DEPARTMENT OF THE NAVY
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From: Naval Inspector General
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Subj: COMMAND INSPECTION OF THE NAVAL RESEARCH LABORATORY, 13 - 23 JANUARY 2015

Ref: (a) SECNAVINST 5040.3A
(b) SECNAVINST 5430.57G

1. The Naval Inspector General (NAVINSGEN) conducts command inspections of echelon 2 commands to provide the Secretary of the Navy and the Chief of Naval Operations with a firsthand assessment of Departmental risks and major issues relevant to policy, management, and direction as directed by reference (a). Reference (b) tasks NAVINSGEN with conducting inspections and surveys, making appropriate evaluations and recommendations concerning operating forces afloat and ashore, Department of the Navy components and functions, and Navy programs which impact readiness or quality of life for military and civilian naval personnel.

2. NAVINSGEN conducted a Command Inspection of the Naval Research Laboratory (NRL) 13 to 23 January 2015. This report documents our findings.

3. This report contains an Executive Summary, our observations and findings, and documented deficiencies noted during the inspection. Issue papers are included that highlight significant concerns that either point to a potentially broader Navy issue or, in our opinion, require coordination among multiple commands to fully address. Finally, a summary of survey and focus group data, as well as a complete listing of survey frequency data, is included. In addition, a classified annex to this report identifies deficiencies and recommendations related to NRL's Security Programs.

4. During our visit we assessed overall mission performance per the Naval Science and Technology (S&T) Strategic Plan (approved by the Department of the Navy (DON) Science and Technology Corporate Board 1 September 2011), ONRINST 5450.4A (Naval Research Laboratory Charter), NRLINST 3900.1J (NRL Mission), and other laws, policy, and regulations. We assessed compliance with Navy administrative programs; facilities, safety and

environmental compliance; security programs, Inspector General functions, and Sailor programs under the purview of senior enlisted leadership. Additionally, we conducted surveys and focus group discussions to assess the quality of work life (QOWL) and home life (QOHL) for Navy military and civilian personnel.

5. Our overall assessment is that NRL is executing its mission well, but there are a number of important challenges facing the Lab that, if not addressed, will diminish the Lab's long-term effectiveness and contribution to naval S&T research. NRL has a tremendous reputation and has made remarkable contributions to the Navy and Marine Corps, other Departments and Agencies, and, by adaptation of military technologies, to the country; but the Lab is not currently on a path to remain a preeminent Department of Defense (DoD) research laboratory. Despite its reputation, NRL has several weaknesses that require correction (facilities, security, procurement staffing, low morale among support staff) and several areas requiring outside assistance to make it whole and better able to support naval S&T requirements into the future (facilities and conference attendance). Most significantly, NRL is slowly losing its ability to attract and retain the best and brightest scientists and engineers. Degrading laboratory conditions, restrictions on conference travel and associated professional growth/recognition, pay limitations inherent in government employment, and a shrinking talent pool of U.S. citizens to draw from presents a long-term risk to NRL's ability to remain innovative and relevant.

6. In the course of our inspection, we identified deficiencies in civilian performance management, civilian training, continuity of operations (COOP) planning, Safety and Occupational Health, Personnel Security, Information Security, Operations Security, Physical Security, Emergency Management, Cybersecurity, Information Technology acquisition and network management, Physical Readiness Program, Victim and Witness Assistance Program, Inspector General functions, Command Managed Equal Opportunity, and Command Indoctrination.

7. Corrective actions

a. We identified 43 deficiencies during our inspection that require NRL's corrective action. Correction of each deficiency, and a description of action(s) taken, should be reported via Implementation Status Report (ISR), OPNAV 5040/2 by NRL no later than 1 October 2015. Deficiencies not corrected by this date or

requiring longer-term solutions should be updated quarterly until completed. Additionally, NAVINSGEN provided NRL with 19 separate recommendations for consideration, relating to interaction with the Fleet, civilian personnel management and training, continuity of operations (COOP) planning, policies on scientific research misconduct, environmental management, security, information systems and information technology, and the command sponsorship program. Follow up reporting on these recommendations is not requested.

b. This report includes two issue papers that require actions by NRL and the Deputy Assistant Secretary of the Navy (Budget) (DASN(B)). Appendix A: Issue Papers (page 35 of this report) provides detailed guidance on how to report completion of recommendations identified in the issue papers.

8. My point of contact is (b)(6)(b)(7)(c), Inspections Division. (b)(6)(b)(7)(c) can be reached at (202) 433-(b)(6)(b)(7)(c) DSN 288-(b)(6)(b)(7)(c), or via e-mail at (b)(6)(b)(7)(c)@navy.mil.

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NAVAL INSPECTOR GENERAL COMMAND INSPECTION OF NAVAL RESEARCH LABORATORY 13-23 JANUARY 2015

Executive Summary

The Naval Inspector General (NAVINSGEN) conducted a command inspection of Naval Research Laboratory (NRL) from 13 to 23 January 2015. This was our first inspection of NRL. The team was augmented with subject matter experts, including personnel from Assistant Secretary of the Navy for Research, Development and Acquisition (ASN RDA); Deputy ASN, Research, Development, Test and Evaluation (DASN RDT&E); Office of the Chief of Naval Operations, Information Dominance (OPNAV N2/N6) and Special Assistant for Safety Matters (OPNAV N09FB); Naval Criminal Investigative Service (NCIS); Naval Facilities Engineering Command Atlantic (NAVFACLANT); Navy Medical Research Center (NMRC); Office of Naval Research (ONR); Naval Audit Service (NAVAUDSVC); Commander, Naval Sea Systems Command, Logistics, Maintenance and Industrial Operations (NAVSEA 04), Space and Naval Warfare Systems Command (SPAWAR); and Office of Civilian Human Resources (OCHR).

During our visit we assessed overall mission performance per the Naval Science and Technology (S&T) Strategic Plan (approved by the Department of the Navy (DON) Science and Technology Corporate Board 1 September 2011), ONRINST 5450.4A (Naval Research Laboratory Charter), NRLINST 3900.1J (NRL Mission), and other laws, policy, and regulations. We assessed compliance with Navy administrative programs; facilities, safety and environmental compliance; security programs, Inspector General functions, and Sailor programs under the purview of senior enlisted leadership. Additionally, we conducted surveys and focus group discussions to assess the quality of work life (QOWL) and home life (QOHL) for Navy military and civilian personnel.

Established in 1923, NRL conducts broadly based multidisciplinary scientific research and advanced technological development directed toward maritime applications of new and improved materials, techniques, equipment, systems, and ocean, atmospheric, and space sciences and related technologies. NRL has a well established reputation for seeking solutions for Navy's greatest technical challenges and has a rich history of developing significant technological leaps, including among its many notable achievements:

- The first operational U.S. sonars and radars
- Over-the Horizon Radar
- Global Positioning System (GPS) prototype
- The first shipboard launch of a rocket
- Firefighting agents (Aqueous Film Forming Foam and Purple-K)
- Detection technology that led to the AN/SPQ-9B Anti-Ship Missile Defense radar
- Technology that led to the AN/ALE-50 Towed Air Decoy System
- Counter-Improvised Explosive Device (IED) technology
- Dragon Eye Unmanned Air Vehicle
- A number of classified Electronic Warfare, submarine detection, and cyber/cybersecurity technologies
- Electromagnetic Railgun prototype

MISSION READINESS

Our overall assessment is that NRL is executing its mission well, but there are a number of important challenges facing the Lab that, if not addressed, will diminish the Lab's long-term effectiveness and contribution to naval S&T research. The Lab has a tremendous reputation and has made remarkable contributions to the Navy and Marine Corps, other Departments and Agencies, and, by adaptation of military technologies, to the country; but NRL is not currently on a path to remain a preeminent Department of Defense (DoD) research laboratory. Despite its reputation, NRL has several weaknesses that require correction (e.g., facilities, security, procurement staffing, low morale among support staff) and several areas requiring outside assistance to make it whole and better able to support naval S&T requirements into the future (e.g., facilities and conference attendance). Most significantly, NRL is slowly losing its ability to attract and retain the best and brightest scientists and engineers. Degrading laboratory conditions, restrictions on conference travel and associated professional growth/recognition, pay limitations inherent in government employment, and a shrinking talent pool of U.S. citizens to draw from presents a long-term risk to NRL's ability to remain innovative and relevant.

Investment in NRL facilities and personnel is required to improve effectiveness and efficiency of NRL support functions. Some of the challenges addressed below require a more vigorous and agile effort by NRL to ensure that support functions at the command are sufficient to ensure sustained mission accomplishment.

Base Program (6.1 / 6.2 Research)

In 2014, NRL received $203M of Budget Activity (BA) 1 and BA 2 funding from the Chief of Naval Research (CNR) to support the NRL Base Research Program (6.1/6.2). We note that CNR's funding to NRL for the Base Research Program declined from FY97 ($228M) (all figures in FY14 dollars) to FY06 ($195M), then essentially remained flat until FY14 ($203M). NRL is a Navy Working Capital Fund activity with customer funding of approximately $1B annually. CNR funding of the Base Research Program is about 20 percent of NRL total funding to sustain naval technological superiority and develop potential game changing technologies. NRL has the capacity to conduct more of this research if CNR has the resources available to fund it. This is especially important as the rate of scientific and technologic advancement accelerates rapidly across the rest of the world, generally migrating to the east, and other nations invest in technology to challenge our naval superiority.

Continuity of Operations (COOP) Planning

NRL's COOP instruction requires review and update per SECNAVINST 3030.4C, Department of the Navy Continuity of Operations Program. (b) (7)(e) [redacted]

Conference Attendance

Restrictions on conference attendance are limiting NRL scientific and technical staff's awareness of the latest developments in their respective fields, impairing their ability to collaborate with other scientists, impacting NRL's ability to recruit, attract, and retain

scientists—and ultimately impeding the Lab's ability to provide Navy with leading edge scientific research and advanced technological development. For example, NRL lost nine highly qualified researchers as a result of conference restrictions based on explicit statements during exit interviews. When compared to 2007, a 51 percent reduction in conference attendance by NRL personnel in 2014 diminished not only young scientists' opportunities to present papers and collaborate on scientific advances, but virtually eliminated the ability of senior scientists to meet and assess the potential of others as future hires. NRL scientists face the threat of being barred as future presenters by professional groups if they are unable to commit to attendance due to conference travel approval uncertainty. The effects of such limitations are not seen or felt overnight, yet are no less real as they accumulate over months to years.

Procurement Staffing

A significant personnel shortfall in NRL's Purchasing Branch is causing delays in simplified acquisition purchases (those between $3K-$150K open market, up to $6.5M using FAR Part 13.5, and GSA and other indefinite delivery orders up to the Maximum Order Limit), resulting in delays/stoppage of funded research and delivery of funded prototypes. Purchasing Agent staffing was at five of 13 personnel and there were approximately 900 simplified acquisition requests awaiting processing (steady state average over the past four months vs. the historic monthly average of 400 requests in processing when fully staffed). Greater emphasis is required by NRL to fix this problem.

Interagency Funding for Research and Engineering Projects

Approximately eight percent of NRL's funding comes from projects funded by non-DoD federal entities. This research, although funded from outside the Department, contributes to naval research and development (R&D) efforts. However, some non-DoD Agencies and Departments have policies in place that preclude or limit the transfer of funding–particularly for projects funded under "grant" authority–for scientific and engineering research to other federal laboratories. These policies impair NRL's ability to compete for research that they are otherwise capable of conducting, resulting in lost opportunities to expand NRL research, and ultimately, to further naval R&D efforts. This is a broader interagency issue that the White House Office of Science and Technology Policy (OSTP) is reviewing.

FACILITIES, ENVIRONMENTAL, ENERGY CONSERVATION, AND SAFETY AND OCCUPATIONAL HEALTH (SOH)

Facility Modernization

NRL leadership cited facilities as the top challenge facing their organization; NAVINSGEN concurs with this assessment, after inspecting facilities and reviewing the age of NRL infrastructure, available funding, and current fiscal authorities. NRL's facilities require investment in order to ensure that the Lab continues to execute the full range of its mission in the future. NRL has developed a sound Capital Improvements Plan to help solve their most critical problems. Many of their buildings were built in the 1960s or earlier, requiring not only repair, but also capacity increases to mechanical and electrical systems to support modern research labs.

We recommend that NRL submit their larger repair and construction projects through the Navy Working Capital Fund budget process that allows them to self-fund these modernization projects for inclusion in the Military Construction (MILCON) appropriation. While this process is not free from risk of reallocation for other Navy priorities, this risk can be mitigated by close coordination between NRL, CNR, OPNAV, and Deputy Assistant Secretary of the Navy, Budget (DASN(B)). Current legislation allows NRL to newly construct or expand capacity of facilities for projects that cost up to $4M; however, we believe this amount of construction authority will be insufficient in the intermediate and long term to support known requirements for additional clean rooms, enhanced cooling and humidity controls, increased electrical capacity, and vibration/noise/magnetic mitigation components needed to support modern specialized research equipment. Legislative changes would be required to raise this cap above $4M.

A longer-term issue facing NRL is the impact of encroachment on the Lab's ability to conduct high precision research in a carefully controlled environment (b)(7)(e)&(f) This encroachment periodically disrupts and delays research. (b)(7)(e)&(f)

Facilities Maintenance and Repair

Concurrent with modernization efforts, we recommend that NRL consider increasing funding for piping, cooling, and heating repairs to mitigate the varied performance of existing laboratory and research facilities. NRL has engaged with DASN(B) in the past to increase its Sustainment, Restoration and Modernization (SRM) overhead account; reengagement is required given the conditions of current facilities. NRL staff provided several examples of disruptions to research within the past three years including over $1M in equipment damage and at least 11,000 lost man-hours valued at $1.6M. These figures capture only a portion of the impacts of disruptions to normal operations at one of the nation's leading research institutions.

