MEMORANDUM

TO: Water Resources Commission

FROM: Barry Norris and Dwight French

SUBJECT: Agenda Item I, February 14, 2003
Water Resources Commission Meeting

Overview of Department Activities in the Klamath Basin

I. Issue Statement

This report provides an overview of the Department's on-going activities in the Klamath Basin. *This is an informational report only; no Commission action is required.*

II. Discussion

A. Ground Water Studies

Klamath Basin Cooperative Ground Water Study

The Department is cooperating with the U.S. Geological Survey (USGS) in a basin-wide, comprehensive ground water study that will provide the data and tools necessary to make hydrologically sound water management decisions. The project was initiated in 1998 and should be completed in the fall of 2005. Current activities include periodic ground water data collection at approximately 170 well sites; development of a geologic framework report; precipitation gaging and recharge modeling; development of ground water use data; and development of a conceptual model of the co-joined ground water and surface water system.

Over the next thirty months these activities will continue and the resultant products will be incorporated into a mathematical model of the ground water/surface water system. The model will allow simulation of various water development and management plans to determine impacts on surface water supplies and on the ground water resource. By using this tool, the Department will be able to identify where additional ground water

development can occur, how the ground water resource can best be utilized, and what surface water effects may be associated with such development.

Shasta View Irrigation District Project

The ground water demonstration project within the Shasta View Irrigation District began in 1998 with funding supplied by the Bureau of Reclamation (BOR). The project was designed to investigate options to increase water supply in the Klamath Basin through development of the ground water resource.

The district irrigates over 4,700 acres from the Bureau of Reclamation's D Canal using a pressurized pipe delivery system. There are numerous irrigation and domestic wells in the vicinity of the district. Most of the vicinity wells penetrate an aquifer developed in basalt rocks, but several develop an overlying sedimentary aquifer. Some of the irrigation wells are capable of producing greater than 2,000 gallons per minute (gpm). Regular monitoring of static water levels at about 40 of these wells has continued since 1998.

A long-term test was designed and conducted during the 2001 irrigation season. Over 900 acre-feet of water was pumped from a deep basalt well within the district during the 165-day pumping phase of the test. Water levels were closely monitored. Water-level recovery data was collected through October 2002. Using the test data, Department staff concluded:

1) Pumping by the Tulelake Irrigation District immediately south of the border in California affects ground water supplies in the Shasta View District;
2) The deeper, more prolific basalt aquifer is hydraulically connected to the overlying sediments;
3) Interference effects spread rapidly throughout the basalt aquifer which was tapped by the test well;
4) Ground water probably cannot be used as a full replacement for surface water within the district without generating long-term water level declines and overdraft;
5) Ground water can be used as a supplemental source to make up deficiencies in years when surface water is in short supply as long as the resource is allowed to recover in the years of normal or above normal precipitation;
6) Any significant use of ground water in lieu of surface water will probably result in a number of domestic well interference complaints; and
7) Canal leakage is a significant factor in recharging ground water.

A final report is available for review.

New Ground Water Demonstration Project

Department staff are researching another ground water demonstration project that may be funded with additional Bureau of Reclamation funds. The purpose is to evaluate the ability of ground water to replace surface water irrigation. Staff are collecting ground water data generally south and southeast of Klamath Falls to identify another site for a long-term test. Several sites will be evaluated and a preferred site is to be identified by the end of June 2003. Once a site has been selected, a plan will be developed for a detailed testing process. Funds from the BOR are limited to development of the plan.

Klamath Ground Water Monitoring Activity

There are twenty long-term observation wells in the Klamath Basin. These wells have been monitored quarterly by Department staff, some having in excess of 40 years of record. With this information, staff can track long-term water level trends including the decline and recovery from drought. Additionally, Department staff and USGS staff have installed water level recorders in nearly 30 wells in the basin in order to gain detailed information about aquifer response to precipitation and thaw events. These recorders have been installed for approximately 18 months and will remain in operation for at least another year. These recorders give staff important information about the correlation of precipitation with recharge, the impact of canal operation and irrigation on recharge, and the impact of ground water use on water levels and storage.

Approximately 120 additional wells have been established as observation points for the cooperative study described above. These are measured quarterly to establish short-term trends. While quarterly measurements do not provide the detailed information obtained from automated recorders, the general shape of the annual hydrograph can be estimated using data from the nearby wells with recorders.

Monitoring has been essential in documenting aquifer response to dry periods, precipitation events, spring thaws, canal leakage, irrigation practices, return of normal precipitation following drought, and interference effects from pumping wells. The response to the early 1990s drought is of particular interest. Precipitation returned to normal by the mid ‘90s, but aquifer water levels were still recovering when the 2001 drought occurred. It is also noteworthy that increased pumping and decreased recharge during 2001 resulted generally in a large and sudden down-turn in ground water hydrographs. Full recovery has not yet occurred.

