Framework for a Special Study on Water Supply On the Henrys Fork of the Snake River Basin

Henrys Fork of the Snake River: The Henrys Fork of the Snake River includes the north fork upper Snake River, Fall River and Teton River watersheds. The Special Study area is upstream of the confluence of the Henrys Fork and Snake River. Key study area characteristics are approximately:

- Watershed area - 3,300 sq. mi.;
- Irrigated area - 235,000 acres;
- Population - 40,000; and
- Length – 120 miles (main Henrys Fork).

Background: The Snake River is the lifeblood of the Idaho economy; there are more than 20 Federal reservoirs and 10 major private reservoirs in the upper Snake River basin which extends from Jackson Lake in Grand Teton National Park, Wyoming to Brownlee Dam near Hells Canyon National Recreation Area on the Idaho/Oregon border. The Snake River flows more than 700 miles through southern Idaho and drains more than 72,000 square miles that includes land and tributaries in Wyoming, Idaho, Utah, Nevada and Oregon. By the mid 1900s the Federal water development projects above Milner Dam were providing full or supplemental water supply to over 1 million acres of irrigated land. Additionally 1.4 million acres of privately developed lands were being irrigated with natural flows from the Snake River and its tributaries or ground water from the Eastern Snake River Plain Aquifer.

Water Resource Needs: The Henrys Fork flows into the Snake River and partially overlies the Eastern Snake River Plain Aquifer (ESPA). The State is interested in water supplies from the Henrys Fork and its tributaries to help improve water supply conditions in the ESPA and Upper Snake River Basin in accordance with the ESPA Comprehensive Aquifer Management Plan (CAMP). The Henrys Fork and Teton Rivers are nationally renowned for fishing and environmental qualities and the environmental community is interested in protecting and improving the quality of the rivers and habitat in the study area. Additionally, the local water users in the Fremont Madison Irrigation District (FMID) are short on water supplies in the late summer and in dry years to meet agricultural needs.

Study Objectives: The objectives of this Special Study are to assist future planning efforts and to provide specialized information that contributes to future decision-making processes at the state and local levels. This Special Study will identify opportunities for:

- the development of water supply;
- improvement of water management; and
- sustaining environmental quality.

More specifically the Special Study will focus on:

Water Supply/Storage: An analysis of water supply/storage will involve an identification and evaluation of watershed hydrology and potential on-stream and off-stream storage sites. The evaluation of storage sites would proceed further than the January 1994 Snake River Basin Storage Appraisal Study. The Teton Dam storage site will be evaluated using cost indexing procedures applied to the *Teton Dam Reappraisal Working Document (Bureau of Reclamation, Boise, Feb. 1991).* Known or identified changes post 1991 that may affect the feasibility of replacing Teton Dam will be analyzed and documented.

Water Conservation/Optimization: Water conservation/water optimization opportunities within the FMID will be evaluated. Due to the size and complexity of FMID, evaluations may be confined to selected sample areas within the watershed.

Study Process: Figure 1. Is a graphical representation of the Special Study framework.

- Develop and utilize a stakeholder working group to participate in the study process, help develop and apply screening criteria where appropriate, evaluate study products and provide input into study scope. State and Reclamation will coordinate with local watershed interests to facilitate stakeholder participation.

- In collaboration with the stakeholders, the State and Reclamation will conduct a review of historic and current information and likely impacts of climate change. The focus will be on the availability, characterization, and quantification of the natural hydrology of the basin. This will include seasonal volume of runoff and stored water available, surface water-ground water interactions, irrigated agriculture areas, in stream and out of stream water uses, irrigation water distribution facilities and their operation, and the current characteristics and quality of riparian habitat.

- The information developed will be used to identify and evaluate various alternatives for water supply including storage (above ground and aquifer storage), and non storage options (conservation measures and water management). Identified alternatives will be developed in accordance with the Idaho Water Resource Board's managed aquifer recharge program and the goals of the ESPA CAMP, and will be evaluated with consideration to environmental impacts to the basin.

- These efforts will proceed simultaneously and provide a range of basic information that may be used in making informed decisions, in a collaborative stakeholder process.

Study Work Plan: A detailed work plan, including staff requirements, tasks, and schedules will be completed subsequent to the scoping process. See Figure 1.

Study Authorization/Timing: Primary authorization for study funding is provided for in the State of Idaho Senate Bill No. 1511 and the US Bureau of Reclamations Geographically Defined Planning Program. Further funding will be pursued through the *Secure Water Act – WaterSMART program*. The Henrys Fork Special Study is a two year study.

Henrys Fork Special Study Figure 1 – Framework