Of significance, in one facility we noted that all labs and other spaces required plastic covers to protect information and equipment from potential water leaks. Not only does this affect the workforce's QOWL, but also presents an image of a less than world-class facility potentially affecting mission, recruitment, and retention. While there are several outstanding facilities and buildings at NRL, there are too many facilities and support systems requiring significant modernization. Left unattended this will cause future mission impacts.

SECURITY PROGRAMS

Information Security

(b)(7)(e)&(f) [redacted]

Physical Security

Security Force Manpower

Naval Support Activity (NSA) Washington provides (b)(7)(e)&(Naval Security Force (NSF) personnel to NRL via funding established by an FY06 budget-based transfer from CNR to Commander, Navy Installations Command (CNIC). This is (b)(7)(e)&(f) of the NRL Mission Profile Validation-Protection (MPV-P). We regularly see security force manning levels between (b)(7)(e)&(f) percent of MPV-P at CONUS installations; however, (b)(7)(e)&(f) Of note, NRL had (b)(7)(e)&(f) when those personnel were transferred to CNIC. We recommend that NRL, in coordination with CNIC, (b)(7)(e)&(f) .

NRL Installation Access

(b)(7)(e)&(f) [redacted]

Antiterrorism/Force Protection (ATFP)

(b)(7)(e)&(f) by DoDI 2000.16, DoD Antiterrorism (AT) Standards, (b)(7)(e)&(f) [redacted]

Force Protection (FP) responsibilities for NRL are not clearly defined. (b)(7)(e)&(f) [redacted]

(b)(7)(e)&(f)

Industrial Security

The NRL command security instruction does not reflect current Industrial Security practices at the Lab and does not clearly state Industrial Security responsibilities between Command Security, Contracting, divisional contracting personnel, or the Contracting Officer's Representative (COR).

Operations Security (OPSEC)

(b)(7)(e)&(f) .

Special Security Programs

(b)(7)(e)&(f)

Cybersecurity/Information Technology (IT) Acquisition & Network Management

Data at Rest (DAR)

(b)(7)(e)&(f)

Procurement and Management of IT resources

(b)(7)(e)&(f) .

(b)(7)(e)&(f)

(b)(7)(e)&(f)

(b)(7)(e)&(f)

[redacted]

[redacted]

COMPLIANCE PROGRAMS

Overall NRL's compliance programs were solid. There are several areas for improvement:

Physical Readiness Program

The Command Fitness Leader has not completed the required certification course as required by OPNAVINST 6110.1J, Physical Readiness Program. Documentation related to official Physical Fitness Assessments has not been maintained for 5 years.

Sexual Assault Prevention and Response (SAPR)

Our engagement with Naval Research Laboratory (NRL) confirmed that the command is committed to maintaining an environment free of sexual assault (SA) and that victims would receive excellent care and support services. There were no reports of SA for over two years, and there is no evidence that NRL incorrectly handled any SA cases as a result of the identified deficiency. We did note that watchstander and Duty Officer training has not been conducted to ensure proper victim response protocols are in place to respond to reports of sexual assault in keeping with SECNAVINST 1752.4B, Sexual Assault Prevention and Response.

Suicide Prevention (SP) Program

NRL senior leadership has not regularly published messages, information and guidance on suicide prevention and has not incorporated suicide prevention as a part of life skills and health promotion training as required by OPNAVINST 1720.4A, Suicide Prevention Program. Watchstander and Duty Officer training has not been conducted to ensure proper crisis response protocols are in place to respond to suicide-related behavior calls and reports.

Victim and Witness Assistance Program (VWAP)

NRL is not executing its echelon 2 oversight responsibilities for VWAP in accordance with OPNAVINST 5800.7A, Victim and Witness Assistance Program and had not appointed a Victim and Witness Assistance Coordinator (VWAC) until the time of our arrival for the inspection.

Command Managed Equal Opportunity (CMEO) Program

NRL did not have a CMEO program in place at the time of our inspection as required by OPNAVINST 5354.1F CH-1, Navy Equal Opportunity Policy.

Inspector General (IG) Functions

IG functions are being handled by the NRL Security Officer. NRL received direction from the former Chief of Naval Research to comply with the provisions of SECNAVINST 5370.5B, DON Hotline Program, and is currently in the process of evaluating several courses of action to include hiring a full time IG and qualified investigator.

SURVEY AND FOCUS GROUP FINDINGS

Our survey and focus group discussions found that QOWL and QOHL at NRL are higher than the historical echelon 2 command averages. The NRL workforce is highly talented and dedicated; however, survey data and focus groups perceived the following issues as adversely impacting mission, job performance and quality of life: facilities, advancement (especially at lower and mid-levels), procurement, and conference attendance restrictions. Rated on a 10-point scale, the NRL QOWL and QOHL are 7.00 and 8.11, respectively; the corresponding echelon 2 command historical averages are 6.60 and 7.86. Specific comments from focus groups and surveys were passed to NRL leadership and will be included in our report.

Contents

Areas/Programs Assessed

- **Mission Performance**
  - Strategic Planning
  - Command Relationships and Communications
  - Total Force Management
  - Civilian Human Resource Services
  - Personnel Training/Qualifications
  - Continuity of Operations Plan
  - Space Programs
  - Mapping/Charting/Imagery
  - Radiation Control
  - Chemical, Biological, Radiological, and Nuclear (CBRN) Programs
  - Intellectual Property/Technology Transfer
  - Research Ethics
  - Library Functions
  - Research Financials (Navy Working Capital Fund)
- **Facilities, Environmental, and Safety**
  - Facilities Management
  - Shore Infrastructure Planning and Management
  - Environmental Readiness
  - Energy Conservation
  - Safety and Occupational Health
- **Security Programs and Information Assurance**
  - Command Security
  - Industrial Security
  - Physical Security and Antiterrorism Force Protection
  - Operations Security
  - Personnel Security
  - Insider Threat
  - Counterintelligence Support
  - Information Security
  - Information Assurance and Personally Protected Information
- **Resource Management/Compliance Programs**
  - Comptroller Functions
  - Managers' Internal Control
  - Personal Property Management
  - Government Travel Charge Card
  - Government Commercial Purchase Card
  - Command Individual Augmentee Coordinator
  - Post Deployment Health Reassessment
  - Individual Medical Readiness
  - Physical Readiness Program
  - Sexual Assault Prevention and Response

- Command Managed Equal Opportunity
- Suicide Prevention
- Navy Alcohol and Drug Abuse Prevention
- Hazing Policy Training and Compliance
- Legal/Ethics
- Victim and Witness Assistance Program
- Voting Assistance Program
- Inspector General Functions

- **Sailor Programs**
  - Command Sponsorship
  - Command Indoctrination
  - Career Development Program

Observations and Findings

MISSION PERFORMANCE

The Mission Performance Team used survey and focus group responses, document review, and face-to-face interviews to assess the Naval Research Laboratory's (NRL, referred to in places hereafter as "the Lab") ability to accomplish its mission per the Naval Science and Technology (S&T) Strategic Plan (approved by the Department of the Navy (DON) Science and Technology Corporate Board 1 September 2011); ONRINST 5450.4A, Naval Research Laboratory Charter; NRLINST 3900.1J, NRL Mission; and other laws, policy, and regulations.

Our overall assessment is that NRL is executing its mission well, but there are a number of important challenges that, if not addressed, will diminish the Lab's long-term effectiveness and contribution to naval S&T research. The Lab has a tremendous reputation and has made remarkable contributions to the Navy and Marine Corps, other Departments and Agencies, and, by adaptation of military technologies, to the country; but NRL is not currently on a path to remain a preeminent DoD research laboratory. Despite its reputation, NRL has several weaknesses within its organization that require correction and several areas requiring outside assistance to make it whole and better able to support naval S&T requirements into the future. Investment in NRL facilities and personnel is required to improve effectiveness and efficiency of NRL support functions. Most significantly, NRL is slowly losing its ability to attract and retain the best and brightest scientists and engineers. Degrading laboratory conditions, restrictions on conference travel and associated professional growth/recognition, pay limitations inherent in government employment, and a shrinking talent pool of U.S. citizens to draw from presents a long-term risk to NRL's ability to remain innovative and relevant. Specifically:

- Facilities. NRL is not unlike other commands dealing with degrading facilities, but due to exacting laboratory environmental requirements these shortfalls are more acute and have a more direct impact on mission accomplishment. Non-laboratory work and office spaces were also in generally fair to poor condition and were not the type of spaces that will attract top-level scientists and engineers. NRL must take the steps necessary to use Navy Working Capital Funds (NWCF) to support Military Construction (MILCON) projects and continue to engage with DASN(B) for authority to fund additional Sustainment, Restoration and Modernization (SRM).
- Conference attendance. Restrictions on conference attendance are impacting all Navy scientists, engineers, and medical professionals' awareness of the latest developments in their respective fields. This impact is more pronounced at NRL, due to the concentration of scientists and engineers and the nature of their work, than any other command we have visited. These restrictions are impairing their ability to collaborate with other scientists, impacting NRL's ability to recruit, attract, and retain scientists—and ultimately impeding the Lab's ability to provide Navy with leading edge scientific research and advanced technological development.
- Procurement and contracting. A significant personnel shortfall in NRL's Purchasing Branch is causing delays in simplified acquisition purchases (those between $3K-$150K

open market, up to $6.5M using FAR Part 13.5, and GSA and other indefinite delivery orders up to the Maximum Order Limit), resulting in delays/stoppage of funded research and delivery of funded prototypes. The Branch is currently staffed at 5 of 13 personnel. Greater emphasis is required by NRL to fix this problem and to determine root causes to prevent future occurrence.

- Security. (b)(7)(e)&(f) [redacted]
- Support staff morale. The support staff at NRL is suffering from lower morale and work satisfaction than the staff scientists and engineers. Support staff is as committed to the mission of NRL as these scientists and engineers, but they are frustrated by their demanding workload; in general, they feel undervalued and under-supported. A disenfranchised support staff is damaging to the long-term health of NRL.
- A need for greater institutional agility to ensure sufficient mission support functions. Some of the above challenges (facilities, procurement, and security) require a more vigorous and agile effort by NRL to ensure that support functions at the command are sufficient to ensure sustained mission accomplishment.

The following mission areas/programs were assessed as being satisfactorily executed:

- Strategic Planning
- Command Relationships and Communications
- Military Manning and Manpower
- Space Programs
- Mapping/Charting/Imagery
- Chemical, Biological, Radiological, and Nuclear (CBRN) Programs
- Intellectual Property/Technology Transfer
- Research Ethics
- Library Functions
- Research Financials (Navy Working Capital Fund)\

Mission Statement

NAVINSGEN Special Studies Division conducted a focused look at NRL's Mission Statement to gain an understanding of statement, and whether it was a useful tool to help drive research and organizational performance. NAVINSGEN researchers held several discussion groups with NRL staff to capture their understanding of the Mission Statement and its impact on their work.

Figure 1 contains NRL's Mission Statement. During discussion with the staff, the NAVINSGEN researchers discovered that there were varying degrees of understanding of the Mission Statement, and few of the interviewed employees knew of its existence or where they could find it. While this may appear of little consequence, a review of scientific literature suggests a

strong relationship between mission statement knowledge and mission accomplishment. NAVINSGEN researchers recommend that NRL periodically review and update, as required, the NRL Mission Statement and prominently publish it for both NRL staff and the Navy writ large.

> ***"NRL operates as the Navy's full-spectrum corporate laboratory, conducting a broadly based multidisciplinary program of scientific research and advanced technological development directed toward maritime applications of new and improved materials, techniques, equipment, systems and ocean, atmospheric, and space sciences and related technologies. In fulfillment of this mission, NRL:***
>
> - ***Initiates and conducts broad scientific research of a basic and long-range nature in scientific areas of interest to the Navy.***
> - ***Conducts exploratory and advanced technological development deriving from or appropriate to the scientific program areas.***
> - ***Within areas of technological expertise, develops prototype systems applicable to specific projects.***
> - ***Assumes responsibility as the Navy's principal R&D activity in areas of unique professional competence upon designation from appropriate Navy or DOD authority.***
> - ***Performs scientific research and development for other Navy activities and, where specifically qualified, for other agencies of the Department of Defense and, in defense-related efforts, for other Government agencies.***
> - ***Serves as the lead Navy activity for space technology and space systems development and support.***
> - ***Serves as the lead Navy activity for mapping, charting, and geodesy (MC&G) research and development for the National Geospatial-Intelligence Agency (NGA)."***

Figure 1. Mission Statement, Naval Research Laboratory, current February 2015

Base Program (6.1 / 6.2 Research)

NRL Base Program efforts are guided by the Naval S&T Strategic Plan. The nine Naval S&T Focus Areas delineated in the Strategic Plan are represented across core program funded work efforts at NRL. As an indicator of productivity, the number of projects that transitioned to Systems Commands (SYSCOM) in FY12 is listed for each Focus Area in parentheses; FY13-14 transition information was not yet available:

- Assure Access to the Maritime Battlespace (73)
- Autonomy and Unmanned Systems (2)
- Expeditionary and Irregular Warfare (20)
- Information Dominance (68)
- Platform Design and Survivability (10)
- Power and Energy (3)
- Power Projection and Integrated Defense (28)
- Total Ownership Cost (20)
- Warfighter Performance (11)

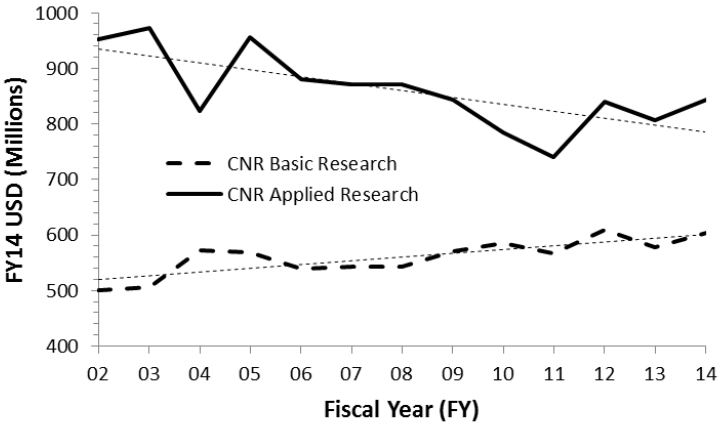
NRL's contributions to naval warfare are, as noted above, remarkable. Table 1 provides a historical sample of significant NRL accomplishments.