Lost River Subbasin/Bonanza Ground Water Study

Staff are completing a draft Lost River Subbasin ground water investigation report for peer review. The draft results of the investigation indicate:

1. The most productive wells tap ground water in a basalt aquifer;

2. Ground water within thick valley sediments is hydraulically connected to ground water in the deeper basalt;

3. Most ground water levels rise during the winter, peak in the spring, and decline during the summer to bottom-out in September. An exception is the Lorella area southeast of Bonanza where canal leakage causes ground water levels to rise in the summer and fall during the winter;

4. Ground water in some locations is hydraulically connected to the Lost River with most discharge occurring at Bonanza Big Springs and springs in western Poe Valley. The area where ground water is directly connected with Bonanza Big Springs extends from Keller Bridge (about 4 miles southeast of Bonanza) to nearly all of Yonna Valley (north and west of Bonanza); and

5. Springs within the subbasins are related to faults within the valleys and changes in permeability between rock layers exposed in surrounding uplands. Ground water level measurements continue on a quarterly schedule in cooperation with the Department/USGS Upper Klamath Basin cooperative ground water investigation.

Review of the report is tentatively scheduled for January 2003. Following peer review, the Department will concurrently draft the final report, determine the status of the Bonanza area five-year permits, share the results with ground water users and interested parties at public meetings, and solicit feedback. A final report is tentatively scheduled for March 2003. In the meantime, the Department has been sharing its understanding of the ground water system and conducting additional field work.

B. Well Construction Activities

The Department has funded or expects to fund approximately $1.2 million for wells in the Klamath Basin Project. These funds were authorized by the 1999-2000 Legislature and are intended to provide supplemental water for irrigation. A total of 11 projects have been identified. Two projects have been completed, one is under construction, and three have agreements pending final approval. The other five projects are developing final proposals.

C. Klamath Drought Plan

For the last 18 months the Department has been working on a 2001 water year drought report for the Klamath Basin. The report is being funded by BOR and contains considerable information about water use in the basin, how the 2001 drought affected users, and specific recommendations on how basin area water interests might prepare for future drought emergencies.

A draft report was completed last November and circulated among Department staff for review. Comments from staff have been incorporated and the draft is being submitted to BOR for their review. When BOR is satisfied with the report, the report will be circulated among local government and water interests in the basin for their comments. We anticipate a final report by July that will be submitted to the BOR for their final approval.

D. Water Right and Adjudication Activities

Klamath Adjudication

The general stream adjudication of the Klamath Basin began in 1975 and has been delayed several times due to lawsuits. Water use claims were filed in 1990-1991 and again in 1997. A total of 728 claims were filed during the claiming periods. In October 1999, the Department released a "preliminary evaluation" of the 728 claims received. A period for open inspection began in November 1999 and continued through the end of March 2000, which allowed interested persons to view the claims and evidence submitted. The contest period began in April 2000 and closed on May 8, 2000. During the contest period, 5,664 contests were filed against 673 of the 728 claims and/or the preliminary evaluation of those claims.

The Department is now engaged in resolving the 5,664 contests through alternative dispute resolution and a series of contested case hearings. Since the beginning of the administrative hearing phase in early 2002, 74% of the contests filed (4,187) have been resolved. By far, the majority of contests have been resolved through mutual settlements.

The Department has three FTE currently dedicated to this program and has two FTE in the Governor's recommended budget for the next biennium. A number of Department of Justice attorneys and several Central Hearing Panel hearing officers are also engaged in the adjudication process.

Once the contests are heard or otherwise resolved, the Basin Adjudicator will consider the determinations from the Administrative Hearing Officer along with any exceptions filed and issue findings of fact and an order of determination on the claim(s). The findings of fact and orders of determination will then be sent to the Circuit Court in Klamath County for review and ultimately a court decree will be issued.

Klamath Tribes Water Negotiations

The Klamath Tribes were required to file claims to their reserved water rights as a part of the Klamath Basin Adjudication. In addition, the United States, as trustee, was required to file claims for the Tribes and their members. The Tribes approached former Director Pagel in mid-1996 suggesting that negotiation of the Tribes' reserved water right, similar to the Warm Springs negotiations, would be preferable to protracted litigation in the Klamath Basin Adjudication. Given that the Tribes are a claimant in the Klamath Basin Adjudication, the Department was advised that it was not legally possible for the State to enter negotiations with the Tribes under the Warm Springs model. However, former Director Pagel did agree to initiate an alternative dispute resolution (ADR) for settlement of Klamath Basin Adjudication claims in general. The ADR began in September of 1997, and held regular monthly meetings through September 11, 2001.

In addition to the Tribes' active participation in the ADR, the Tribes entered separate settlement discussions with a variety of Klamath Basin Adjudication claimants and contestants. These discussions seemed to be earnest and productive for all parties. However, one of the challenges during the early years of the ADR and other parallel discussions was the need for the federal parties to fully engage in meaningful discussions concerning settlement of the Tribes' claims.

