Dr. Milton Glick March 28, 2011
Dr. Marc Johnson
President's Office
University of Nevada, Reno
Reno, NV 89557-001

Dear Sirs:

It has recently come to my attention that budgetary difficulties in Nevada have led to proposals to severely downsize the Nevada Bureau of Mines and Geology (NBMG). I wanted to present a few counter-arguments, in hopes that you may be persuaded to spare the group these drastic cuts. My perspective is driven in part by a successful thirty year career in Earth Science, at both a government lab (JPL/NASA) and the academic environment. I have been very fortunate to be honored a number of times by my peers (Fellow of the American Geophysical Union and Geological Society of America, winner of the 2010 Woolard Award from GSA, Distinguished Lecturer for the American Association of Petroleum Geologists), and currently sit on a number of national and international committees and government advisory bodies. So I feel that I have some perspective on the key issues.

Earth science departments in universities are often under-appreciated by college administrators. The departments tend to be small, and not as visible as, say Biology

Departments or Medical Schools. Few undergraduates take a major in Earth Science, and it is often hard for non-specialists to understand the research done by people in this field. However, one clue that such skill are valuable comes from the research money brought in by earth science researchers; it often eclipses funds brought in by larger departments in a university. These funds come not only from federal research agencies such as NSF, NASA and DOE, but also from industry, especially oil companies. I suspect that closing or downsizing NBMG will result in a net loss of funds rather than saving, including lost research grants, missed economic opportunities, and perhaps most important, huge long term economic losses from improper characterization of man made and natural hazards (more on this issue below). NBMG stimulates economic diversification and development in the State, and protects lives and property from natural disasters.

NBMG is the statewide research and public service unit that serves as the State geological survey. NBMG thus covers the State's needs for geological, energy and mineral resource information and research. I don't have the exact figures, but typically groups like NBMG bring in research dollars that exceed their yearly costs. Thus by cutting or closing NBMG, Nevada could actually lose more dollars than it saves from the cuts.

Most states face an array of natural and man-made environmental hazards that are best dealt with through local experts like NBMG. In addition, Nevada has an abundance of minerals and geothermal potential whose exploitation

requires the kind of support and knowledge that only NBMG can bring to the table.

Let me close by citing what is sure to become an infamous example. Japan is a nation that faces unusually high hazard from earthquakes. Nevada similarly faces such hazards: geological studies tell us that Nevada has experienced very large earthquakes in the past, and will do so again. A professional group experienced in this arena can do a lot to mitigate such hazards, through quantifying risk, assessing past and present earthquake activity, predicting the likely maximum size of future earthquakes, and stating with reasonable certainty the location of major active faults, the likely locus of future events. These are critical data as one develops building codes for earthquake resistance

In Japan's case, scientists were in the process of developing an updated earthquake hazard map. Such maps get translated into specific codes for mitigation. In 2003, Japanese scientists identified key tsunami deposits that indicated much higher earthquake hazard in northern Japan than had been previously considered possible, certainly much higher than thought possible when the Fukushima-Daiichi nuclear plant was being developed forty years ago. Unfortunately, this information was not communicated effectively to key people.

We cannot prevent or predict disasters, but it seems to me that recent experience requires that we maintain robust earth science and natural hazard research and development groups, to mitigate the effects of disaster and minimize

risk.

Sincerely
Timothy H. Dixon
Professor,
University of South Florida