STATEMENT OF
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ON THE FY 2006 BUDGET FOR THE
WATER DIVISION OF THE U.S. GEOLOGICAL SURVEY
BEFORE THE
HOUSE RESOURCES COMMITTEE
SUBCOMMITTEE ON WATER AND POWER

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Good morning, Mr. Chairman and Members of the Subcommittee. Thank you for the opportunity to speak with you on behalf of the U.S. Geological Survey (USGS) regarding our scientific contributions to the stewardship of the Nation's water resources.

I come before you today to present the Administration's proposal for the budget of the USGS for fiscal year (FY) 2006. This budget emphasizes core USGS science programs that focus on water resources and water availability, natural hazards, biology, information technology, and projects that support science on the Department of the Interior (DOI) landscape. The President's FY 2006 budget request for USGS is $933.5 million in current appropriations, a decrease of $1.9 million from the FY 2005 enacted level. The FY 2006 President's budget preserves the Survey's scientific excellence in providing research results and resource monitoring data in the earth science fields of geography, geology, biology, and water.

National Assessment of Water Availability and Use

The availability and use of freshwater is central to the health and growth of the Nation's economy and to its environment. The public and decision makers are concerned about water availability now more than at any other time in the last half century. Yet, the General Accountability Office (GAO) reported in 2003, "National water availability and use has not been comprehensively assessed in 25 years." Much has changed over that time: competition for water has increased, new sources and technologies have been developed, resources have been depleted in some areas, and climatic variations have forced changes in the Nation's streamflow. Water use overall, however, has remained stable. High quality, consistent and timely information is needed to help citizens, businesses, and government plan for the future.

In 2005, the National Assessment of Water Availability and Use (Water Availability) program began a $1.2 million pilot study in the Great Lakes Basin and related research and methods development. The President's FY 2006 budget requests additional funds to extend the effort to the western United States through a pilot effort to display and analyze information to characterize changes in ground-water availability in large regional aquifer

systems. These new efforts build on a base of research and monitoring efforts across the USGS and many other Federal, State, and local agencies.

The pilot efforts underway this year and proposed increases in these efforts in FY 2006 will help the USGS develop the approaches needed to provide citizens, communities, and natural-resource managers with:

- a clearer knowledge of the status of the Nation's water resources (how much water we have now);
- trends over recent decades in water availability and use (how water availability is changing); and
- an improved ability to forecast the availability of water for future economic and environmental uses (how much water will we have in the future).

Reports from the studies will include:

- historic trends and annual updates of river basin inflows, outflows, and reservoir storage;
- summaries of ground-water reserves and storage changes;
- improved measurements and estimates of undeveloped potential resources (saline water, irrigation return flows, etc.); and
- estimation of water withdrawals from surface water and ground water by key sectors (irrigation, domestic use, industrial use, etc.).

As with all USGS activities, products will be Web-accessible and enable a broad range of users to extract information relevant to their needs.

In this program, USGS is developing and documenting new approaches to assess surface-water and ground-water conditions, such as use of coupled ground-water and surface-water models for basin-scale analysis, and new methods to estimate consumptive use for key sectors of water withdrawal.

FY 2006 WATER RESOURCES PROGRAM OVERVIEW AND PRIORITIES

The FY 2006 budget for the USGS Water Program proposes $204.2 million to continue work on issues related to water availability, water quality, and flood hazards. This budget proposal represents an increase of $400,000 for a broad multi-State effort on assessment of ground-water depletion as a part of the new USGS Water Availability Program. The budget proposes a decrease of $6.4 million that eliminates USGS funding

for the 54 State Water Resources Research Institutes. These Institutes generally have been successful in obtaining other sources of funding and should be able to support themselves. The FY 2006 budget includes decreases for many of the projects included in the FY 2005 appropriation that were not requested by the Administration, and includes increases for all base programs to cover the anticipated increases in pay and facilities costs so that these programs can operate at current levels of effort next year.

