presence of floodplain topographic features that connect the channel to groundwater recharge areas by free-draining soils.</p> <p>Occurrence of flows sufficient to allow connection.</p> <p>Presence of layers of silt or organics in soil profile.</p> <p>Moist soil conditions, hydrophytic vegetation.</p> <p>Adjacent wetlands, hydric soil indicators.</p> <p>Groundwater elevation fluctuations.</p> <p>Watershed % impervious surface.</p>	<p>Flux in groundwater levels.</p> <p>Stream baseflow.</p> <p>Hyporheic macroinvertebrate distribution, density, and diversity.</p> <p>Complexity of microtopography.</p> <p>Isotope dating.</p> <p>Soil porosity.</p> <p>Water chemistry profiles.</p> <p>Temperature recording.</p> <p>Texture, structure, moisture, redox, and porosity of adjacent soils.</p>
General hydrodynamic balance	<ul style="list-style-type: none"> ➤ Rivers have a unique hydrologic signature important in ensuring proper flow conditions at the appropriate seasons for support of the biotic environment. 	<p>Presence of an active floodplain.</p> <p>Associated wetlands.</p> <p>Redoximorphic features and other indicators of hydric soils.</p> <p>Hydrophytic vegetation, drift line, and sediment deposits at appropriate elevations.</p>	<p>Flow duration analyses.</p> <p>Rating curves.</p> <p>Spawning success.</p>

Table 4. Sediment Processes and Character.

Function	Description	Indicators	Measurements
Sediment continuity	<ul style="list-style-type: none"> ➤ Provides for appropriate erosion, transport, and deposition processes. ➤ Maintains substrate sorting and armoring capabilities. ➤ Provides for the establishment and succession of aquatic and riparian habitats. ➤ Important part of nutrient cycling and water quality maintenance. 	<p>Bed sediment character.</p> <p>Evidence of recent channel or floodplain sediment and detrital deposits.</p> <p>Recent bed or bank erosion.</p> <p>Channel planform, section, or grade changes.</p> <p>Active bars.</p> <p>Changes in supply, erosion and deposition patterns.</p> <p>Diversity in aquatic and riparian biota.</p> <p>Watershed disturbance patterns.</p> <p>Composition and diversity of macroinvertebrates.</p> <p>Changes in magnitude, duration, or frequency of flow.</p>	<p>Bed material sediment loads and gradations.</p> <p>Suspended sediment load assessments.</p> <p>Stability assessment techniques.</p> <p>Temporal changes in channel geometry.</p> <p>Sediment yield measures.</p> <p>Sediment transport modeling and/or incipient motion analysis.</p> <p>Lower bank angle surveys.</p> <p>Stream bed core sampling.</p>
Maintain substrates and structural processes	<ul style="list-style-type: none"> ➤ Stream channels and riparian zones provide substrates and structural architecture to support diverse habitats and biotic communities. ➤ Complex habitats naturally attenuate the effects of irregular disturbance processes such as fire and floods. 	<p>Presence and health of indigenous biota.</p> <p>Distribution, abundance, health and diversity of biota.</p> <p>Relative complexity of substrates.</p> <p>Structural complexity and distribution.</p> <p>Abundance and distribution of large woody debris.</p> <p>Habitat diversity and complexity.</p> <p>Population trends of indicator species.</p> <p>Disturbance history.</p>	<p>Presence, composition, frequency, and distribution of physical characteristics such as pools, riffles, bedforms, specific depths and velocities, cover and substrate features, riparian corridor widths, etc.</p> <p>Aquatic and riparian habitat assessment methods such as PHABSIM, RCHARC, RBPS, HEP, IBIs.</p> <p>Distribution and frequency of key physical parameters.</p> <p>Riparian and in-channel woody debris surveys.</p> <p>Aquatic macrophyte surveys.</p> <p>Periphyton samples.</p> <p>Stream substrate composition.</p> <p>Soil compaction, displacement, or erosion.</p> <p>Detrital mass surveys.</p> <p>Bacterial counts.</p> <p>Fungal surveys.</p> <p>Fire and flood history mapping.</p>
Quality and quantity of sediments	<ul style="list-style-type: none"> ➤ Organisms often evolve under specific sediment regimes and these must be preserved for the ecological health of the system. ➤ Sediment yield and character are primary variables in determining the physical character of the system. 	<p>Change in banks, pools, and bars acceptable relative to other similar streams.</p> <p>Distribution, abundance, health, and diversity of biota.</p> <p>Presence of indicator species.</p>	<p>Sediment grain size distribution.</p> <p>Embeddedness.</p> <p>Sediment yield.</p> <p>Bedload.</p> <p>Suspended sediment load.</p> <p>Sediment concentration.</p> <p>Secchi depth.</p> <p>Armor layer size and thickness.</p> <p>Depth to bedrock.</p> <p>Sediment mineralogy.</p> <p>Macroinvertebrate surveys.</p> <p>Redd counts.</p>

Table 5. Biological Support.

