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8 ORANGE COUNTY WATER DISTRICT
9

10 STATE WATER RESOURCES CONTROL BOARD
11 OF THE STATE OF CALIFORNIA
12

13 _____) Application No. 31174
14 In the Matter of State Water Resources Control)
15 Board Hearing on Water Rights Applications)
16 31165 and 31370 of San Bernardino Valley) DIRECT TESTIMONY OF BILL B.
17 Municipal Water District and Western) DENDY OFFERED JOINTLY ON
18 Municipal Water District of Riverside County;) BEHALF OF APPLICANTS
19 Application 31174 of Orange County Water)
20 District; Application 31369 of Chino Basin) Date: May 2, 2007
Watermaster; Application 31371 of San) Time: 9:00 a.m.
21 Bernardino Valley Water Conservation District;) Location: Cal EPA Building
22 and Application 31372 and Waste Water) Coastal Hearing Room
23 Change Petition WW-0045 of the City of)
24 Riverside.)
25 _____)

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DECLARATION OF BILL B. DENDY

I, Bill B. Dendy, declare and state as follows:

1. I make this declaration as my direct testimony for the State Water Resources Control Board Hearing on Water Right Applications 31165 and 31370 of San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County; Application 31174 of Orange County Water District; Application 31369 of Chino Basin Watermaster; Application 31371 of San Bernardino Valley Water Conservation District; and Application 31372 and Waste Water Change Petition WW-0045 of the City of Riverside. This Declaration is submitted jointly on behalf of all applicants, and is numbered Exhibit JOINT 1-1.

INTRODUCTION.

2. The focus of Integrated Regional Water Management (IRWM) in the Santa Ana River Watershed is to maximize the number of times the available water supply is used in order to minimize dependence on imported water. Central to achieving that purpose is the management of water quality. The purpose of my testimony is to describe how your approval of the Applications is a logical and necessary step in the continuum of IRWM for the Santa Ana.

QUALIFICATIONS.

3. My professional career has included substantial involvement with the State Water Resources Control Board (State Board) and with the Santa Ana River. I was working at the State Water Quality Control Board, one of your predecessors, in 1967 when it was merged with the State Water Rights Board in order to create the current State Board.

4. During 1968 I served as Assistant Director of the so-called "Study Project" that produced the text of the legislation that was enacted in 1969 as the Porter-Cologne Water Quality Control Act without a dissenting vote in either house.

5. From 1969 to 1972 I was the General Manager of the Santa Ana Watershed Planning Agency (SAWPA), discussed further below. In 1972 I returned to the State Board

1 as Executive Officer and served in that capacity until mid 1977. In the thirty years since
2 then I have worked on many water resources management issues both within California and
3 beyond, but I have always maintained a relationship with SAWPA and its Member
4 Agencies as they expanded their efforts in IRWM. I also serve as a court-appointed
5 member of the Santa Ana River Watermaster (SARWM). Exhibit JOINT 1-2 is my resume.

6 THE SANTA ANA RIVER.

7 6. The River is divided geographically into Upper and Lower Watersheds that
8 are delimited by Prado Dam, a flood control facility located on the River where it cuts
9 through the Santa Ana Mountains section of the Coast Ranges. The dam was completed in
10 1941 in response to the devastating flood of 1938 that inundated much of Orange County.
11 The caprices of the hydrologic cycle are well illustrated by the fact that the resident dam
12 tender never once had to open the valves to let flood water pass through until 1969, twenty-
13 five years later, but in the ensuing 37 years there have been six years when the annual flow
14 through Prado exceeded the flow in 1969. The higher frequency of higher flows is
15 attributable to more wet years on top of higher base flows that result mostly from higher
16 upstream municipal wastewater discharges. During those 37 years the annual rainfall at the
17 SARWM 's index precipitation station has exceeded the long term average ten times.

18 7. Exhibits JOINT 1-3 and 1-4 are, respectively, a bar graph, labeled "Plate 5 ",
19 of the annual base flow and storm flow at Prado since the 1934-35 water year, and a map,
20 labeled "Plate 2 ", showing the locations of upstream municipal wastewater treatment
21 plants and brine export pipelines. Both are excerpted from the annual report of the
22 SARWM for Water Year 2005-06.