USGS Streamgaging Network

For over a century, the USGS has played a key role in monitoring the flow of our Nation's rivers. The USGS now operates over 7,000 streamgages nationwide. This constitutes over 90 percent of the streamgages in the Nation that provide daily streamflow records accessible to the public. During the 1990's, funding problems (in the USGS budget and in partner agency budgets) were causing the USGS to discontinue operations at about 2 percent of its long-term streamgages each year. (These are streamgages with 30 or more years of record which makes them highly useful for engineering design and scientific analysis.) In addition, in some States, changing priorities of funding partners led to the discontinuation of streamgages that were vital to the flood forecasting functions of the National Oceanic Atmospheric Administration's (NOAA) National Weather Service (NWS). The USGS has worked closely with Congress and made considerable progress modernizing the network.

There are two programs in the USGS budget that support streamgaging. One is the Cooperative Water Program, which funds many streamgages, but does so with requirements for matching funds from State or local agencies. The other is the National Streamflow Information Program, which funds a part of the national backbone and supports the on-going modernization and improvement of streamgaging. Funding levels in the FY 2006 proposed budget for these two programs include increases of about 2.5 percent. These increases will enable the USGS, working with our 800 streamgaging partner agencies, to maintain streamgages vital to long-term science and engineering work, flood warning, and river operations.

One of the strengths of the USGS streamgage network is that it can provide, at any point in time, a snapshot of the current hydrologic conditions across the country. This snapshot can be seen on the internet at our Waterwatch site (http://water/usgs.gov/waterwatch/) which is updated every 15 minutes with the most current information from across the Nation. For example, hydrologic conditions in the West are varied at the present time. Specifically: the Pacific Northwest is in exceedingly dry condition while California and the southwest are seeing some of the highest river flows ever recorded for this time of year. These data on drought and floods are fundamental to the forecasts produced by the NWS and are used extensively by operational agencies such as the Bureau of Reclamation and Army Corps of Engineers.

Floods

Floods are among the most frequent and costly natural disasters. Lives are lost and damages amount to more than $5 billion annually. Three fourths of all Presidential disaster declarations are related to floods. Flood warnings and river-level forecasts are essential tools for reducing death, damage, and disruption from floods.

The NWS issues flood watches and warnings. Streamflow data from the USGS streamgaging network is crucial to the NWS forecasting mission. USGS streamflow information provides the historical and current flow data needed to calibrate NWS models and to assure that NWS forecasts stay on track with developing conditions.

Flood watches and warnings require USGS real-time streamflow information. During the flood of January 2005, in the Wabash River Basin, Indiana, early field confirmation by USGS streamgages of serious local flooding gave NWS the confidence to state that the flood event would be unlike any flooding that had previously occurred in southern Indiana and eastern Illinois. These watches and warnings are disseminated rapidly and broadly through both the public and private communications channels.

Federal, State, and local agencies also use real-time USGS streamflow data to prepare their own operational forecasts for flood-control reservoirs, river levees and evacuation routes. Getting the streamgage information to these partners requires modern hydrologic instruments coupled with national computer and communication infrastructures, NOAA/Geostationary Operation Environmental Satellites (GOES) satellite telemetry, and a staff of trained hydrologic technicians to calibrate and maintain these instruments.

While NWS has the statutory responsibility for issuing flood watches and warnings, the USGS real-time streamflow information supports this activity. We have made several innovations recently to improve the timeliness and quality of USGS information used by public and private entities to reduce flood damages and loss of life. These innovations include use of acoustic and radar monitoring devices, increasing frequency of data transmission, and sharing of streamgage calibration curves over the Internet.

Landslides

Landslides and ground failures, whether induced by rainfall, volcanoes, or earthquakes, impact every State. The capability to provide advanced warning of increased landslide risk now exists. Warnings require accurate rainfall thresholds and a good understanding of landslide travel distances to determine possible impact. First we study susceptible geographic regions as determined by geology and topography. Probable landslide paths and travel distances are determined to identify possible landslide hazards. For example, we specify areas where landslides have a high probability of impacting roads and buildings. Advanced weather forecasts are combined with threshold models to evaluate whether landslides are likely to occur within regions susceptible to landsliding.

