Susitna-Watana Hydroelectric Project (FERC No. 14241)

Cook Inlet Beluga Whale Study Study Plan Section 9.17

Part D: Supplemental Information to June 2014 Initial Study Report

Prepared for

Alaska Energy Authority

SUSITNA-WATANA HYDRO

Clean, reliable energy for the next 100 years.

Prepared by

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1. INTRODUCTION

Section 1 (Part A) of the June 2014 ISR for this Cook Inlet Beluga Whale Study (Study Plan 9.17) details the development of this study from the Revised Study Plan (RSP) in 2012, through the end of the 2013 study season. Section 7 of the ISR (Part C), filed in June 2014, sets forth AEA's plan and schedule, at that time, for completing this study and meeting the objectives of the RSP.

As detailed in Section 2.2 of the ISR Part D Overview, various circumstances have required AEA to extend the original timeframe for completing the Commission-approved Study Plan. The most recent field work conducted by AEA on this Study 9.17 is detailed in the June 2014 ISR. As detailed below, AEA's recent activities for Study 9.17 have consisted of the following:

- Completion of the 2014 Implementation Plan.
- Completion of the 2015 Implementation Plan.
- On October 15, 2014 AEA held an ISR meeting for the Cook Inlet Beluga Whale Study.

The primary purpose of this Part D Supplemental Information to the ISR for Study 9.17 is to identify all documents associated with this study, provide a summary of variances and modifications presented in the ISR (Parts A and C), and identify AEA's plans for completing Study 9.17 in a manner that meets the objectives of the Commission-approved Study Plan.

2. BACKGROUND

2.1. Purpose of Study

The goals of this study are to (1) provide current, fine scale information on Cook Inlet Beluga Whale (*Delphinapterus leucas*; CIBW) distribution and movements within the Susitna River delta, (2) correlate these data with information on the ecology and habitat parameters of CIBW prey species, including eulachon (*Thaleichthys pacificus*) and Pacific salmon (*Onchorynchus spp.*), and (3) record incidental observations of all marine mammals sighted during beluga whale studies.

The study objectives are established in RSP Section 9.17.1:

- Document CIBWs and other marine mammals in the Susitna River delta, focusing on CIBW distribution and upstream extent;
- Document CIBW group size, group composition, and behavior within the Susitna River delta;
- Develop a model to describe the relationships between river flows, water surface elevation, and CIBW foraging habitats in the Susitna River.

2.2. Study Components

Study components include (1) aerial surveys to document CIBW and other marine mammals within the Susitna River delta, (2) a combination of video and still cameras to increase ability to detect CIBWs and to document group composition and behavior, and (3) development of a model to describe the relationships between river discharge and water surface elevation in CIBW foraging habits at the delta.

3. STATUS, HIGHLIGHTED RESULTS, AND ACHIEVEMENTS

The following tasks were completed in 2013 and reported in Part A of the ISR for Study 9.17:

- The study team conducted seventeen aerial surveys from May 6 through October 11. CIBWs were sighted during 12 of the 17 aerial surveys, including all surveys between May 6 and August 30, except for an incomplete survey on June 27. Although four surveys were flown from September through early October, no CIBWs were observed after the survey on August 30.
- Technical difficulties delayed remote video monitoring in the Susitna River until September 25. Video was recorded for later review from September 3 through September 24, during which nine video sightings of whales were recorded; seven on September 20 and two on September 22. All the whales were traveling. No CIBWs were detected during live-feed video monitoring from September 25 through October 17.
- Over 650,000 photographs were taken by eight still cameras mounted at various locations along the Lower River which operated with different start and stop dates (depending on location) between July 1 and October 8.

Because AEA has not conducted additional work on this study since the June 2014 ISR, there are no further updates to report for Study 9.17. The information presented in the ISR (Part A) is up to date. However, as explained in Section 7 below, AEA prepared a technical memorandum in September 2014 that identified additional modifications to Study 9.17.

