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9 City of Antioch

10 **BEFORE THE STATE WATER RESOURCES**
11 **CONTROL BOARD**

12 HEARING IN THE MATTER OF
13 CALIFORNIA DEPARTMENT OF WATER
14 RESOURCES AND UNITED STATES
15 BUREAU OF RECLAMATION REQUEST
16 FOR A CHANGE IN POINT OF DIVERSION
17 FOR CALIFORNIA WATER FIX

18 **TESTIMONY OF RON BERNAL IN**
19 **SUPPORT OF PROTEST OF THE**
20 **CITY OF ANTIOCH, PHASE 1B.**

21 **(Exhibit: Antioch – 100)**

22 I, Ron Bernal, declare as follows:

23 **QUALIFICATIONS**

24 I am the assistant City Manager/Public Works Director/City Engineer for the City
25 of Antioch. My duties as Public Works/City Engineer for the City of Antioch include
26 overseeing 14 divisions with over 100 public works maintenance and engineering
27 employees who are responsible for designing, constructing, operating, and maintaining
28 all aspects of a full service city. Water treatment, water distribution and water rights are
the three primary divisions related to water. As a result of my work for the City of
Antioch, I am very familiar with the City's water supply and diversions, and I am the
person most knowledgeable on staff regarding the background of the City's water rights.

I have also been involved with negotiations involving the Department of Water
Resources (DWR) regarding a 1968 Agreement between Antioch and DWR relating to

1 the adverse impacts of the State Water Project (“SWP”) on Antioch’s water supply and
2 water rights (“1968 Agreement”). The 1968 Agreement purports to mitigate adverse
3 chloride levels at Antioch resulting from the SWP. I am the primary Antioch
4 management level employee most familiar with the 1968 Agreement and its
5 requirements, history and implementation. My educational background is as follows: I
6 am a 1986 graduate of UC Davis with a BS in Civil Engineering, and I am a Civil
7 Engineer registered in the State of California.
8

9 **SUMMARY OF TESTIMONY**

10 The City of Antioch is located in Contra Costa County. The City serves drinking
11 water to over 100,000 citizens. In 2015, the City supplied 4,521 million gallons of raw
12 and treated water to 31,798 connections (customers) within its service area.
13

14 Antioch obtains its fresh water from two principal sources: (1) an intake located in
15 the San Joaquin River channel within the Delta just north of the City and (2) the Contra
16 Costa Canal (“Canal”), where the water is purchased from the Contra Costa Water
17 District (“CCWD”). The City uses its intake as its primary source, and purchases water
18 from CCWD only when water quality at its intake in the Delta is insufficient for municipal
19 and industrial use. Antioch possesses adjudicated pre-1914 appropriative water rights
20 in the Delta with a priority date of at least 1868. The City’s water sources include the
21 San Joaquin and Sacramento River flows.
22

23 In 1968, in recognition of the adverse impacts of the State Water Project on
24 Antioch’s water supply, the City and the State of California (acting by and through DWR)
25 established an agreement known as “the 1968 Agreement.” The Agreement specifies
26 certain terms under which the State compensates the City for a one-third portion of the
27 water purchased from CCWD when chloride levels at the City’s intake make water
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1 unusable due to the operation of the State Water Project (SWP). (**Antioch-101**).

2 From reviewing the WaterFix project and the impacts set forth in the 2015
3 WaterFix Project RDEIR/SDEIS, as well as in consultation with the City's lead scientist,
4 Dr. Susan Paulsen of Exponent, it is Antioch's analysis that the WaterFix Project would
5 impact the City's water rights and water supply. Such impacts would include, but not be
6 limited to, increased chlorides and bromides at the City's intake resulting in less days of
7 usable water, higher treatment costs, and an increased need to purchase substitute
8 water from other sources.

10 TESTIMONY

11 1. BACKGROUND INFORMATION

12 The City of Antioch is located in Contra Costa County, California. The City is
13 located along the San Joaquin River channel in the western Sacramento-San Joaquin
14 Delta. The City covers an area of approximately 28.8 square miles, which includes land
15 area both within the City limits as well as areas adjacent to the City but within the City's
16 sphere of influence (see map included within **Antioch-104**, which is a copy of the City's
17 Urban Water Management Plan).

18 The City has experienced significant population growth over the last 30 years. In
19 1980 the population was 43,559, and in 2015 the population was 108,298. Future
20 population growth is anticipated as well; the City has predicted a population of 124,600
21 people by 2040. The Bay Area Rapid Transit (BART) system is constructing an
22 expansion of the metro line in Contra Costa County and adding BART stations in
23 Pittsburgh and Antioch. An expansion of State Route 4 has recently been constructed.
24 Thus, the City's future growth potential is high. (**Antioch-104**).

