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Subject: CWF Petition Hearing - Request for further Burke Cross examination
Date: Wednesday, August 29, 2018 10:29:23 PM
Attachments: [Cross-Section Location Memo \(002\).pdf](#)

Hearing Officer Doduc:

This is a written request based on a ruling from August 29 issued during the cross examination of Mr. Burke. During the joint DWR/SWC cross examination I asked Mr. Burke to identify what DSM2 bathymetry data he used to make his comparison to the 2018 bathymetry work he was relying on to offer opinions. In response to that question Mr. Burke stated he could not provide that information from memory and that it was not documented in his testimony. I then requested that the information be provided and Mr. Ruiz and Mr. Burke stated it was a simple map that was available on the DWR website and they would provide it. At that point, I was directed to file a written request for further cross examination, if necessary, based on the information that would be provided. This evening around 6:40, I received the attached memorandum, which still does not specify what DSM2 location was used to extract the bathymetry data. However, with the assistance of technical experts I believe I can further cross examine Mr. Burke to ascertain the locations from which he extracted DSM2 bathymetry data. This cross examination is important so that the record will be clear regarding Mr. Burke's bathymetry comparison.

In the alternative of bringing Mr. Burke back for further cross examination, I would move to strike all of the bathymetry testimony and figures in SDWA-343 second revised and SDWA-344 since the witness could not explain how he reached his conclusions, did not provide the necessary data in his testimony, and could not be cross examined related to the DSM2 bathymetry data he was relying

upon to make his comparisons and offer his opinions.

Thank you for your consideration.

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Technical Memorandum



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Date: Aug 29, 2018

To: Dean Ruiz
From: Tom Burke, Hydrologic Systems
CC:
Subject: Location of DSM2 Cross-Sections

Hi Dean, DWR does not provide a map showing the location of the cross-section that are used in their DSM2 model. What they provide, and what we used for our comparison of the 2018 surveyed cross-sections to the internal DSM2 cross-sections, is the DSM2 node and channel map.

DSM2 characterizes the Delta by subdividing each of the rivers and sloughs into a series of interconnected channel reaches, or channel segments. Each channel segment is bounded by an upstream and downstream node. Each channel segment has an identifying number. Each of the nodes that divide the segments has an identifying number as well.

The DSM2 model represents the geometry of each of these channel segments with one or more cross-sections. The cross-sections are not plotted anywhere, they are only listed in the DSM2 model input files. This input file listing provides the geometric properties of the cross-section, the channel reach it applies to, and its location from the upstream node as a percent of the total channel segment length. Given the lack of an available map from DWR, I have provided a list of the exact DSM2 channel cross-sections that were used on our comparison. That data is shown below in Table 1.

The table below lists the DSM2 cross-sections that were used in the analysis, and the 2018 survey location that it was compared to.

A key to the columns in Table 1:

- Site - the location of the 2018 bathymetric survey cross-section.
- Channel No. - The DSM2 Channel Segment where the Site is located.
- Distance - The percent of the total channel segment length that identifies the DSM2 cross-section that was used in the analysis. This is not an arbitrary number, it is the exact number that is used in the DSM2 model to identify the DSM2 cross-section. This was selected from the DSM2 input file because it is the closest cross-section to the 2018 bathymetric survey site.

Table 1 - DSM2 Channels Used For The Cross-Section Comparison

| Site | Channel No. | Distance |
|-------|-------------|----------|
| OR-1 | 59 | 0.064 |
| OR-2 | 60 | 0.793 |
| OR-3 | 61 | 0.86 |
| OR-4 | 65 | 0.435 |
| OR-5 | 68 | 0.793 |
| OR-6 | 71 | 0.51 |
| SUG-1 | 183 | 0.479 |
| SUG-2 | 183 | 0.479 |
| MR-1 | 126 | 0.613 |
| MR-2 | 126 | 0.613 |
| MR-3 | 126 | 0.613 |
| MR-4 | 126 | 0.613 |
| MR-5 | 126 | 0.613 |
| MR-6 | 126 | 0.613 |
| MR-7 | 126 | 0.613 |
| MR-8 | 126 | 0.613 |

Below is a section of the DSM2 input file that shows the DSM2 channel cross-section data. The Channel Number is in the first column, and the channel distance is in the second column. This was all the information that we used to locate the DSM2 cross-section, neither we or DWR have developed and cross-section maps for this data. Given the data provided in the table, it is not necessary. Anyone who is even vaguely familiar with DSM2 will be able to scroll down through this file to get to the cross-section that we have identified in the table above.

| XSECT_LAYER | CHAN_NO | DIST | ELEV | AREA | WIDTH | WET_PERIM |
|-------------|---------|-------|---------|--------|-------|-----------|
| | 8 | 0.913 | -9.849 | 0.0 | 0.0 | 0.0 |
| | 8 | 0.913 | -4.779 | 356.5 | 140.6 | 141.4 |
| | 8 | 0.913 | 23.22 | 6614.7 | 306.1 | 316.3 |
| | 8 | 0.913 | 23.53 | 6707.7 | 307.1 | 317.4 |
| | 9 | 0.419 | -9.919 | 0.0 | 0.0 | 0.0 |
| | 9 | 0.419 | -3.859 | 503.7 | 166.1 | 167.2 |
| | 9 | 0.419 | 21.38 | 6400.2 | 300.8 | 311.2 |
| | 9 | 0.419 | 24.25 | 7276.2 | 309.3 | 320.2 |
| | 11 | 0.583 | -12.609 | 0.0 | 0.0 | 0.0 |
| | 11 | 0.583 | -9.669 | 165.1 | 112.5 | 113.0 |
| | 11 | 0.583 | 20.29 | 5695.5 | 256.5 | 269.1 |
| | 16 | 0.843 | -16.139 | 0.0 | 0.0 | 0.0 |
| | 16 | 0.843 | -13.749 | 68.8 | 57.6 | 57.8 |
| | 16 | 0.843 | -12.579 | 169.9 | 116.0 | 116.5 |
| | 16 | 0.843 | -12.399 | 192.4 | 128.9 | 129.4 |
| | 16 | 0.843 | -10.929 | 446.2 | 216.3 | 217.4 |
| | 16 | 0.843 | 15.75 | 8199.4 | 364.5 | 375.0 |
| | 16 | 0.843 | 16.63 | 8518.6 | 367.1 | 377.8 |

Please let me know if you need any additional information.