4. SUMMARY OF STUDY 9.17 DOCUMENTS

Since filing of the RSP in 2012, AEA and FERC have prepared several documents pertaining to this study. To aid review by FERC staff and licensing participants, each of these documents is listed below. Each of these documents is accessible on AEA's Project licensing website (http://www.susitna-watanahydro.org/type/documents/) by clicking on the entry in the "Link" column in the table. In addition, these documents are available on FERC's eLibrary system (http://www.ferc.gov/docs-filing/elibrary.asp), in Docket No. P-14241.

Title	Date	Description	Link
9.17. Cook Inlet Beluga Whale Study (Revised Study Plan)	12/14/2012	This document presents the plan for this study, including goals, objectives, the study area, and proposed study methods for Cook Inlet Beluga	RSP for Study 9.17

Title	Date	Description	Link
		Whales.	
FERC's Study Plan Determination for Study 9.17	2/1/2013	This document presents FERC approval of Study 9.17, which approved AEA's Revised Study Plan with no recommended changes.	FERC SPD for Study 9.17
Draft Initial Study Report for Study 9.17	2/3/2014	This draft of the ISR summarized the study methods and variances during the 2013 study season, and presented preliminary data collected for Study 9.16. This draft ISR was later republished as Part A of the final ISR.	Draft ISR for Study 9.17 (File 1) Draft ISR for Study 9.17 (File 2)
Initial Study Report for Study 9.17	6/3/2014	This document is the Initial Study Report (Parts A, B and C) for Study 9.16. Part A republishes the Draft ISR. Part B identifies supplemental information and errata in Part A. Part C presents study modifications and plans for completing the study.	ISR Part A for Study 9.17 (File 1) ISR Part A for Study 9.17 (File 2) ISR Part B for Study 9.17 ISR Part C for Study 9.17
Cook Inlet Beluga Whale Study (Study 9.17) 2014 Study Implementation Technical Memorandum	9/26/2014	Technical memorandum prepared by AEA that summarizes activities conducted in 2014 that tested methods to document CIBW prey and prey habitat in the Susitna River delta.	Sept. 2014 TM for Study 9.17
Cook Inlet Beluga Whale Study Plan (Study 9.17) 2015 Implementation Plan Technical Memorandum	9/30/2014	Technical memorandum prepared by AEA that describes modifications to Study 9.17.	Sept. 2014 TM for Study 9.17
Initial Study Report Meetings, October 21, 2014 (Parts A and B)	11/15/2014	Transcripts and AEA's agenda and PowerPoint presentations for the ISR meeting concerning the Project fish and aquatic studies filed by AEA.	Transcripts from ISR Meeting Materials from ISR Meeting

5. NEW STUDY DOCUMENTATION SUPPLEMENTING THE ISR

Because AEA has not conducted additional work on this study since the June 2014 ISR, no additional reports or documents are available to supplement the results or discussion sections of the ISR for this Study 9.17. As explained in Section 7 below, however, AEA prepared a technical memorandum in September 2014 that identifies additional modifications to Study 9.16.

6. VARIANCES

6.1. 2013 Study Season

The following variances are reported in the June 2014 ISR:

- Section 9.17.4.2.1: Observers did not document the angle of aerial survey sightings because this function within the Mysticetus software program was deemed unnecessary.

Angles to sightings can be used to develop sightability curves, to develop density estimates. However, estimating density was not an objective of the study.

- Section 9.17.4.2.1: Rather than using the median of CIBW group counts made by the observers, each observer independently counted the number of animals in each group during multiple passes (up to five). Observers then discussed their results and agreed upon a "best" count for each CIBW group.

- Section 9.17.4.2.2: Video cameras at PRM 6 were installed at the west camera station on June 24 and the east camera station on July 12; however, the live-feed function of the cameras was not operational until September 25, 2013. From September 13 through September 24, video from the cameras fixed at a wide-angle view of the river was recorded onto hard drives for later review. Additionally, two still cameras were installed at each video camera station on September 3 and they collected an image every 5 seconds through October 17.

