NAVAIR Uncovers Fleet Needs

Biannual Technology Needs Survey Is the Vehicle

It is time again for the Naval Air Systems Command (NAVAIR) to collect Fleet environmental, safety and occupational health (ESOH) needs through its biannual Technology Needs Survey (TNS).

As in past years the TNS focuses on the need to reduce hazardous material use and waste streams generated across NAVAIR with emphasis on pollution prevention and meeting current and future ESOH goals, regulations and requirements. Needs are targeted at Organizational, Intermediate and Depot level maintenance operations and may involve the design, manufacture, maintenance or disposal activities supporting operations. Examples of needs collected via NAVAIR's TNS include environmentally safe on-board fire suppressant systems for aircraft (i.e., halon replacements), environmentally benign aircraft de-icing techniques, non-hazardous cleaning solvents for electronics and metals, disposal of munitions, environmental and production friendly alternatives to de-painting aircraft as well as chrome and cadmium plating alternatives.

The primary goals of TNS are to:

1. Provide a corporate environmental management process to collect and document EOSH user needs,
2. Assist the field user, pollution prevention and EOSH coordinators, and environmental managers to identify and communicate the importance of their needs across NAVAIR and to the research and development community, and
3. Provide the basis for structuring solutions to identified needs and setting a course of action.

As part of Phase I of NAVAIR's Acquisition Support Process (see sidebar on page 62), TNS needs are validated,

Many of the needs collected via NAVAIR's TNS concentrate on aviation maintenance practices. Aviation Machinist's Mate Airman Tim Brown helps secure the propeller of a C-2A "COD" after removing it from the aircraft for scheduled maintenance.

U.S. Navy Photo by Photographer's Mate 3rd Class (AW) Kerryl Cacho

Solutions to needs identified via NAVAIR's TNS can enhance the environmental integrity of routine maintenance practices. Aviation Machinist's Mate 2nd Class Shane Hylton conducts a clamp down procedure during routine maintenance on a propeller barrel assembly for a T-56 engine used on the P-3 "Orion" aircraft.

U.S. Navy photo by Photographer's Mate 2nd Class John Collins

Technology Needs Surveys Drive Progress

The TNS increases the number and corresponding solutions to the environmental, safety and occupational health needs of the aviation maintenance community.

Over the course of the last three Surveys, there has been a steady increase in the number of needs collected:

- 89 needs in 1998,
- 144 needs in 2000, and
- 176 needs in 2002.

In addition, there has been an increase in the number of needs addressed (either by ongoing projects or by solutions transitioned to the Fleet):

- In 1998, a few needs were partially addressed.
- In 2000, 59 needs were addressed. Nine needs initiated specific research and development projects and two of the top-ranked needs were addressed via readily available solutions.
- In 2002, 108 needs were validated and 29 solutions were transitioned to the Fleet. Also in 2002, 41 needs were closed (since available solutions were provided to the submitter of the need) and all of the top ten needs were addressed.

ranked and prioritized based on mission impairment, pervasiveness, environmental & human hazard severity, regulatory risk, as well as established NAVAIR goals and political sensitivities.

NAVAIR then evaluates the results of the survey to determine which needs can be satisfied using non-material solutions, material solutions, off- the-shelf technologies, or establishes a requirement for further research and development projects. In the later case, survey results become a basis for NAVAIR's future investment in research and development (R&D) efforts and innovative maintenance technologies. These solutions may be developed as a NAVAIR team or in partnership with other Services focusing on common needs. This comprehensive approach will result in reduced cost and risk. NAVAIR considers a need to be "closed" once an appropriate solution is found and transitioned into the Fleet's maintenance practices.

In 2002, 176 technology needs were submitted and reviewed by Navy activities. Of these 108 were validated, 29 solutions

From Need to Solution—

NAVAIR'S ACQUISITION SUPPORT PROCESS

The Technology Needs Survey comprises an essential part of the first phase of NAVAIR's four-phased Acquisition Support Process.

- **Phase 1: Identify Needs & Associated Operational Requirements**

  During this first phase, NAVAIR executes the TNS every other year to capture, rank and validate the ESOH needs that are of greatest significance to the aviation maintenance community. The TNS also links NAVAIR's ESOH needs to the associated operational requirements.

