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| 17 | [ADDITIONAL COUNSEL LISTED ON FOLLOWING PAGE] | | |
| 18 | BEFORE THE | | |
| 19 | CALIFORNIA STATE WATER RESOURCES CONTROL BOARD | | |
| 20 | HEARING IN THE MATTER OF | | |
| 21 | CALIFORNIA DEPARTMENT OF WATER | WRITTEN REBUTTAL TESTIMONY OF | |
| 22 | RESOURCES AND UNITED STATES BUREAU OF RECLAMATION | BRANDON NAKAGAWA | |
| 23 | REQUEST FOR A CHANGE IN POINT OF | | |
| | DIVERSION FOR CALIFORNIA WATER FIX | | |
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I, BRANDON NAKAGAWA, declare:

I am the Water Resources Coordinator for San Joaquin County. I received a Bachelor's of Science Degree in Civil Engineering from the University of the Pacific (UOP) in 2002 with a minor in chemistry. I am a Registered Civil Engineer in the State of California; License # C 67010. I have been employed by the San Joaquin County Department of Public Works since January, 2001. My qualifications are further described in SJC-71.

As the Water Resources Coordinator for San Joaquin County, I am responsible for making recommendations to the Public Works Director who reports directly to the Board of Supervisors on matters relating to water, storm water and groundwater resources, and flood protection. My work encompasses, without limitation, water management, water quality, water education, water-related outreach, hydrology, hydrogeology, the Sacramento-San Joaquin Delta (Delta), and other topics directly or indirectly related to water (e.g., local and regional economics, agricultural viability, land use planning, development, invasive species management, levees, coalition building, historical preservation, etc.).

My duties and responsibilities include direct oversight and/or direct involvement in a number of programs, divisions, budget units and initiatives for the San Joaquin County Department of Public Works. I am the division head for the San Joaquin County Public Works Water Resources Division, which is directly responsible for the management of the following budget units: San Joaquin County Flood Control and Water Conservation District - Water Resources, Water Investigation Zone No. 2, Mokelumne River and Water Power Authority, Delta Activities, Eastern San Joaquin County Groundwater Basin Authority, and the County Service Area 54 Stormwater Water Pollution Prevention Program.

Throughout my 16-year career at the San Joaquin County Department of Public Works, I have directly prepared technical documents, studies, environmental documentation, reports

and engineering plans and specifications, and numerical groundwater and surface water models. I have also directed and supervised staff and consultants in the preparation, use, and reporting of the same items.

As examples of prior projects relating to my current testimony, I have directly prepared text, figures, and graphics for the following groundwater-related documents:

2004 - Eastern San Joaquin County Groundwater Management Plan

2007 - Eastern San Joaquin County Integrated Regional Water Management Plan

2008 – San Joaquin County Flood Control and Water Conservation District 1999-2007 Groundwater Report

2014 – Eastern San Joaquin County Integrated Regional Water Management Plan 2014 Update

San Joaquin County is designated by the California Department of Water Resources as the California Statewide Groundwater Elevation Monitoring (CASGEM) monitoring entity for the portion of the Tracy Subbasin within San Joaquin County which is a significant portion of the legal boundaries of the Sacramento-San Joaquin Delta. Staff within the San Joaquin County Department of Public Works Water Resources Division perform the tasks required of the designated monitoring entity and enlist additional staff throughout the San Joaquin County Department of Public Works in the spring and fall to perform the semi-annual monitoring events required by CASGEM. Additionally, San Joaquin County Department of Public Works has been monitoring well elevations semi-annually since 1971 throughout the entire County. The semi-annual groundwater reports are published in the San Joaquin County Groundwater Data Center at http://www.sjwater.org/Groundwater%20Reports.htm.

Petitioners have not identified the legal users and uses of groundwater within the vicinity of the proposed tunnel alignment. (See generally, CWF Petition for Change (August 25, 2015) and CWF Addendum and Errata to Petition for Change (September 11, 2015); see also DWR-57, pp. 15-18 (discussing effects on groundwater levels).) As a result, the impact of the proposed WaterFix Project on such legal users and uses of groundwater has not been

determined. In order to perform this threshold analysis (identifying well-site locations near the proposed alignment), the WaterFix Project proponents could have used well construction information readily available to public agencies and retained within DWR, as well as mapping tools also readily available and free of charge to the general public. However, Petitioners did not do so.