Functions	Description	Indicators	Measurements
Support biological communities and processes	<ul style="list-style-type: none"> ➤ Provides for diverse assemblages of native species. ➤ Maintains natural predator/prey relationships. ➤ Maintains healthy physiological conditions of biotic communities. ➤ Maintains genetic diversity. ➤ Maintains age class and life form structures. ➤ Provides for natural reproduction and long-term biotic persistence. 	<p>Changes in population trends.</p> <p>Changes in health or condition of individuals or populations.</p> <p>Abnormal behaviors.</p> <p>Unbalanced predator/prey communities.</p> <p>Changes in growth or reproduction.</p> <p>Unbalanced age class or life form structures.</p> <p>Unusual species occurrence outside of normal ranges or preferred habitats.</p> <p>Presence of non-native species.</p> <p>Hybridization.</p>	<p>Population and individual growth rates and condition factors.</p> <p>Disease histories, bacterial and viral profiles.</p> <p>Species diversity and other IBIs.</p> <p>Species assemblages relative to reference conditions.</p> <p>Viability analyses.</p> <p>Population surveys, including density, age-class structure, life-form composition, etc.</p> <p>Bioassays.</p> <p>Stomach content analyses.</p> <p>Genetic testing and mapping.</p> <p>Species distribution relative to reference.</p>
Provide necessary aquatic and riparian habitats	<ul style="list-style-type: none"> ➤ Produces and sustains habitats to support vigorous aquatic and riparian biotic communities. ➤ Provides for basic food, air, light, water and shelter needs of dependant species. ➤ Provides habitats suitable for reproduction. ➤ Supports migration and staging areas. ➤ Provides key temporal habitats during periods of population stress. 	<p>Presence/absence/complexity of habitat features.</p> <p>Presence/absence/health of key indicator species, and native, non-native, surrogate, or invasive species.</p> <p>Observations of surrogate signs: remains, nests, dens, trails, feces, fur, prints, etc.</p> <p>Evidence of predator/ prey or reproductive, cooperative, or social behaviors.</p> <p>Presence of critical microhabitat features.</p> <p>Distribution, diversity, and quality of habitats throughout species ranges and over time.</p> <p>Secure recruitment pathways.</p> <p>Disease, extreme population fluctuations.</p>	<p>Measures from Rapid Stream Assessment Procedure, or other habitat modeling such as RCHARC, PHABSIM, HEP.</p> <p>Comparison of biotic counts to reference Indices of Biotic Integrity (IBI).</p> <p>Composition, structure, extent, variability, diversity, abundance of habitat features, key indicator species, native, non-native, surrogate, or invasive species relative to reference conditions.</p> <p>Habitat suitability, complexity, and diversity measures/models.</p> <p>Limiting habitat factor surveys.</p> <p>Refugia network mapping.</p> <p>Terrestrial and aquatic temperature studies.</p> <p>Corridor connectivity assessment.</p> <p>Habitat fragmentation surveys.</p>
Maintain trophic structure and processes	<ul style="list-style-type: none"> ➤ Promotes growth and reproduction of biotic communities across trophic scales. ➤ Maintains contact time for biotic and abiotic energy processes. ➤ Maintains equilibrium between primary autotrophs and primary microbial heterotrophs. ➤ Supports food chain dynamics to convert energy to biomass. ➤ Supports characteristic patterns of energy cascade and pooling. ➤ Provides nutrient levels capable of sustaining indigenous biologic communities. 	<p>Presence/ absence of producers and consumers.</p> <p>Evidence of periphyton growth on substrate.</p> <p>Evidence of detrital shredding and decomposition.</p> <p>Presence/absence of a balance and variety of nutrients and organisms to convert carbon, nitrogen, and/or phosphorus between forms.</p> <p>Presence/absence/abundance of snags, previous season's plants, leaf litter, detritus.</p> <p>Evidence of detrital shredding and decomposition.</p> <p>Organic horizon and organic layers in soil.</p> <p>Presence/absence/abundance of native, non-native, and invasive indicator species.</p>	<p>Aquatic and riparian vegetation density.</p> <p>Periphyton biovolume.</p> <p>Density, composition, and biomass of invertebrate consumers, diversity indices, and other IBIs.</p> <p>Measure of N:P ratios in water.</p> <p>Diversity and composition of stream biota.</p> <p>Measure of primary productivity.</p> <p>Measure of detritus production, CPOM, FPOM, DOM.</p> <p>Measure of large woody debris frequency and density.</p> <p>Comparison of above- and below-ground biomass R/S ratio.</p> <p>Biomass production of stream-dependant species.</p> <p>Biomass profile.</p>

Table 6. Chemical Processes and Pathways.

FUNCTIONS	Description	Indicators	Measurements
Maintain water and soil quality	<ul style="list-style-type: none"> ➤ Water quality parameters are directly tied to support of biologic community. ➤ Riparian communities trap, retain, and remove particulate and dissolved constituents of surface and overland flow, improving water quality. ➤ Regulates chemical and nutrient cycles. ➤ Controls pathogens and viruses. ➤ Maintains chemistry and equilibrium conducive to reproduction, behavior, development and sustainability of a diverse aquatic ecosystem. ➤ Supports important chemical processes and nutrient cycles. 	<p>Watershed conditions and disturbance features.</p> <p>Stream order.</p> <p>Presence/absence/abundance of key indicator biota.</p> <p>Presence/absence of trophic indicators.</p> <p>Abnormal forms or behaviors; unusual mortalities of indicator species.</p> <p>Plant, fish, and invertebrate density, diversity, distribution, and health.</p> <p>Wetland and riparian aerial and positional changes.</p> <p>Geology and soils - availability of a range of surface textures and areas for reactions.</p> <p>Presence/ absence of riparian sediment deposits.</p> <p>Density, diversity, and distribution of microbial, fungal, and invertebrate communities.</p>	<p>Conventional water quality measures (e.g., D.O., pH, conductivity, turbidity, TDS, salinity, temperature, suspended sediment).</p> <p>Bacterial counts.</p> <p>Metals and trace element sampling.</p> <p>Nutrient (N, P) tests.</p> <p>Examination of soil profiles.</p> <p>Soil profile elemental composition surveys.</p> <p>Rates of sediment deposition in channel and riparian corridor.</p> <p>Detrital mass surveys.</p> <p>Large woody debris counts.</p> <p>Infiltration rates.</p> <p>Compaction, displacement, and erosion surveys.</p> <p>Bacterial counts.</p> <p>Trace element sampling.</p> <p>Nutrient (N, P) tests.</p> <p>COM levels.</p>
Maintain chemical processes and nutrient cycles	<ul style="list-style-type: none"> ➤ Provides for complex chemical reactions to maintain equilibrium and supply required elements to biota. ➤ Provides for acquisition, breakdown, storage, conversion, and transformation of nutrients within recurrent patterns. 	<p>Presence of seasonal debris in riparian area.</p> <p>Presence/ absence of indicator species and their health.</p> <p>Presence/absence of photosynthesis, fecal matter, biofilms, and decomposition products.</p> <p>Presence/absence of particulates on vegetation.</p> <p>Riparian vegetation composition and vigor.</p> <p>Changes in algae, periphyton, or macrophyte communities.</p> <p>Changes in trophic indicators.</p>	<p>BOD (CBOD & NBOD) and DOC.</p> <p>Stable carbon isotope analyses -- identify energy pathways.</p> <p>Cell counts, ATP concentration, respiration rates, uptake of labeled substances.</p> <p>Water and soil buffer capacity.</p> <p>Complexation.</p> <p>Redox potential.</p> <p>Ion exchange capacity.</p> <p>Adsorption capacity.</p> <p>Dissolution/precipitation rates.</p> <p>Decomposition rates.</p> <p>Plant growth rates, biomass production.</p>
Maintain landscape pathways	<ul style="list-style-type: none"> ➤ Maintains longitudinal and latitudinal connectivity to allow for biotic and abiotic energy process pathways. ➤ Serves as barriers, corridors, or buffers to plant and animal migration. ➤ Provides source and sink areas for maintaining population equilibrium of plant and animal species. 	<p>Presence of animal trails along corridor.</p> <p>Observations of migratory species use.</p> <p>Flood tolerance of vegetation species on floodplains.</p> <p>Presence/absence of key indicator species in portions of the adjacent landscape.</p> <p>Recent deposits of sediments and detrital matter in the riparian corridor.</p> <p>Distribution, density, diversity, and age class composition of riparian vegetation.</p> <p>Accumulation of species during high stress periods.</p>	<p>Relative scale of stream to riparian corridor as a function of stream order or slope.</p> <p>Width, density, and composition of riparian vegetation community.</p> <p>Frequency and duration of floodplain inundation.</p> <p>Migratory bird surveys.</p> <p>Measures of sediment deposition and detrital flux in the riparian corridor.</p> <p>Migration barrier surveys.</p> <p>Genetic analyses.</p> <p>Canopy cover measurements of various life forms.</p> <p>Temperature.</p>

Table 7. Example Relations Between Beneficial Uses and Functions.

