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AUTHORITY

CNO/N772 ltr N772A/6U875630 20 Jan 2006 & ONR ltr 31 Jan 2006

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prpae for:

long range acoustic propagation project
department of the navy
naval ocean research and development activity
NSTL station, MS 39529

Submitted by:
Xonics, Inc.
6849 Hayvenhurst Avenue
Van Nuys, California 91406
(213) 787-7380
1.0 INTRODUCTION

Xonics provided continuous technical services to Director, Long Range Acoustic Propagation Project (LRAPP) from 1 July 1973 through 31 October 1977 under Contract N00014-74-C-0049 and Modifications P00001 through P0011. The work was conducted by Xonics Oceans Systems Division under the direction of Mr. Sidney Kulek, Executive Vice President and General Manager of Xonics. Section 2.0 of this report provides a description of the work performed under the basic contract and each modification thereof and Section 3.0 provides a financial summary of the contract modifications.

2.0 DESCRIPTION OF TECHNICAL EFFORT

A. Basic Contract

Xonics provided technical support services in support of a major LRAPP acoustic exercise during the period 1 July 1973 through 15 October 1973 under Contract N00014-74-C-0049. During this period, Xonics efforts were directed at the following tasks:

**Task I** - Technical support in planning a major LRAPP acoustic exercise that included the following:

- Data and data reduction requirements;
- Data selection and validation;
- Data reduction and analysis responsibilities;
- Estimated resources required to perform the data reduction and analysis task on an organizational and task basis;
- Defined milestones, a time schedule to accomplish the milestones, and a reporting schedule;
- Prepared Data Reduction and Analysis Plan; and
- Evaluated techniques for processing directionality data and coherence.

**Task II** - Technical support pertaining to operational readiness of equipment and facilities essential for a major LRAPP acoustic exercise that included work in the following two designated areas:
1. Verification of operational readiness of exercise elements, such as, but not limited to:
   - Ship and ship systems;
   - Measurement equipment;
   - Test documentation relative to equipment operating procedures;
   - Ship and scientific crew; and
   - Expendables

2. Coordination of milestones with each Principal Investigator involved in various aspects of the program to meet schedule demands essential for exercise success. This coordination was completed by a series of actions as follows:
   - Requested exercise preparation status reports and preparation plans (events and schedule) in PERT format from Principal Investigators;
   - Assessed current state of readiness for equipment from Principal Investigator status reports;
   - Evaluated exercise preparation plans for realizability and level of detail and modified where necessary after approval from the Technical Director;
   - Periodically reviewed progress with each Principal Investigator for comparison with preparation plan schedule; notified Technical Director of all schedule slips and recommended solutions;
   - Assisted in the revision of the preparation plans with the Principal Investigators; and
   - Spotchecked status of preparation by on-site inspections of critical equipment, examination of test and calibration data, witnessing of system demonstrations, and review of test log forms and data sheets.

All appropriate activity reports and summaries were prepared and submitted to the Scientific Officer.
B. Modification PO0001

Under this modification, Xonics continued to provide technical services to Director, LRAPP from 21 August 1973 through 31 December 1973 relative to data reduction and analysis for a major LRAPP acoustic exercise. The effort was conducted in two phases with defined tasks as follows:

**Phase I**
- Developed processing specification for data reduction and analysis compatible with the sensors of a parallel exercise;
- Identified specific data to be analyzed relative to type and quantity;
- Prepared a Data Reduction and Analysis Management Plan citing responsibilities, tasks, and schedules;
- Revised, as necessary, the 20 August 1973 revision of the Data Reduction and Analysis Plan; and
- Revised, published, and distributed the Data Reduction and Analysis Plan.

**Phase II**
- Coordinated the reduction and analysis of all required exercise data, including acting as technical liaison; and
- Disseminated exercise data and results.

All appropriate activity reports and summaries for this contract modification were prepared and submitted to the Scientific Officer.
C. **Modification PO0002**

Under this modification, Xonics continued to provide technical services to Director, LRAPP from 12 November 1973 through 30 June 1974 and conducted the following additional tasks:

- Prepared a review of the draft SQUARE DEAL Data Analysis Plan, Volume I;
- Prepared the final draft SQUARE DEAL Data Analysis Plan, Volumes I and II; and
- Revised and published CHURCH ANCHOR Data Analysis Plan.