23 8. The River and most of its surface tributaries, which originate in the
24 mountains that ring the Upper Watershed, have been physically altered to control flooding.
25 Stream channels have almost all been realigned and armored by flood control agencies who
26 are not party to the applications now before you. Onstream and offstream flood retention
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1 basins are numerous. Most flood retention basins double as percolation basins for placing
2 water into aquifer storage, but flood control gets first priority.

3 9. The Santa Ana's groundwater basins, which are both fed by and feed the
4 River, provide the storage needed to bridge droughts, but some of the upstream basins also
5 exacerbate water management problems in that their water quality reflects historical
6 overlying agricultural land and water use. There are various chemicals of concern but in
7 general management efforts have focused on the conservative elements represented by total
8 dissolved solids (TDS) and, one of its constituents, total inorganic nitrogen (TIN), both of
9 which are very expensive to remove by water treatment.

10 10. The combination of concerns over having enough water to cope with
11 droughts and the increasingly evident water quality problem led to extensive and frequent
12 litigation up and down the River.

13 SETTLING THE LAWSUITS.

14 11. IRWM in the Watershed dates from 1969 when two major water right
15 lawsuits were settled, with stipulated judgments and physical solutions, in a manner that
16 fostered cooperation instead of further litigation. The four major municipal water districts
17 along the River agreed to represent all parties (there were thousands), negotiated the
18 settlements and, as an adjunct, agreed to pursue joint planning to develop long term
19 solutions that would meet the needs of all.

20 12. One 1969 settlement, the so-called *Orange County* Judgment or "1969
21 Judgment", created an interbasin allocation of water whereby the Upper Watershed parties,
22 represented by San Bernardino Valley Municipal Water District (SBVMWD), Inland
23 Empire Utilities Agency (IEUA) and Western Municipal Water District (WMWD), have a
24 duty to ensure that certain minimum and average annual flows of water reach the Lower
25 Watershed, represented by Orange County Water District (OCWD). For the first time in
26 such a judgment, water quality was a factor. The amount of water the Upper Basin parties
27 must guarantee is higher if the TDS exceeds certain levels, and vice versa. This Judgment

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1 created a Watermaster composed of five people appointed by the Court to monitor
2 compliance with the physical solution and report annually thereon to the Court.

3 13. The other 1969 settlement, the so-called *Western* Judgment, established
4 limits on the rights of parties, represented by WMWD, who were producing groundwater
5 from the San Bernardino Basins for use elsewhere, and established the right and
6 responsibility of the SBVMWD to manage the recharge of the Basins. This Judgment
7 created a Watermaster composed of two people appointed by the Court to monitor
8 compliance with the physical solution and report annually thereon to the Court .

9 14. Since 1969 there have been other stipulated judgments that established
10 management structures and watermasters for other groundwater basins in the watershed,
11 notably the Chino and Beaumont Basins.

12 SAWPA.

13 15. At the same time the Parties were reaching agreement on the physical
14 solutions they were already moving ahead with the next logical step: creation of a
15 Watershed-wide Plan for management of water and water quality that could be the
16 foundation for long term cooperation. To develop the Plan they created a joint-powers
17 agency, the Santa Ana Watershed Planning Agency (SAWPA) whose Board of Directors
18 was comprised of representatives of the Parties. By 1972 SAWPA had published its first
19 Plan, which included a comprehensive analysis of each groundwater basin and the
20 interaction of basins with each other and with the River, projected future water demands
21 throughout the Watershed, identified existing and potential problems of water shortages and
22 water quality degradation, and proposed a specific set of projects to begin to cope with
23 them.