Beneficial Uses	Function				
	System Dynamics	Hydrologic Balance	Sediment Processes and Character	Biological Support	Chemical Processes and Pathways
Sink					
Cooling water	O	O	O	I	I/O
Drainage	O	I/O	I/O	I	I/O
Flood storage / attenuation	I/O	I/O	I/O	I/O	I/O
Wastewater	O	O	O	I	I
Consumptive					
Aggregate withdrawal	I/O	I/O	I/O	I/O	I/O
Drinking water	O	I/O	O	I/O	I/O
Fishing and hunting	O	O	O	I/O	I/O
Hydropower	I/O	I/O	I/O	I/O	I
Industrial water supply	I/O	I/O	I/O	I	I/O
Irrigation	I/O	I/O	I/O	I	I/O
Groundwater withdrawal	-	I/O	-	I	I/O
Riparian timber harvest	I/O	I/O	I/O	I/O	I
Non-consumptive					
Aesthetics	O	-	O	-	-
Ecosystem protection	I/O	I/O	I/O	I/O	I/O
Housing	I/O	I/O	I/O	I	I
Landscape feature	O	-	O	I	I
Recreational boating	I/O	O	O	I/O	I/O
Commercial transport	I/O	I/O	I/O	I/O	I/O
Navigation service	I/O	O	I/O	I/O	I
Non-boating recreation	O	O	O	I/O	I/O
Spatial corridor	I/O	I/O	I/O	I/O	I/O

Key:

- No discernible impact.
- I Use may impact indicated function.
- O Use may be impacted by indicated function.

Table 8. Hierarchy of Functions.

Rank	Function	Functions Directly Affected ¹	Functions Indirectly Affected ¹
1	Hydrodynamic Character	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15	13
2	Stream Evolution Processes	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 15	9, 13
3	Surface Water Storage Processes	1, 4, 6, 10, 11, 12, 14, 15	2, 5, 7, 8, 9, 13
4	Sediment Continuity	3, 5, 6, 7, 8, 9, 11, 15	1, 13, 14
5	Riparian Succession	1, 2, 3, 4, 6, 12, 14, 15	9, 13
6	Energy Management	1, 2, 3, 4, 5, 7, 8, 15	-
7	Substrate and Structural Processes	1, 2, 4, 6, 7, 10, 15	5, 9, 11, 13
8	Quality and Quantity of Sediments	2, 4, 5, 6, 7, 10, 15	1, 9, 11, 14
9	Biological Communities and Processes	5, 11, 13, 14, 15	1, 2, 3, 7, 8, 10, 12
10	Surface / Subsurface Water Exchange	1, 5, 11, 15	3, 9, 12, 13
11	Water and Soil Quality	8, 9, 13, 14	5
12	Landscape Pathways	9, 13, 14, 15	6
13	Trophic Structures and Processes	9, 11, 14	8
14	Chemical Processes and Nutrient Cycles	8, 9, 13	6
15	Necessary Habitats for all Life Cycles	9, 12, 13	-

¹ Listed by number, according to ranking (e.g. Function #6 is Energy Management)

Note: The interactions among functions are such that the relations presented in Table 8 can change with the type of ecosystem, and the nature and magnitude of the impact, and the specific temporal and spatial scales utilized in the relevant analysis. This is particularly true for the indirect impacts.

SUMMARY

Quality stream ecosystems have healthy watersheds, wide and relatively continuous riparian areas, active floodplains, suitable channel dimensions for the prevailing conditions, and an appropriate level of diversity and dynamics. Unfortunately, most of the streams in the United States do not benefit from all of these conditions. Anthropogenic activities have significantly degraded many stream and riparian systems.

Efforts to restore these degraded systems, while well-intentioned, are often inappropriate or ineffective because they fail to address the underlying processes that create and maintain the elements listed above. Most conventional stream restoration projects are highly engineered efforts to stabilize streams while concurrently improving habitat for adult life stages of a few species – often to the detriment of native flora and fauna and to the sustainability of the system.

Most resource professionals understand intuitively that ecosystems consist of many linkages and, to fully comprehend the impacts

of ecosystem alterations, these linkages must be understood.

This document identifies a suite of 15 functions that are critical to the sustenance of stream and riparian ecosystems. These functions can help planners and designers form an understanding of the cause/effect relationships that dictate system response to change and, thus, serve as a basis to formulate alternatives and assess project impacts and benefits in a manner consistent with the Corps' Environmental Operating Principles.

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- Fleming, N.S., and Daniell, T.M. (1993)
 “Sustainable water resources management: An Australian perspective,” Paper presented at the International Conf. On Environmentally Sound Water Resources Utilization, Bangkok, Thailand, 8-11 November, 1993.
 Evidence is mounting that current methods of natural resource use and development are unsustainable, which impacts economic efficacy and causes serious environmental degradation. To achieve sustainability in water resources

requires a focus on the integrated use of land and water resources, with the aim of ensuring a high level of water quality; use of water within the sustainable yield of the resource; and maintenance of biological diversity.

Goldsmith, W., and Buchanan, D. (1999) "Practical bioengineering applications in watershed management," *Land and Water*, July/August, 1999, 11-15.

This is more of a philosophical paper, and contains no hard data or literature. However, it espouses the theory that our streams and rivers have suffered tremendous and largely unnecessary damage due to poor management and a lack of understanding of basic ecological principles. It also contains a table showing characteristics of healthy and impaired watersheds, and potential restoration objectives.

Gore, J. A., and Shields, F. D., Jr. (1995) "Can large rivers be restored," *BioScience*, 45-3, 142-152. Although restoration of large rivers to a pristine condition is probably not practical, there is considerable potential for rehabilitation, that is, the partial restoration of riverine habitats and ecosystems. Renewal of physical and biological interactions between the main channel, backwaters, and floodplains is central to the rehabilitation of large rivers.

Gorman, O. T., and Karr, J. R. (1978) "Habitat structure and stream fish communities," *Ecology*, 59-3, 507-515. Increasing community and habitat diversity followed stream-order gradients. Natural streams supported fish communities of high species diversity, which were seasonally more stable than the lower-diversity communities of modified streams. After disturbances such as channelization, seasonal peaks in species diversity attain levels typical of undisturbed streams.

Griggs, G.B., and Paris, L. (1982) "Flood control failure: San Lorenzo River, California," *Environmental Management*, 6-5, 407-419. The problem of flooding cannot simply be resolved by engineering. Large flood control projects provide a false sense of security and commonly produce unexpected channel changes. Any engineering protection is both limited and temporary. In the case of the San

Lorenzo River project, the channel was excavated below the natural grade and levees were constructed to contain the 100-year flood. The natural response of the river to return to its equilibrium condition resulted in significant sedimentation and reduction in flood control capability.