Real-time monitoring of rainfall and site measurements of rising ground water and initial slope movements near landslide sources all provide critical information for issuing immediate public warning of landslide hazards. USGS scientists have issued advisories of potential landslides to the NWS, California Office of Emergency Services (OES), other State and Federal agencies, and the public–three times in the past month and as recently as February 15. The San Bernardino County Sun and other local newspapers have used these advisories in crafting news articles alerting their readers to the possibility of landslide occurrence and instructing their readers on ways to protect themselves.

USGS CORE SCIENTIFIC RESPONSIBILITIES

The year 2004 was one of extreme natural hazards. To prepare for these events and to reduce the risk to the public, we continue to improve hazard assessments, monitoring, warnings and predictions that allow people to take actions that save lives, protect property, reduce business disruption, and speed recovery. The FY 2006 President's budget emphasizes not only the response to these natural hazards, but the core USGS science programs that focus on water resources and water availability, biology, geology, geography, information technology, and projects that support science on the DOI landscape.

The FY 2006 budget emphasizes not only the response to these natural hazards but the core USGS science programs that focus on water resources and water availability, biology, information technology, and projects that support science on the Department of the Interior (DOI) landscape. The FY 2006 USGS budget request is $933.5 million, a decrease of $1.9 million from the FY 2005 enacted level.

The President's FY 2006 budget provides $208.1 million for the Geology programs. This budget request provides opportunities to address several critical program needs related to monitoring natural hazards and mitigating their impacts. Most significantly, the Administration requests $5.4 million for the USGS to install and maintain additional seismic monitoring stations to serve the dual purposes of supporting development of a global tsunami warning system and enhancing earthquake monitoring and warnings. The FY 2006 budget also includes increases for seismic monitoring and maintains funding for the Advanced National Seismic System (ANSS), which provides accurate and timely information about earthquakes and their effects on buildings and structures using modern monitoring methods and technologies. The Administration has requested $8.1 million as part of the 2005 emergency supplemental funding request for the USGS to begin procuring and installing additional seismic monitoring stations and to enhance the existing seismic monitoring network for tsunami detection.

Increased volcanic unrest in several U.S. volcanoes has prompted the Administration to request additional funding to expand monitoring at the volcanoes most threatening to American lives and property. The $864,000 increase in volcano monitoring will be used to complete modernization of the Mount St. Helens monitoring network and improve the monitoring capability at other Cascade volcanoes, as well as expand monitoring in the Northern Mariana Islands. A $500,000 increase is proposed to begin investigating the

nature and extent of geothermal systems capable of producing electric power and provide assessments of geothermal resources in the western United States. It is essential that we look at potential ways to provide for the growing energy requirements of the West.

To provide resources for other Administration, Interior, and USGS priority efforts and to support the Administration's plan to reduce the Federal deficit by half by 2009, the FY 2006 budget request includes a proposed reduction in the Geology program of $29.8 million for selected individual projects and lower priority mineral resource efforts. This reduction will terminate the collection of nationwide basin geologic and mineral deposit data, the internationally coordinated global mineral resource assessment, many mineral commodity reports, and will eliminate approximately 240 FTE within the USGS. The $25 million remaining in the program will continue funding for minerals surveys and studies relevant to ongoing Federal energy, land management, regulatory, and remediation activities more oriented to the interests of States, local governments, and universities, all of whom are significant users of information generated by the Minerals Resources Program. The expertise exists at various universities and State geological surveys to continue minerals work brought to an end with this reduction.

The Science Impact program integrates USGS science in decision-making. The FY 2006 budget proposes an increase of $250,000 to integrate earth science and social sciences to inform the decisions relating to western water issues.

The FY 2006 budget for the Geography programs proposes $133.3 million for mapping, remote sensing, and geographic investigations. This request includes an increase of $6.0 million necessary to continue operations of Landsat 7, which provides medium-resolution imagery to the Nation. This increase will ensure the continued availability of Landsat data and provide the necessary resources for data reception, processing, and archiving. As part of the budget proposal to provide a long-term solution to the funding shortfall problem with Landsat 7, due to the failure of the scan line corrector, the USGS will propose a reprogramming in FY 2005 to cover this year’s anticipated shortfall in revenue. The USGS reprogramming request will redirect proposed working capital fund contributions in FY 2005 to the Land Remote Sensing program. In FY 2006, $6.0 million will replace the working capital fund contributions that are redirected in 2005. The budget also proposes an increase of $7.5 million to enable USGS to begin system development, in collaboration with NASA and NOAA, to ensure data distribution for the Landsat Data Continuity Mission (LDCM) to be launched in 2009.

