APPENDIX V

Navigation Upgrade

- Pelagos navigation software (modular, integrated)
- Mission replay capability provided for users...
- Custom software
- In-hull navigation
    - computer (Pentium)
    - flat panel displays
    - ALVIN data logging transferred to new CPU? (installation, timing of upgrade?)
- Nautronix 916 USBL/LBL system
    - provided on new vessels
    - Honeywell 906 acquired from Navy,, then upgraded
- Installation of surface system w data logging
- Intelligent transponders
- DVL for ALVIN

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Constraints

1. upgrade should not disable present system until new system is functioning -

-> *yes, except in-hull interface upgrade*

2 operator must have source code for all navigation software

-> *yes, both code and development environment*

3 upgrade should not increase work-load of operator

-> *yes ...*

4 volume and power should stay within present system envelop in-hull

-> *only if requirement 1) relaxed*

5 use off-the-shelf hardware (and software)

-> *yes*

Concerns

large position jumps observed when switching between transponders

-> *calibration issue ...*

navigation software difficult to use

-> *integrated, documented package to be supplied*

in-hull displays not as versatile as desired

-> *solved, but requires remove of existing system*

array deployment responsibilities not well defined

-> documentation issue... needs to be addressed

post-processing requirements of scientists not well supported

-> solved... demo package

LBL Upgrade

Common hardware/software across Alvin surface and in-hull navigation & Argo/jason/Medea/AUV navigation (modular hardware/software components)

-> Nautronix 916 surface hardware , Pentium based computers

Software upgrade -> commercial vendor/WHOI cooperative effort (acquisition, logging, display, computation, outlier rejection, etc.)

-> Pelagos software package

Improved array calibration

Provide post-processing tool set for scientists in well supported environment

-> free

DOCUMENTATION

Transponderless Navigation

Ensure navigation software supports integration of new systems (DVL, etc.)

-> modular software, support for multiple devices

Provide well documented data files with raw values

-> provided

Provide post-processing tool set for scientists in well supported environment

-> free demo package provides processing capability

Merging of surface and in-hull data files

-> not addressed

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