Gwin, S.E., Kentula, M.E., and Shaffer, P.W. (1999) "Evaluating the effects of wetland regulation through hydrogeomorphic classification and landscape profiles," *Wetlands*, 19-3, 477-489.

Landscape profiles describing the pattern of diversity of wetlands in a region can serve as a standard for characterizing the resource and quantifying the effects of management decisions. The authors used HGM classification to generate landscape profiles to evaluate the effects of mitigation in the Portland, OR area.

Hauer, F.R., and Smith, R.D. (1998) "The hydrogeomorphic approach to functional assessment of riparian wetlands: Evaluating impacts and mitigation on river floodplains in the U.S.A.," *Freshwater Biology*, 40, 517-530. The authors describe the development of the HGM approach and potential applications for protecting and monitoring riparian wetlands. Assessment models for 14 alluvial wetlands functions are described.

Heede, B.H. (1986) "Designing for dynamic equilibrium in streams," *Water Resources Bulletin*, 22-3, 351-357. Streams are dynamic systems, so steady state does not exist for any appreciable period of time. Meanders and degradation/aggradation of the bed are adjustment processes of the stream. If humans interfere with the processes, other adjustment processes will be initiated. However, by working with ongoing processes, success is attainable with less effort and lower cost.

Henderson, J. E. (1986) "Environmental designs for stream bank protection projects," *Water Resources Bulletin*, 22-4, 549-558. Adverse environmental impacts have been minimized and existing habitat and aesthetics have been enhanced through the development of new, innovative designs or modifications to existing designs and through use of construction and maintenance practices that promote habitat

and aesthetics. Vegetation for bank protection is most effective when used in combination with structural components.

Hickey, J.T., and Diaz, G.E. (1999) "From flow to fish to dollars: An integrated approach to water allocation," *J. of the American Water Resources Association*, 35-5, 1053-1067.

This paper presents the results of a case study on the value and application of a conceptual integration of economic, salmonid population, physical habitat, and water allocation models.

Hill, M.T., Platts, W.S., and Beschta, R.L. (1991) "Ecological and geomorphological concepts for instream and out-of-channel flow requirements," *Rivers*, 2-3, 198-210.

Alteration of streamflow for power production, irrigation, flood control, and other purposes adversely affects aquatic resources. The authors examined various concepts concerning the broad interactions of fluvial-geomorphic processes, riverine-riparian habitat, and their geographic setting.

Hobbs, R.J., and Norton, D.A. (1996) "Towards a conceptual framework for restoration ecology," *Restoration Ecology*, 4-2, 93-110.

Key processes in restoration include identifying and dealing with the processes leading to degradation in the first place, determining realistic goals and measures of success, developing methods for implementing the goals and incorporating them into land management and planning strategies, and monitoring the restoration and assessing its success. To become a useful tool, restoration ecology must become a landscape-scale endeavor.

Johnson, B.L., Richardson, W.B., and Naimo, T.J. (1995) "Past, present, and future concepts in large river ecology," *Bioscience*, 45-3, 134-141. Despite the importance of large rivers, understanding how they function and how human activities influence river processes is limited. There are currently two primary hypotheses of how lotic systems function: the river continuum concept with its corollaries and the flood-pulse concept. Neither of these explains system function in all large rivers.

Klingeman, P. C. (1984) "Evaluating hydrologic needs for design of stream habitat modification structures," *Proceedings of the Pacific Northwest Stream Habitat Workshop, Arcata, CA*.

This paper describes the needs and uses of basic hydrologic, hydraulic, and geomorphic information for designing a stream habitat modification structure at a site. Also, common types of stream habitat modification structures are described.

Kondolf, G.M. (2000) "Some suggested guidelines for geomorphic aspects of anadromous salmonid habitat restoration proposals," *Restoration Ecology*, 8-1, 48-56.

To be successful, river restoration projects must account for geomorphic processes at both the watershed and reach scales. In streams with sufficient energy and sediment load to recreate a natural channel morphology during floods, aquatic habitat might best be served by no direct physical intervention beyond removing those factors that negatively influence habitat [e.g., close levees, riprap banks, etc.].

Montgomery, D.R. (1995) "Input- and output-oriented approaches to implementing ecosystem management," *Environmental Management*, 19-2, 183-188.

Input-oriented landscape management provides the foundation for implementing ecosystem management based on current knowledge of processes and linkages among biological and physical components of an ecosystem and the influences of human actions on those processes and linkages. Defining the priorities between resource use or extraction and acceptable changes in ecosystem condition is a component of any land management framework.

Moyle, P.B., and Randall, P.J. (1998) "Evaluating the biotic integrity of watersheds in the Sierra Nevada, California," *Conservation Biology*, 12-6, 1318-1326.

The authors contend that one problem with the selected watershed approach to conservation is that it implies that watersheds can be systematically rated so that those with the highest biodiversity values can be the focus of whole-watershed protection efforts. They present an alternated method, called the watershed index of biotic integrity [W-IBI], for

identifying watersheds with high conservation potential over a much larger area.

- Naiman, R.J., Bilby, R.E., and Bisson, P.A. (2000) "Riparian ecology and management in the Pacific coastal rain forest," *Bioscience*, 50-11, 996-1011.

This paper discusses the role of the many dynamic processes affecting riparian zones within the Pacific coastal rain forest. Dramatic changes in the management of riparian areas have been driven by new understandings of riparian processes. These new insights include: restoring biophysical properties of riparian zones improves all natural resource values; protecting interactions between surface flows and groundwater is essential to aquatic-riparian integrity; allowing streams and rivers to migrate laterally is necessary for habitat development; incorporating natural flow regime characteristics in regulated rivers promotes aquatic and riparian diversity and resilience; and control of exotic species depends on reestablishing natural land-water interactions in riparian areas.

- National Research Council. (1996) Restoration of Aquatic Ecosystems: Science, Technology, and Public Policy. Committee on Restoration of Aquatic Ecosystems — Science, Technology, and Public Policy, Water Science and Technology Board, Commission on Geosciences, Environment, and Resources, National Research Council. — Washington, DC.

Presents an overview of the state of science, state of practice, and case studies for restoration.

- Newbury, R., and Gaboury, M. (1993) "Exploration and rehabilitation of hydraulic habitats in streams using principles of fluvial behaviour," *Freshwater Biology*, 29, 195-210.

Rivers and streams are integrated flowing systems that create and maintain aquatic habitats within the structure of their flow as well as on and below their wetted boundaries. The combination of elements from geomorphology, open-channel hydraulics, and hydraulic habitat requirements of stream fish form the basis for an ecologically sound "soft engineering" of river channels. Two project examples were used

to demonstrate how this "soft engineering" approach enhanced the fish habitat.

