McGREGOR W. SCOTT
United States Attorney
Eastern District of California

KIMBERLY GAAB
Assistant U.S. Attorney
2500 Tulare Street
Suite 4400
Fresno, California 93721
Telephone: (559) 497-4000
Facsimile: (559) 497-4099

SUE ELLEN WOOLDRIDGE
Assistant Attorney General
United States Department of Justice
Environment & Natural Resources Division

CHARLES R. SHOCKEY, Attorney
D.C. Bar #914879
United States Department of Justice
Environment and Natural Resources Division
501 "I" Street, Suite 9-700
Sacramento, CA 95814-2322
Telephone: (916) 930-2203
Facsimile: (916) 930-2210
Email: charles.shockey@usdoj.gov

Attorneys for Defendants

IN THE UNITED STATES DISTRICT COURT

FOR THE EASTERN DISTRICT OF CALIFORNIA

FRESNO DIVISION

FRIENDS OF YOSEMITE VALLEY, et al., Plaintiffs, v. DIRK KEMPTHORNE, in his official capacity as Secretary of the Interior, et al., Defendants.	Case No. CV-F-00-6191 AWI DLB DECLARATION OF C. SCOTT FRAZIER IN SUPPORT OF DEFENDANTS' OPPOSITION TO PLAINTIFFS' MOTION FOR RELIEF DATE: October 10, 2006 TIME: 1:30 p.m. PLACE: Courtroom 3 JUDGE: Hon. Anthony W. Ishii

I, C. Scott Frazier, declare as follows:

1. I am C. Scott Frazier, a Certified Professional Soil Scientist, working for Jones & Stokes, an environmental consulting firm based in Sacramento, California. I have a B.S. in Soil

Science from California Polytechnic University in San Luis Obispo, and an M.S. in Soil Science from the University of California, Riverside.

2. I have been practicing soil science as a professional in numerous environmental settings throughout California, Oregon, and Alaska since 1992. I specialize in the characterization, taxonomic classification, and delineation of soils and the characterization, classification, delineation, and restoration of wetlands and riparian habitat.

3. Since 1999, I have delineated wetlands and other waters of the United States (delineations) at numerous project sites located throughout California (including the Sierra Nevada) using the methodologies described in the U.S. Army Corps of Engineers' (Corps's) 1987 Wetlands Delineation Manual (1987 Manual) (Environmental Laboratories 1987) and the U.S. Fish and Wildlife Service's Classification of Wetlands and Deepwater Habitats of the United States (Cowardin System) (Cowardin et al. 1979). The purpose of these delineations has been to identify the type and extent of wetlands and other waters of the United States subject to Corps jurisdiction under Section 404 of the federal Clean Water Act. I have played a lead technical role on several wetland delineations in Yosemite National Park since 2001, including those at the project areas in question (subject project areas). A copy of my current résumé is attached.

4. The following professional opinions are based on my professional training, experience, and judgment, and on a review of the wetland delineation comments presented in the Declaration filed by Mr. Robert Curry on September 7, 2006.

5. In paragraph 5 of the Declaration, Mr. Curry asserts that Jones & Stokes incorrectly used the wetland definition and diagnostic characteristics contained in the 1987 Manual instead of the wetland definition and diagnostic characteristics contained in the Cowardin System.

6. In October 1998, the National Park Service (NPS) officially adopted the Cowardin System as the standard for defining and classifying wetlands for purposes of compliance with Executive Order 11990 (NPS Director's Order 77-1). The Cowardin System includes a general wetland definition and some general diagnostic characteristics that are typically used to identify wetlands for small-scale, planning-level wetland delineations, such as those conducted by the

U.S. Fish and Wildlife Service National Wetlands Inventory Program (NWI). However, the Cowardin System is more a classification system than a delineation manual, and generally lacks the detailed diagnostic criteria and methodologies necessary to accurately define wetland boundaries for large-scale, project-level wetland delineations.

