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Attorneys for Plaintiffs

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF IDAHO**

IDAHO CONSERVATION LEAGUE, )  
IDAHO RIVERS UNITED, and )  
GOLDEN EAGLE AUDUBON SOCIETY, )  
Plaintiffs, )  
vs. )  
UNITED STATES FOREST SERVICE, )  
Defendant, )  
MOSQUITO MINING CORP., )  
Intervenor-Defendant. )

No. 1:11-cv-341-EJL

**DECLARATION OF  
KATHRYN DIDRICKSEN**

I, Kathryn Didricksen, declare as follows:

1. My name is Kathryn Didricksen. I reside in Boise, Idaho. I am personally aware of the matters set forth below, and if called as a witness I would and could truthfully testify thereto.

**Statement of Qualifications & Basis for Testimony**

2. I am a graduate of Western Washington University (BS, Geology) and Eastern Washington University (MS, Geology with Hydrogeology emphasis). I am licensed as a Professional Geologist and Hydrogeologist in the State of Washington. I recently retired (June, 2011) from the Bureau of Reclamation, where I worked for more than 32 years as a Hydrogeologist doing investigations for engineering, agricultural, water supply, and stream restoration projects. During my professional career I reviewed and interpreted geologic and technical groundwater information from maps and reports; designed and completed field investigations to understand groundwater occurrence and movement; designed, tested and measured wells to determine hydraulic properties of aquifers; and wrote technical reports with results and scientific interpretations.

3. I am familiar with the scientific literature regarding groundwater hydrology, both in general and throughout the Pacific Northwest.

4. I have reviewed the Forest Service's Environmental Assessment (EA), Decision Notice and Finding of No Significant Impact (DN/FONSI), and their Response to Appeal for the CuMo Exploration Project, as they relate to impacts to groundwater

hydrology. I have also reviewed the Idaho DEQ preliminary assessment of the Enterprise Group of adjacent mine sites (Dec. 2008) and portions of the Plan of Operations for the CuMo drilling procedures.

### **Impacts Drilling Can Have on Groundwater Hydrology**

5. As a general matter, under certain conditions, drilling an exploratory borehole can impact the local groundwater conditions if the drilling fluid leaves the borehole through bedrock fractures or through unconsolidated geologic material. This can happen both above and below the water table (in the unsaturated zone and into the aquifer). The amount leaked and the consequences of the added water (drill fluid) are dependent on local geologic and hydrologic conditions. If the rock fractures are interconnected and extensive, then impacts can be more complex than if the rock is less fractured. When many exploratory holes are drilled in one area, it is possible that there could be cumulative impacts in that area.

6. Determining what impacts there might be from drilling exploratory holes depends on many details, including the drilling procedures and the geologic and hydrologic character of the site.

### **The Forest Service's Analysis of Impacts to Groundwater Hydrology**

7. In its Response to Appeal, the Forest Service responded to Plaintiff's concerns about the unknown impacts to groundwater hydrology from drilling as follows: "No baseline groundwater studies were conducted because there are no expected impacts to groundwater . . . ." CU050755.

8. In my opinion, based on my review of the documents listed above, the Forest Service did not have a sound basis for determining that no impacts to groundwater can be expected.

9. As reported by Mosquito Gold, the 2010 drilling program altered groundwater flow as shown by increased stand pipe flows following drilling activities at higher elevations: "Only a small amount comes from the stand pipe; when we are drilling higher up the hill the flow increases, so there is circulation occurring." Shawn Dykes, Mosquito Gold, CU015944. This statement indicates that there is not a "closed" system; however, the assumption of a closed system appears to be the main basis for the Forest Service's no impact determination.

10. Additional anecdotal evidence was also available from members of the drilling crew who stated during a field trip to the site in 2010 that "the granite here can be so fractured that it was difficult to keep fluids in the well"; another indication that leakage is a common occurrence in this area. Thus, it seems that drilling fluid and water losses during borehole drilling can and do occur at the CuMo site.

11. Due to the presence of existing mines and historical mining wastes, there is a possibility that adding water to the system could increase leaching of arsenic or other chemicals from the surrounding ore bodies or waste piles and increase contaminated groundwater discharge.

12. Therefore, it is my opinion that the Forest Service should have, at a minimum, required a baseline hydrogeologic study that would have examined the

existing data to determine the density and extent of bedrock fractures, the hydraulic conductivity of the local geologic formations, and measured the local groundwater levels to estimate groundwater flow directions before making a determination of no impact. This information would have given the Forest Service some basis for considering whether drilling might impact groundwater hydrology at and near the site.

13. It appears that no surface or groundwater monitoring is anticipated during the core drilling (Plan of Operations, p. 7). In order to more fully understand the local conditions while Mosquito moves forward with the exploration, the Forest Service should have set forth monitoring requirements to document drill fluid losses and to measure seeps and other groundwater discharge at and near the CuMo site. The Forest Service also should have required corresponding mitigation measures aimed at addressing problems that might arise in the event that drilling does alter groundwater hydrology at or near the site.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct. Executed this 13 day of December, 2011, at Boise, Idaho.

/s/  
Kathryn Didricksen