- Pastorok, R. A., MacDonald, A., Sampson, J. R., Wilber, P., Yozzo, D. J., and Titre, J. P. (1997) "An ecological decision framework for environmental restoration projects," *Ecological Engineering*, 9, 89-107.

Ecosystem restoration projects require planning and monitoring, yet projects completed thus far have been planned on an ad hoc, consensus basis and are virtually ignored after revegetation at the site is complete. A process was developed to integrate a fundamental understanding of ecological principles into the existing project planning framework used by the U. S. Army Corps of Engineers in their growing role in restoration of aquatic habitats, but it should be applied to terrestrial habitats as well.

- Poff, N.L., Allan, J.D., Bain, M.B., Karr, J.R., Prestegard, K.L., Richter, B.D., Sparks, R.E., and Stromberg, J.C. (1997) "The natural flow regime," *Bioscience*, 47-11, 769-784. Historically, the protection of river ecosystems has been limited in scope, emphasizing water quality and only one aspect of water quantity: minimum flow. Five critical components of the flow regime regulate ecological processes in river ecosystems: the magnitude, frequency, duration, timing, and rate of change of hydrologic conditions. By defining flow regimes in these terms, the ecological consequences of particular human activities that modify one or more components of the flow regime can be considered explicitly. To manage rivers from this new perspective, some policy changes are needed with regard to narrow regulatory focus and conflicting mandates of multiple agencies.

- Prichard, D. (1998) *Riparian Area Management*, Technical Reference 1737-15, USDI Bureau of Land Management, National Applied Resource Sciences Center, Denver, CO.

This report describes a methodology for determining the Proper Functioning Condition [PFC] for riparian-wetland areas. Various functions and processes that the wetland should be able to address are used to determine the condition of the area.

- Reiman, B.E., Lee, D.C., Thurow, R.F., Hessburg, P.F., and Sedell, J.R. (2000) "Toward an integrated classification of ecosystems: defining opportunities for managing fish and forest health," *Environmental Management*, 25-4, 425-444.
- The goals of aquatic and terrestrial conservation and restoration are often viewed as being in conflict. The authors used recent information on forest and fish communities to classify river sub-basins across the region and explore the potential conflict and opportunity for a more integrated view of management. The classification indicated that there are often common trends in terrestrial and aquatic communities that highlight areas of potential convergence in management goals.
- Rosgen, D. L. (1997) "A geomorphological approach to restoration of incised rivers," *Proceedings of the Conference on Management of Landscapes Disturbed by Channel Incision*, 12-29.
- Geomorphologic concepts are described as integrated into incised river restoration projects. A range of restoration design concepts are presented including; returning the stream to its original elevation and re-connecting floodplains, widening the belt width to construct a new channel at the existing elevation, changing stream types, and stabilizing the existing incised channel in place.
- Shaffer, P.W., Kentula, M.E., and Gwin, S.E. (1999) "Characterization of wetland hydrology using hydrogeomorphic classification," *Wetlands*, 19-3, 490-504.
- Because hydrology is an important determinant of many wetland functions, resource managers using restoration and mitigation to offset wetland losses should strive for project design and siting that re-establish the hydrogeomorphology of natural wetlands to improve the likelihood of replacing wetland functions. This study provided a test of HGM classification as a tool for characterizing wetlands in a geographic region in which HGM has not been previously applied. Results suggest the potential to use the classification to generalize results from a relatively small sample to the larger population of wetlands within the landscape.
- Shields, F. D., Jr., and Hoover, J. J. (1991) "Effects of channel restabilization on habitat diversity, Twentymile Creek, Mississippi," *Regulated Rivers: Research & Management*, 6, 163-181.
- Twentymile Creek was channelized prior to 1910, in 1938, and in 1966. Straightening and enlargement in 1966 resulted in channel instability, rapid bed degradation and cross-section enlargement. Grade control structures and various types of streambank protection were constructed along the channel in the early 80's to restore stability. This paper studies the effects of restabilization of Twentymile Creek on aquatic habitats.
- Shields, F. D., Jr., Knight, S. S., and Cooper, C. M. (1998) "Rehabilitation of aquatic habitats in warmwater streams damaged by channel incision in Mississippi," *Hydrobiologia* 382, 63-86.
- A study of incised warmwater stream rehabilitation was conducted to develop and demonstrate techniques that would be economically feasible for integration with more orthodox, extensively employed watershed stabilization techniques. During the study two reaches were modified by adding woody vegetation and stone structure to rehabilitate habitats degraded by erosion and channelization. These experiments suggest that major gains in stream ecosystem rehabilitation can be made through relatively modest but well-designed efforts to modify degraded physical habitats.
- Shields, F.D., Jr., and Smith, R.H. (1992) "Effects of large woody debris removal on physical characteristics of a sand-bed river," *Aquatic Conservation: Marine and Freshwater Ecosystems*, 2, 145-163.
- Results suggest that benefits of proposed LWD removal projects should be carefully analyzed in the light of costs and environmental impacts. Removal of LWD in the study reaches decreased the friction factor for near-bankful conditions by about one third and increased bankful flow capacity by about one fourth. Erosion triggered by LWD removal may increase channel maintenance costs.

- Sparks, R.E., (1995) "Need for ecosystem management of large rivers and their floodplains," *Bioscience*, 45-3, 168-182. The author describes the importance of large river-floodplain ecosystems and the consequences of altering their natural processes, functions, and connectivity.
- United Nations. (1992) Agenda 21, the *Rio Declaration on Environment and Development*, and the *Statement of principles for the Sustainable Management of Forests* were adopted by more than 178 Governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, 3-14 June 1992.
- Vannote, R.L., Minshall, G.W., Cummins, K.W., Sedell, J.R., and Cushing, C.E. (1980) "The river continuum concept," *Canadian Journal of Fisheries and Aquatic Science*, 37,130-137. Physical variables within a river system present a continuous gradient of physical conditions. The river continuum concept provides a framework for integrating predictable and observable biological features of the lotic systems. Although the model was developed specifically in reference to natural, unperturbed stream ecosystems, it should accommodate many unnatural disturbances, as well.
- Wesche, T. A., (1985) "Stream channel modifications and reclamation structures to enhance fish habitat," *The Restoration of Rivers and Streams*, Chapter 5, Butterworth Publishers. Many of the detrimental effects of channelization can be avoided, with little compromise in channel efficiency, by employing channel design guidelines that do not destroy the hydraulic and morphologic equilibrium that natural streams possess. These guidelines include minimal straightening; promoting bank stability by leaving trees, minimizing channel reshaping, and employing bank stabilization techniques; and, emulating the morphology of natural stream channels.
- Wissmar, R.C., and Beschta, R.L. (1998) "Restoration and management of riparian ecosystems: a catchment perspective," *Freshwater Biology*, 40, 571-585. This paper examines approaches and perspectives for restoration of riparian ecosystems. Sound restoration strategies require an understanding of the processes, functional attributes, and the landscape connectivity of riverine habitats, both temporally and spatially. The process of developing a restoration strategy also requires an understanding of the influences of present-day human land and water uses and management practices.