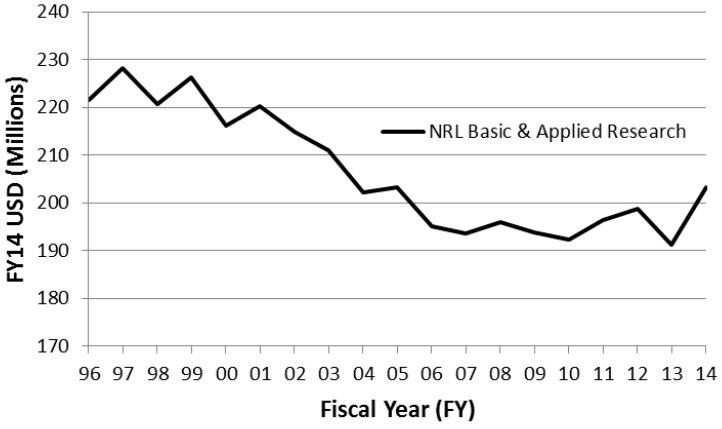
In 2014, NRL received $203M of Budget Activity (BA) 1 and BA 2 funding from the Chief of Naval Research (CNR) to support the NRL Base Research Program (6.1/6.2). We note that CNR's funding to NRL for the Base Research Program declined from FY97 ($228M) (all figures in FY14 dollars) to FY06 ($195M), then essentially remained flat until FY14 ($203M). NRL is a NWCF activity with customer funding of approximately $1B annually. The CNR funding of the Base Research Program is about 20 percent of NRL total funding to sustain naval technological superiority and develop potential game changing technologies. NRL has the capacity to take on more of this research if CNR has the resources available to fund it. This is especially important as the rate of scientific and technologic advancement accelerates rapidly across the rest of the world, generally migrating to the east, and other nations invest in technology to challenge our naval superiority.

A high-level view of CNR 6.1 and 6.2 research funding is summarized in Figure 2. The graphs depict an overall reduction in CNR funding across these developmental S&T funding lines, translating to a reduction in 6.1 and 6.2 funds to NRL. In recent years, academic institutions experienced greater increases in Defense Research Sciences (PE 0601153N) funding from ONR compared to NRL. We recognize the importance of collaboration between the Navy and academia. However, the median cumulative 6.1 and 6.2 budget inflation-adjusted to FY14 USD over the last 15 years allotted to NRL was approximately $203M, which is closer to the 25th percentile (~$196M) than the 75th percentile (~$218M) of such funding during this span. What is seemingly a small difference between $203M and $218M translates to either one additional major project, a dozen average projects, or up to 40 smaller projects per year. These findings call into question whether the long-term Naval S&T Strategic Plan is adequately funded to maintain competitive advantages in maritime S&T areas.

Table 1. Sample Listing of Significant Naval Research Laboratory Accomplishments

Decade	Significant Accomplishments
1920	▪ Remotely flown pilotless aircraft ▪ Metal casting and welds testing using Gamma-Ray Radiography ▪ Sound Navigation and Ranging (SONAR)
1930	▪ First nuclear submarine concept and design ▪ First Radio Detection and Ranging (RADAR) ▪ First operational application of RADAR: USS New York
1940	▪ First synthetic lubricants ▪ First separation of uranium isotopes (liquid thermal diffusion) ▪ Pioneered fracture mechanics to calculate structural strength ▪ First detection of solar X-Rays effects on radio communications
1950	▪ First satellite tracking system and solar-powered satellite ▪ First unmanned helicopter
1960	▪ Technologies supporting deep-sea diving and rescue ▪ Deep sea search capability in response to USS Thresher ▪ Developed synthetic firefighting/oil spill control agents (AFFF) ▪ First Global Positioning System satellite prototypes ▪ First U.S. intelligence satellite (GRAB I)
1970	▪ Sound Surveillance System (SOSUS) ▪ Central Atmosphere Monitor System (CAMS) for submarines ▪ First Excimer Laser: biological, medical, production applications
1980	▪ Methods in the determination of crystal structures (Nobel Prize) ▪ Contributions to the Aegis Combat System ▪ Precise navigation using an optical fiber gyroscope ▪ Contributions in efforts to make quieter submarines ▪ Global Atmospheric Prediction System
1990	▪ Hull anti-fouling coatings ▪ Contributions in the development of high strength steels ▪ Neural networking computer chips ▪ Advanced scanning/detection of substances technologies ▪ Detailed space imaging: Clementine Spacecraft
2000	▪ Remote sea environment monitoring ▪ Next-generation tactical reconnaissance systems ▪ First operational global ocean model ▪ Marine Corps deployed airborne sensor system: Dragon Eye ▪ Virtual At-Sea Training
2010	▪ World Record: Electromagnetic Railgun shot ▪ Integrated, multifunction and multibeam arrays: InTop ▪ Tactical microsatellite (future)





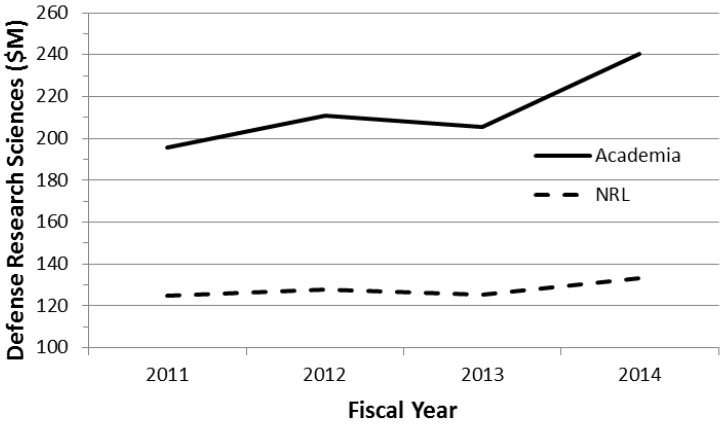


Figure 2. Chief of Naval Research (CNR) 6.1 (Basic) and 6.2 (Applied) Research Funding, aggregate Naval Research Laboratory (NRL) funding levels across these two general program element categories, and recent Defense Research Sciences (PE 0601153N) funding across academia and NRL.

Top: CNR Basic and Applied Research budgets inflation-adjusted to Fiscal Year 2014 dollars over the last 13 years. Linear plots indicate a negative slope in applied research investments and a modest positive slope for basic research investments since 2002; future funding is anticipated to follow or drop below the linear plots.

Middle: Aggregate Basic and Applied Research funding inflation-adjusted to Fiscal Year 2014 dollars over the last 19 years from CNR to the Naval Research Laboratory. Except for the negative linear slope (not plotted) between Fiscal Years 2001-2010 the 6.1 and 6.2 NRL budget oscillated up and down between fiscal years. Such oscillations were likely context-driven within a fiscal year.

Bottom: Recent CNR Basic Research (6.1) Funding from the Defense Research Sciences line item between academia and NRL. Linear trends (not plotted) indicate a greater positive slope for academia than NRL, which remained relatively flat during the same period.

Report of the Defense Science Board (DSB) Task Force on Basic Research

This January 2012 report identified a number of important issues concerning DoD basic research and proposed recommendations for the Department. We found that many of the report findings still apply to NRL today and that a number of the report recommendations would achieve tangible improvements to NRL, if applied.

Conference Travel Restrictions

The Department is familiar with policy and approval authority restrictions regarding conference travel by government employees that were put into place following the President's Executive Order of 13 June 2011 ("Delivering an Efficient, Effective and Accountable Government").

Current restrictions on conference travel limit NRL scientific and technical staff's awareness of the latest developments in their respective fields, impair their ability to collaborate with other scientists, and negatively impact NRL's ability to recruit, attract, and retain scientists. Ultimately, these restrictions impede the Lab's ability to provide Navy with leading edge scientific research and advanced technological development. Scientists and engineers expressed similar concerns during other inspections and area visits (e.g., Naval Surface Warfare Center (NSWC) Carderock, U.S. Naval Observatory, Navy Support Activity (NSA) Bethesda), but the impact at NRL is more acute than most other Navy activities face due to the nature of their work.

NRL lost nine highly qualified researchers as a result of conference restrictions based on explicit statements during exit interviews. When compared to 2007, a 51 percent reduction in conference attendance by NRL personnel in 2014 diminished not only young scientists' opportunities to present papers and collaborate on scientific advances, but largely eliminated the ability of senior scientists to meet and assess the potential of others as future hires. NRL scientists face the threat of being barred as future presenters by professional groups if they are unable to commit to attendance due to conference travel approval uncertainty. The effects of such limitations are not seen or felt overnight, yet are no less real as they accumulate over months to years.

The approval process timeline has become shorter over time (approval is now required 30 days prior to travel), but the following aspects of the current policy remain a challenge:

- Restrictions requiring an "active role" for conference attendees (i.e., presenting one's work)
- Approval authority levels that remain at DON/AA or above
- Implied or explicit budgetary limitations
- Uncertainty of attendance approval when considering submission of research papers
- Burdensome overall cost and level of administrative effort to gain conference travel approval

This unfavorably impacts core aspects of the science and technology arena for Navy's talented research personnel, including national and international collaboration, exchange of ideas,

currency in mission-relevant fields, and the recruitment, retention, promotion and career development of young and mid-career scientists.

We believe there is room for DON conference travel restrictions to evolve in response to such concerns while still meeting the intent of appropriate oversight and good stewardship of federal expenditures. Delegation of conference approval below the level of DON/AA (subject to certain dollar thresholds)—when coupled with continued periodic reporting to support oversight—would allow many of the remaining impediments to be managed with greater flexibility by senior activity leaders who directly oversee their DON travelers.

Procurement Staffing

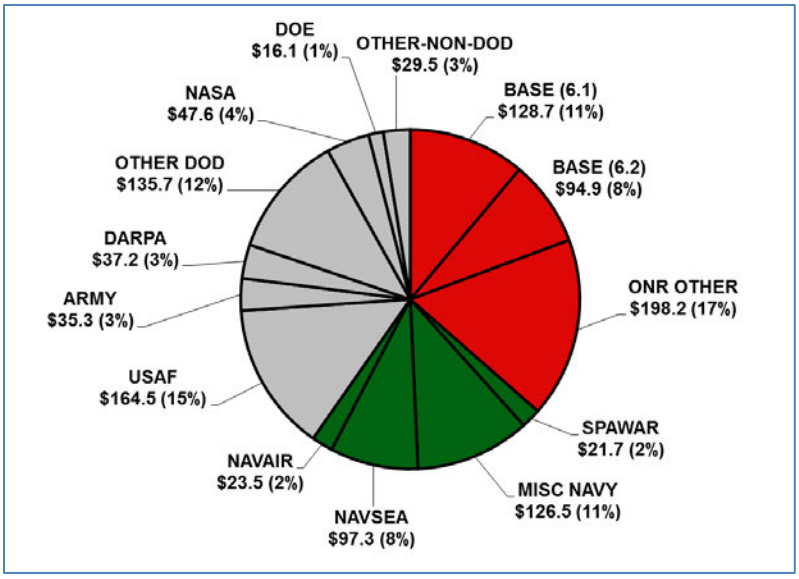
The Purchasing Branch of NRL's Supply & Information Services Division has experienced a significant personnel shortage since late summer of 2014; currently manned at five of 13 billets. The number of simplified acquisition purchase requests (those in the $3K-$6.5M range) awaiting processing has lingered around 900 for roughly six months. According to NRL, 400 or more purchase requests in the system at any one time produces suboptimal mission performance. Research project delays or work stoppages, as well as compounded inefficiencies, have resulted. This backlog also impacts the morale of both scientists and the support personnel who are trying to meet the need.

We believe that the current path NRL is taking to address this matter is insufficient to reduce the backlog within a meaningful timeframe. More aggressive and innovative efforts to not only rally external and internal resources for the current circumstance, but also to improve staffing numbers, retention and work processes long-term, are necessary.

Interagency Funding for Research and Engineering Projects

As shown in Figure 3, approximately eight percent of NRL's funding comes from projects funded from non-DoD federal entities. This research, although funded from outside the Department, contributes to naval research and development (R&D) efforts. However, some non-DoD Agencies and Departments have policies in place that preclude or limit the transfer of funding for scientific and engineering research—particularly for projects funded under "grant" authority—to other federal laboratories. Such policies impair NRL's ability to compete for research that they are otherwise capable of conducting, resulting in a lost opportunity to expand NRL research and, ultimately, to further the naval R&D portfolio. This is a broader interagency issue that the White House Office of Science and Technology Policy (OSTP) is reviewing.

Figure 3. FY14 Naval Research Laboratory funding (in millions), by sponsor. Total $1,156M.



Additionally, NAVINSGEN researchers learned during their discussion groups that some NRL scientists did not have a clear understanding of external funding by non-Navy agencies. These scientists were unfamiliar with procedures for soliciting and obtaining funds from outside of Navy channels. NAVINSGEN researchers believe that NRL can easily remedy this by (a) having senior scientists mentor junior scientists on NRL's processes and procedures or (b) partnering with universities that successfully obtain funding (federal and non-federal) to finance their research.

