2008 Summary of Research Reports

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Project: Performance of Experiments to Determine Capability of Low Power Electron Beams
Sponsor: ONR

Statement of Work:

Perform experiments to determine the capability of low power electron beams to deactivate or disable various electronic devices. Develop a design and fabricate a portable electronic beam source that can be used for testing and experimentation in the field. Perform field tests in collaboration with technologists and EOD operators at the Naval EOD Technology Center. Analyze results and prepare a technical report.

Project: Evaluation of the DT-702 Dosimetry Program and Support of USNA Dosimetry Related Internships
Sponsor: NAVSEA

Statement of Work:

1. Evaluate DT-702 Dosimeter through MCNP5 modeling and comparison with experimental data for different radiation sources; 2. Perform upgrades and operations on the Harshaw 6600 TLD reader located in the USNA nucleonics lab; 3. Support travel expenses related to midshipmen performing dosimetry related internships at Naval Dosimetry Center, Los Alamos National Laboratory including a training course in MCNP5, and presentation of midshipmen research at a technical conference; 4. Perform TLD irradiation experiments with neutron sources located in the USNA nucleonics laboratory

Project: Solid State Devices
Sponsor: NRL

Statement of Work:

.This project will involve the irradiation of state-of-the art microelectronic devices as supplied by NRL with the USNA D711 D-T neutron generator system, which is located in Rickover Hall. Prior to the irradiation, the USNA will before system calibration, and deliver the neutron fluence as directed by NRL so that an assessment of the device's soft error rate can be determined. The USNA will also provide assistance in making the soft error measurement through data collection with the J & D chip tester, which is also located in the Rickover Nuceonics Laboratory.

Following radiation, the USNA will perform radiological measurements and surveys in order that the devices conform with U.S. Navy radiological regulations before their release back to NRL. In support of this effort, Prof. Nelson will provide 21 days of labor during the 2008 intersessional period

Project: Evaluation of Analysis of Alternatives for the Human Portable Radiation Detection System Program (HPRDS)
Sponsor: DHS

Statement of Work:

1. Support of HPRDS Analysis of Alternatives program; 2. Support of HPRDS spiral 1 assessment; 3. Support of HPRDS spiral 2 assessment; 4. Develop final technical assessment report.