7. In addition to Executive Order 11990, NPS must comply with regulations and policies pursuant to Section 404 of the federal Clean Water Act, which require use of the wetland definition and delineation methodologies described in the 1987 Manual for identification and delineation of wetlands. The 1987 Manual and the Cowardin System use similar diagnostic characteristics to define wetlands (presence of wetland hydrology, hydrophytic vegetation, and hydric soil), but the 1987 Manual has the advantage of including the detailed methodologies necessary to accurately delineate wetland boundaries for large-scale, project-level delineations. Jones & Stokes was directed by NPS staff to use the delineation methodologies contained in the 1987 Manual to identify and delineate vegetated wetland boundaries in the subject project areas, and to use the Cowardin System to identify and delineate unvegetated wetlands. The wetland classification component of the Cowardin System was used to classify all wetlands found within the subject delineation areas.

8. In paragraph 6 of his Declaration, Mr. Curry asserts that the Cowardin System used by USFWS NWI is a "one-parameter" or "one-element" wetland delineation methodology in that it requires that only one of the three possible diagnostic wetland characteristics (wetland hydrology, hydrophytic vegetation, or hydric soils) be present in order for a site to qualify as a wetland. I disagree with Mr. Curry's position on this topic. The Cowardin System is actually a "two-parameter" or "two-element" delineation methodology in that it requires an area to exhibit wetland hydrology and hydrophytic vegetation or hydric soils in order to qualify as a wetland. Only when a site lacks hydric soils and hydrophytic vegetation due to certain environmental factors, such as high salinity, can the Cowardin System be applied as a one-parameter wetland identification and delineation methodology.

9. In paragraph 7 of his Declaration, Mr. Curry asserts that Jones & Stokes undermapped the extent of wetlands in the subject project areas by using the more stringent three-parameter

delineation methodology contained in the 1987 Manual instead of the two-parameter methodology used by the Cowardin System. I again disagree with Mr. Curry's position on this topic. All of the jurisdictional wetlands sites within the subject project areas that exhibited positive indicators of wetland hydrology also contained both hydrophytic vegetation and hydric soils. That is to say, there were no sites within the subject project areas that exhibited wetland hydrology and hydric soils without also having hydrophytic vegetation, or that exhibited wetland hydrology and hydrophytic vegetation without also containing hydric soils. Accordingly, the extent of wetlands mapped by Jones & Stokes using the three-parameter 1987 Delineation Manual methodology is identical to the extent of wetlands that would have been mapped if Jones & Stokes had used the two-parameter methodology employed by the Cowardin System for vegetated wetlands. In my experience, this is typical in most wetland areas that have not been recently disturbed or manipulated by people (e.g., tillage or grading) or by natural events (e.g., extreme floods, landslides). Furthermore, the more inclusive wetland hydrology and hydric soil determination directives issued by the NPS Water Resources Division (WRD) resulted in more inclusive delineation maps and ensured that Jones & Stokes did not undermap the extent of jurisdictional wetlands in the subject project areas. These directives and their effects are explained in more detail below in paragraphs 13, 14, and 15. Finally, the wetland definition contained in the Cowardin System was applied to non vegetated potential wetland areas, so the final delineation maps show all areas that qualify as wetlands according to the1987 Manual and the Cowardin System,.

10. In paragraphs 11, 12, and 13 of his Declaration, Mr. Curry asserts that Jones & Stokes undermapped the extent of wetlands in the subject project areas by not accounting for hydrologic inputs from "local snowmelt and valley-wall sources" during the early portion of the growing season. As explained below, Mr. Curry has failed to understand the procedures we used to delineate wetlands in the park.

11. First, when conducting jurisdictional wetland delineations, the definition, length, and starting and ending dates of the growing season are not typically determined using the obscure methodology cited by Mr. Curry in his Declaration. The 1987 Delineation Manual defines the

growing season as the portion of the year when soil temperature at 20 inches below the soil surface is above 41°F. In the absence of direct soil temperature measurements, the length of the growing season is typically estimated by determining the number of frost-free days. The starting and ending dates for the growing season are based on 28°F air temperature thresholds at a frequency of 5 years in 10. Using these criteria and air temperature data from Yosemite National Park Headquarters, Jones & Stokes estimated that the growing season in Yosemite Valley extends from April 13 to November 5 in most years (205 days). Thus, contrary to the position taken by Mr. Curry, Jones & Stokes did in fact conduct field surveys in the subject project areas during the "early portion" of the growing season.