24 16. Some of the projects were earmarked to be implemented by SAWPA itself,
25 so the Parties altered SAWPA's name slightly to make it a Project Authority instead of
26 merely a Planning Agency, thereby retaining the acronym but, more importantly, certifying
27 their intent to develop projects cooperatively for common interest. Included in the

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1 SAWPA-implemented projects are the Santa Ana Regional Interceptor (SARI) which
2 enables salt brine to be exported from the Upper Watershed; the Arlington Desalter which
3 was the first of several such facilities that have been built to extract and desalt brackish
4 groundwater; and a water pipeline that conveys lower TDS State Water Project water from
5 Metropolitan Water District's Mills Water Treatment Plant in Riverside to WMWD service
6 areas in the Watershed that were formerly served with saltier imported Colorado River
7 water. A SAWPA PowerPoint presentation highlighting some of its accomplishments is
8 numbered Exhibit JOINT 1-5.

9 17. Shortly after SAWPA's Plan was completed the Santa Ana Regional Water
10 Quality Control Board (Regional Board) began to prepare its first ever region-wide Water
11 Quality Control Plan pursuant to the Porter-Cologne Act and decided to borrow SAWPA's
12 expertise. That marked the beginning of a cooperative effort that continues today. The
13 coupling of the Regional Board's policy making and enforcement powers with the
14 planning, coordination and project funding and development ability of SAWPA, its
15 Member Agencies (which now include Eastern Municipal Water District) and other
16 participants has been successful beyond anyone's hopes at the beginning. When the
17 Regional Board makes a decision on, for instance, a nitrate water quality objective for a
18 groundwater basin or for a stretch of the River, it knows that the ways and means exist to
19 cause that objective to be met because stakeholders, usually led by SAWPA or one of its
20 Member Agencies, has analyzed alternatives and brought to the Regional Board specific
21 programs of implementation that they believe will work. Working together the Regional
22 Board and SAWPA provide a model of how to implement Article 3 of the Porter-Cologne
23 Act.

24 INTEGRATED REGIONAL WATER MANAGEMENT.

25 18. The essence of IRWM in the Santa Ana Watershed is this: In the uppermost
26 reaches of the River and its tributaries, water users are served the lowest TDS water
27 available, typically from groundwater basins that receive the lowest TDS natural recharge
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1 from local precipitation. The sewerred return flow from that water usage, carrying a higher
2 TDS because of accretions during use, is discharged downstream to recharge other
3 groundwater basins from which it is once again pumped and used. The objective is to
4 manage the salt concentrations so that the last downstream users in Orange County have
5 acceptable quality but produce a return flow that exceeds the desirable TDS level for
6 municipal use and must be disposed of in the ocean rather than cycled back into usable
7 groundwater. The water is virtually “worn out” by the time it reaches the coast.

8 19. Some examples of IRWM efforts are:

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- 10 • Several of the groundwater basins (notably, Chino and Arlington Basins) that
11 contribute water to the River contain water that is already too high in TDS and TIN,
12 principally a legacy of irrigated agriculture in times past. To cope with that legacy
13 local agencies are installing desalination plants. High TDS groundwater is pumped
14 and treated, the good quality product water is distributed for municipal use, and the
15 brine stream is exported via pipelines dedicated to that purpose. After treatment in
16 municipal wastewater facilities on the coast the brine is commingled with other
17 wastewater and discharged to the ocean. The export brine stream has grown
18 steadily since the mid-1980’s as groundwater desalters have come on line. For
19 Water Year 2005-06 the SARWM determined that the total amount of desalter brine
20 exported was 17,932 acre-feet with an estimated average TDS of 4,118 mg/l.
 - 21 • The increment of TDS added to water during use is controlled to the extent
22 practicable by, for instance, barring high TDS industrial wastewater from sewer
23 systems and, for residences, disallowing the use of home-regenerated water
24 softeners. The importance of controlling salinity in sewerred wastewater in the
25 Upper Watershed is illustrated by the fact that the “base flow” at Prado Dam, i.e.,
26 flow not associated with runoff from storms, is almost entirely attributable to
27 upstream discharges of municipal wastewater.