Internal Policies and Procedures

Discussion group meetings with NAVINSGEN Special Studies Division researchers suggested that NRL operating processes and procedures were not well understood. From procurement to security, interviewed staff members painted a conflicting picture on their perception of formalized NRL processes. NAVINSGEN researchers recommended adding transparency in all processes by providing training to the staff, making processes and procedures available to all staff through a common knowledge management system, and improving visibility of workflow from request submission to final determination.

Feedback from Echelon 2 Commanders and Type Commanders

NAVINSGEN asked echelon 2 and Type Commanders for feedback regarding how NRL's work benefits their organization and the Navy more broadly. The responses were overwhelming positive and included a number of examples where NRL efforts were improving warfighting capability and platform/equipment sustainability. The feedback indicated, however, a desire to increase direct interaction between NRL and the Fleet. Examples cited as areas that would benefit from expanded support from NRL included:

- Fleet operators going to NRL, and, to a larger extent, NRL scientists/engineers going to the Fleet.
- Greater NRL participation in the Fleet Experimentation (FLEX) program. Expanding NRL participation to include briefings to the annual FLEX Execution Plan Development Workshop on NRL activities during the upcoming year would improve situational awareness on projects that impact Fleet capability requirements.
- A more active NRL role in the experiment requirements of the Naval Warfare Development Command (NWDC)-led Electromagnetic Maneuver Warfare (EMW) Operational Planning Team, tasked to educate, train and equip Navy forces for EMW.
- Expansion of NRL's already superb Electronic Warfare (EW) Division by expanding its capacity to simultaneously handle current EW programs of record as well as urgent operational needs.
- Greater focus on addressing affordability (Total Ownership Costs) in its R&D efforts for existing and new platforms and systems.
- Development of highly efficient thermoelectric material.

Sustaining and Improving Fleet – NRL Interaction

Senior-level Interaction

Fleet Science Advisors are the conduit for expanding Fleet-NRL interaction. This interaction could be expanded and formalized to ensure that the most current and developing Fleet concerns and requirements are clearly understood by NRL.

NRL Staff Familiarization with the Fleet

Apart from specific projects in progress and higher level Fleet-NRL interaction addressed above, NRL does not have a program in place that gives its scientists and engineers an opportunity to visit ships, submarines, aircraft squadrons, and expeditionary units to improve NRL staff understanding of naval operating environments. This is especially important for NRL personnel working on applied research projects. We met with researchers who were working on a range of projects, from basic to cutting edge applied research, who had never been on the platform that the system on which they are working will operate. Many commented that a better understanding of the operating environment, and other challenges facing Naval units, would improve the quality of their research.

Bringing researchers to the Fleet entails additional costs and increases research overhead; however, a more informed research team will be more efficient and successful in their research.

<u>Recommendation 1.</u> That NRL expand and formalize interaction with the Fleet to ensure that the most current and developing Fleet and Systems Command concerns and requirements are clearly understood by NRL.

<u>Recommendation 2.</u> That NRL facilitate staff scientist and engineer visits to Fleet units to improve staff understanding of the operating environments and challenges facing operators that will ultimately employ NRL developed systems and equipment.

Civilian Human Resource Services

Performance Management

Performance Appraisal Review System (PARS) Program

In May 2014, NRL conducted an internal assessment of the PARS program for Wage Grade employees. Their analysis of 2012-13 performance plans found three areas of concern: (1) Proper documentation of performance plans—only 27 percent of sampled performance plans were properly documented; (2) Timeliness—14 percent of performance plans were issued more than 60 days after the beginning of the rating period; (3) Absence of supervisory input—only nine percent included supervisor comments. NRL provided notification of the areas of concern to each division to take immediate corrective actions to ensure compliance.

NAVINSGEN reviewed PARS Program appraisals for each fiscal year from 2012-14 for 13 randomly selected Wage Grade employees (total appraisals, 39). While performance plans were issued within the required timeframe, no documentation existed to determine whether the required quarterly progress reviews were conducted as required by Article 30 of NRL's agreement with the Washington Area Metal Trades Council (collection of relevant labor unions). For six of 39 appraisals, there was no indication that a mid-year progress review was conducted. PARS that should have included a close-out rating did not document it being conducted as required by NRLINST 12430.1A, Performance Appraisal Review System (PARS). Eight of 39 appraisal forms were missing supervisor acknowledgement that the employee's position description was current and accurate.

Deficiency 1. **Not all performance plans, mid-year and quarterly reviews, close-out ratings, and ratings of record are properly documented per NRL's agreement with the Washington Area Metal Trades Council, 10 Dec 04, Article 30, Section 6 and NRLINST 12430.1A, Chapters 2 and 6.**

Deficiency 2. **Not all PARS indicate if position descriptions are current and accurate. Reference: NRLINST 12430.1A, Chapters 1.2b, 2.1, and 2.4 and Appendix A-4, paragraph I.2.**

Demonstration Project

The U.S. Naval Research Laboratory (NRL) Personnel Management Demonstration ("Demo") Project initiated in 1999 uses the Contribution-based Compensation System (CCS) to integrate performance management components (e.g., performance appraisal, position classification, compensation adjustment decisions). Approximately 98 percent of NRL's civilian workforce uses the CCS performance plans and appraisals.

In the course of our random sampling of 111 employee records drawn from the past three years, we learned that although NRL makes CCS performance plans and appraisals available to employees for online review, NRL does not require signatures on these appraisals and does not verify that each employee has reviewed the document. As such, NRL has no means of confirming that employees in the Demo actually review their performance appraisals.

Of note, the Federal Register requires NRL to use the CCS Summary Form to facilitate and document the communication of performance information to ensure they are aware of the basis on which their performance and contributions will be assessed. Further, a documented review is required at the end of the appraisal period. Without hard-copy or electronic signatures, NRL has no means of documenting that individual employees have received the required performance information.

Our survey and focus group discussions revealed that a number of civilian employees are dissatisfied with the fact that they do not receive face-to-face debriefing of their performance appraisals.

Deficiency 3. **NRL is unable to demonstrate whether communication of annual performance plans or periodic appraisals to each employee to ensure they are informed of the basis on which their performance and contributions will be assessed has occurred. References: Title 5, Code of Federal Regulations (CFR) 430.206(b); U.S. Naval Research Laboratory (NRL) Personnel Management Demonstration Project; and Department of the Navy (DON), Notice Federal Register, Vol. 64, No. 121, Notices, pages 33995-33996.**

Recommendation 3. **That NRL use the signature block of the CCS Summary Form from 5 CFR 430.206(b) to document CCS plan, interim review, and appraisal have occurred.**

Individual Development Plans

A 25 September 2013 change to DoDI 1400.25, Volume 410, DoD Civilian Personnel Management System: Training, Education, and Professional Development, now requires Individual Development Plans (IDP) or Executive Development Plans (EDP) for all civilian employees. Prior to this change, IDPs and EDPs were recommended but not required. DON Office of Civilian Human Resources (OCHR) notified Navy commands of this new requirement on 16 April 2014.

NRL has not yet implemented this new requirement and only requires IDPs for certain employees (i.e., probationary supervisors, Senior Executive Service (SES) members, Upward Mobility Program participants, Veterans Readjustment Act program members, long-term training participants, persons in cooperative education programs, and other employees under special training agreements).

Deficiency 4. **NRL has not established IDPs and EDPs for all of its civilian personnel. Reference: DoDI 1400.25, Volume 410, Enclosure 3, paragraphs 13 and 14.**

Deficiency 5. **NRLHROINST 12410.3, Civilian Employee Training and Development, has not been updated to reflect current DoD policy on IDPs and EDPs for civilian personnel. Reference: DoDI 1400.25, Volume 410, Enclosure 3, paragraphs 13 and 14.**

Personnel Training/Qualifications

Civilian Training

NRL is not adequately tracking mandatory civilian training and cannot produce reliable data on completion of required civilian training as required by SECNAVINST 12410.25, Civilian Employee Training and Career Development. NRLHROINST 12410.3 does not outline a process for tracking mandatory civilian training for its employees. Additionally, not all required DON OCHR training topics are listed in NRLHROINST 12410.3.

Deficiency 6. **NRL is not adequately tracking mandatory civilian training and cannot produce reliable data on required training and completion rates. References: SECNAVINST 12410.25, and DON OCHR, https://www.portal.navy.mil/donhr/TrainingDevelopment/Pages/MandatoryTraining.aspx.**

Recommendation 4. **That NRL revise NRLHROINST 12410.3 to include specific procedures and requirements for tracking and reporting satisfactory completion of Navy Mandatory Civilian Training and NRL required training.**

Recommendation 5. **That NRL consider utilizing the Command Training Officer to collaborate across NRL Directorates and Divisions to establish and maintain an overall command training program for tracking and reporting GMT, Navy Mandatory Civilian Training and NRL required training.**

Continuity of Operations (COOP) Planning

NRL's COOP instruction requires review and update per SECNAVINST 3030.4C, Department of the Navy Continuity of Operations Program. (b) (7)(e) [redacted]

(b) (7)(e) [redacted]

Deficiency 7. **NRL COOP plan should be reviewed and updated annually. References: SECNAVINST 3030.4C, paragraphs 7a(1)(a)7, 7a(1)(i), 7a(1)(n)2; NRLINST 3030.1, NRL Continuity of Operations Plan, paragraphs 4d and 11.**

Deficiency 8. (b) (7)(e) [redacted]

<u>Recommendation 6.</u> That NRL consider coordinating with other DoD laboratories to establish some level of capability to reposition vital equipment and research material that is reasonably mobile in support of COOP.

Radiological Controls (RADCON)

NRL has a number of research projects using ionizing radiation, all of which fall under the cognizance of the Radiological Affairs Support Program (RASP). The Naval Radiation Safety Committee (chaired by Office of the Chief of Naval Operations, Environmental Protection, Safety and Occupational Health Division (OPNAV N45)) has issued a Naval Radioactive Material Permit (NRMP) to NRL authorizing the use of a large number of radioisotopes for research purposes. NRL also has five linear accelerators and 51 analytical x-ray machines that fall under the RASP regulatory umbrella.

Naval Sea Systems Command (NAVSEA) Detachment, Radiological Affairs Support Office (NAVSEADET RASO) performs periodic compliance inspections at commands with a RASP. In August 2014, NAVSEADET RASO inspected NRL and issued an inspection report (dated 1 October 2014) citing seven deficiencies and one recommendation. A NAVSEADET RASO inspector assigned to our inspection team reviewed the status of the outstanding deficiencies (which are administrative in nature) and confirmed that NRL is on a path to remedy them no later than 31 March 2015.

Research Ethics

The process for reviewing and responding to research misconduct-related information and documentation at NRL is governed by ONRINST 5041.2, Policy for Handling Allegations of Scientific Research Misconduct.

We found that this ONR policy for handling scientific research misconduct was not widely known throughout the NRL staff. We found no research ethics violations during our inspection.

<u>Recommendation 7.</u> That NRL actively communicate to their entire staff ONR policies and procedures relating to scientific research misconduct, as contained in ONRINST 5041.2 on a regular basis.

FACILITIES, ENVIRONMENTAL, ENERGY CONSERVATION, AND SAFETY AND OCCUPATIONAL HEALTH (SOH)

Facilities

Overview of NRL Facilities

As a Navy Working Capital Funded activity, NRL is responsible for planning and funding maintenance, repair, and modernization of its facilities at the main lab in Anacostia (Washington, DC) and its outlying sites in Pomonkey, MD; Blossom Point, MD; Chesapeake Beach, MD; and Midway Research Center, MD.

Condition rating data obtained from NRL indicated that the average condition rating at NRL facilities in Anacostia was 77 out of 100 (the average for CNIC-owned facilities across Navy is 85); however, the bottom 10 percent of those facilities have an average rating of 60 out of 100. The average age of all 408 NRL facilities is 49 years since initial construction.

Because NRL self-funds facility maintenance, they use their own facility inspection program to track facility condition. Since NRL facilities are not tracked as CNIC-funded assets, NRL facility condition as reflected in the Internet Navy Facility Asset Data Store (iNFADS), used to track the facility condition of the vast majority of the Navy shore establishment, is out of date. For instance, the average facility condition documented in iNFADS for NRL-District of Columbia (NRL-DC) is 85 (compare to the current rating of 77 cited above). Thus, while iNFADS data might suggest a condition better than most installations across the Navy—the average condition rating for all Washington Navy Yard facilities is 82 by comparison—the majority of the NRL campus is not of a proper condition to support cutting edge research with high-powered, specialized equipment that requires much greater cooling and humidity control, as well as clean, uninterruptable electrical power.

NRL leadership cited facilities as the top challenge facing their organization and our team concurs with this assessment, given the age of NRL infrastructure, funding available, and current fiscal authorities. NRL's facilities require investment in order to ensure that the Lab is able to continue to execute the full range of its mission into the future. NRL has developed a sound Capital Improvements Plan to address their most critical problems. Many of their buildings were built in the 1960s or earlier and require not only repair, but capacity increases to mechanical and electrical systems to support modern research.

Facilities Modernization

NRL has access to two key authorities to repair and modernize their infrastructure. First, 10 U.S.C. 2805(d) authorizes unspecified minor construction projects costing no more than $4M to be funded from operations and maintenance (O&M) funds (via Navy Working Capital Funds in the case of NRL). Second, Public Law 110-417, Section 219, authorizes a director of a defense laboratory to use discretionary funds up to 3 percent of the laboratory's budget to carry out unspecified minor military construction projects (approximately $33M for NRL, given an annual

budget of approximately $1.1B). This does not include recurring maintenance and repair needed to keep facilities in normal working condition.

Project elements that create an addition or a facility on a new site, increase the capacity of mechanical and electrical systems, or change the function of the original design of the facility (e.g., additional clean rooms or conversion of an administrative facility into a laboratory facility), including modernization, are considered construction. By comparison, replacement or repair of old or worn-out building components (e.g., roof, air handlers, electrical wiring) is considered repair, which requires notification of Congress for project costs that exceed $7.5M.

