United States Department of the Interior
BUREAU OF RECLAMATION

LAHONTAN BASIN PROJECTS OFFICE
P.O. BOX 640
CARSON CITY, NEVADA 89702

IN REPLY
REFER TO:

FEB 24 1994

LO-710
PRJ-23.00/ENV-6.00

MEMORANDUM

To: Regional Director, MP
Attn: 820

From: FOR Edward J. Solbos, Jr.
Project Manager

Subject: Request for Services from Robertson Software, Inc.

Enclosed is a requisition, Statement of Work, Government Cost Estimate, and Justification Statement for work we would like to request from Robertson Software, Inc. Robertson has agreed to provide the documentation to the Truckee-Carson Negotiations model as described in the Statement of Work. The documentation is needed in order to analyze alternatives to the Truckee River Operating Agreement as required under the National Environmental Policy Act.

Robertson's contact for the work will be:

David Robertson, President
Robertson Software, Inc.
1001 Pine Street
Boulder, CO 80302
(303) 443-5349

Thanks for your help on this, and please contact Tom Scott or Dave Overvold at (702) 882-3436 if more information is needed.

Enclosure

cc: USFWS (Chet Buchanan)
DWR (Doug Osugi)

EXHIBIT
tabbies
TCID-138

Statement of Work
Documentation of Negotiated Settlement Model
February 18, 1994

A committee consisting of a contractor, the Bureau of Reclamation (Brenda Kinkel - Denver, Tom Scott - Carson City) and the United States Geological Survey (Kenn Cartier), will release three main products for documentation of the Negotiated Settlement Model (NSM):

Tasks	Completion Date
A. A new revision of the NSM computer program.	Draft 07/1/94 Final 10/1/94
B. Technical documentation of the NSM computer program.	Draft 10/1/94 Final 02/1/95
C. A functional description of the logic in the NSM computer program.	Draft 10/1/94 Final 02/1/95

A. The new revision of the NSM program will contain:

1. A standard header in each program routine that includes a general routine description, revision number, development history, and other information;

2. descriptive comments before each major block of program code;

3. programming enhancements that increase human readability, such as separation of program blocks with blank lines, indentation of command lines per logic nesting, and standard spacing and capitalization;

4. programming enhancements that improve logical structure and adherence to modern programming standards, such as minimal use of the "GOTO" command;

5. programming code that conforms to FORTRAN-77 ANSI standards; and

6. other enhancements.

B. The technical documentation will include:

1. descriptions of input, output, and common variables;

2. samples of input and output files;

3. general descriptions of program sub-routines; and

4. descriptions of the use of the program.

C. The functional description of the logic in the NSM program will include:

1. Flow-charts and/or decision-flow lists that describe the operation of the model; and

2. maps and spatial diagrams that illustrate model operation.

The documentation will strive to not alter the overall logic and results of the NSM program. Any substantive changes in logic or results will be carefully noted and reviewed by all Committee participants. Major changes will be presented to a larger community of reviewers.

BACKGROUND

A. The participants in the proposed Truckee River Operating Agreement (TROA) are using a water operations model known as the "Negotiated Settlement Model (NSM)" for evaluating proposed operational plans for the Truckee and Carson River basins of California and Nevada.

B. The U.S. Department of Interior requires a comprehensive understanding of the functional logic in the NSM and assurance that the model accurately represents legal and operational requirements in the TROA and other legal documents that will regulate the operation of the Truckee and Carson basins. As of January, 1994, the Department believed that the functional logic in the NSM computer program has not been thoroughly documented and that the program contains some obsolete and/or obscurely-written sections. These conditions may have resulted because the existing computer program was written by several programmers over an extended period of time for a variety of intended purposes. Some of these purposes may have conflicting goals or may have been abandoned.

C. The NSM is written in the FORTRAN-77 programming language and was developed over a multi-decade period by the U.S. Bureau of Reclamation, Sierra Pacific Power Company, and other agencies.

D. The U.S. Department of Interior has chosen to address some of its concerns with the NSM computer program by assigning a Committee the responsibility of improving the documentation and programming format of the NSM computer program.

COMMITTEE PARTICIPANTS

A. The participants on this Committee are:

o Kenn Cartier, hydrologist, US Geological Survey, Carson City, NV

- o Brenda Kinkel, engineer, US Bureau of Reclamation, Lakewood, CO
- o David Robertson, consulting programmer, Robertson Software, Inc., Boulder, CO
- o Thomas Scott, engineer, US Bureau of Reclamation, Carson City, NV

B. The Committee may seek advice and review from other knowledgeable persons, including:

- o Roderick Hall, consulting hydrologist, Sierra Hydrotech Inc., Placerville, CA
- o Alan Olson, engineer, US Bureau of Reclamation, Carson City, NV
- o Gerald Orlob, consulting hydrologist, Davis, CA
- o Randall Pahl, hydrologist, Nev. Dept. of Water Planning, Carson City, NV
- o John Sarna, engineer, Calif. Div. of Water Resources, Sacramento, CA
- o Ali Sharoody, consulting hydrologist, Stetson Engineers, San Rafael, CA
- o Joe Burns, consulting engineer, Murray, Burns, and Kienlen, Sacramento, CA
- o David Yardas, Environmental Defense Fund, Oakland, CA