From: Cory Warnock
Sent: Friday, March 28, 2014 2:15 PM
To: McCafferty, Katherine A POA
Cc: Salyer, Michael POA; Emily Andersen
Subject: RE: POA-2008-1492 Grant Lake Meetings, informal comments (UNCLASSIFIED)
Attachments: Aquatic Resources.xlsx; Impacts.xlsx; Mitigation.xlsx

Thanks for the quick turnaround!!

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

From: McCafferty, Katherine A POA [mailto:Katherine.A.McCafferty2@usace.army.mil]
Sent: Thursday, March 27, 2014 6:51 PM
To: Cory Warnock
Cc: Salyer, Michael POA
Subject: POA-2008-1492 Grant Lake Meetings, informal comments (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Hi Cory,
Here are my comments regarding the reports and the presentations from the week of March 17, 2014:

1. In addition to wetlands, waters of the U.S. (WOUS) generally also include any streams that exhibit an ordinary high water mark, and open waters that exhibit an ordinary high water mark. I'll need a description of all the non-wetland waters in the wetland study area, these include Grant Creek, Grant Lake, the tributary streams of Grant Creek and Grant Lake, and the Trail Lakes narrows. The description should include information on flow regime, the indicators of the presence of an ordinary high water mark, and general channel dimensions. For further guidance on what information to provide, please see Special Public Notice 2010-45 (located here: <http://www.poa.usace.army.mil/Portals/34/docs/regulatory/specialpns/SPN-2010-45.pdf>).
2. In addition to a functional assessment of the wetland areas, we also need information on the functions provided by Grant Creek, Grant Lake, the tributary streams of Grant Creek and Grant Lake, and in the Trail Lakes narrows.
3. The USACE is responsible for determining which waters are subject to our jurisdiction (i.e. are WOUS). We can proceed through permitting with a Preliminary Jurisdictional Determination (PJD) wherein all wetlands that exhibit the three criteria are assumed to be jurisdictional and all non-wetland waters that exhibit an ordinary high water mark are assumed to be jurisdictional. The applicant would then be responsible for avoiding, minimizing, and then providing compensatory mitigation, as appropriate, for all the waters in the project area.

Alternatively, we can make an Approved Jurisdictional Determination (JD), wherein we specifically identify all waters that are jurisdictional and all waters that are not jurisdictional. If there are waters which the applicant believes are not jurisdictional because they do not have a surface or shallow sub-surface connection to downstream waters (i.e. are isolated), and the applicant would like an Approved JD, please provide maps, including but not limited to any available topographic, aerial or LiDAR, ground level photography, and any other information that you have to demonstrate that there is no surface or shallow subsurface connection to Grant Creek or Grant Lake. While an approved JD may remove some waters from our permit evaluation, the process of making a determination that a wetland is isolated does require coordination up to our Headquarters level and with USEPA, and requires more time than a PJD. The applicant can request an Approved JD at any time, even if a PJD is issued.

4. In reference to the two slides in the wetlands presentation titled "Wetlands: Potential Qualitative Construction Impacts (Short-Term)" and "Wetlands: Potential Qualitative Operational Impacts (Long-Term)": We define a loss of WOUS as Waters

of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States.

If the following activities occur inside the boundary of a jurisdictional wetland or below the ordinary high water mark of a stream or lake, we would likely consider them to be a loss of waters: any permanent discharge of rock, soil, concrete, or other material, as well as any mechanical land clearing, grading, inundation or dewatering, excavation, bank stabilization, culvert installation, and/or stream channelization. There are some impacts listed as indirect on the slides that we would consider to be direct impacts, such as dewatering portions of Grant Creek, and inundation of wetlands/streams by raised Grant Lake levels.

5. Is any backwater effect expected in wetlands and streams along the lake, and which would be located upstream/upslope of those waters that would be directly impacted by flooding? We would consider the resulting backwater to be an indirect impact.

6. As the access road or the Iditarod Trail are re-routed, as always, take every opportunity to avoid waters crossings or minimize waters crossings. Try to maintain as natural operation of wetlands in detention pond as possible.

7. When an application is submitted to us, please fill out the attached spreadsheets with the requested information. This will allow us to more efficiently evaluate the application.

Levia has contacted me about the stream functional assessment and we'll work on determining what methodology is appropriate. If you have any questions about my comments, I'll be happy to answer them.

Sincerely,

Katie McCafferty
Project Manager
Regulatory Division, Kenai Field Office
U.S. Army Corps of Engineers
phone: 907-283-3562
fax: 907-283-3981

Check out our website for more info: <http://www.poa.usace.army.mil/Missions/Regulatory.aspx>

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

From: Cory Warnock [mailto:cory.warnock@mcmillen-llc.com]
Sent: Monday, March 24, 2014 11:42 AM
To: Monte Miller; Cassie Thomas; Brenda Trefon; Eric Rothwell; 'David Griffin'; pamela.russell@alaska.gov; Jason Mouw; mcooney@arctic.net; McCafferty, Katherine A POA; Schade, David W (DNR); 'Audrey Alstrom'; rstovall@fs.fed.us; waterlaw@uci.net; 'Susan Walker'; 'Lesli Schick'; Jeffry Anderson; 'Patricia Berkahn'; 'Joe Klein'; dglass@ciri.com; kenailake@arctic.net; Ken Hogan
Cc: Mike Salzetti; Emily Andersen
Subject: [EXTERNAL] Grant Lake Meetings

Grant Lake Hydroelectric Project (FERC No. 13212) Natural Resources Study Stakeholder Group (Natural Resource Work Group , Aquatics Resource Work Group Members):

Hello,

Wanted to drop you all a quick note to say thank you for attending the Grant Lake Project Meetings last week. I hope you found them informative and beneficial. As you are all aware, there are resource specific action items (calls, follow-up, etc.) that have been identified and those will be more specifically plan/addressed with the identified individuals. From a more global perspective, there were 3 items that I wanted to remind everyone of:

1. Study Report Comments - Per our discussions at the meetings, we'd appreciate any informal comments to the reports by April 25th. After KHL has reviewed and amended the reports according to best technical judgment, we will be filing a package with FERC that includes:

- * Natural Resource Reports

- * Meeting Presentations and Agendas

- * Meeting Minutes*

*Minutes will be distributed for agency review prior to filing

2. Meeting Presentations - All of the presentations for the meetings will be going up on KHL's website (<http://www.kenaihydro.com/>) early this week.

3. Next Workgroup Meeting - As discussed at the meetings last week, over the course of the next couple of weeks, KHL will be working with all of you to set dates for a Grant Lake Project Workshop which will be intended to collaboratively discuss engineering progress, likely operational scenarios, integration with natural resources, impacts and mitigation options, etc. The specific agenda items will develop over the next few months but the primary intent will be to meet again with all of you and collaboratively work through these types of items in advance of KHL preparing a Draft License Application for your formal review.