All appropriate activity reports and summaries for the contract modifications were prepared and submitted to the Scientific Officer.

D. **Modification PO0003**

Under this modification, Xonics continued to provide technical services to Director, LRAPP from 1 May 1974 through 31 July 1974 and conducted the following additional tasks:

- Revised Volume I of SQUARE DEAL Data Analysis Plan as dictated by changing priorities. Special attention was directed toward individual task assignments; and
- Rewrote and edited inputs to Volume II of the Data Analysis Plan; original artwork and tables in the publication were completed. After draft review and approval, the publication was printed and distributed as a Maury Center Report.

All appropriate activity reports and summaries for this contract modification were prepared and submitted to the Scientific Officer.
E. Modification P00004

Under this modification, Xonics continued to provide technical services to Director, LRAPP from 1 July 1974 through 30 June 1975 and conducted the following additional tasks:

- Served as Analysis Director for the SQUARE DEAL Exercise; and
- Specified contents and structure of the SQUARE DEAL Environmental Acoustics Summary Report. Prepared this report under direction of Director, LRAPP and with the assistance of the Exercise Principal Investigators.

All appropriate activity reports and summaries for this contract modification were prepared and submitted to the Scientific Officer.

F. Modification P00005

This modification corrected an administrative error in Modification P00004 but did not effect the technical effort.

G. Modification P00006

This modification changed the accounting data requirements but did not effect the technical effort.

H. Modification P00007

This modification expanded the task initiated in Modification P00004. Xonics prepared a draft of the SQUARE DEAL Environmental Acoustics Summary that incorporated the Executive Summary and all additional analyses and results suggested by the Editorial Review Panel. This effort was accomplished during the period 1 July 1975 through 31 December 1975.

All appropriate activity reports and summaries for this contract modification were prepared and submitted to the Scientific Officer.

I. Modification P00009

This modification changed some of the general provisions of the contract but did not effect the technical effort.
J. Modification P00010

This modification extended the period of performance through 31 August 1976 and provided for additional technical support for modification of the SQUARE DEAL Environmental Acoustics Summary as directed by Director, LRAPP.

All appropriate activity reports and summaries for this contract modification were prepared and submitted to the Scientific Officer.

K. Modification P00011

This modification extended the period of performance through 31 October 1977 in order to revise the SQUARE DEAL Environmental Acoustics Summary as directed by Director, LRAPP.

All appropriate activity reports and summaries for this contract modification were prepared and submitted to the Scientific Officer.

3.0 FINANCIAL SUMMARY

Table I presents a financial summary of Contract N00014-74-C-0049 by task and modification number. Monthly financial estimates have been submitted to the Scientific Officer as required.
Table 1. Contract No. NO0014-74-C-0049 Financial Summary

<table>
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<th>Modification Number</th>
<th>Task Description</th>
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<td>CHURCH ANCHOR Operational Readiness Support</td>
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<td>Preparation of Final Draft, SQUARE DEAL Data Analysis Plan, Volumes I and II</td>
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MEMORANDUM FOR DISTRIBUTION LIST

Subj: DECLASSIFICATION OF LONG RANGE ACOUSTIC PROPAGATION PROJECT (LRAPP) DOCUMENTS

Ref: (a) SECNAVINST 5510.36

Encl: (1) List of DECLASSIFIED LRAPP Documents

1. In accordance with reference (a), a declassification review has been conducted on a number of classified LRAPP documents.

2. The LRAPP documents listed in enclosure (1) have been downgraded to UNCLASSIFIED and have been approved for public release. These documents should be remarked as follows:

   Classification changed to UNCLASSIFIED by authority of the Chief of Naval Operations (N772) letter N772A/6U875630, 20 January 2006.

   DISTRIBUTION STATEMENT A: Approved for Public Release; Distribution is unlimited.

3. Questions may be directed to the undersigned on (703) 696-4619, DSN 426-4619.

BRIAN LINK
By direction
Subj:  DECLASSIFICATION OF LONG RANGE ACOUSTIC PROPAGATION PROJECT (LRAPP) DOCUMENTS

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ARL, Penn State University
MPL of Scripps Institution of Oceanography
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