The FY 2006 budget requests $172.9 million for the Biology programs to find solutions for and to assist in the mitigation of biological resource problems facing Federal agencies and State, local, and Tribal governments. This request includes an increase of $250,000 to continue ecological systems mapping by building on existing partnerships; an increase of $252,000 to focus on deepwater fisheries research in the Great Lakes; and $300,000 for research on invasive species including tamarisk in the Rio Grande Basin, Brazilian pepper tree research in South Florida, and leafy spurge in the Northern Great Plains. The FY 2006 budget also provides an increase of $750,000 to develop and refine fisheries assessment models, provide habitat information for the endangered humpback chub, and

support experiments on non-native fish removal in Grand Canyon National Park near the confluence with the Little Colorado River. This work will support the work of the Glen Canyon Adaptive Management Work Group.

The FY 2006 budget request supports the Administration's commitment to strengthen science support to the Department's land and resource management bureaus by proposing a $750,000 increase for science on Interior lands. This will provide funds for enhanced earth and biological science to meet the needs of Interior's bureaus, with cost-sharing and partnership emphasis. Some of the study areas will include coal bed methane and Mancos shale landscapes in the northern Front Range of the Rockies; geologic and hydrologic processes in the Lower Colorado River basin; habitat assessment for the entire North Slope region of Alaska; and ecosystem sustainability studies in the East.

The FY 2006 budget proposal for the Enterprise Information Program is $47.8 million. A proposed increase of $1.1 million will focus on improving IT security and is part of a DOI-wide certification and accreditation activity. This proposal also reflects an increase of $1.2 million to deploy the Enterprise Services Network to provide secure, state-of-the-art internet and intranet connections that will be used by the entire Department, and will provide a secure standardized efficient 24/7 operation.

Science and Technology in Support of Fresh Water Availability, an Interagency Perspective

On February 14, the Office of Science and Technology Policy released a report prepared by the Committee on Environment and Natural Resources, Subcommittee on Water Availability and Quality, which I chair, entitled "Science and Technology to Support Fresh Water Availability in the United States." (The report is available online at: water.usgs.gov/owq/swaq.pdf .) This report summarizes problems facing the Nation in terms of quantifying its water supply and water use, and begins to address the variety of solutions needed. The report reflects the input of 15 Federal agencies that are involved in water science and technology. These agencies have been participating in the Subcommittee since it began in 2003. The next step is for the Subcommittee to develop a strategic plan for Federal science and technology related to water availability and quality. This plan, which is already under development, is to be completed this year.

Research and development can help the Nation make the decisions needed to ensure there will be sufficient water available to support our growing population, foster economic growth, and support the quality of our aquatic ecosystems. Topics of importance across the water science and technology community include the following:

- Improving the understanding of the role that ground-water depletion plays in determining the future flow of our Nation's rivers;
- Understanding how river flow influences the quality of aquatic and riparian habitat so we can ensure that rivers are managed for the benefit of people and the natural environment;

- Understanding how recent changes in climate influence snow pack, soil moisture and the timing of river flows; and
- Understanding processes that determine the effectiveness of a variety of new technologies designed to stretch our Nation's supply of freshwater – for example: desalinization, water reuse, and aquifer storage and recovery.

The Subcommittee on Water Availability and Quality will address these topics by focusing on the primary federal roles: identify needed research, coordinate existing federal research, coordinate data collection and monitoring, provide data collection and reporting standards, and issue clear guidance to agencies as to what is and is not appropriate for federal participation based on the administration's R&D criteria.

CONCLUSION

The public depends on USGS for scientific information they need to make decisions. Our data collection has progressed from using picks, pack mules, and wagon trains to using remote sensors with real-time data access and satellite-transmitted measurements. We will build on this tradition to provide the American people and the world a wealth of data, long-term scientific understanding, and scientific tools that serve the needs of the American people.

I will be pleased to respond to any questions you may have.