JIM GIBBONS
Governor

STATE OF NEVADA

ALLEN BIAGGI
Director

TRACY TAYLOR, P.E.
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES
901 South Stewart Street, Suite 2002
Carson City, Nevada 89701-5250
(775) 684-2800 • Fax (775) 684-2811
(800) 992-0900 x 2400
(In Nevada Only)
http://water.nv.gov

February 12, 2009
The Honorable Harry Reid
522 Hart Senate Office Bldg
Washington, DC
20510

RE: Funding support for NASA's Thermal Imager in the American Recovery and Reinvestment Act

Dear Senator Reid:

I am writing to ask that you support funding for a thermal infrared instrument on the next Landsat Satellite. This funding item for NASA is currently in the American Recovery and Reinvestment Act, however, currently there is no language in the bill or committee report specifically directing NASA to fund the thermal imager so this item can be retained. The thermal infrared sensor onboard the Landsat satellites is a critical component to measure water consumption. The Landsat satellites are the only operational satellites that provide the high resolution images (30 meter by 30 meter pixel size) necessary to measure water consumption from individual agricultural fields.

Deriving water consumption maps derived from Landsat are an important part of water management by the Nevada Division of Water Resources, which has been initiated through collaborative projects with the Desert Research Institute and other researchers, and funded though federal initiatives. The Landsat thermal sensor can provide critical information on Nevada's water resources because it provides the only efficient and accurate way to map how much and where water is being consumed. This technology is extremely useful for addressing the challenges brought about by the current and future water issues in the eastern Nevada, and the Truckee, Carson, and Walker River basins.

The present satellites, Landsat 5 and Landsat 7, could fail at any time. Landsat 7 has already malfunctioned and Landsat 5 is 25 years old – more than 20 years beyond its design life. Because of decisions made in the late 1990s, it is possible that NASA will build the next Landsat system, called the Landsat Data Continuity Mission (LDCM) without a thermal infrared instrument. If we and other western state and federal water agencies are to be able to map water consumption, the LDCM must have a thermal infrared instrument on board.

Thermal data are important not just to Nevada, but to all western states. Idaho, Wyoming, Montana, Colorado, New Mexico, Nebraska, North Dakota and South Dakota are all actively using Landsat thermal data in water management, prompting 12 western senators to write to Senators Byrd, Cochran, Mikulski, and Shelby in 2007 and again in 2008, asking for an appropriation to fund a thermal instrument on the LDCM.

Without both funding and directive for NASA to build the thermal instrument, we will lose high-resolution thermal imaging for at least the foreseeable future. NASA is willing to include the thermal sensor on LDCM, but cannot fund the instrument internally. NASA needs a total of about $90 million over FY09, FY10, and FY11 ($30 million per year) to design and build the thermal instrument on the upcoming LDCM satellite, which is now scheduled for launch in January of 2012. NASA has designed the LDCM with enough free space and spare electrical power to accommodate a separate thermal instrument without any change to the satellite.

Thank you for your attention.

Richard Felling
Chief, Hydrology Section
Nevada Division of Water Resources