Susitna-Watana Hydroelectric Project (FERC No. 14241)

Glacial and Runoff Changes Study Study Plan Section 7.7

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

Division of Geological & Geophysical Surveys
Alaska Department of Natural Resources
& University of Alaska Fairbanks

November 2015

TABLE OF CONTENTS

1. INTRODUCTION

Section 1 (Part A) of the June 2014 ISR for this Glacial and Runoff Changes Study (Study Plan 7.7) details the development of this study from the Revised Study Plan (RSP) in 2012, through the end of the 2013 study season. This study is designed to review existing literature relevant to glacier retreat in southcentral Alaska and the upper Susitna watershed and to summarize the current understanding of potential future changes.

The primary purpose of this Part D Supplemental Information to the ISR is to confirm that this portion of study approved by FERC is complete. The ISR contains a complete analysis of relevant literature review and a summary of findings about potential future changes in runoff associated with literature review.

2. BACKGROUND

2.1. Purpose of Study

The primary goal of this study is to analyze the potential impacts of glacier wastage and retreat on the Project. Specifically, how will glacier wastage and retreat, along with associated changes to the climate, affect the flow of water into the proposed reservoir? Currently several glaciers flow down the southern flanks of the Alaska Range near 13,832-foot Mount Hayes to form the three forks of the Upper Susitna River.

Glaciers in this area provide a significant portion of the total runoff within the Upper Susitna drainage, and it is well documented that these glaciers are currently retreating. Given this trend, changes to the runoff represented by glacial melting may occur in the future and may affect the Project. Therefore, it is important to understand how changes to the upper basin hydrology, due to glacier wastage and retreat and climate change can affect Project operations and environmental resources.

2.2. Study Components

As provided in FERC's Study Plan Determination (SPD) following dispute resolution, the components of this study consist of the following:

- Review existing literature relevant to glacier retreat in south-central Alaska and the Upper Susitna watershed.
- This review will summarize the current understanding of potential future changes in runoff associated with glacier wastage and retreat.

3. STATUS, HIGHLIGHTED RESULTS, AND ACHIEVEMENTS

The following tasks were completed in 2013 and reported in Part A of the June 2014 ISR for Study 7.7:

- The study team reviewed relevant literature review and completed a summary of findings about potential future changes in glacial runoff.

This study was reported as complete in the June 2014 ISR. Thus, there are no new results or achievements to report for this completed study.

4. SUMMARY OF STUDY 7.7 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
7.7. Glacial and Runoff Changes 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 the Glacial and Runoff Changes Study.	RSP for Study 7.7
FERC's Study Plan Determination for Study 7.7	2/1/2013	This document presents FERC approval of Study 12.5, which approved AEA's Revised Study Plan with recommended adjustments.	FERC SPD for Study 7.7
FERC's Study Dispute Determination	4/26/2013	This document presents FERC's Study Dispute Determination for Study 7.7, which required adjustments to the study.	FERC SDD for Study 7.7
Draft Initial Study Report for Study 7.7	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 7.7. This draft ISR was later republished as Part A of the final ISR.	Draft ISR for Study 7.7
Initial Study Report for Study 7.7	6/3/2014	This document is the Initial Study Report (Parts A and B) for Study 7.7. Part A republishes the Draft ISR. Part B identifies supplemental information and errata in Part A.	ISR Part A for Study 7.7 ISR Part B for Study 7.7
Glacier and Runoff Changes (Study 7.7) and Fluvial Geomorphology (Study 6.5) Technical Memorandum	11/14/2014	Technical memorandum assessing the potential for changes in sediment delivery to Watana Reservoir due to glacial surges.	Nov. 2014 TM for Study 7.7
Initial Study Report Meetings, October 16, 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 the work and data analysis for this study was complete as of the filing of the June 2014 ISR, no additional reports or documents are available to supplement the ISR for Study 7.7.

6. VARIANCES

6.1. 2013 Study Season

As noted in the ISR for this study, AEA encountered no variances when implementing this study in 2013.

6.2. 2014 Study Season

Because the ILP study is complete, AEA did not implement this study in 2014, no variances were encountered.

7. STUDY PLAN MODIFICATIONS

7.1. Modifications Identified in ISR

No study plan modifications were noted in the ISR.

7.2. Modifications Identified since the June 2014 ISR

AEA plans no modifications of the methods for this study, as this study is now complete.

8. STEPS TO COMPLETE THE STUDY

The field work, data collection, data analysis, and reporting for this study successfully met all study objectives in the FERC-approved Study Plan. In light of the results described above, AEA has completed this study.