We recommend that NRL submit larger repair and construction projects through the NWCF budget process that allows them to self-fund these modernization projects for inclusion in the MILCON appropriation. In the past, NRL tried other methods to gain approval for these projects without success due to limited authorities. Current legislation allows NRL to newly construct or expand capacity of facilities up to $4M. However, we believe this amount will be insufficient in the intermediate and long-term to support known requirements for additional clean rooms, enhanced cooling and humidity controls, increased electrical capacity, and vibration/noise/magnetic mitigation components needed to support modern specialized research equipment. Legislative changes would be required to raise this cap above $4M.

Issue Paper A-1 addresses this issue in further detail.

Facilities Maintenance and Repair

Concurrent with modernization efforts, NRL should consider increasing funding for piping, cooling, and heating repairs to mitigate the varied infrastructure performance of existing laboratory and research facilities. Our site visits confirmed NRL's assertion that working conditions in several facilities were not conducive to effective and efficient research. Focus group and on-line survey comments strongly indicated this as a significant impact to quality of work, retention, and recruiting. A notable example of facility-related work disruptions was found in Building 208, Electrical and Electronics Systems Laboratory, built in 1965. NRL Code 6800 (Electronics Science & Technology Division) reported chronic piping leaks in 13 of 40 labs and 18 of 31 offices in the building in the past year. These leaks caused a significant number of disruptions and led scientists and engineers in the building to cover their work areas with plastic during the day and after hours as shown in Figure 4.

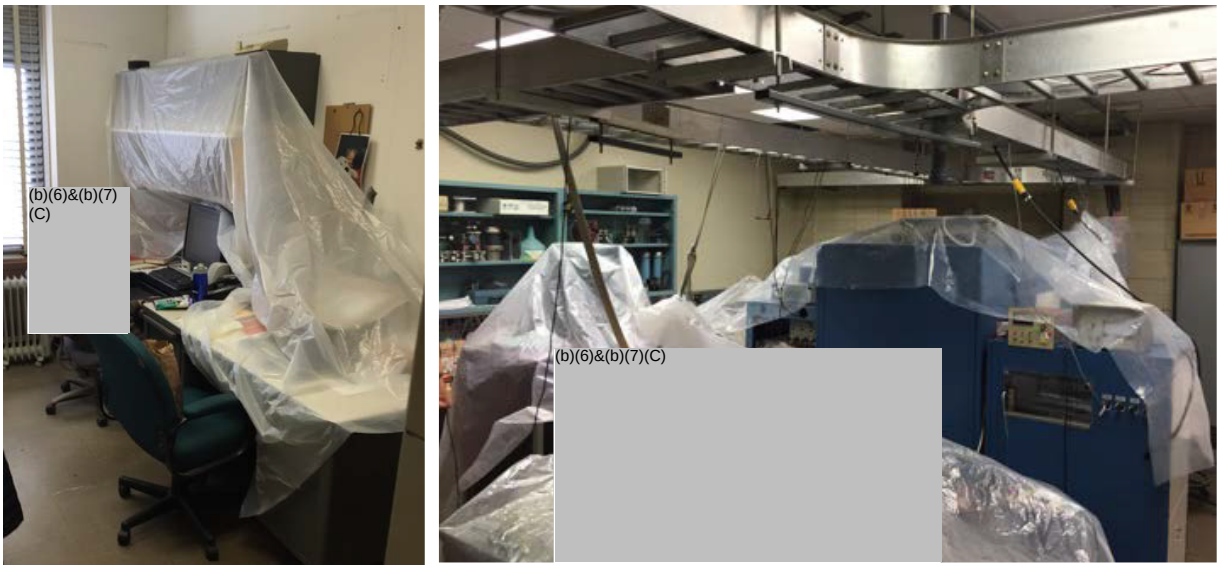


Figure 4: Building 208 lab and work spaces showing use of plastic to prevent damage to computers and High-Power Millimeter Wave Technology research and equipment from leaks.

NRL senior staff provided several examples of disruptions to research in the past three years, including over $1M in equipment damage and at least 11,000 lost man-hours valued at $1.6M. These figures capture only a portion of the impacts of disruptions to normal operations at the Lab.

NRL budgets approximately $20M annually for facility sustainment which includes recurring maintenance and repair. Although NRL is a NWCF organization, its authorized facility sustainment funding levels are dictated by Assistant Secretary of the Navy for Financial Management and Comptroller (ASN(FM&C)). This facility sustainment funding has been limited during past Navy budget reviews in an effort to align with broader Navy facility sustainment funding levels. Given the current trajectory of NRL facility condition and the nature of their work, we recommend that NRL propose higher facility sustainment levels to ASN(FM&C) than previously approved.

Issue Paper A-2 addresses this issue in further detail.

A longer-term issue facing NRL is the impact of encroachment on the Lab's ability to conduct high precision research in a carefully controlled environment free of vibrational and electromagnetic radiation interference. The Lab sits along the Potomac River across from Reagan National Airport and adjacent to a major highway (I-295) where commercial aircraft operations and heavy vehicle traffic have detrimental effects on NRL's ability to maintain certain types of precise laboratory environments. This encroachment periodically disrupts and delays research. NRL attempts to mitigate the impact with mechanical isolation techniques and by adjusting research schedules to times when the encroachment is at a minimum. If this encroachment becomes more pronounced over time, CNR may consider moving those NRL laboratories that cannot mitigate these impacts to more remote locations.

Environmental Readiness

Our inspection included a review of the following areas:

- Hazardous material
- Hazardous waste
- Spill prevention
- Storm water
- Drinking water
- Waste water
- Air pollution
- Environmental impact statements
- Environmental assessments
- Categorical exclusions
- Natural and cultural resources requirements

NRL's Environmental Division effectively meets Lab mission requirements while maintaining compliance with applicable environmental regulations, instructions, and policies.

Fire Fighting Research Activities

One NRL mission site is located in Mobile, AL, where the Ex-USS Shadwell, a decommissioned Navy vessel, is used by NRL staff and the U.S. Coast Guard (USCG) Research and Development Center for firefighting research as a Joint Maritime Testing Detachment (JMTD). The NRL team is considered a tenant command at the JMTD complex under USCG Sector Mobile, AL. Research on the vessel includes conduct of full-scale fire tests. A Joint Research Agreement (February 2012) between the Navy and USCG outlines use of the complex and roles and responsibilities between the two organizations. NRL Safety Branch, Environmental Section (Code 3546) provides annual consolidated safety inspections on Shadwell, but the Joint Research Agreement is unclear regarding specific roles and responsibilities with respect to environmental compliance for Navy activities on Shadwell. The agreement states that "NRL will assume the liability for cleaning all debris or pollutants caused by their actions or negligence." An apparent seam exists between NRL standard operating procedures and the Joint Research Agreement on responsibility for waste water, spill prevention control and countermeasures, petroleum, oil and lubricant (POL) requirements, National Environmental Protection Act requirements, air permits, and other concerns related to shipboard fire-fighting operations and testing.

Recommendation 8. **That NRL work with U.S. Coast Guard, Sector Mobile to more clearly delineate environmental roles and responsibilities between the Navy and USCG in the Joint Research Agreement.**

Storm Water

NRL is a party to the DC Department of Environment's (DDOE) Municipal Separate Storm Sewer System (MS4) permit. NRL initially applied to DDOE to obtain its own MS4 permit in November 2010; however, NRL recently initiated fee payments to DDOE to become compliant with DDOE's MS4 permit. Originally anticipating becoming a separate MS4, NRL maintains a Storm Water

Control Plan (analogous to a Storm Water Pollution Prevention Plan), conducts monthly inspections of its storm water system, and implements storm water best management practices (BMP) to minimize the potential for unauthorized inputs into the storm water system. Updates to documents and other scheduled milestones are tracked on the compliance calendar. At the time of inspection, the staff was unsure whether these actions or any other actions are required under DDOE's MS4 permit.

Recommendation 9. **That NRL Environmental Department engage the DC Department of Environment (DDOE) to determine NRL's specific environmental requirements under the DC Municipal Separate Storm Sewer System (MS4) permit.**

Energy Conservation

NRL is compliant with SECNAVINST 4101.3, Department of the Navy Energy Program for Security and Independence Roles and Responsibilities, and OPNAVINST 4100.5E, Shore Energy Management.

Safety and Occupational Health (SOH)

NRL SOH programs were assessed for compliance with 29 U.S.C. 651-678, Occupational Safety and Health Act of 1970, safety related rules, regulations, and standards promulgated by the Occupational Safety and Health Administration, and policies outlined in OPNAVINST 5100.23G CH-1, Navy Safety and Occupational Health Program Manual.

During our inspection, we reviewed the following aspects of SOH and found them to be compliant with governing directives:

- Command SOH policy
- SOH oversight of subordinate commands
- Headquarters SOH program
- Training and qualifications of safety professionals assigned to NRL
- Operational risk management
- Safety councils, committees, and working groups
- Safety database input
- Safety trend analysis
- Safety self-assessment
- Acquisition safety
- Traffic safety (including motorcycle safety)
- Recreational/off-duty safety

NRL maintains an effective SOH Program that meets required program elements in accordance with applicable laws, regulations, and policies listed above. They excel in planning and prevention, manifested by good integration in monthly research and testing review boards, and their safety training and tracking systems are effective.

Ventilation Systems

Several NRL supervisors, as well as the NRL safety staff, self-reported that numerous building ventilation systems were underperforming as compared with original design characteristics and that these systems had occasionally failed or had other reliability concerns. Some buildings are designed in such a way that systems are not easily upgraded without performing a complete system overhaul. Although we did not identify any ventilation systems that failed to meet recommended standards from 29 CFR 1910.1450, NRL should catalog, thoroughly assess, and prioritize building ventilation systems for repair, upgrades, or redesign.

Medical Surveillance

Only 87 percent of NRL's required medical surveillance examinations have been completed for its employees. This is a result of scheduling issues with the NRL-managed Health Clinic on base. The Clinic only conducts exams once every 2 weeks. NRL is pursuing measures to improve timeliness of medical surveillance examinations.

Deficiency 9. **Only 87 percent of required NRL employee medical surveillance exams have been completed. Reference: Navy Environmental Health Center (NEHC) Technical Manual OM 6260, Medical Surveillance Procedures Manual and Medical Matrix (August 2007)**

Fire Safety Standards

In NRL-DC Building 30, the ground floor mechanical room has access to an elevator shaft. The elevator is nonfunctioning and abandoned, but the rails, counterweights, and electrical services are still in the shaft. The door to the elevator shaft is damaged and cannot be secured, presenting a fire hazard, as the elevator shaft connects several floors.

Deficiency 10. **NRL-DC Building 30 basement elevator mechanical room fire-rated door is damaged and unsecured. References: 29 CFR 1917.116(f); AMSE A17.1, Safety Code for Elevators and Escalators.**

SECURITY PROGRAMS AND CYBERSECURITY/TECHNOLOGY

The Security Programs and Cybersecurity and Technology Team used survey and focus group responses, document review, and face-to-face interviews to assess the following areas:

- Personnel Security
- Information Security
- Industrial Security
- Operations Security (OPSEC)
- Special Security Programs
- Physical Security and Antiterrorism/Force Protection (ATFP)
- Emergency Management (EM)
- Cybersecurity
- Information Technology Acquisition & Network Management
- Personally Identifiable Information

Command Security Overview

NAVINSGEN reviewed compliance with mandatory personnel, information, industrial, and operations security requirements. Additionally, NAVINSGEN reviewed information technology acquisition, network management, and EM due to the scope of work conducted at NRL and (b)(7)(e)&(f) Washington.

While this report describes findings and deficiencies identified during the timeframe of our inspection, we note that NRL promptly accomplished corrective actions related to (b)(7)(e)&(f)

Recommendation 10. That NRL revises its Command Security Instruction (NRLINST 5510.40E, NRL Security Manual) to reflect (b)(7)(e)&(f)

Personnel Security

(b)(7)(e)&(f)

NRL command check-out procedures and forms for personnel departing the command contain required steps to retrieve Common Access Cards (CAC) from (b)(7)(e)&(f)

(b)(7)(e)&(f) In situations where security, economy, and efficiency are considerations, such an arrangement is authorized per SECNAV M-5510.30,

(b)(7)(e)&(f)

Classified aspects of Personnel Security are addressed in the classified annex to this report.

Deficiency 11. (b)(7)(e)&(f)

Deficiency 12. (b)(7)(e)&(f)

Deficiency 13. (b)(7)(e)&(f)

Recommendation 11. (b)(7)(e)&(f) .

Recommendation 12. (b)(7)(e)&(f)

Information Security

(b)(7)(e)&(f) .

Deficiency 14. (b)(7)(e)&(f)

Industrial Security

NRL is satisfactorily meeting Industrial Security program requirements. However, the NRL (b)(7)(e)&(f) .

Operations Security (OPSEC)

(b)(7)(e)&(f)

Deficiency 15. (b)(7)(e)&(f)

Deficiency 16. (b)(7)(e)&(f)

Deficiency 17. (b)(7)(e)&(f)

Deficiency 18. (b)(7)(e)&(f)

Special Security Programs

(b)(7)(e)&(f)

(b)(7)(e)&(f)

.

Physical Security and Antiterrorism/Force Protection (ATFP)

NRL-NSA Washington Security Roles and Responsibilities

(b)(7)(e)&(f)

(b)(7)(e)&(f)

(b)(7)(e)&(f)

Recommendation 13. **That Force Protection funding, equipment fielding, and command and control responsibilities for NRL be detailed in a formal agreement between CNR and CNIC.**

Security Force Manning

(b)(7)(e)&(f)

Recommendation 14. (b)(7)(e)&(f)

Access Control Procedures

(b)(7)(e)&(f) .