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1 2. ANTIOCH’S WATER SUPPLY

2 Antioch provides raw and potable water to residential, commercial, industrial, and
3 agricultural customers within Contra Costa County. In 2015, the City supplied 4,521
4 million gallons of raw and treated water to 31,798 connections (customers) within its
5 service area. (Statement of Diversion and Use #S009352). Supplied water is
6 predominantly potable water delivered to residential properties, which are the City’s
7 principal land uses. There are also small areas of commercial and industrial use and
8 some agricultural lands in the southern portion of the City. (**Antioch-104**)

9 Antioch obtains its fresh water from two principal sources: an intake (“intake”)
10 located in the San Joaquin River channel (“channel”) within the Delta just north of the
11 City and the Contra Costa Canal at Rock Slough (“Canal”), where the City purchases
12 water from the CCWD. The City uses its intake as its primary source, and purchases
13 water from the CCWD only when water quality at its intake in the Delta is insufficient for
14 municipal and industrial use. The City also uses some recycled water (i.e., treated
15 wastewater), which is supplied by the Delta Diablo treatment facility, to supplement its
16 supply for various landscape irrigation applications, municipal parks, playing fields, and
17 other green spaces.
18
19

20 The City’s intake pumps water from the channel at a maximum capacity of 16
21 million gallons per day (MGD), and the City stores the water in a 240-MG municipal
22 reservoir. Antioch uses water from its intake as its main source of supply when the
23 chloride concentration is less than 250 mg/L.
24

25 When the chloride concentration exceeds 250 mg/L, the City supplements its
26 water supply by purchasing higher quality substitute water from CCWD. CCWD supplies
27 water to the City primarily from the Canal, which diverts water upstream of Antioch at
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1 Rock Slough. The Bureau of Reclamation maintains the Canal as part of the Central
2 Valley Project and provides water to CCWD through the Canal. The City has no direct
3 rights to the Canal.

4 Antioch is generally reimbursed for a portion of the substitute water from CCWD
5 pursuant to a 1968 Agreement between Antioch and DWR (“1968 Agreement”).
6 Typically, this occurs during the summer and fall months when salinity at Antioch is
7 generally higher resulting in part from the present operation of the SWP. Under the
8 1968 Agreement, DWR will reimburse Antioch for one-third of the cost to purchase
9 substitute water under certain specified conditions. Such purchases have increased
10 over the past few years. The 1968 Agreement is described in more detail elsewhere in
11 my testimony.
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14 It should be noted that certain statements about how Antioch diverts water
15 contained within the 2015 WaterFix RDEIR/SDEIS (**SWRCB-3**) are not true. For
16 example, the 2015 WaterFix RDEIR/SDEIS incorrectly states (at p. 4.3.4-9, 10 and
17 elsewhere), that “the use of seasonal intakes at Antioch and Mallard Island is largely
18 driven by acceptable water quality, and thus has historically been opportunistic, and
19 opportunity to use these intakes would remain. This statement in the 2015 WaterFix
20 RDEIR/SDEIS is not correct and serves to downplay the significant impact of the
21 WaterFix Project on water quality degradation at the City’s intake, which in turn will limit
22 the City’s ability to use its intake in the future.
23

24 An accurate statement is that Antioch uses its intake and its water rights as its
25 primary source of water. Antioch purchases substitute water only when necessary due
26 to poor water quality. Higher chloride and bromide levels, as are expected to occur at
27 the City’s intake as disclosed and described in the 2015 WaterFix RDEIR/SDEIS (and
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1 included in the Report of Susan Paulsen) will decrease the availability of usable water
2 at Antioch's intake and thereby affect the City's water rights and operations.

3 The City's existing 1968 Agreement with DWR does not specifically provide for
4 any mitigation to the City from DWR due to increased levels of bromide or other
5 pollutants resulting from the proposed WaterFix Project.
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7 3. ANTIOCH'S WATER RIGHTS

8 Antioch possesses adjudicated pre-1914 appropriative water rights in the Delta as
9 recognized by the California Supreme Court in *Town of Antioch v. Williams Irrigation*
10 *District et al.* (1922) 188 Cal. 451,455. Antioch's diversions include surface flow from
11 both the San Joaquin and Sacramento Rivers. The City uses water it diverts for municipal
12 and industrial uses. (Statement of Diversion and Use #S009352).
13

14 Water at Antioch's intake includes water from the Sacramento River. Significant
15 amounts of Sacramento River water flow into the San Joaquin River east of Antioch at
16 Three Mile and Georgiana Sloughs. Sacramento River water also reaches Antioch
17 where the river merges with the San Joaquin River just west of the City, and via tidal
18 action.

19 4. THE 1968 AGREEMENT

20 In 1968 the City and DWR entered into an agreement ("the 1968 Agreement") to
21 partially mitigate the impacts of DWR's operation of the State Water Project (**Antioch**
22 **101**). The 1968 Agreement provides that the State (by and through DWR) will pay for
23 one-third of the incremental difference to the City between the cost of using river water
24 and the cost of purchasing substitute water during water years when the river water is
25 useable fewer than 208 days per year. Per the 1968 Agreement, water is defined as
26 useable when the chloride concentration is less than 250 mg/L, measured at "slack
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1 current after daily higher high tide,” which has been determined to occur two hours after
2 higher high tide (See **Antioch 102** – the 2013 Amendment No. 1 to the 1968
3 Agreement).