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JOINT DIRECT TESTIMONY OF BILL B. DENDY

EXHIBIT JOINT 1-1

- 1 • Programs to encourage individual water users to minimize their water demands are
2 actively pursued throughout the Watershed, using pricing incentives, rebates,
3 demonstration gardens, etc. In the Upper Watershed there is a potential conflict
4 between demand reduction and salinity control because when sewer flows
5 decrease their TDS concentrations increase, so there is a balancing act to minimize
6 demands but not to the extent that downstream basins are penalized with too-high
7 salt content.
- 8 • Wastewater is reused in the Watershed other than via the redirection of the
9 wastewater flowing down the River. There is potential conflict between recycling
10 and salinity control so extraordinary measures are taken to assure the Regional
11 Board and neighboring water users that any adverse effects are being avoided or
12 mitigated. For instance, to enable recycling of wastewater in the Chino Basin the
13 entities there must maintain hydraulic control of the groundwater in order to prevent
14 salinity impacts on the River where it flows into Orange County.
- 15 • SAWPA coordinates a program for eradication of *Arundo donax*, a non-native
16 species of reed that has invaded many waterways in California. It displaces native
17 vegetation, resulting in undesirable alterations of natural habitat, and it also
18 consumes about three times as much water as the native vegetation. By the early
19 1990's there were about 10,000 acres of *Arundo* in the Watershed. In 1997 a
20 consortium of local, state and federal agencies launched a long term eradication
21 program. Because *Arundo* spreads rapidly downstream as roots and rhizomes break
22 off during high streamflows the eradication began in the uppermost reaches of
23 affected streams. Each location requires multiyear treatment. So far about 3000
24 acres of *Arundo* have been eradicated.

25 20. Going forward, SAWPA, its Member Agencies and other stakeholders
26 expect to build on the past successes and are reaching out to a broader base of participants
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1 in order to incorporate in IRWM more environmental and recreational aspects such as
2 wetlands, trails, and open space.

3 21. The State is already heavily invested in implementation of IRWM in the
4 Santa Ana. \$235 million that was allocated pursuant to Proposition 13 generated, with local
5 matches, over \$500 million to construct 23 projects, of which 19 are complete. Another
6 \$25 million is being sought pursuant to Proposition 50.

7 THE APPLICATIONS.

8 22. Today Integrated Regional Water Management is seen by some as a new
9 concept, but early in its work, in June 1968, the Porter-Cologne Study Project adopted as
10 one of its guiding principles that “legislative intent in establishing the State Water
11 Resources Control Board was to achieve a better integration of the quantity and quality
12 aspects of overall water resources management”. The Applications and Petition before you
13 offer a clear opportunity for you to act in furtherance of that intent. The Applications all
14 contemplate projects that will further the cause of IRWM in the Santa Ana River Watershed
15 by enabling more efficient use of available local water and reducing the need to reach out
16 hundreds of miles for imported water of (apparently) increasingly dubious reliability. Your
17 approval of Applications 31165, 31369, 31370, and 31371 would enable the capture of
18 more natural local precipitation runoff, with its low TDS, for groundwater storage and first
19 use in the Upper Watershed. Approval of Application 31174 would confirm the ability to
20 capture water in the Lower Watershed that would otherwise be lost to the ocean. Approval
21 of Application 31372 and Petition WW-0045 would help to enable direct recycling of
22 wastewater.

23 23. The Applications and Petition present a clear opportunity for you to
24 incorporate water quality considerations into your water right decision making, as
25 contemplated at the time the State Board was created. Your approval of these Applications
26 and Petitions will demonstrate your willingness to exercise your discretion to use your
27 water right authorities to support IRWM in furtherance of Water Code Section 1256, which
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1 directs you to "...give consideration to any general or co-ordinated plan looking toward the
2 control, protection, development, utilization, and conservation of the waters of the State.."

3 24. If you make it your policy to support and reward IRWM efforts such as
4 those in the Santa Ana River watershed, you may well encourage stakeholders in other
5 regions to follow suit, and at the same time make your job easier.

6 Executed under the penalty of perjury under the laws of the State of California in
7 El Macero, California on April 11, 2007.

8 Bill B. Dendy
9 Bill B. Dendy

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