Restricted Area Designation

(b)(7)(e)&(f)

Deficiency 19. (b)(7)(e)&(f)

Deficiency 20. (b)(7)(e)&(f)

Emergency Management (EM)

(b)(7)(e)&(f)

Deficiency 21. (b)(7)(e)&(f)

Deficiency 22. (b)(7)(e)&(f)

Cybersecurity & Technology

(b)(7)(e)&(f)

(b)(7)(e)&(f)

(b)(7)(e)&(f) f)

Data at Rest (DAR)

(b)(7)(e)&(f)

.

Marking of Email Messages on SIPRNET

(b)(7)(e)&(f)

(b)(7)(e)&(f)

Deficiency 23. (b)(7)(e)&(f)

Deficiency 24. (b)(7)(e)&(f)

Deficiency 25. (b)(7)(e)&(f)

Deficiency 26. (b)(7)(e)&(f)

Information Technology Acquisition & Network Management

(b)(7)(e)&(f)

(b)(7)(e)&(f)

Deficiency 27. (b)(7)(e)&(f)

Deficiency 28. (b)(7)(e)&(f)

Deficiency 29. (b)(7)(e)&(f)

.

Deficiency 30. (b)(7)(e)&(f)

Deficiency 31. (b)(7)(e)&(f)

Deficiency 32. (b)(7)(e)&(f)

Deficiency 33. (b)(7)(e)&(f)

b)(7)(e)&(f)

(b)(7)(e)&(f) [redacted]

Recommendation 15. (b)(7)(e)&(f) [redacted]

Recommendation 16. (b)(7)(e)&(f) [redacted]

Recommendation 17. (b)(7)(e)&(f) [redacted]

Recommendation 18. (b)(7)(e)&(f) [redacted]

RESOURCE MANAGEMENT/COMPLIANCE PROGRAMS

The Resource Management/Compliance Programs Team assessed 18 programs and functions. Our findings reflect inputs from survey respondents, onsite focus group participants, document review, direct observation, and face-to-face personnel interviews.

The following programs and functions are considered to be well administered and in full compliance with applicable directives:

- Financial Management/Comptroller Functions
- Managers' Internal Control
- Government Travel Charge Card
- Government Commercial Purchase Card
- Personal Property Management
- Command Individual Augmentee Coordinator Program
- Deployment Health Assessment
- Individual Medical Readiness
- Navy Alcohol and Drug Abuse Prevention
- Hazing Training and Compliance
- Legal and Ethics
- Voting Assistance Program

While this report describes findings and deficiencies identified during the timeframe of our inspection, we note that NRL then promptly accomplished corrective actions related to deficiencies in the following programs: Physical Readiness, Sexual Assault Prevention and Response, Suicide Prevention, Victim and Witness Assistance Program, and Command Managed Equal Opportunity.

The following programs were found to be not fully compliant:

Physical Readiness Program

The current Command Fitness Leader (CFL) assumed responsibility for the program in early 2014 and was duly appointed in writing. The CFL has conducted two semiannual Physical Fitness Assessment cycles (PFA) and has maintained proper records since taking over this collateral duty. However, the current CFL has not attended the required 5-day certification course for CFLs as delineated in OPNAVINST 6110.1J, Physical Readiness Program. In addition, written documentation related to official PFAs at NRL has not been maintained for 5 years as required by OPNAVINST 6110.1J.

Deficiency 34. CFL has not completed the OPNAV-approved certification course (required within 3 months of assignment as CFL). Reference: OPNAVINST 6110.1J, Physical Readiness Program, paragraph 6k(1)(f).

<u>Deficiency 35.</u> Original written documentation related to official Physical Fitness Assessments has not been maintained for 5 years. Reference: OPNAVINST 6110.1J, paragraph 6k(7).

Sexual Assault Prevention and Response

NRL is committed to maintaining an environment free of sexual assault (SA) and victims would receive excellent care and support services. There were no reports of SA for over two years, and there is no evidence that NRL incorrectly handled any SA cases as a result of the identified deficiency.

<u>Deficiency 36.</u> Watchstander and Duty Officer training has not been conducted to ensure proper victim response protocols are in place to respond to reports of sexual assault. Reference: SECNAVINST 1752.4B, Sexual Assault Prevention and Response, Enclosure (3), paragraph 2c(1); Enclosure (5), paragraph 3a; and Enclosure (10), paragraph 2d.

Suicide Prevention

NRL has successfully implemented a Suicide Prevention program according to OPNAVINST 1720.4A, Suicide Prevention Program, following the 2011 NAVINSGEN Area Visit that found NRL to be lacking in this regard. Two remaining discrepancies were identified.

<u>Deficiency 37.</u> NRL senior leadership has not regularly published messages, information and guidance on suicide prevention (SP) and has not incorporated SP as a part of life skills and health promotion training. Reference: OPNAVINST 1720.4A, paragraphs 5a(2)-(3) and 6h(4).

<u>Deficiency 38.</u> Watchstander and Duty Officer training has not been conducted to ensure proper crisis response protocols are in place to respond to suicide-related behavior calls and reports. Reference: OPNAVINST 1720.4A, paragraphs 5b(1) and 5c.

Victim and Witness Assistance Program (VWAP)

NRL did not have a VWAP and was not executing its echelon 2 oversight responsibilities for VWAP in accordance with OPNAVINST 5800.7A, Victim and Witness Assistance Program. NRL appointed a Victim and Witness Assistance Coordinator (VWAC) upon our arrival for the inspection.

<u>Deficiency 39.</u> NRL is not executing its echelon 2 oversight responsibilities for VWAP. Reference: OPNAVINST 5800.7A, Victim and Witness Assistance Program, paragraph 8b.

<u>Deficiency 40.</u> NRL did not have an appointed VWAC. Reference: OPNAVINST 5800.7A, paragraph 8d(2).

NRL Inspector General (IG) Functions

During the Naval District Washington 2011 Area Visit, NAVINSGEN found that having the NRL Chief Staff Officer dual-hatted as the command IG did not meet the intent of SECNAVINST 5370.5B, DON Hotline Program, due to his lack of independence from NRL command leadership. NRL subsequently dual-hatted the Security Officer as the command IG which, in our

opinion, was equally insufficient. NRL received direction from the former Chief of Naval Research to comply with the provisions of SECNAVINST 5370.5B and is currently in the process of evaluating several courses of action to include hiring a full time IG and qualified investigator.

A quality assurance review of NRL's IG hotline program found that they lack an 1800 series investigator. Notwithstanding the absence of a qualified investigator, the hotline is functioning in accordance with SECNAVINST 5370.5B in all other respects. IG functions are being handled by the Head, Command Support Services.

Deficiency 41. NRL does not have a qualified 1800 series investigator for its hotline program. Reference: SECNAVINST 5370.5B, paragraphs 7b and 8c-d.

Noncompliant Programs:

Command Managed Equal Opportunity

Deficiency 42. NRL did not have a CMEO program in place with a trained CMEO Manager at the time of our inspection. Reference: OPNAVINST 5354.1F CH-1, Navy Equal Opportunity Policy, paragraph 7k(12).

SAILOR PROGRAMS

The NAVINSGEN Senior Enlisted Advisor held with key program holders to assess career management programs throughout the command. Brilliant on the Basics Programs were reviewed. NRL leadership is engaged with the career development board process at the command.

Our overall assessment is that foundational programs are well-established to support Sailors' career development. Sailors displayed sharp uniform appearance, outstanding military bearing and exhibited behavior consistent with good order and discipline.

Sailor Career Management Programs

Areas reviewed included the Command Sponsorship, Command Indoctrination, and Career Development Programs.

Command Sponsorship Program

This program is in compliance with OPNAVINST 1740.3C, Command Sponsor and Indoctrination Program.

Recommendation 19. That NRL ensure sponsorship program critique sheets completed by newly reported personnel are forwarded to command leadership for review.

Command Indoctrination Program (INDOC)

NRL's INDOC program was not fully compliant with OPNAVINST 1740.3C at the time of our inspection. We note that NRL promptly accomplished corrective actions related to the deficiency in Command INDOC.

Deficiency 43. Command indoctrination is not conducted for incoming personnel within 30 days of reporting. References: OPNAVINST 1740.3C, paragraphs 4b and Enclosure (2), paragraph 1c(3).

Career Development Program (CDP)

NRL's CDP is in compliance with OPNAVINST 1040.11D, Navy Enlisted Retention and Career Development Program.

Appendix A: Issue Papers

SUMMARY OF ACTIONS

Issue Papers that follow require responses to recommendations in the form of Implementation Status Reports (ISR). If you are an Action Officer for a staff listed in Table A-1, please submit ISRs as specified for each applicable recommendation, along with supporting documentation, such as plans of action and milestones and implementing directives.

- Submit initial ISRs using OPNAV Form 5040/2 no later than 1 October 2015. Each ISR should include an e-mail address for the action officer, where available. This report is distributed through Navy Taskers. ISRs should be submitted through the assigned document control number in Navy Taskers. An electronic version of OPNAV Form 5040/2 is added to the original Navy Tasker Package along with the inspection report, upon distribution.

- Submit quarterly ISRs, including "no change" reports until the recommendation is closed by NAVINSGEN. When a long-term action is dependent upon prior completion of another action, the status report should indicate the governing action and its estimated completion date. Further status reports may be deferred, with NAVINSGEN concurrence.

- When action addressees consider required action accomplished, the status report submitted should contain the statement, "Action is considered complete." However, NAVINSGEN approval must be obtained before the designated action addressee is released from further reporting responsibilities on the recommendation.

- NAVINSGEN point of contact for ISRs is (b)(6)&(b)(7)(c), Telephone: (202) 433-(b)(6)&(b), DSN 288-(b)(6)&(b), Facsimile: (202) 433-7974, E-mail: (b)(6)&(b)(7)(c)@navy.mil.

Table A-1. Action Officer Listing for Implementation Status Reports

COMMAND	RECOMMENDATION NUMBER(S) XXX-15
DASN(B)	002
NRL	001, 003, 004, 005

ISSUE PAPER A-1: NAVAL RESEARCH LABORATORY SELF-FUNDED MILITARY CONSTRUCTION FACILITY MODERNIZATION PROJECTS

References: (a) 10 USC 2805(d), Laboratory Revitalization
(b) Public Law 110-417 Section 219, Unspecified Minor Construction Authority and the Laboratory Revitalization Demonstration Program
(c) OPNAVINST 11010.20H, Navy Facility Projects

Issue: The Naval Research Laboratory (NRL) has a bona fide need to develop military construction (MILCON) projects that include both repair and construction in order to meet current and future research requirements in direct support of their mission.

Background: As a Navy Working Capital Funded activity, NRL has authorities to self-fund construction projects costing up to four million dollars as specified in references (a) and (b). Project elements that create an addition or a facility on a new site, increase the capacity of building mechanical and electrical systems, or change the function of the original facility design (e.g., additional clean rooms or conversion of an administrative facility into a laboratory facility), including modernization, are considered construction. By comparison, replacement or repair of old or worn-out building components (roof, air handlers, electrical wiring, etc.) is considered repair, which requires notification of Congress for project costs that exceed $7.5M, but has no upper limit, as specified in reference (c).

Discussion: The age, condition, capacity, and capabilities of NRL facilities lag those characteristics required by NRL's current and future research activities. We recommend that NRL submit larger repair and construction projects through the Navy Working Capital Fund budget process, which allows them to self-fund these modernization projects for inclusion in the Military Construction (MILCON) appropriation.

The Navy Working Capital Fund budget process is not risk free of reallocation for other Navy priorities; however this risk can be mitigated by close coordination between NRL, the Chief of Naval Research (CNR), OPNAV, and Deputy Assistant Secretary of the Navy (Budget) (DASN(B)). Such coordination could include DASN(B) agreeing to fence funding for NRL approved construction and repair projects submitted through the Navy Working Capital Fund budget process for incorporation into the Navy Military Construction budget request.

Current legislation allows NRL to newly construct or expand capacity of

facilities up to $4M; however, NAVINSGEN assesses that this amount will be insufficient in the intermediate and long-term to support known requirements for additional clean rooms, enhanced cooling and humidity controls, increased electrical capacity, and vibration/noise/magnetic mitigation components needed to support modern specialized equipment. Legislative changes would be required to raise this cap above $4M.

Recommendations: 001-15. That NRL submit future construction and repair projects through the Navy Working Capital Fund budget process for incorporation into the Navy MILCON budget request.

002-15. That DASN(B) consider fencing funds for NRL-approved construction and repair projects submitted through the Navy Working Capital Fund budget process for incorporation into the Navy Military Construction budget request.

003-15. That NRL consider developing legislative proposals to allow higher limits for construction in support of Naval Research Lab modernization.

NAVINSGEN POC: (b)(6)&(b)(7)(c) USN
(202) 433-(b)(6)&(b) ; DSN 288-(b)(6)&(b)
(b)(6)&(b)(7)(c) @navy.mil

ISSUE PAPER A-2: NAVAL RESEARCH LABORATORY FACILITY SUSTAINMENT RESTORATION AND MODERNIZATION FUNDING

References: (a) Facility Sustainment Model User's Handbook Version 16

Issue: The age and condition of NRL facilities requires a higher level of facility sustainment, restoration and modernization (FSRM) funding than approved in recent budget requests.

Background: The Department of Defense (DoD) Facility Sustainment Model (FSM) is designed to forecast the annual funding required for the sustainment of DoD infrastructure. Per reference (a), sustainment is defined as "the maintenance and repair activities necessary to keep a typical inventory of facilities in good working order over their expected service lives." The definition further states that facility sustainment is not "intended to return degraded facilities to good condition." As a Navy Working Capital Funded activity, NRL funds its own FSRM program based on a percentage of the FSM, including regular inspections and adjustments, preventive maintenance, minor emergency and service calls, and major component repairs and replacements.