4 Additionally, the number of useable water days is calculated as a running sum,
5 such that if in any given year the number of days exceeds 208, those days are added to
6 the total number of useable water days in the preceding year (**Antioch 101**). For
7 example, if there are 209 useable water days in a given water year, Antioch will not be
8 reimbursed by the DWR for any water purchased from CCWD during that water year,
9 and one additional day of useable water will carry-over to the following water year, in
10 addition to any carryover days existing from prior years. The 1968 Agreement
11 acknowledges that the average number of days useable river water is available to the
12 City would decrease in part due to DWR’s operation of the State Water Project.
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14

15 The 1968 Agreement does not address bromides or pollutants other than
16 chlorides.

17 The 1968 Agreement was amended in October 2013 to provide that the chloride
18 concentration in the San Joaquin River should be measured two hours after higher high
19 tide, when the peak daily EC is expected to occur (**Antioch - 102**). The amendment
20 also extended the original fixed term of the 1968 Agreement (which expired in 2008) to
21 the year 2028. As a result, the fixed term of the 1968 Agreement will expire at about the
22 same time the WaterFix Project is expected to begin operations.
23

24 The City met with DWR recently (2016) to discuss the 1968 Agreement and the
25 WaterFix Project. These meetings with DWR did not result in any proposals from DWR
26 to mitigate Antioch for the impacts of the WaterFix Project.
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28 Notably, the new 2016 CCWD-DWR Mitigation Agreement (**Antioch – 103**)

1 mitigates CCWD for the impacts that will be caused by the WaterFix Project with far
2 more favorable terms than the terms granted Antioch under its 1968 Agreement,
3 including up to 50,000 acre-feet per year of water at a quality of 30 mg/L chloride or less
4 for the perpetuity of the WaterFix Project. Section 10 of the City's 1968 Agreement
5 (which is often called the "me-too" clause) is invoked whenever DWR enters into any
6 agreement with another entity in the Delta that provides that entity with terms more
7 favorable than the terms granted the City. To date, DWR has not offered Antioch terms
8 comparable to those in the new 2016 CCWD-DWR Mitigation Agreement.

10 5. HARM TO ANTIOCH FROM THE WATERFIX PROJECT.

11 Degradation of water quality is the City's primary focus as to adverse impacts
12 from the WaterFix Project for the purpose of the SWRCB Proceedings; degraded water
13 quality will impact the City's water rights and supply.
14

15 Over the years, Antioch has provided Dr. Susan Paulsen with extensive
16 information about the City's water supply, water rights and diversion, as well as the
17 City's water treatment project operations and requirements.

18 With WaterFix Project indicating potentially degraded water quality conditions at
19 Antioch (significant increases in chlorides and bromides), the impacts expected from the
20 WaterFix Project include:

- 21 • Chloride levels above 250 ppm for longer periods of time than under present
22 operations.
- 23 • Bromide levels above 50, 100 and 300 ug/L for longer durations than under
24

1 present operations. Note that 250 mg/L (ppm) chloride is approximately
2 equivalent to just under 900 ug/L bromide (870 ug/L).

- 3 • Increased treatment costs over present conditions. The estimated cost to add
4 treatment facilities necessary to address further degradation to water quality at
5 Antioch is approximately \$150 million.
- 6
- 7 • Increased purchases of substitute water over present conditions.
- 8 • Lack of mitigation for projected increased bromide levels because the 1968
9 Agreement does not specifically mitigate for bromides.

10 Presently, the City is being impacted by the WaterFix Project because DWR has
11 not yet offered Antioch mitigation from the WaterFix Project comparable to that granted
12 CCWD in the 2016 CCWD Agreement, as required by Section 10 the 1968 Agreement
13 between the City and DWR. (**Antioch-105** – brief comparison of key terms of 1968
14 Agreement and 2016 CCWD Agreement). DWR's operational analysis of the 2016
15 CCWD Agreement (DWR-512) indicates increased salinity levels in the Western Delta.
16

17 With respect to the Bureau of Reclamation and the Central Valley Project's
18 ("CVP") impacts to Antioch from the WaterFix Project, there is no existing agreement or
19 other arrangement mitigating the City from such impacts. The Bureau of Reclamation
20 is not a party to the 1968 Agreement.
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22 6. SUGGESTED TERMS AND MITIGATION

23 A good starting point might be for DWR to honor section 10 of its 1968 Agreement
24 with Antioch.

25 Executed on August 30, 2016 in Antioch, CA.

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28 Ron Bernal, Assistant City Manager for the City
of Antioch