The WaterFix Project proponents could readily have performed a search, locating wells within the vicinity of the proposed tunnel alignment and other project features. This information is relevant to the potential injury to legal users of groundwater near the proposed tunnel alignment and related components of the proposed WaterFix project. As explained in the Rebuttal Testimony of Marc Del Piero (SJC-76), this analysis would be necessary to demonstrate a reasonable likelihood that the proposed change will not injure any other legal user of groundwater.

DWR is the repository for well construction information as submitted by well drillers, well owners, and well permitting agencies. The information is available to government agencies in accordance with Water Code Section 13752 and subject to the Information Practices Act of 1977, but is available by request for use in studies or analysis by public agencies. Public agencies and the general public are instructed by DWR on how to obtain well completion reports via the DWR Groundwater Information Center at http://www.water.ca.gov/groundwater/wells/well_completion_reports.cfm.

To demonstrate the availability of well completion reports in the vicinity of the proposed tunnel alignment, a Well Completion Request Form, available at the following link http://www.water.ca.gov/groundwater/docs/WCRR September2015.pdf, was completed at my direction and under my supervision, requesting all well completion reports in the townships, ranges, and sections along the proposed alignment of the Tunnels. At my direction, the request was emailed to the Department of Water Resources ("DWR") on January 31, 2017. DWR provided a compact disk containing one hundred thirty-four (134) well completion reports and an indexed spreadsheet of records was received on February 14, 2017.

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The process of developing a map of wells in the vicinity of the proposed tunnels alignment starts with the identification of wells constructed for the purpose of producing water for various uses, including domestic, industrial, irrigation, or public supply. To demonstrate the process of culling the well completion reports received, DWR's index of well completion reports listed as monitoring or unused in the WaterUse column heading were withdrawn from further consideration. There are fifty-six (56) wells denoted as domestic, industrial, irrigation, or public supply. Of the fifty-six (56) wells denoted as domestic, industrial, irrigation, or public supply, there are two wells for which a location could not be determined. Additionally, there are thirty-three (33) blank records under the WaterUse column heading. All thirty-three (33) well completion reports were visually inspected to deduce if the well was a monitoring well or a well destruction. Eleven (11) additional wells in Sacramento County and nine (9) additional in San Joaquin County were added to the list. The total number of wells identified for mapping is 76.

To demonstrate the location of domestic, irrigation, and public supply wells in the vicinity of the tunnels, the following process was undertaken by San Joaquin County Department of Public Works Water Resources Division. A well's physical location is either listed as a situs address and/or hand-drawn or described directly on the well completion report. In some cases, a separate map may also be attached. Google Maps, a widely available internet webpage mapping application free to the general public, was used to approximate the location of the well near the proposed tunnel alignment. Google Maps is also capable of approximating the latitude and longitude of the well location, which is useful for mapping features in a Geographical Information System (GIS)-based mapping application. For example, Google Maps was used to determine the location of a public supply well on the premises of the local dining icon, Giusti's Place, 14743 Walnut Grove-Thornton Rd., Walnut Grove, CA 95690, which is marked as SAC1 on Exhibit SJC-74.

The resulting spreadsheet, titled Wellinformation-FINAL [Exh. SJC-72] contains well completion report information with personal information redacted, links to Google Maps

depicting approximate locations of wells, and the latitude and longitude of wells based on the Google Maps mapping tool.

The latitudes and longitudes were used by San Joaquin County Public Works staff to produce maps depicting the location of the identified wells in proximity to the Tunnels alignment [Exhibits SJC-73, SJC-74, and SJC-75] using ArcMap 10.3. The base map is ESRI World Imagery available through ArcGIS Online and the Tunnels alignment was based on 2015 BDCP environmental and engineering documents. (See SWRCB-3; DWR-212.) Exhibits SJC-73, SJC-74, and SJC-75 demonstrate how the Petitioners could have easily identified the locations of well sites near the proposed tunnel alignment. Without that information, Petitioners cannot determine possible injuries from the WaterFix tunnels, intakes, forebays and other project components on legal users and uses of groundwater.

In my experience, impacts to these wells could include, without limitation, reduced well production capacity, degradation of water quality, reduced well pumping efficiency, and/or possible destruction of wells directly in the path of or near the Tunnels. In addition, wells besides those identified in the well completion reports provided by DWR may be present and should be investigated as part of any groundwater injury analysis.

Executed at Stockton, California, on March 22, 2017.

BRANDON W. NAKAGAWA, P.E.