Beginning about a year ago, the U.S. Secretary of the Interior elevated the level of the federal participation in the tribal settlement effort. She appointed a top-level program representative (William Bettenberg) to pursue resolution of the "complex land, water, fish and wildlife and other resource concerns of the Klamath Tribes." The time frame of the settlement effort will coincide with the tenure of the President's Klamath River Basin Working Group initiative, which is scheduled to end in September 2003. The group hopes to be able to begin discussions with constituents on potential settlement proposals by mid-winter 2003.

City of Bonanza Water Supply Planning/Bonanza Hydrologic Study

The U.S. Corps of Engineers (Corps) has initiated Phase I of a study of the operation of the Lost River and the associated relationship to the Bonanza Springs and use of ground water by Bonanza residents. The residents of the Town of Bonanza (Town) have individual wells that draw from an aquifer that is hydraulically connected to the Lost River via Bonanza Big Springs. The Horsefly Irrigation District (HID) impounds the Lost River from April through September to operate diversion pumps above and below the Town. HID operations, in conjunction with other factors and climatic conditions, can adversely influence the quality of water in the Town's aquifer. Domestic wells near Bonanza Big Springs can become contaminated when the ground water elevation drops below the river elevation at Bonanza Big Springs.

As previously reported to the Commission, the Corps is performing an independent study in an effort to define the various issues related to management of Lost River diversions and use of ground water by Bonanza residents. In October and December, Corps engineers met with OWRD staff and USGS staff to discuss our ground water investigations, and to obtain all the data and analyses we have assembled. They have inventoried the data, identified data gaps, and arranged the data in a manner that will facilitate their study.

Additionally, Corps engineers have developed an inventory of diversion structures and delivery systems, defined data gaps, and developed a database of all available information. This process was supplemented with site visits. A report is expected in February that will recommend how Phase II of the study might proceed and potential funding options. It is expected that considerable state and local participation will be needed to complete Phase II.

Phase II will include collecting the additional data that were identified as needed in Phase I, a technical study of a community water system for Bonanza, the potential for changing the operation of Horsefly Irrigation District, and the range of environmental consequences associated with changes in the flow at Bonanza Big Springs.

Hog Farm in Bonanza/Malin Area

There has been some discussion over the past couple of years about a potential expansion of a recently developed hog farm in the area between Bonanza and Malin. The farm is owned by Masami Foods, Inc. Masami Foods is owned by Mr. Masami Ishida of Osaka, Japan, who began operations in Klamath County about 10 years ago. Masami Foods processes beef and pork products mainly from Northwest ranches, chiefly for export to Japan. The hog farm property is located about halfway between Bonanza to the north and Malin to the south. This property has two wells that serve certificated irrigation water rights. On June 24, 2002, a permit was issued to Masami Foods for 0.067 cubic foot per second (cfs) for industrial use at the hog farm. This permit has a priority date of November 22, 2000.

Pending Application Status: COB Energy Facility Near Bonanza

COB Energy Facility submitted an application to the Department on April 29, 2002 (Application G-15757) for 16.7 cfs for industrial use and 0.2 cfs for irrigation of up to 16.0 acres. The application identifies three potential wells for the development. The applicant proposes to operate a gas fired energy facility that needs water for plant construction, operation, maintenance, and irrigation of grounds adjacent to the plant. An initial review was issued on July 12, 2002. The applicant then placed the request on

administrative hold until early March 2003 to complete an aquifer test. The test was completed, and the results are being reviewed by Department staff.

The applicant believes that the aquifer test shows that water from a deep well is not connected to other nearby wells or adjacent surface water. The Department is concerned that there may be a connection and that conditions should be placed on the permit, if one is issued, to eliminate or minimize the risk of injury to existing water right holders and provide contingency mitigation measures. Area residents are concerned about the impacts of the water use on their wells and would prefer that no new uses be allowed in the area until the results of the Bonanza Ground Water Study are finalized this spring.

Continued Review of Permitting Activity

In July 2002, the Department held a meeting with the organizations that submitted a petition to initiate rulemaking to close the Klamath Basin to further appropriations. At the meeting, staff shared in-depth information from the Department's ground water investigations in the Klamath Basin and discussed past and current ground water and surface water permitting activities. Staff continue to evaluate past permitting actions and pending applications to consider whether some adjustment in permitting strategy is appropriate given all the interests that need to be served in the Klamath Basin.

Staff are also continuing development of a primary/supplemental ground water use database for the basin to evaluate whether "new" ground water uses are for irrigating "new" lands or for adding flexibility to existing water rights. Preliminarily, it appears that most recently issued ground water permits and pending ground water applications are to supplement existing water use. Staff will continue to evaluate whether there is a need to limit new surface water or ground water uses by type, location, use, or season; and will discuss the results of the database and evaluation at a subsequent Commission meeting.

III. Recommendation

No action is required; this is an informational report only.

Dwight French
(503) 378-8455 ext. 268

Barry Norris
(503) 378-8455 ext. 246