12. Second, contrary to the position taken by Mr. Curry, Jones & Stokes did in fact consider all possible sources of water, including local snowmelt and valley wall sources, when making wetland hydrology determinations in the subject project areas. Jones & Stokes never asserted that the surface water and shallow groundwater conditions observed in May and June of 2003 only reflect contributions from the Merced River and its tributaries. We simply made the interpretation that groundwater levels and surface water levels in Yosemite Valley are likely to be at their highest during late May and early June when the Merced River hydrograph is typically at its peak. As the shape of the Merced River Hydrograph in Yosemite Valley is largely a function of snowmelt, it is categorically incorrect to assert that Jones & Stokes did not consider hydrologic inputs from "local snowmelt and valley-wall sources."

13. Third, discharge from the Yosemite Valley reach of the Merced River was considerably higher than the median discharge between 1915 and 2001 (refer to the hydrograph in Appendix B of the subject area delineation reports). It follows that the surface inundation and shallow groundwater levels observed by Jones & Stokes in May and June 2003 represented an above-average condition. Despite this above-average condition, Jones & Stokes was directed by staff from National Park Service's Water Resources Division to treat the surface and groundwater levels observed during May and June 2003 as the normal condition, and to make wetland hydrology determinations accordingly. As such, the extent of wetlands mapped by Jones & Stokes was actually much larger than would have been mapped had NPS WRD directed

Jones & Stokes to account for the above-average hydrograph when making wetland hydrology determinations in the subject project areas. Consequently, direction given by NPS WRD resulted in more inclusive wetland delineation maps, and ensured that Jones & Stokes did not undermap the extent of jurisdiction wetlands in the subject project areas,

14. Fourth, the 1987 Manual states that a site has wetland hydrology if it is inundated and/or contains saturated soil (i.e., groundwater) within a major portion of the root zone for 5% or more of the growing season. The major portion of the root zone is defined as the zone in which more than 50% of plant roots occur (Environmental Laboratories 1987). For most herbaceous plant communities, the major portion of the root zone typically extends from the soil surface to a depth of 12 inches or less. Soil scientists from Jones & Stokes determined that the major portion of the root zone in meadows of the Yosemite Valley extends from the soil surface to a depth of roughly 6-10 inches. Accordingly, Jones & Stokes recommended using a depth of no deeper than 12 inches to define the lower boundary of the major portion of the root zone when making wetland hydrology determinations in the subject project areas, which is consistent with the general guidance given in 1987 Manual. Furthermore, Jones & Stokes recommended that the water table surface be considered the upper limit of soil saturation, as the scientific literature and personal accounts from senior soil scientists at the Natural Resources Conservation Service (NRCS) and the U.S. Forest Service (USFS) indicate that the thickness of saturated soil above the water table (i.e., the capillary fringe) is negligible (<1") in most soils, especially wetland soils that have high organic matter content. The National Park Service, however, directed Jones and Stokes to take a more conservative and inclusive approach. NPS WRD staff believed that the saturated capillary fringe could extend up to 2.5 feet above the water table in some areas, and as such, directed Jones & Stokes to consider a water table found within roughly 12-14 inches of the soil surface as a positive indicator of wetland hydrology, despite the fact that 2003 was an unusually wet year. This directive resulted in more inclusive wetland delineation maps, and ensured that Jones & Stokes did not undermap the extent of jurisdiction wetlands in the subject project areas.

15. In my professional opinion, the wetland delineation maps prepared by Jones &

Stokes for NPS did not omit any significant wetland areas as Mr. Curry asserts in his Declaration. To the contrary, the more conservative and inclusive wetland hydrology thresholds that NPS directed Jones & Stokes to use resulted in more inclusive wetland delineation maps, and ensured that Jones & Stokes did not undermap the extent of jurisdiction wetlands in the subject project areas.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 21, 2006, in Sacramento, California.

C. Scott Frazier