Discussion: In FY14 and FY15, NRL's annual FSRM budget was approximately $23M, which included sustainment for recurring maintenance and repair as well as restoration and modernization to correct problems stemming from previously inadequate sustainment and to accommodate changes in equipment and tooling in laboratories.

As a Working Capital Funded activity, NRL's FSRM funding levels are approved by Deputy Assistant Secretary of the Navy, Budget (DASN(B)). NRL FSRM funding has been limited during past Navy budget reviews by DASN(B) in an effort to align NRL's FSRM funding levels with broader Navy FSRM funding level targets.

NAVINSGEN assesses that NRL's current FSRM funding levels are insufficient to sustain its facilities; additional resources are required. NRL's exacting laboratory environmental requirements make current FSRM funding shortfalls are more acute and more of a detriment to mission accomplishment than one finds at other commands. NRL has engaged with DASN(B) in the past to increase its FSRM funding; reengagement is required to ensure the facilities are properly sustained.

NAVINSGEN assesses that cost factors ascribed by the current DoD Facility Sustainment Model are not accurate for NRL's specialized facilities. As a

result, the output of the FSM does not accurately reflect NRL facility sustainment requirements, amplifying NRL's facility sustainment shortfalls. In order to help rectify these inaccuracies, we recommend that NRL participate in the Department of Defense Facility Sustainment Model Working Group to change facility cost factors as appropriate to more accurately reflect the level of sustainment required for recurring maintenance and repair of NRL's aging infrastructure.

Recommendations: 004-15. That NRL reengage with DASN(B) to seek increases to its FSRM funding.

005-15. That NRL participate in the Department of Defense Facility Sustainment Model Working Group to contribute technical advice with an aim to change facility cost factors as appropriate to better reflect the level of sustainment required for recurring maintenance and repair of NRL's aging infrastructure.

NAVINSGEN POC: (b)(6)&(b)(7)(c) USN (202) 433-(b)(6)&(b)(7)(c); DSN 288(b)(6)&(b)(7)(c) (b)(6)&(b)(7)(c)@navy.mil

APPENDIX B: Summary of Key Survey Results

PRE-EVENT SURVEY

In support of the Naval Research Laboratory (NRL) Command Inspection held 13-23 January 2015, the Naval Inspector General (NAVINSGEN) conducted an anonymous on-line survey of active duty military and Department of the Navy (DON) civilian personnel from 14 November 2014 to 24 December 2014. The survey produced 501 respondents (11 military, 490 civilian). According to reported demographics the sample represented the NRL workforce with approximately 5.5 percent margin of error at the 95 percent confidence level. Selected topics are summarized in the sections below. A frequency report is provided in Appendix C.

Quality of Life

Quality of life was assessed using a scale from 1 to 10, where 1 is worst and 10 is best. The overall NRL average quality of work life (QOWL), 7.00, was higher than the historical echelon 2 average, 6.60 (Figure B-1). The overall NRL average quality of home life (QOHL), 8.11, was higher than the historical echelon 2 average, 7.86 (Figure B-2).

The perceived impact of factors on QOWL rating is summarized in Table B-1. Factors of potential concern were identified by distributional analyses, where 20 percent negative responses served as a baseline. Advancement Opportunities (31 percent) and Quality of Workplace Facilities (45 percent) were the most frequently identified factors perceived to have a negative impact on QOWL.

The perceived impact of factors on QOHL rating is summarized in Table B-2. Not surprisingly, cost of living in the geographic area was broadly identified (52 percent) as a negative impact on QOHL rating.

Job Importance and Workplace Behaviors

Table B-3 lists aggregate strongly agree and agree response percentages to survey questions addressing perceived job importance, and whether fraternization, favoritism, gender/sex discrimination, sexual harassment, or hazing occurs at NRL. Overall echelon 2 command inspection percentages over a 5-year period are shown for comparison. Excepting job importance, lower values are "better."

- Perceived job importance at NRL was higher than the historical echelon 2 value.
- Perceived occurrence of gender/sex discrimination, sexual harassment, race discrimination, and hazing at NRL were lower than historical echelon 2 values.

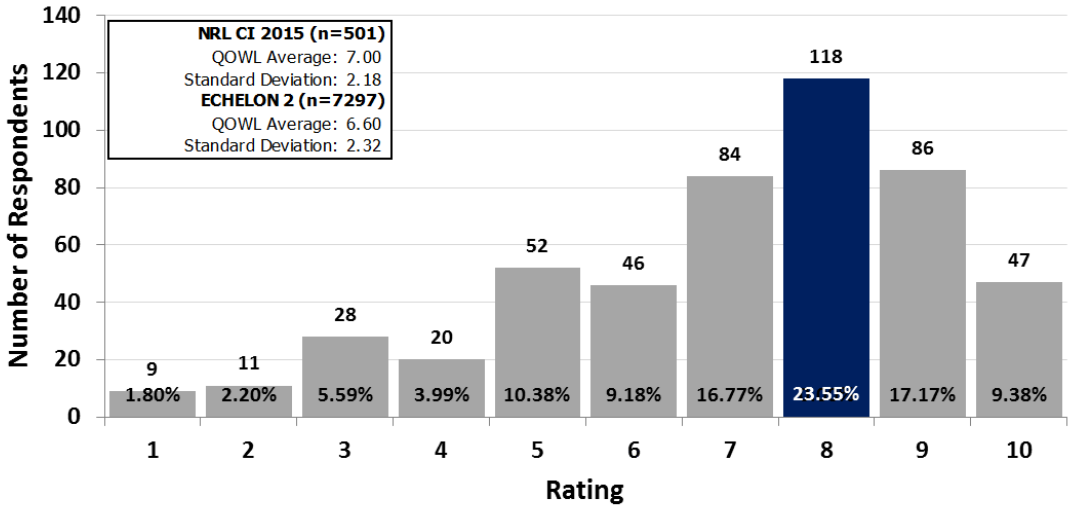


Figure B-1. Distribution of quality of work life ratings from the pre-event survey. The x-axis lists the rating scale and the y-axis represents the number of survey respondents. Response percentages for ratings are shown at the base of each bar. Counts for each rating are shown above each bar. The most frequent rating is shown in blue.

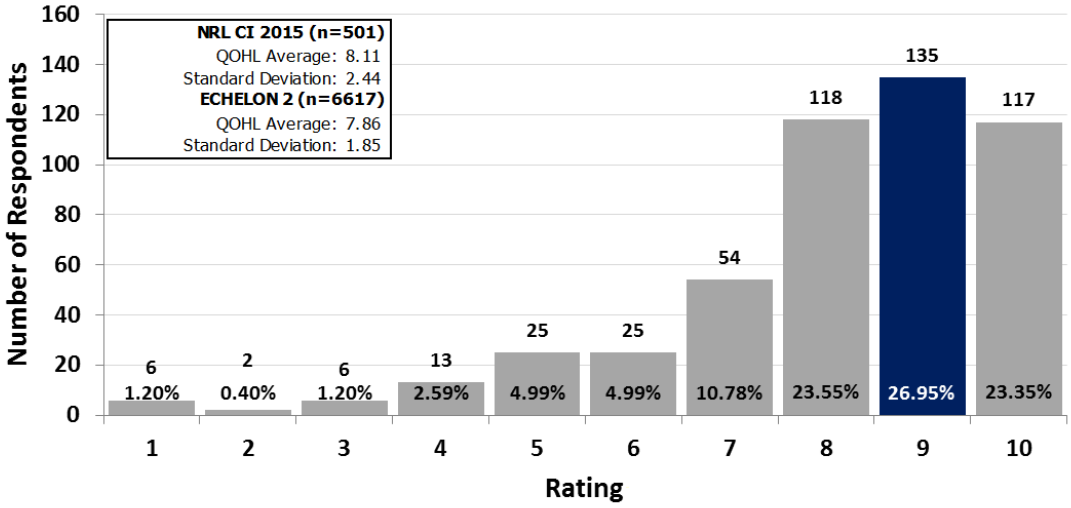


Figure B-2. Distribution of quality of home life ratings from the pre-event survey. The x-axis lists the rating scale and the y-axis represents the number of survey respondents. Response percentages for ratings are shown at the base of each bar. Counts for each rating are shown above each bar. The most frequent rating is shown in blue.

Table B-1. Impact of Factors on Quality of Work Life Rating

Factor	Negative	Other
Job satisfaction	**7 %**	93 %
Leadership support	19 %	81 %
Leadership opportunities	23 %	77 %
Workload	**14 %**	86 %
Work Hours/Schedule	**8 %**	92 %
Advancement opportunities	**31 %**	69 %
Awards and recognition	23 %	77 %
Training opportunities	21 %	79 %
Command morale	24 %	76 %
Command climate	20 %	80 %
Quality of workplace facilities	**45 %**	55 %

Notes. Perceived impact of factors on quality of work life rating based on negative versus aggregate positive and neutral (Other) responses. Negative values in bold indicate a poor "fit" when using a 20% baseline.

Table B-2. Impact of Factors on Quality of Home Life Rating

Factor	Negative	Other
Quality of home	**5 %**	95 %
Quality of the school for dependent children	**8 %**	92 %
Quality of the childcare available	**6 %**	94 %
Shopping & dining opportunities	**5 %**	95 %
Recreational opportunities	**6 %**	94 %
Access to spouse employment	**7 %**	93 %
Access to medical/dental care	**4 %**	96 %
Cost of living	**52 %**	48 %

Notes. Perceived impact of factors on quality of work life rating based on negative versus aggregate positive and neutral (Other) responses. Negative values in bold indicate a poor "fit" when using a 20% baseline.

Table B-3. Perceived Job Importance and Occurrence of Workplace Behaviors

Question Topic	NRL	Echelon 2
Job Importance	**86 %**	79 %
Fraternization	12 %	14 %
Favoritism	25 %	30 %
Gender/Sex Discrimination	**5 %**	13 %
Sexual Harassment	**2 %**	9 %
Race Discrimination	**2 %**	11 %
Hazing	**0 %**	7 %

Notes. Aggregate strongly agree and agree (SA+A) response percentages for selected command climate topics. Echelon 2 percentages are historical SA+A percentages. Excepting Job Importance, lower percentages are "better." Bold values indicate a significantly different distribution of SA+A responses than Echelon 2.

APPENDIX C: Summary of Focus Group Perceptions

FOCUS GROUPS

On 13-15 January 2015, the NAVINSGEN conducted a total of 12 focus groups at NRL, one with active duty military, and eleven with various groupings of civilian grades (make-up sessions were offered to accommodate work schedules). There were a total of 56 NRL focus group participants; 7 military, 49 civilians. Each focus group was scheduled for approximately one hour and consisted of one facilitator and two note takers. The facilitator followed a protocol script: (a) focus group personnel introductions, (b) brief introduction to the NAVINSGEN mission, (c) privacy, Whistleblower statutes, and basic ground rules, (d) participant-derived list of topics having the most impact on the mission, job performance, or quality of life, and (e) subsequent refinement and discussion of participant-derived topics with an emphasis on understanding the perceived impact. Note takers transcribed focus group proceedings, which were subsequently entered and coded in a spreadsheet database to determine the total number of focus groups in which the same or comparable topic and its perceived impact were discussed.

Table C-1 lists focus groups topics that were expressed as a major impact on the mission, job performance, or quality of life in at least three focus groups. Military and civilian focus groups at NRL mentioned Facilities most often as having a major impact on the mission, job performance, and/or quality of life.

Table C-1. Participant-Derived Focus Group Topics Expressed as a Major Impact on the Mission, Job Performance, or Quality of Life.

	Impact		
Topic	Major	Moderate	Minor
Facilities	●○○○○	○○○	
Advancement/Promotion	●○○○		○
Acquisitions/Procurement	○○○	○	
Travel	●○○		
Policies	●○○		
Culture	○○○		

Notes. Descending order of the number of focus groups topics that were expressed as a major impact on the mission, job performance, and/or quality of life in at least three groups. Colored circles indicate active duty military (●) and civilian (○) focus groups at NRL.

Facilities

Several buildings and facilities maintenance issues that were described on the pre-event survey were echoed in eight focus groups as having major/moderate negative impacts on the mission

(attracting young scientists, project execution, climate control), job performance (project delays, climate control), and quality of life (uncomfortable workspaces due extreme temperatures, varmints, cleanliness). Flooding, flood control and heating, ventilation and air conditioning performance were most frequently cited as mission degraders, and several participants voiced concern about the general degradation of NRL facilities and how it may negatively impact the command's ability to attract and retain scientists, technicians, and support personnel: "World-class research, third world facilities." Participants claimed that several portable heaters are in use due to cold building temperatures. Focus group comments were also critical of EMCOR and noted that NRL used to have their own emergency response team that provided timelier and higher quality service (one participant applauded an EMCOR employee for his efforts). Many focus group participants also reported having to perform maintenance work to maintain cleanliness and protect equipment from potential water damage.

Advancement/Promotion

The perceived inability to promote was expressed by military and civilian focus group participants as a major/minor negative impact on quality of life. Some military participants were concerned that they would not be competitive for selection. Some civilian participants expressed feelings of being overworked and underpaid, or frustration regarding advancement: "No advancement unless someone retires." Several civilian participants claimed that "higher pay grades in the area are doing the same job.

Acquisitions/Procurement

Four civilian focus groups expressed major/moderate negative impacts on the mission related to acquisitions/procurement. Scientific and technical personnel reported procurement delays up to 4-8 months with an expectation in many cases that the process could be completed within a month. Delays in contracting were also noted. Participants reported that delays in procurement/contracting often result in increased delays and costs to a project. Some participants claimed that delays are also caused by incomplete or inaccurate submissions. Several participants expressed that a support staff manning shortfall has adverse impacts on processing. Whatever the case may be, focus group discussion on this topic seemed to indicate ongoing tension between scientific professionals/technicians and administrative/ support personnel.