Again, thank you all very much for your attendance and I'm sure we'll be talking very soon,

Cory

Cory Warnock

Senior Licensing and Regulatory Consultant

McMillen, LLC

Waters_Name	Cowadin_Code	HGM_Code	Measurement_Type	Amount	Units	Waters_Types	Latitude	Longitude	Local_Waterway
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Waters_Name	Name	Activity	Resource_Type	Permanent_Loss	Impact_Duration	Initially_Proposed_Area	Proposed_Area	Authorized_Area	Units_Area	Area_Type	Initially_Proposed_Linear	Proposed_Linear	Authorized_Linear	Units_Linear	Debits	Notes
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Waters_Name	Name	Mitigation_Type	Permittee_Responsible_Type	Resouce_Type	Proposed_Area	Required_Area	Units_Area	Proposed_Linear	Required_Linear	Units_Linear	Mitigation_Kind	Comments
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From: John Blum <john.blum@mcmillen-llc.com>
Sent: Friday, March 28, 2014 9:29 AM
To: 'Eric Rothwell'; 'Klein, Joseph P (DFG)'; 'Mouw, Jason E B (DFG)'; 'Miller, Monte D (DFG)'; jeffry_anderson@fws.gov; dglass@ciri.com; Cory Warnock; 'Mark Miller'
Cc: 'Mike Salzetti'; Emily Andersen; 'John Stevenson'
Subject: Draft meeting minutes of 3/27 call
Attachments: Draft minutes for IFWG meeting 03-27-2014.docx

Good Morning:

Here are the draft minutes of our conversation yesterday. Will you look these over and let me know if I need to add, delete, or modify anything by the middle of next week?

Thanks very much for your participation yesterday. I look forward to our next call.

Sincerely,

John

John Blum
Sr. Fisheries Scientist

McMillen, LLC
1155 North State Street, Suite 700, Bellingham, WA 98225
direct 360.483.2807 | p 360.734.5915 x 281
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Draft
Conference call with the Grant Creek Instream Flow Work Group
March 27, 2014

Those attending via conference call:

- Eric Rothwell (NOAA)
- Monte Miller (ADFG)
- Jason Mouw (ADFG)
- Jeff Anderson (USFWS)
- Mark Miller (BioAnalysts)
- Cory Warnock (McMillen, LLC)
- John Blum (McMillen, LLC)

The conference call with the Instream Flow Work Group (Work Group) began at 10:00 am PDT. John mentioned that the purpose of this, and subsequent meetings, was to provide data to the resource managers to answer questions related to the proposed Grant Lake Hydroelectric Project. It is KHL's intent to provide this information in a timely fashion, so that subsequent meetings with the Aquatic Work Group (AWG), to be held in June/July, can focus on different operating scenarios and potential PM&E measures, rather than use the meetings to present data.

To start the process, John sent out a draft agenda on Wednesday, March 26. Agenda items are briefly detailed below.

PERIODICITY OF GRANT LAKE SALMONIDS

Mark Miller reviewed the periodicity chart that he had put together for Grant Creek; these data were derived from Grant Creek observations in 2009 and 2013. Jeff requested that Sockeye Salmon fry be added to the periodicity chart. *[Note: draft periodicity for Sockeye Salmon fry from mid-May through mid-July].*

Emergence Timing: Unsure of emergence timing for Sockeye Salmon fry; DTU's to be determined.

Coho juvenile rearing: Jeff stated his concern that we still don't know where juvenile Coho are located nor do we know what habitat types they are using. This is an unresolved issue. Monte said that since we have made Coho juvenile rearing to extend year round, we are taking a conservative approach and that addresses ADFG's concerns.

To Do:

- Mark to add Sockeye Salmon periodicity to periodicity chart

- Jason to provide Robert Begich a copy of the periodicity chart, so that Robert can tweak it. Jason will then provide this revised table to the group
- Jason to ask Robert Begich about Kenai River Sockeye Salmon DTUs for incubation
- Monte to ask Hatchery group about Sockeye Salmon DTUs, and
- John to ask Tom Prochazka (CIAA Trail Lakes Hatchery) re: Trail Lakes Sockeye Salmon DTUs

PRIORITY SPECIES

Discussion centered on developing a priority species list, with the goal of streamlining the analysis process. The group agreed that, for different time periods, different species and life stages may take precedence, and that providing flows that maximized spawning habitat, for example, might be deleterious to other life history stages. It was determined that, for the time being, John would run all species and life stages for the time periods (to be established once the periodicity chart is finalized); once that is done, the group would then make decisions re: priority species and life history stages.

TRANSECT SELECTION AND WEIGHTING

One of John's questions was how to weight and consider different transects. As an initial cut, John produced WUA curves for all species and life history stages at all transects. John asked if there were priority transects, and a way that we could drill down into the data and produce information the group wanted.

Jason suggested that, for spawning, a broad brush overview would be a good starting point. Cory mentioned that our database allows us to superimpose layers of spawning salmonids over the transects, to determine where the majority of the spawning was occurring, and which transects were most important (from a spawning perspective). Once that was done, John will produce transect profiles, showing the bed, locations of spawning substrates and spawning salmonids. This will provide information re: how heavily spawned areas are, as well as impacts (i.e., potential susceptibility of eggs deposited along the margins to reduction in flows).

Eric also asked that we use the IFIM data to put Grant Creek juvenile habitat in context. One area of examination is the ability to have lateral connectivity during the summer, although it may not be as important in the winter with the reduced flows.

To Do:

- Cory to produce GIS layers superimposing Grant Creek spawning over IFIM transects
- Mark, John Stevenson and John B to get together to refine those layers and select transects and areas of most importance (both for spawning and juvenile rearing)
- John B to produce cross sectional detail re: position of spawners in location to stream (i.e., along banks, middle of the channel, etc.)

- John B to produce the same analysis for juveniles, with special attention to lateral connectivity, and
- John B to provide Wetted Perimeter (WP) vs. flow graphs for each transect.

EFFECTIVE SPAWNING ANALYSIS

There was a good discussion, lead by Monte and Jason re: effective spawning analysis in streams in Alaska, where winter ice provides pressure across the entire stream and provides inter-gravel flow even when there is little surface water. Monte mentioned that sockeye eggs are typically deposited about 1.2 ft below the stream bed's surface, and in other systems, fry may burrow down to a depth of 3 feet prior to emergence. That may not be the case here, however, due to stream armoring.

John mentioned that there are several components that need to be in place before the effective spawning analysis can be conducted:

- We will need spawning periodicity finalized, so that we can break out those time periods
- Hydrologic record
- Incubation periodicity for all species

John mentioned that he would like to be able to examine effective spawning analysis over a range of flows. He suggested that there were likely wet, normal and dry years, and that he'd like to the three scenarios for the group. He suggested looking at Grant Lake hydrology, and running the 20%, 50% and 80% exceedance values to cover the range of extremes that might be encountered.

