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HYDROACOUSTICS INC ROCHESTER NY

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MLF-3 TOW SERVICES.(U)

SEP 81

N00014-78-C-0432

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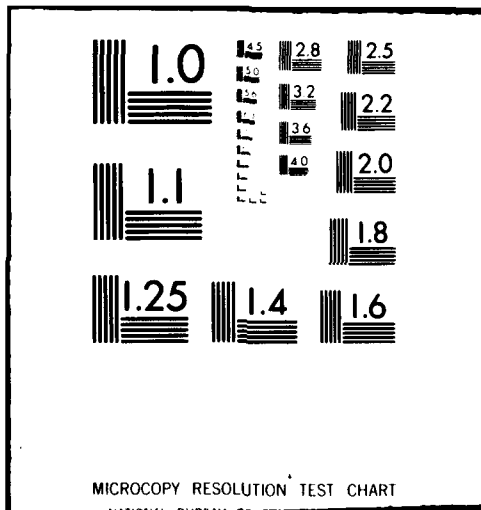
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Report No. HA 123-81

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FINAL REPORT

HLF-3 TOW SERVICES

15 September, 1981

Contract No. N00014-78-C-0432

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1.0 INTRODUCTION

The HLF-3 Acoustic Source was built by Hydroacoustics Inc. for ONR, Code 222, to use in acoustic propagation measurements. In 1977 the source was used in an extended sea test (PANOIC) in the Pacific. The source performed well, logging over 466 hours of operation in that test. However, there were a few failures that caused some loss of operating time.

The subject contract deals with design improvements to eliminate those faults plus support for two more installations and tows and the purchase of 3000-foot tow cable for the source.

2.0 FY 1978 EFFORT

To prepare the sound source for its second long tow, the source was torn-down, inspected and refurbished. Design changes included modifying the drive piston so that the piston push rods would be captured and could not fallout during rough handling of the source, replacing vibration isolators with a solid motor mount, adding a more reliable suction strainer and a redesigned leak detector. The source was "burned-in" in the laboratory for several hundred hours and recalibrated at NUSC's Seneca Lake facility. The spares were inspected and refurbished and the source was prepared for another sea test, this time in the Atlantic. The tow cable was thoroughly checked and 150 feet of fairing were transferred from the spare cable to the prime cable.

Source and cable were shipped to Newport, RI where they were installed on the USNS LYNCH.

Following use of the ship and source by the SEAGUARD OMAT project, another tow of approximately 20 days was performed for Code 222, and NAVOCEANO (FOX I and EDDY SUBEX). The source logged 339 hours of towing in the combined exercise. The source and cable were removed from the LYNCH at New London and returned

to Hydroacoustics.

3.0 FY 1979 EFFORT

This year's program involved another refurbishment and preparation for towing. Refurbishment included replacement of hand wired wet-side electronics with a plug-in printed circuit board. Installation was again performed aboard the USNS LYNCH in Newport.

The 1979 tow extended over three months. During the first month, Operations FREDEX and FOX II for ONR 222, NRL and NAVOCEANO were performed, logging 535 hours on the source and terminating in Bermuda. After the ONR exercise, the ship and source departed for St. Johns, Newfoundland and then back to Newport for the OMAT project. (The manning of the OMAT portions of the tow operations were funded separately by that project.) An additional 335 hours were logged by the source during the OMAT portion of the tow. After removal from the LYNCH in Newport, the source was again returned to Hydroacoustics.

An additional task was the procurement of 3000 feet of tow cable as a first step toward giving the source a deeper tow capability.

4.0 SUMMARY

This contract provided for two installations, tows and removals of the HLF-3 Acoustic Source, as well as the necessary maintenance, refurbishment and incremental upgrading of the unit. In the two-year period, the source was at sea for four months and logged over 1200 hours of towing, providing a wealth of acoustic propagation data. The source has proven itself versatile by handling a variety of signal types as well as being quite reliable. When failures have occurred, they have invariably been repaired at sea by the source operator with a minimum of

downtime.

5.0 REFERENCES

1. "Calibration of HLF-3 for 1978 Summer Operations", E. D. McCloskey, Hydroacoustics Inc. Report No. HA 113-78, June, 1978.