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13 On behalf of South Delta Water Agency,
14 Central Delta Water Agency, Lafayette Ranch,
15 Heritage Lands, Mark Bachetti Farms
16 and Rudy Mussi Investments L.P.

17 [ADDITTONAL COUNSEL LISTED ON FOLLOWING PAGE]

18 **STATE OF CALIFORNIA**

19 **STATE WATER RESOURCES CONTROL BOARD**

20 Hearing in the Matter of California
21 Department of Water Resources and United
22 States Department of the Interior, Bureau of
23 Reclamation Request for a Change in Point
24 of Diversion for California Water Fix

25 **DECLARATION OF DR. MICHELLE**
26 **LEINFELDER-MILES IN SUPPORT**
27 **OF PROTESTANTS SDWA PARTIES**
28 **AND LOCAL AGENCIES OF THE**
NORTH DELTA'S MOTION FOR
PROTECTIVE ORDER REGARDING
DWR'S SUBPOENA DUCES TECUM
TO DR. MICHELLE LEINFELDER-
MILES

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9 Bogle Vineyards/ Delta Watershed Landowner Coalition
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11 Stillwater Orchards/ Delta Watershed Landowner Coalition

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1 I, Dr. Michelle Leinfelder-Miles, declare that I have personal knowledge of the
2 following:

3 1. I am the Delta Crops Resource Management Advisor with the University of
4 California Cooperative Extension. I am based in San Joaquin County and serve the
5 five-county Delta region. As the Delta Crops Resource Management Advisor, I
6 conduct an applied science, multidisciplinary research and outreach program on
7 agricultural production and resource stewardship.

8 2. In 2013-2015, I conducted a research project in cooperation with south Delta
9 alfalfa farmers, which I have entitled "Leaching Fractions Achieved in South Delta
10 Soils under Alfalfa Culture." The project has been summarized and presented in the
11 California WaterFix Hearings as exhibits SDWA-139 (February 2015), SDWA-140
12 (August 2016), and LAND-79 (December 2016), where subsequent exhibits represent
13 updated versions of the report. The report included as SDWA-139, however, differs
14 from the later versions of the report included as SDWA-140 and LAND-79 in that
15 SDWA-139 did not include analysis of the 2014 and 2015 data. (See SDWA-139, p.
16 2.) In addition, my sur-rebuttal testimony (SDWA-263) includes discussion of the
17 relative effect of rainfall on leaching fractions for the 2013-2014 and 2014-2015 winter
18 seasons, which was not yet complete at the time the prior versions of the report were
19 prepared. (See LAND-79, page 13; SDWA-139, page 16, SDWA-140, page 14.) This
20 declaration primarily references LAND-79, as that is the most recent version of the
21 report.

22 3. Although the data I collected for the project has not changed in the reports, I
23 continue to develop the conclusions as I get closer to being ready to submit this work
24 to a peer reviewed journal. (June 23, 2017 Transcript, page 30, lines 17-20.) The
25 objective of this work was to "gain knowledge on the current leaching fractions being
26 achieved in south Delta alfalfa soils and update the state of knowledge on how surface
27 water quality and rainfall affect the leaching fraction." (LAND-79, page 1.)

1 4. The research that my UC Cooperative Extension colleagues and I conduct
2 on private lands has incredible value because it provides public information about
3 private lands, but there are privacy considerations that must be respected in order for
4 these cooperative projects to continue. In conducting the aforementioned leaching
5 fraction study, I made verbal agreements with cooperating growers not to disclose
6 their identity or farm locations, and thus, the project report identifies the fields where I
7 sampled as Sites 1-7. In rebuttal testimony, I explained that, "I conduct research
8 projects in cooperation with Delta growers, on their farms, in order to gain an
9 understanding of how scientific principles apply in the field. To expand our
10 understanding of science in the field and accomplish the goal of extending new
11 knowledge requires mutual respect and trust between the Farm Advisor and the
12 growers." (May 19, 2017 Transcript, page 28, lines 16-23.) I emphasized that trusting
13 relationship between private landowners and UC Cooperative Extension researchers.
14 It is because of that trust that we are able to gain new knowledge and extend what we
15 have learned to all of California.

16 5. In my professional experience as a UC researcher, disclosing the locations
17 of research trials that are conducted on private lands will break the trust researchers
18 have with private landowners and negatively impact the cooperative relationships that
19 my colleagues and I depend on to do our jobs and collect real-world information.
20 Without the trust of private landowners, we would lose ability to learn and extend new
21 knowledge on how we manage land and the environment, which would generally be a
22 detriment to Californians.

23 6. Releasing raw data from the leaching fraction study that I am preparing for
24 peer reviewed publication would undermine my ethical obligations and be contrary to
25 my training as a scientist to evaluate and draw conclusions from my research data. As
26 a scientist, it is my duty to analyze, interpret, and make conclusions that are supported
27 by data. In my role of extending research findings, I summarize data in ways that are
28 appropriate for the audience.

1 7. All of the data necessary to support the project report's conclusions are
2 summarized in the tables and figures included in the project report. (LAND-79, pages
3 7, 10, 11, 12, 13.) Releasing data in its raw form exposes the data to misinterpretation
4 by those who lack expertise in the appropriate subject matter or in data analysis. In
5 this regard, I do not believe that the release of the requested raw soil sampling data (a
6 subset of the data I relied upon) would, in fact, permit "independent evaluation of
7 factors affecting soil salinization" as claimed in the Affidavit in Support of DWR's
8 Subpoena. (See p. 3.) Moreover, even if all of my raw data was released over my
9 objections and the objections of my employer, the University of California, I do not
10 believe that DWR has the expertise to analyze it.