There was the concern expressed that the period of record for Grant Creek (11 years historically, and the current year of data) should be expanded. Monte suggested using the Kenai River gage, since it had a strong correlation to Grant Creek and has an overlapping 60 year period of record. Another option might be the use of the Trail River data; however, the period of record is longer for the Kenai River. Joe Klein had also recommended this at the meeting last week.

To Do:

- McMillen to expand the period of record for Grant Creek.
- John to produce effective spawning analysis once periodicity, transects, and hydrology have been finalized.
- Jason to provide a copy of the study examining ice pressure and incubation on Alaska streams.

RAMPING RATES

John asked if there was a standard in Alaska for ramping rates for salmonids. Both Monte and Eric stated that usually, projects ended up using Hunter (1992) for ramping rate analyses in Alaska. John said he had a copy of this report and would use it for the analysis, once the operational plan and flows were established. Even though Grant Creek has a fairly stable base flow, which would lessen the impacts, the bigger issue might be the projects

To Do:

- John will use Hunter (1992) to examine ramping rates for the Grant Creek project. He will conduct the analysis once the range of operational flows are established.

HABITAT TIME SERIES

John agreed to do a habitat time series analysis for the species and life history stages that the group wants analyzed. In order to do this analysis, he will need:

- Finalized periodicity for the species and life history stages of concern in Grant Creek
- Identified transects to use for spawning and rearing
- Long term synthesized hydrologic record, and
- Long term synthesized hydrologic record for operational flows.

OTHER DATA REQUIRED BY INSTREAM FLOW WORK GROUP

- Operational Plan. Monte requested a copy of the operational plan as it is developed
- Tailrace Impacts on Reach 4. The last series of maps (presented at the meeting last week) indicated that the return flows from the powerhouse could impact the upper extent of rearing in spawning in Grant Creek.

INCLUSION IN THE INSTREAM FLOW WORK GROUP

- Eric requested that Sue Walker be added to the Instream Flow Work Group
- Monte was going to check with Robert Begich and Jenny Litchfield to find out if they wanted to be part of this group as well.

NEXT MEETING

John suggested that the next meeting be held sometime during the week of April 14; due to potential conflicts with another project (April 15 – 17), this might have to be delayed.

To Do:

- John will send out a notice for the next meeting, asking when people will be available

From: John Blum <john.blum@mcmillen-llc.com>
Sent: Friday, March 28, 2014 2:52 PM
To: 'Eric Rothwell'; 'Klein, Joseph P (DFG)'; 'Miller, Monte D (DFG)'; 'Mouw, Jason E B (DFG)'; jeffry_anderson@fws.gov; dglass@ciri.com
Cc: 'Mark Miller'; Emily Andersen; 'Mike Salzetti'; Cory Warnock; 'John Stevenson'
Subject: Revised Grant Creek Periodicity Chart
Attachments: Grant Creek Periodicity 3-28-14.xlsx

Good afternoon:

Mark Miller just sent me a revised Grant Creek periodicity chart. Please use this one for editing, and please add the date to the chart, so we can track its progress.

Thanks, and have a good weekend!

John

John Blum
Sr. Fisheries Scientist

Proposed Periodicity for Grant Creek Salmonids

[illegible]

Grant Lake Hydroelectric Project (FERC No. 13212) Licensing

Consultation Record

Phone/E-mail /One on One Meeting Log

Contact Name: Katie McKafferty

Agency/Organization: USACE, Kenai AK

Phone No./E-mail Address: 907-283-3519; Katherine.A.McCafferty2@usace.army.mil

Date: 3/31/14

Time: 12 pm MDT

Grant Lake Licensing Team Contact: Levia Shoutis

Summary of Conversation and/or E-mail Exchange:

Phone conversation regarding a waters functional assessment (FA).

[Background: Katie McKafferty, USACE, initially requested a waters FA in April 2013, this request was documented in a June 11, 2013 memo from John Gangemi, ERM, to Cory Warnock, McMillen. The memo stated that Katie McKafferty had made a request to Jeannette Blank (project manager at the time) for a waters FA in addition to the wetlands FA. HEA decided that they would prefer not to add the waters FA to the 2013 field work. Then at the March 2014 agency meeting, Katie McKafferty made the same request, indicating that a waters FA is a necessary part of the USACE's evaluation for 404 permitting (particularly regarding alternatives analysis). At the meeting Katie provided Levia with a suggested reference for a potential approach for the waters FA (Harman et al. 2012, A Function-Based Framework for Streams). Levia reviewed this framework and associated literature (Fischenich 2006), and developed a proposed approach for the waters FA.]

The 3/31/14 call documented here was a follow up to Katie's waters FA request with the purpose of confirming the approach, specific method, and appropriate level of detail for the waters FA.

Discussed:

Levia presented her proposed approach to Katie, which was to 1) divide waters into functional classes (small streams, Grant and Inlet Cr, Trail Lk narrows, and Grant Lk), 2) assess functional classes for the 15 functions described in Harman et al. 2012 and Fischenich 2006, using a

presence/absence approach (in contrast to the low-mod-high ratings used for the wetlands FA), using study result from all of the appropriate resource teams; and 3) add narrative text describing the FA methods and results to Section 4 of the Terrestrial Resources report (botanical resources); results would include the characteristics of each of the five functional classes, and the rationale for the presence/absence of given functions.

Katie agreed w/the FA approach w/the following comments:

- Trail Lk narrows should be assessed as a river rather than a lake, and that the Harman et al. 2012 method (for streams/rivers) shouldn't be used for Grant Lk. Levia agreed with both comments, and said that all functional classes except Grant Lk would be assessed using Harman et al; Grant Lk would be assessed using similar functions, with additional lake-based functions also assessed, in a narrative format only.
- Small streams: for the purpose of alternatives analysis there needs to be a discussion of the locations, characteristics, and functions of intermittent streams versus perennial streams within the wetlands assessment area. Levia and Katie agreed that this could be part of the FA results narrative.
- Small streams: stream lines are currently identified collectively as "streams" on the terrestrial report figures. Katie needs to see these delineated separately as intermittent versus perennial. Levia suggested that the most efficient way to do this would be to symbolize by stream type in GIS on the existing figures, and re-print these figures.

Action Items

- **Levia complete the waters FA** using track changes, within Section 4 of the Terrestrial Report (botanical resources). Levia expects to do this by April 11, 2014.
- **McMillen (Jake) revise Section 4 figures** in GIS to display intermittent versus perennial streams; re-export the maps as pdf's; re-insert into revised Section 4 prior to final submittal
- **McMillen review edits** to Section 4
- **Levia send reviewed waters FA to Katie** for review sometime prior to the June agency meeting in Anchorage. Katie indicated that she'll need this to begin discussions of alternatives analysis, once McMillen has their operational scenarios more fleshed out.