

DECLARATION OF CURTIS BRADLEY

I, Curtis Bradley, declare as follows:

1. My name is Curtis Bradley and I reside in Tucson, Arizona. The facts stated herein are personally known to me and, if called as a witness, I would competently testify thereto.

Summary of Work Performed

2. I was asked to create three maps of the Central Valley of California that illustrate depth to groundwater, selenium in groundwater, and selenium in soils in relation to the lands identified in the Tulare Lake Basin Water Storage District, the Empire Westside Irrigation District and the Westlands Water District.

Background and Qualifications

3. I am a Geographic Information Systems (GIS) specialist at the Center for Biological Diversity, where I have worked in this capacity for over ten years. I hold a Bachelor of Sciences in mechanical engineering and a Master of Sciences in watershed management, both from the University of Arizona. I have training in several GIS software and remote sensing applications and over eleven years of experience in GIS analysis and cartography.

Data Compilation and Analysis

4. For all three maps I display the locations of 'General Property Locations'. These locations are identified by a meridian, township, range, and section (MTRS) in Exhibits A, B, and C of the document "Coordinates for Long Term Transfer 17512ltt100216_petition.pdf". Each MTRS has a specific location in the Public Land Survey System map that divides the state into a grid of roughly 1 square mile units for identification purposes with each unit having a

unique MTRS. I matched each property's MTRS location with a GIS layer (digital computer file) that allowed me to show these areas on a map.

5. I prepared the map submitted as Exhibit 1 that shows the relationship between property locations and selenium concentrations in soils. This was done by digitizing (creating a digital map) a map titled "Selenium Concentrations in Soils" in Figure 5 of "A Management Plan for Agricultural and Subsurface Drainage and Related Problems on the Westside San Joaquin Valley, Final Report of the San Joaquin Valley Drainage Program" (Edgar Imhoff, et al., U.S. Department of Interior and California Resources Agency, September, 1990) ("Rainbow Report"). I digitized the selenium concentration contour lines, and from this, created my own map that has the property locations added.

6. I prepared the map submitted as Exhibit 2 that shows the relationship between property locations and shallow ground water. This was done by georeferencing a map titled "Present and Potential Drainage Problem Areas, San Joaquin Valley, 2008" by the California Department of Water Resources. This map can be found at:

http://www.water.ca.gov/pubs/drainage/2008_shallow_groundwater_map_san_joaquin_valley/08sgw.pdf . Georeferencing this map, meaning I defined it in physical space, allowed me to use it as a base map in my GIS program and overlay the property locations.

7. I prepared the map submitted as Exhibit 3 that shows the relationship between property locations and selenium concentrations in shallow ground water. This was done by georeferencing a map titled "Selenium Concentrations in Shallow Groundwater" in Figure 8 of the Rainbow Report and overlaying the property locations.

8. In reference to Exhibits 2 and 3 that show shallow ground water and selenium concentrations in shallow ground water, I note a lack of data around the properties in the Westlands Water District.

9. I used ArcMap version 10 GIS software from ESRI to create these maps and in my professional opinion they are accurate with respect to the data they represent.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on July 22, 2011



Curtis Bradley
Center for Biological Diversity
Tucson, Arizona