# Comprehensive Data delivery README FILE

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| **Study Section** | Study 5.6: Water Quality Modeling Study (WQ\_MOD) |
| **Study Component** | Modeling (EFDC) |
| **Prepared By** | Tetra Tech, Inc. |
| **Data Collection and Processing By** | Tetra Tech, Inc. |
| **Field Date Range** | 2013–2017 |

**Introduction:** The overall goal of this effort was to model information on water quality (e.g., temperature, dissolved oxygen, sediment) in areas with the potential to be affected by construction and operation of the proposed Susitna-Watana Hydroelectric Project in Alaska.

This Water Quality Modeling Study (5.6) focuses on predicting the potential impacts of the dam and its proposed operations on water quality through the development of a water quality model. The goal of Study 5.6 is to utilize the extensive information collected from the Baseline Water Quality Study (Study 5.5) to develop a model to evaluate the potential impacts of the proposed Project and operations on various physical parameters within the Susitna River watershed.

The contents of this folder, “EFDC Shared Documents”, include data and documentation shared and used in the development and analysis of the riverine, reservoir, and FA-128 models.

**Data Summary:** The calibration and processing of the Susitna modeling projects required acquiring several data items and supporting documents. Model files fall under different categories: data, model documentation, and project reports. Files include water quality data from Initial Study Report 5.5, general reference documents for the EFDC model, and processing tools used for calibration and model setup. A table summarizing the types of data files in each folder is below.

| **File Type** | **File Name** | **Comments** |
| --- | --- | --- |
| **Data** | | |
| MS Excel Worksheet | ISR5.5WQBaselineRawFieldData\_20170630.xlsx | Unprocessed 2013 baseline water quality field data (e.g., color, temp, DO, pH, specific conductance) |
| MS Excel Worksheet | WQBaseline2013TSSRaw\_20170630.xslx | Unprocessed 2013 baseline TSS data |
| MS Word Document | ISR5.5WQBaselineFieldData\_20170630.doc | 2013 baseline water quality field data |
| MS Word Document | ISR5.5WQBaselineFieldDataDictionary\_20170630.doc | Describes the standard abbreviations used in the 2013 baseline monthly water quality study Excel file, with tables and to report values |
| **General Model Documentation** | | |
| Adobe Acrobat | EFDCBrochure\_20170630.pdf | Brief overview of background and capabilities of EFDC |
| Adobe Acrobat | EFDCHamrickSpecialReport\_20170630.pdf | Describes and documents the theoretical and computational aspects of a three-dimensional computer code for environmental fluid flows |
| Adobe Acrobat | EFDCReferences\_20170630.pdf | List of journals, book chapters, technical memos, and application reports etc. that EFDC is referenced in |
| Adobe Acrobat | EFDCTechMemo\_20170630.pdf | Summarizes theoretical and computational aspects of the sediment transport formulations used in the EFDC model |
| Adobe Acrobat | EFDCUserManual\_20170630.pdf | User’s manual for the EFDC computer code |
| Adobe Acrobat | EFDCWQM\_20170630.pdf | Documents the theoretical and computational aspects of the EFDC water quality module, and is the third volume *The Environmental Fluid Dynamics Code: Theory and Computation* series of reports. |
| Adobe Acrobat | VOGGUserManual\_20170630.pdf | User’s guide for the visual orthogonal grid generation system, VOGG |
| **Susitna Model Report** | | |
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Note: All file names begin with “5\_6\_WQ\_”.

**Data Organization:** TheEFDC Shared Documents files are organized by data and data documentation, general reports and manuals for the EFDC model, and tools used to process the data. EFDC shared document files include the following subdirectories:

* Data
* General Model Documentation
* Susitna Model Report

**Online Data Link:** http://gis.suhydro.org/suwareports/SuWa/05-WQ/5.06-WQ\_MOD/EFDC Shared Documents

**Online Report Link:** http://www.susitna-watanahydro.org/type/documents/

| Title | Date | Description | Link |
| --- | --- | --- | --- |
| Revised Study Plan Section 5.6, Water Quality Modeling Study | 12/14/2012 | This document presents the plan for this study, including goals, objectives, the study area, and proposed study methods to construct reservoir and riverine models that predict potential changes to water quality in post-Project conditions. | [RSP for Study 05.06](http://www.susitna-watanahydro.org/wp-content/uploads/2012/12/01-RSP-Dec2012_1of8-Sec-1-5-IntrothroughWaterQuality-v2.pdf) |
| FERC Study Plan Determination for Study 5.6 | 4/1/2013 | This document presents FERC approval of Study 5.6, which approved AEA’s Revised Study Plan with recommended adjustments. | [FERC SPD for Study 05.06](http://www.susitna-watanahydro.org/wp-content/uploads/2015/11/20130401_FERC_SPD14remainingStudies.pdf) |
| Draft Initial Study Report for Study 5.6 | 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 5.6. This draft ISR was later republished as Part A of the final ISR. | [Draft ISR for Study 05.06](http://www.susitna-watanahydro.org/wp-content/uploads/2014/02/05.6_WQMOD_ISR_Draft.pdf) |
| Riverine Modeling Proof of Concept Meeting: Reservoir and Riverine Water Quality Modeling | 4/15/2014 -4/17/2015 | These presentations demonstrate preliminary parameterization and configuration of the reservoir and water quality models. Draft model output for temperature and dissolved oxygen are presented for from each of the models. Seasonal changes in these water quality parameters are demonstrated for the standard model calibration 50 year data set representing wet, dry, and average past climate periods. | [April 2014 Presentations for Study 05.06 (File 1)](http://www.susitna-watanahydro.org/wp-content/uploads/2014/04/2014_04_15-17TT_Riverine_ReservoirWQM.pdf)  [April 2014 Presentations for Study 05.06 (File 2)](http://www.susitna-watanahydro.org/wp-content/uploads/2014/04/2014_04_15-17TT_Riverine_RiverWQM.pdf) |
| Initial Study Report for Study 5.6 | 6/3/2014 | This document is the Initial Study Report (Parts A, B and C) for Study 5.6. 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 05.06](http://www.susitna-watanahydro.org/wp-content/uploads/2014/05/05.6_WQMOD_ISR_PartA.pdf)  [ISR Part B for Study 05.06](http://www.susitna-watanahydro.org/wp-content/uploads/2014/06/05.7_MERC_ISR_PartB.pdf)  [ISR Part C for Study 05.06](http://www.susitna-watanahydro.org/wp-content/uploads/2014/06/05.7_MERC_ISR_PartC.pdf) |
| Baseline Water Quality Study (Study 5.5) and Water Quality Modeling Study (Study 5.6) Water Quality and Lower River Modeling Technical Memorandum | 9/30/2014 | The riverine model currently extends from the dam site downstream to PRM 29.9. Study 5.6, Part C of the Initial Study Report (ISR) explained that AEA would assess in 2014 whether to extend the water quality modeling downstream of PRM 29.9 (AEA 2014). | [Sept. 2014 TM for Study 5.6](http://www.susitna-watanahydro.org/wp-content/uploads/2014/09/DRAFT-Tech-Memo_Baseline-Water-Quality-Decision-Points.pdf) |
| Initial Study Report Meetings, Water Quality Modeling Study (5.6) | 11/15/2014 | Transcripts and AEA’s agenda and PowerPoint presentations for the ISR meeting for the Water Quality Modeling Study | [Transcripts from ISR Meeting](http://www.susitna-watanahydro.org/wp-content/uploads/2014/11/Oct15_ISR_Meeting_PartA_Transcripts.pdf)  [Materials from ISR Meeting](http://www.susitna-watanahydro.org/wp-content/uploads/2014/11/Oct15_ISR_Meeting_PartB_Agenda_Presentations.pdf) |
| 2014 to 2015 Study Implementation Report, Study 5.6, Water Quality Modeling Study | 11/2015 | AEA’s Study Implementation Report describing current progress on construction and testing of the reservoir and riverine water quality models. | [2014-2015 SIR for Study 05.06 (File 1)](http://www.susitna-watanahydro.org/wp-content/uploads/2015/11/05.6_WQMOD_SIR.pdf)  [2014-2015 SIR for Study 05.06 (File 2)](http://www.susitna-watanahydro.org/wp-content/uploads/2015/11/05.6_WQMOD_SIR_AppA.pdf) |

**[[1]](#endnote-1)**

1. **Data Distributor Contact Information:**

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