11 8. Instead, it will be the role of the peer reviewers, who will have specific
12 expertise in soil salinity, to determine whether I have appropriately and adequately
13 analyzed, summarized, interpreted, and drawn conclusions about the data for a
14 scientific audience using accepted scientific methods.

15 9. Even though my project report has not yet been subject to peer review, it has
16 been thoroughly reviewed by others with expertise in soil salinity and leaching
17 fractions. I have also been cross examined by DWR and other parties in this
18 proceeding three times regarding my research. Yet DWR has not identified any
19 mistakes or deviations from the normal scientific process in my research except as
20 opined by Dr. Kimmelshue, without citation to scientific authority.

21 10. I am concerned that forcing release of my raw data would discourage future
22 cooperation between University of California scientists and government agencies.
23 Within the last two years, I have cooperated with DWR on efforts that linked the
24 agricultural and environmental sciences. These efforts came at the request of DWR
25 personnel, and I agreed to assist in these efforts because there is value in partnering
26 with agency personnel. In the first effort, I convened a group of growers to provide
27 input on sustainable farming practices for the management of DWR-owned Twitchell
28 Island. In the second effort, I tabulated information on irrigation seasons and systems

1 for various field crops grown in the Delta and in San Joaquin County. These efforts
2 illustrate my willingness and interest in assisting agency personnel on matters related
3 to agriculture in my region, and I have colleagues who have shown similar willingness.
4 This Subpoena for raw data, however, ignores the working relationships I have
5 developed with growers, who have provided information for DWR's own efforts, and
6 for my scientific expertise.

7 11. The specific sampling locations are irrelevant for the peer review of the
8 leaching fraction study and will not be included in the manuscript. In my sur-rebuttal
9 testimony, I referenced, as an example, the Guidelines for *Agronomy Journal* Editors
10 and Reviewers to explain why specifying the exact sampling locations is unnecessary
11 for a scientific audience. The guidelines instruct peer reviewers to evaluate whether
12 "Sound methodology was used and is explained with sufficient detail so that other
13 capable scientists could repeat the experiments. (LAND-105, page 1.)" (SDWA-263,
14 page 6, lines 26-28.) Nevertheless, in characterizing the difference between fixed and
15 random factors, it is clear that specifying the exact sampling locations is unnecessary
16 for repeatability. According to the *Agronomy Journal*, "A random factor is best thought
17 of as coming from a distribution and thus cannot be necessarily repeated exactly.
18 Years and locations are usually, but not always, considered as random factors.
19 (LAND-105, page 4.)" (SDWA-263, page 6, lines 12-14.) This definition explains "why
20 naming the specific locations of my studies is unnecessary for a scientific audience,
21 and lack of specifying the exact location in no way invalidates the results," as I
22 explained in my sur-rebuttal testimony. (SDWA-263, page 6, lines 14-16.)

23 12. When identifying sites for the leaching fraction study, I was careful to select
24 sites that were representative of agricultural lands in the south Delta. I have generally
25 identified the area of my study already: "The south Delta – an area southwest of
26 Stockton, CA – was reported by Hoffman (2010) to include approximately 110,000
27 irrigated acres in 2007." (LAND-79, page 2.) I further explained, "South Delta alfalfa
28 fields were selected for their soil textural and infiltration characteristics and differing

1 irrigation source water. In particular, the Merritt, Ryde, and Grangeville soil series
2 were of interest. These three soil series characterize over 36,000 acres of the south
3 Delta (24,580 acres of Merritt silty clay loam, 7,780 acres of Grangeville fine sandy
4 loam, and 3,691 acres of Ryde clay loam) (Hoffman, 2010).” (LAND-79, page 4.)

5 13. With respect to the accuracy of the soil characterizations, I did not solely
6 rely on soil maps for the soil series designation. As explained in the project report.
7 “Before sampling, holes were augured, and the soil was visually assessed for its
8 representation of the Merritt, Ryde, or Grangeville classifications. Once visually
9 confirmed as representative soil, samples were collected...” (LAND-79, page 5.)
10 These statements explained my procedures for identifying sampling locations and how
11 the sampling locations were representative of approximately one-third of the irrigated
12 lands in the south Delta.

13 14. All of the relevant information to contextualize the sampling locations of the
14 leaching fraction study has already been provided in the project report, including soil
15 series (LAND-79, page 8), irrigation water source (LAND-79, page 7), and crop
16 (LAND-79, page 1.) Summary data have also been provided in the report and in sur-
17 rebuttal testimony, including groundwater depth and quality (LAND-79, page 7), soil
18 salinity (LAND-79, pages 10-11), irrigation water salinity (LAND-79, page 7), and
19 precipitation (SDWA-263, page 12, lines 14-15).

20 15. Further information on location and raw data are unnecessary for the
21 evaluation of the project and its relevance to the California WaterFix Hearing.
22 Moreover, requiring release of the raw data would not likely lead to any new
23 information regarding the validity of my project report findings, would violate
24 agreements with landowners, be contrary to the accepted scientific process, and
25 hinder the ability of researchers to collect data and conduct studies on privately-owned
26 lands.

27 16. I understand that my project reports were appropriately subject to scrutiny
28 in the Hearing process to determine their relevance and weight in the Hearing, and I

1 believe the evidence I presented has already been thoroughly scrutinized. The
2 release of the specific private property locations within the south Delta and release of
3 raw data that has already been summarized is not necessary to assess the basis of
4 the professional opinions I have provided to this Hearing in the form of testimony,
5 project reports, and supporting references.

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8 I declare under penalty of perjury under the laws of the State of California that
9 the foregoing is true and correct. Executed this 20th day of July, 2017 in Stockton,
10 California.

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12 *Michelle Leinfelder-Miles*

13 Date: July 20, 2017

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15 MICHELLE LEINFELDER-MILES
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