- Section 9.17.4.3 of the RSP indicated that the development of a model would be initiated in 2013. This study component has been deferred. AEA does not anticipate that the deferral of this component will impact successfully achieving the study objectives.

6.2. 2014 Study Season

Because AEA has not conducted additional work on this study since the June 2014 ISR, no variances were encountered during the 2014 study season.

7. STUDY PLAN MODIFICATIONS

7.1. Modifications Identified in ISR

Section 7 of the ISR (Part C) details modifications for this study following the 2013 study season. These modifications are generally summarized as follows:

- Given the scale of modifications to the Study Plan, AEA developed a Modified Revised Study Plan (MRSP) and provided it as Attachment 1 to the ISR (Part C) in June 2014. The MRSP retains the same study objectives outlined in the RSP (RSP Section 9.17.1), with new methods that improve AEA's ability to meet the approved study objectives. Generally, the MRSP provided for AEA to informally collaborate with the National Marine Fisheries Service (NMFS) in developing an Implementation Plan that will detail the methods for completing the study. The MRSP included the following modifications to the FERC-approved Study Plan:

    - Section 9.17.4.1 of the RSP provided that aerial surveys would be used to document CIBW and other marine mammal presence within the Susitna River delta. In the MRSP, AEA has modified the study to eliminate aerial surveys and is planning to use vessel-based surveys to document both beluga whale presence as well as the distribution of beluga whale prey species (eulachon and adult salmon).

- Section 9.17.4.2 of the RSP provided that a combination of remote live-feed video camera systems and high-resolution still cameras would be used to document CIBW group size, group composition and behavior in the Susitna River (Objective 2). In the MRSP, AEA has modified the study to eliminate the use of video and still cameras and instead use observers to document CIBW in the Susitna River. Observers would conduct CIBW surveys near the 2013 camera observation stations and members of the eulachon study team (Study 9.16) would be utilized to survey for beluga whales further upriver.
- Section 9.17.4.3 of the RSP provided that AEA would develop a water surface elevation (WSE) model to evaluate the influence of Project operations on CIBW foraging habitats (Objective 3). In the MRSP, AEA has modified the study to eliminate the use of a WSE model and instead use ongoing modeling in the Geomorphology Study (Study 6.6) and Water Quality Study (Study 5.6) to evaluate potential Project effects on CIBW foraging habitat.

7.2. Modifications Identified since the June 2014 ISR

Following the June 2014 ISR, and after informal collaboration with NMFS regarding the 2013 and 2014 study results for this Study 9.17, AEA released a document entitled *2015 Implementation Plan Technical Memorandum* (*Implementation Plan*), which presents AEA's plans for implementing the MRSP. Specific elements of the *2015 Implementation Plan* are summarized below.

- Land-based CIBW observations would be made from two survey stations along the Susitna River. Site evaluations are need to confirm locations, but areas being considered are: one station on Big Island at approximately Project River Mile (PRM) 6, where live-feed video cameras were installed in 2013 and a second station downstream of PRM 20. Weather permitting, survey stations will be staffed seven days a week during peak CIBW use of the Susitna River delta. At other times between May and October, the observation stations will be staffed two to three days per week for sub-sampling.
- Vessel-based incidental 0beservations would occur opportunistically during non-CIBW surveys related to Study 9.16 Eulachon. Biologists will be trained to document observational effort and presence of CIBW in the Susitna River and environmental data will be collected relevant to observations.

8. STEPS TO COMPLETE THE STUDY

In light of the variances and modifications described above, the steps necessary for AEA to complete this study are summarized below:

- The study team will conduct land-based surveys as discussed in the 2015 Implementation Plan.
- The study team will opportunistically conduct vessel-based incidental observations as provided in the 2015 Implementation Plan.

- Using the results of the 2013 and 2014 data, together with new data gathered as provided in the *Implementation Plan*, the study team will use ongoing modeling in the Geomorphology Study (Study 6.6) and Water Quality Study (Study 5.6) to evaluate potential Project effects on CIBW foraging habitat.