- **Phase 2: Structure Solutions & Set Course of Action**

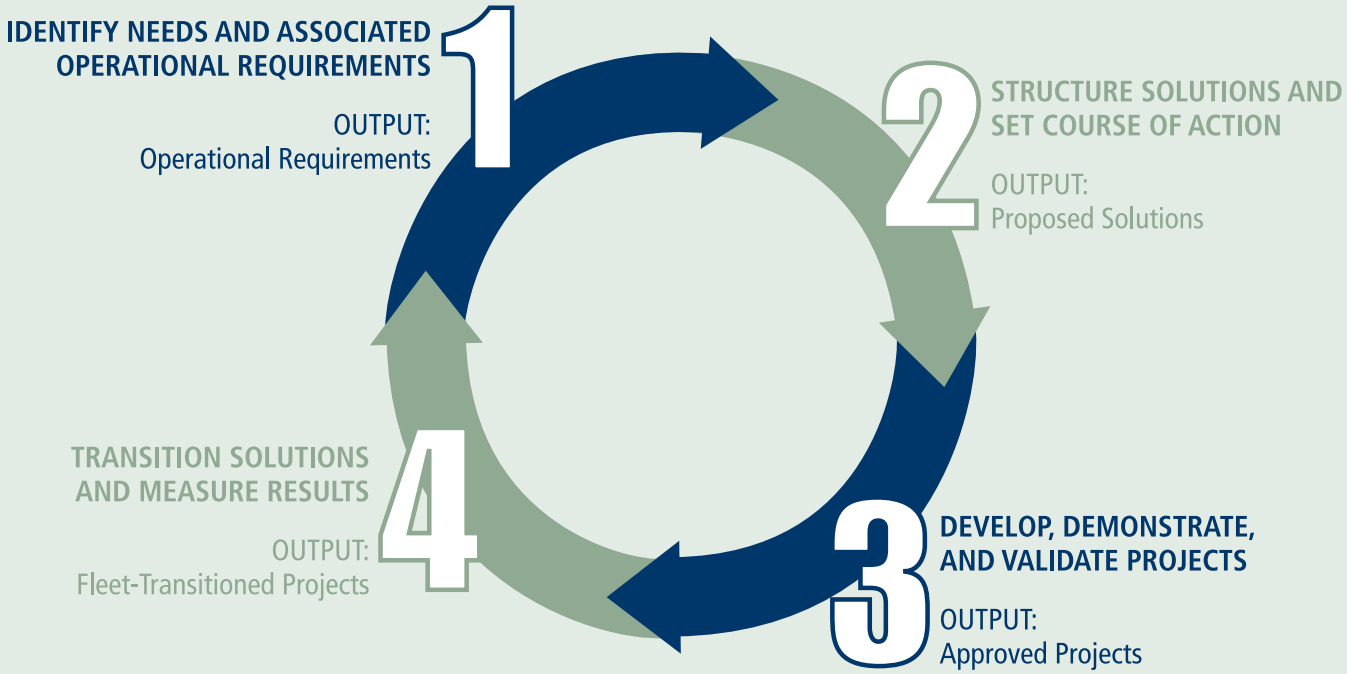
  NAVAIR will assemble a set of viable solutions to the ESOH needs and associated operational requirements identified in the first phase.

- **Phase 3: Develop, Demonstrate & Validate Projects**

  During this third phase of the Acquisition Support Process, NAVAIR will sponsor the projects defined in Phase 2 that have the greatest benefit to the acquisition community. These efforts will be executed through the use of currently programmed environmental resources, including the AIR-1.1 Operation and Maintenance—Navy (OM&N) line, the Navy's Research, Development, Test, and Evaluation (RDT&E) line, and other available environmental investments.

- **Phase 4: Transition Solutions & Measure Results**

  During the fourth and final phase of the Acquisition Support Process, NAVAIR will work to ensure the successful transition of solutions to the Fleet's ESOH needs. A successful transition is dependent on the ongoing commitment from program, activity, and Fleet managers to ensure that newly developed solutions are programmed for implementation into new system designs and fielded platforms.