Travel

The Navy's current travel restriction was a recurring and contentious issue in NAVINSGEN focus groups with a substantive population of science and engineering professionals. Military and civilian focus group participants at NRL identified the inability to travel as a major negative impact on the mission, job performance, and quality of life. Expressed mission impediments included, but were not limited to: the inability to maintain leadership roles and responsibilities at professional conferences (e.g., chairman/co-chairman, reviewer), and the ability to maintain situation awareness of science and technology advancements to determine whether the Navy is maintaining a competitive advantage. Many of NRL's work products were reported to be research papers submitted to conferences. "If you don't show up to present your paper, then

you'll stop being invited." Some participants reported that critical personnel have not been to conferences in several years because they are not presenting a paper, despite the fact that they co-chair committees or serve as reviewers. All focus group participants who offered opinions on this topic strongly believed that the travel restriction not only hurts their career, but also the ability to deduce whether another entity has a competitive advantage.

Policies

Several participants expressed dissatisfaction with the Navy's travel policy as noted above, as well as NRL's internal process because it requires too many layers of bureaucracy and unduly restricts activities that are perceived to be a critical component of scientific and engineering professionals. Some focus group participants noted that administrative execution of travel policy has improved since 2011.

The process to acquire a new Common Access Card (especially for previously contracted employees awaiting a funding line for renewal), reportedly taking 6-8 weeks, was also expressed as a major negative impact on the mission in one civilian focus group. And the general absence of, or adherence to NRL policies that purportedly define and support standard operations (e.g., procurement and contracts processing) were expressed as a negative impact on job performance (processing delays) and quality of work life (stress) in two civilian focus groups.

Culture

The NRL culture of freedom to innovate and the flexibility to participate in work efforts across science and technology domains were expressed as *positive* impacts on the mission, job performance, and quality of life. The NRL culture and mission (see Mission in the following section) were noted as critical elements that help mitigate negative impacts on mission, job performance, and quality of life (especially Facilities and Travel) noted in this report.

Other Focus Groups Topics with Expressed Major Impact

Topics that were expressed in at least one focus group as a major impact on the mission, job performance, or quality of life are briefly described below.

Pay/Compensation (2 Major, 2 Moderate, 1 Minor): Participants in five civilian groups expressed various negative impacts on the mission, job performance, and quality of life associated with pay/compensation. Two groups noted that other federal organizations in the area offer higher pay for the same job, reported as a major/moderate negative impact on retention and quality of life. No adjustment in pay over recent years was expressed as a major/moderate negative impact on quality of life in two groups. A reported limit on credit hours (two) was expressed as a minor negative impact in one group.

Funding (2 Major, 2 Moderate): Participants in four civilian focus groups expressed negative and positive impacts of various aspects of funding on the mission and job performance. working capital funding was expressed as both a "blessing and a curse" in that it partially "insulates" NRL from OPNAV budget decisions, but has both positive and negative impacts on

innovation in that many great ideas are not funded either due to insufficient base funding or lack of interest among prospective sponsors. External forces such as continuing resolutions and receipt of funds near the fiscal year deadline were expressed as general negative impacts on the mission (continuity of operations) and quality of life (morale). Late receipt of funds was also expressed as a negative impact on quality of life (increased workload stress) for support personnel.

Work Hours/Schedule (2 Major, 2 Minor): Participants in four civilian focus groups expressed a major *positive* impact on job performance (productivity), and both major and minor *positive* impacts on quality of life (relief from commute stress, work-home life balance) as a function of flexible work schedules.

Education/Training (2 Major, 1 Moderate, 1 Minor): One focus group noted an overall major *positive* impact on mission, job performance, and quality of life as a function of NRL's support for attaining a Master's degree. The Long-Term Learning Program was cited as a great program. One focus group expressed that personnel who serve as a Contract Officer Representative (COR) are either inadequately trained or have not completed the required COR training. One focus group expressed a moderate negative impact on job performance in that there are few training opportunities that might improve technical job performance (maintain knowledge and skills using the latest tools). One focus group noted that it was a minor negative distractor to repeat the same training multiple times, especially when the training did not contain new information.

Communication (2 Major, 1 Minor): Two focus groups expressed a general negative impact on the mission and job performance as a function of receiving disparate messages, and that command communications are not managed under one directorate/division such as public affairs. One participant noted a minor distractor of receiving too much communication by email versus face-to-face.

Awards/Recognition (2 Major): Support personnel in two focus groups expressed that they feel unappreciated in that delays are "always their fault" or by the manner in which they are treated by scientific/engineering personnel, e.g., "I don't care. Just get it done."

Manning/Manpower (2 Major): Participants in two civilian focus groups expressed major negative impacts on the mission and job performance in terms of delays, and quality of life in terms of workload stress as a function of shortfalls in acquisition personnel.

Mission (2 Major): Participants in two civilian focus groups expressed a major *positive* impact on job performance and quality of life as a function of the NRL mission; especially the impact of work performed on naval operations.

Workload (1 Major, 2 Moderate): Non-support personnel assuming more administrative duties was communicated as a major negative impact on the mission and job performance in that it affords less time to work on projects and costs the command more to have increasing

administrative workload performed by higher graded scientific and technical employees. Periodicity of external reporting and perceived redundancy of internal reporting were both expressed as moderate negative impacts, as they both require valuable time that could be better spent working on active projects.

Security (1 Major, 2 Moderate): Participants in two civilian focus groups expressed that the Special Security Officer (SSO) has had a moderate *positive* impact on completing mission-related tasks and job performance: "They help us accomplish the mission." However, the non-SSO/Special Access Control Officer ("GENSER") was expressed as having a general negative impact due to insufficient or unclear guidance.

Leadership (1 Major, 1 Moderate, 1 Minor): Two civilian focus groups expressed mixed impacts on mission, job performance, or quality of life as a function of leadership. Two focus groups expressed a major/moderate negative impact regarding a perceived lack of leadership on support personnel challenges. One group expressed a vague minor impact of perceived micromanagement that was not clarified in focus group notes.

Teamwork (1 Major, 1 Minor): One focus group noted a major negative impact on working together as a team to resolve security-related issues. Another group expressed that this topic had a minor impact. The primary points of contention: "Security will often say, 'Policy says X…' I say, 'Show me.'" Participants claimed that often there is no definitive policy or another policy is applied for which it was not intended. Security's response: 'Not my problem...' Participants claimed that Security requires the researcher to apply security classifications, which presumably doesn't work well since the researcher might not "have clearance to get the guide."

Internet/Corporate Tools (1 Major): One focus group expressed a major negative impact on job performance (delays and manual/redundant work) and quality of life (stress) as a function of archaic corporate tools for support personnel. Current tools in use were reported as incompatible with Enterprise Resource Planning (ERP), the primary corporate tool for most sponsors. Participants also noted that no cloud service, docking stations, nor any other contemporary corporate tools are available to facilitate workflow and productivity.

Safety/Health (1 Major): One focus group noted that the eye wash station in the shop does not work properly.

APPENDIX D: Survey Response Frequency Report

Numerical values in the following tables summarize survey responses to forced-choice questions as counts and/or percentages (%). Response codes are listed below in the order that they appear.

SD	Strongly Disagree
D	Disagree
N	Neither Agree nor Disagree…
A	Agree
SA	Strongly Agree

-	Negative
N	Neutral
+	Positive

N	Never
R	Rarely
S	Sometimes
F	Frequently
A	Always

Military		Civilian	
Male	Female	Male	Female
8	3	333	157
2%	1%	66%	31%

On a scale from 1 (worst) to 10 (best), please rate your Quality of Work Life (QOWL). QOWL is the degree to which you enjoy where you work and available opportunities for professional growth.

	1	2	3	4	5	6	7	8	9	10
Count	9	11	28	20	52	46	84	118	86	47
%	1.80%	2.20%	5.59%	3.99%	10.38%	9.18%	16.77%	23.55%	17.17%	9.38%

For each of the factors below, please indicate whether they have a positive, neutral, or negative impact on your QOWL rating.

	+	N	-
Job satisfaction	346	118	37
Leadership support	246	160	95
Leadership opportunities	164	220	117
Advancement opportunities	239	192	70
Workload	355	108	38
Work Hours/Schedule	136	208	157
Training opportunities	162	222	117
Awards and recognition	192	205	104
Command morale	181	199	121
Command climate	186	214	101
Quality of workplace facilities	121	154	226

On a scale from 1 (worst) to 10 (best), please rate your Quality of Home Life (QOHL). QOHL is the degree to which you enjoy where you live and the opportunities available for housing, recreation, etc.

	1	2	3	4	5	6	7	8	9	10
Count	6	2	6	13	25	25	54	118	135	117
%	1.20%	0.40%	1.20%	2.59%	4.99%	4.99%	10.78%	23.55%	26.95%	23.35%

For each of the factors below, please indicate whether they have a positive, neutral, or negative impact on your QOHL rating.

	+	N	-
Quality of home	377	99	25
Quality of the school for dependent children	220	240	41
Quality of the childcare available	141	329	31
Shopping & dining opportunities	353	121	27
Recreational opportunities	354	116	31
Access to spouse employment	262	202	37
Access to medical/dental care	378	105	18
Cost of living	87	154	260

My command gives me sufficient time during working hours to participate in a physical readiness exercise program.

SD	D	N	A	SA
0	0	0	1	10
0%	0%	0%	9%	91%

My current work week affords enough time to complete mission tasks in a timely manner while maintaining an acceptable work-home life balance.

SD	D	N	A	SA
0	0	0	4	7
0%	0%	0%	36%	64%

My position description is current and accurately describes my functions, tasks, and responsibilities.

SD	D	N	A	SA
12	46	71	234	124
2%	9%	15%	48%	25%

I work more hours than I report in a pay period because I cannot complete all assigned tasks during scheduled work hours.

N	R	S	F	A
62	98	144	106	76
13%	20%	30%	22%	16%

The Human Resource Service Center provides timely, accurate responses to my queries.

SD	D	N	A	SA
15	28	291	109	43
3%	6%	60%	22%	9%

My (local) Human Resources Office provides timely, accurate responses to my queries.

SD	D	N	A	SA
10	27	221	133	95
2%	6%	45%	27%	20%

The DON civilian recruitment process is responsive to my command's civilian personnel requirements.

SD	D	N	A	SA
40	85	235	100	26
8%	17%	48%	21%	5%

During the last performance evaluation cycle, my supervisor provided me with feedback that enabled me to improve my performance before my formal performance appraisal/EVAL/FITREP.

SD	D	N	A	SA
23	60	81	142	79
6%	16%	21%	37%	21%

I am satisfied with the overall quality of my workplace facilities.

SD	D	N	A	SA
79	117	98	147	48
16%	24%	20%	30%	10%

My command is concerned about my safety.

SD	D	N	A	SA
10	22	71	226	160
2%	4%	15%	46%	33%

My command has a program in place to address potential safety issues.

SD	D	N	A	SA
10	10	86	241	142
2%	2%	18%	49%	29%

My job is important and makes a contribution to my command.

SD	D	N	A	SA
6	9	55	211	210
1%	2%	11%	43%	43%

_____ is occurring at my command.

	SD	D	N	A	SA
Fraternization	9%	18%	61%	9%	3%
Favoritism	9%	31%	35%	17%	8%
Gender/Sex Discrimination	25%	38%	32%	4%	1%
Sexual Harassment	34%	36%	28%	2%	0%
Race Discrimination	34%	36%	28%	2%	0%
Hazing	49%	28%	23%	0%	0%

The following tools and resources are adequate to accomplish the command's mission.

	SD	D	N	A	SA
People	5%	15%	11%	40%	29%
Training	8%	13%	23%	37%	19%
Workspace	9%	18%	20%	35%	18%
Computer	1%	3%	9%	48%	39%
Software	3%	4%	10%	48%	35%
Internet	0%	2%	9%	46%	43%
Intranet	1%	5%	17%	46%	31%
Equipment	2%	8%	11%	49%	29%
Materials & Supplies	4%	7%	14%	48%	27%

I have adequate leadership guidance to perform my job successfully.

SD	D	N	A	SA
22	44	93	204	130
4%	9%	19%	41%	26%

Communication down the chain of command is effective.

SD	D	N	A	SA
30	81	126	196	56
6%	17%	26%	40%	11%

Communication up the chain of command is effective.

SD	D	N	A	SA
38	94	145	162	50
8%	19%	30%	33%	10%

My performance evaluations have been fair.

SD	D	N	A	SA
12	18	81	212	166
2%	4%	17%	43%	34%

The awards and recognition program is fair and equitable.

SD	D	N	A	SA
28	52	151	179	79
6%	11%	31%	37%	16%

Military and civilian personnel work well together at my command.

SD	D	N	A	SA
4	7	152	207	119
1%	1%	31%	42%	24%

My command's Equal Opportunity Program (EO - to include Equal Employment Opportunity & Command Managed Equal Opportunity) is effective.

SD	D	N	A	SA
10	7	226	159	87
2%	1%	46%	33%	18%

My command adequately protects my personal information.

SD	D	N	A	SA
5	20	118	229	117
1%	4%	24%	47%	24%

My superiors treat me with respect and consideration.

SD	D	N	A	SA
13	23	49	201	203
3%	5%	10%	41%	42%

My command attempts to resolve command climate issues.

SD	D	N	A	SA
29	41	205	141	73
6%	8%	42%	29%	15%

I have adequate time at work to complete required training.

SD	D	N	A	SA
24	70	90	235	68
5%	14%	18%	48%	14%

Do you supervise Department of the Navy (DON) civilians?

Yes	No
134	353
28%	72%

When did you receive civilian supervisory training?

>3 yrs	1-3 yrs	<12 mos	Never
30	25	46	32
22%	19%	35%	24%