

**EXHIBIT 8**

1 AFFIDAVIT OF DIANE M. STEARNS

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3 I, Diane M. Stearns, residing at 4570 East Flintwood Lane, Flagstaff, Arizona,  
4 86004, declare as follows:

5  
6 I am an Associate Professor of Chemistry in the Department of Chemistry and  
7 Biochemistry at Northern Arizona University in Flagstaff, Arizona. I received my  
8 Bachelors of Arts degree in Chemistry from Carleton College in 1986, and my doctorate  
9 in Inorganic Chemistry from the University of California at Berkeley in 1991. I carried  
10 out laboratory research in metal toxicology at Dartmouth College from 1991 – 1997 as  
11 both an NIH and Hood postdoctoral fellow, and joined the faculty at Northern Arizona  
12 University in 1997 where I have continued my research on the toxicity of heavy metals,  
13 including chromium and uranium.

14  
15 I consider myself experienced in the chemistry, analysis and toxicology of metals.  
16 I have authored 22 peer-reviewed scientific publications in inorganic chemistry and metal  
17 toxicology and have written 5 book chapters on metals in biology. I serve or have served  
18 as an ad hoc reviewer for 18 scientific journals and 4 granting agencies. I have used  
19 several analytical techniques to measure metals in environmental and biological samples,  
20 including inductively coupled plasma mass spectrometry (ICP-MS), inductively coupled  
21 plasma optical emission spectrometry (ICP-OES) and atomic absorption spectroscopy  
22 (AAS).

23  
24 It is my professional opinion based on 15 years experience as an inorganic  
25 chemist and metal toxicologist that air and surface analysis of alpha and beta particle  
26 emission is not capable of accurately measuring the presence of radioisotopes in soil.

27  
28 I have reviewed the Bechtel Nevada Radiological Survey Report Data, Survey  
29 #06-DM-A16-001, carried out on April 25, 2006, from which it has been inferred that  
30 there is no radioactive contamination in Area 16 of the Nevada Test Site. It is my

1 opinion that this survey does not provide an accurate assessment of radioactive  
2 contamination in Area 16 for the following reasons:

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4 1) A hand-drawn map, not to scale, was provided to identify the sites of analysis.  
5 It is not clear from this map if the measurements made were anywhere near the  
6 proposed blast site.

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8 2) On the first page of the report, the table in the upper left corner, 4th column,  
9 states the efficiency for the Electra instrument at 14.7% for alpha particles and  
10 13.5% for beta particles. No data were provided for the efficiency of the Bicon  
11 instrument. Efficiency is defined as the observed counts per minute divided by  
12 the true, or known, decays per minute of a standard, with the ratio converted to  
13 percent. This means that, if there are 100 alpha particles, the Electra instrument  
14 would only register 14-15 alpha counts per minute and 13-14 beta counts per  
15 minute. Another way of looking at it is that if there were 13 alpha counts per  
16 minute and 12 beta counts per minute the Electra instrument could read "zero."  
17 Thus because of instrument inaccuracy, the instrument would err on the side of  
18 obtaining an artificially low reading.

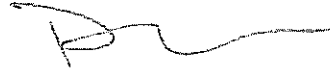
19  
20 3) Lastly, there is no evidence provided to demonstrate that this technique would  
21 actually detect contaminated soil, what scientists would call a "positive control."  
22 For example, can the investigators demonstrate that if they walked over a known  
23 contaminated site their devices would register radioactivity? Without this these  
24 measurements are meaningless.

25  
26 In my opinion a more accurate method would be to take actual soil samples at  
27 known depths and analyze for specific metals and radioactive isotopes with ICP-MS and  
28 ICP-OES. The isotopes that should be analyzed include, but are not limited to,  
29 americium-241, plutonium-239 and -240, cesium-137, strontium-90, and europium-152, -  
30 154, and -155. The samples should be taken from areas within and close to the actual  
31 proposed blast site.

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I declare under penalty of perjury under the laws of the state of Arizona that the foregoing is true to my best knowledge and belief.

Dated this 22<sup>nd</sup> day of May, 2006.



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Diane M. Stearns, Ph.D.