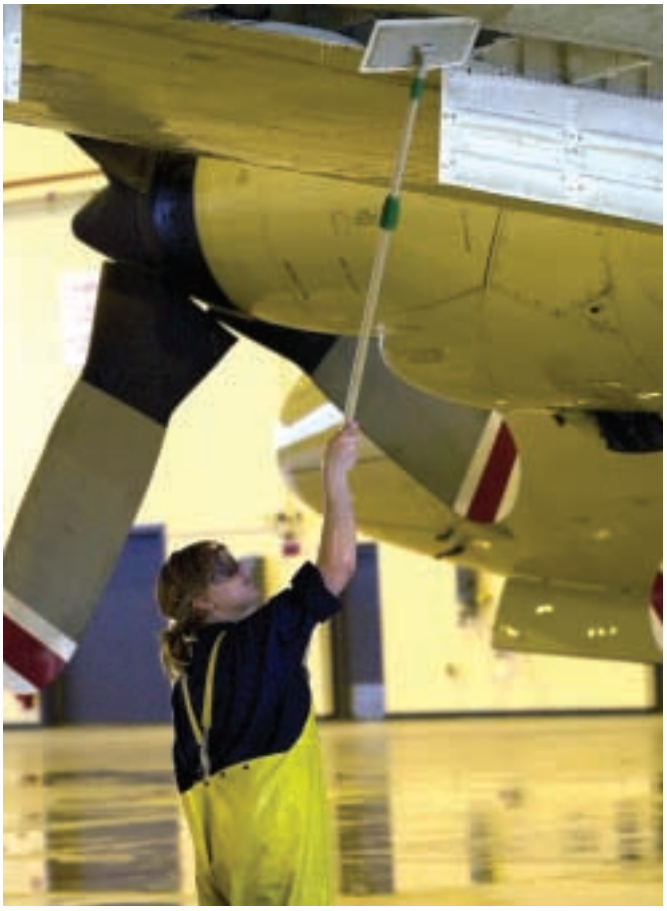


Many needs identified in previous Surveys pertain to corrosion control. Lance Cpl. Michael Kerr performs corrosion and preservation maintenance on an F/A-18 "Hornet" strike fighter in one of the ship's hangar bays.

U.S. Navy photo by Photographer's Mate 3rd Class Joshua Word

were transitioned and 41 needs were closed. The latest survey results are available for your review at https://www.enviro-navair.navy.mil. As a result of the 2002 TNS, the highest ranked needs influenced the principle investigators in preparing proposals for the FY04 and FY05 Program Objective Memorandum (POM) submittal for the the Navy Pollution Abatement Ashore Technology Demonstration/Validation (Dem/Val) Program (also known as the P2 Ashore or Y0817 program). Currently, fully funded Dem/Val efforts include F404 shaft cleaning and aircraft stenciling and marking projects among others.

This is one of the best opportunities you may ever have to steer available resources to address the greatest ESOH challenges you face as a compliance or hazardous materials/ hazardous waste manager, Program Manager, aircraft operator, maintainer or operational planner. To speed the implementation of the 2004 Survey, needs should be submitted via the NAVAIR environmental web site at



The need for an environmentally compliant method for washing aircraft was identified in the 1998 Survey. Aviation Machinist's Mate Airman Casey Demarse scrubs the wing of a P-3 "Orion." Aircraft are washed every 28 days as part of preventative maintenance and corrosion control schedule. A closed loop wash rack system is now available.

U.S. Navy Photo by Photographer's Mate 2nd Class Catherine R. Kee

Highlights From the 1998, 2000 & 2002 Technology Needs Surveys

The following tables provide highlights from the last three Technology Needs Survey (in 1998, 2000 and 2002) including a summary of the need itself as well as insights into the corresponding solution developed by NAVAIR personnel.

Year: 1998 • Number of Needs Collected: 89

Need	Solution
Need an environmentally sound aircraft engine washing system.	Closed loop wash rack is available from the Pollution Prevention Equipment Program (PPEP). Cost: $30,000.
Need a way to recycle the deicer fluid (propylene glycol & water) used to de-ice airplanes.	A hybrid de-icing machine that dramatically reduces amount of fluid used will soon be available from PPEP or procured via common support equipment.
Need to evaluate n-methyl-2 pyrrolidinone (NMP) to replace methylene chloride for phenol solvent in dip situations.	NMP has been evaluated and approved for use in dip tank stripping solutions to methylene chloride. (Use MIL-PRF-83936.) See the Aircraft Weapons Systems Cleaning & Corrosion Control Manual (NAVAIR 01-1A-509) and the Support Equipment Cleaning, Preservation and Corrosion Control Manual (NA 17-1-125).

Year: 2000 • Number of Needs Collected: 144

Need	Solution
Need a volatile organic compound (VOC) compliant material that may be used in the repair of fuel cells.	Fuel Cell Repair Manual (NA 01-1A-35) was reviewed for environmental, safety and health concerns during FY00. Manual was changed to reflect addition of VOC compliant acetone (ASTM D329) as an alternative to methyl ethyl ketone (MEK).
Need a better method to develop x-ray images when conducting aircraft non-destructive inspections (NDI).	A digital radiography system has been approved to replace current radiography equipment and will be available from PPEP. Fact sheet is available.
Need an effective alternate to freon used as a leak detector for aircraft wings.	Portable helium leak detector apparatus provides an effective alternative to freon leak detection and is currently being evaluated at the Naval Air Depot (NADEP) Jacksonville, FL.
Need an effective and efficient means of removing and controlling the formation of mildew, fungus, and bacteria on internal surfaces of aircraft.	A mildew remover product (sodium perorate and mild non-ionic solution) has been qualified for use. Changes will be incorporated into the -509 manual. Fact sheet is also available.
Need a waterborne polyurethane topcoat to reduce hazardous solvent emissions from standard solvent-based polyurethane topcoats.	Ongoing efforts include a low/no VOC topcoat research and development project. Aircraft and support equipment demonstrations and field-testing underway. Fact sheet is available.
Need an environmentally acceptable paint gun cleaning solvent that does not contain designated hazardous air pollutants.	A paint gun cleaner using EP-921 solvent has been qualified for use. Changes will be incorporated into the -509 manual. Fact sheet is available.

Need	Solution
Need to replace chromium electroplating with a process that does not generate hazardous waste.	High velocity oxygen fuel (HVOF) process offers approved alternative to chrome plating for P-3 application.
Need an alternative to chromate conversion coating.	Alodine based applicator pens are available for no-rinse chromate conversion coating. They are the only applicator pens approved for military applications. Interim Rapid Action Change (IRAC) #25 to -509 manual. Fact sheet is available.
Need to eliminate the use of methylene chloride paint stripper on engine cans.	Benzyl alcohol has been identified as a material substitute for stripping paint from engine cans.
Need new methods to efficiently and effectively treat/remove corrosion on aircraft surfaces that do not employ blast media and/or hazardous materials.	Radial bristle discs replace flap brush and similar removal techniques for spot repairs on aluminum only. Authorized use provided via IRAC #26 to -509 manual.
Need a better way to clean and dispose of paint cans.	NADEP Jacksonville has implemented a batch paint dispensing system. Fact sheet is available.
Need to replace on-board halon 1301 portable fire extinguishers.	CO_2 portable fire extinguishers (PFE) have been qualified as alternatives and are being transitioned to the Fleet by exchanging old extinguishers for new ones.
Need a replacement for MIL-C-81302, CFC 113 (an ozone depleting substance) for crew systems oxygen line cleaning.	Portable system for line cleaning of aircraft oxygen systems has been developed. Engineering Change Proposal has been completed. Production contract has been awarded and equipment delivery via PPEP and the Customer Support Equipment Program is scheduled for FY03.
P-3 squadron needs an alternative lubricant for flap tracks and screw jacks.	Lubricant and corrosion protectant Lektro-Tech Super Corr-B (National Stock Number 6850-01-328-3617) approved for use on selected aircraft programs. Fact sheet is available.

Year: 2002 • Number of Needs Collected: 176

Need	Solution
Need a clearinghouse for technical information on suitable material substitutions.	A database of suitable material substitutions has been developed for Fleet Support Team use. Process review team formed to review technical publications for suitable material substitutions. Fact sheet is available.
Need to replace chromic acid in anodizing and other surface treatment processes.	Sulfuric boric acid anodize (SBAA) has been certified as an alternative process and has been implemented at Navy Depots.
Need a way to clean (remove coking from) F404 engine fan drive shafts.	Potential solutions are parts washers, d-limonine cleaners and plastic media blasting (PMB). PMB demonstration/validation project funded for FY04.
Need aircraft marking and stenciling system as an alternative to painting.	Marking and stenciling equipment approved for use on support equipment (available from PPEP). Demonstration/Validation project for aircraft funded for FY04.

Standard Operating Procedure Guides the Collection of ESOH Needs Across the Navy

The TNS is NAVAIR's vehicle for feeding its ESOH needs into the Navy's overall needs collection process. A Standard Operating Procedure (SOP) defines the new Navy Shore Environmental Research, Development, Test and Evaluation (RDT&E) process. The SOP establishes a common process for the collection, development and ranking of Navy Shore Environmental Quality (EQ) Research, Development, Test and Evaluation (RDT&E) requirements for the Cleanup, Compliance and Pollution Prevention pillars. This document also establishes a management process for the Navy Shore 6.4 Technology Demonstration/Validation (Dem/Val) program in program planning, development, execution, and technology implementation.

The SOP establishes the policy, procedures, roles and responsibilities for the execution of the Navy Shore 6.4 Technology Dem/Val Program. It provides the framework for managing the development of a ranked list of environmental needs, issues, Environmental Quality Requirements, Navy Shore 6.4 Technology Dem/Val projects (from proposal development to technology implementation), and program planning. The SOP also addresses the strategic environmental Technology Investment Plan, Technology Implementation Plans, and user feedback.

The SOP enables Navy stakeholders to oversee the Navy Shore 6.4 Technology Dem/Val projects from inception to implementation. A collaborative web site with online voting features allows Navy stakeholders to participate in the process remotely to enhance efficiency while reducing costs.

Painting processes are frequently included in the discussion of needs collected via the TNS. Aviation Structural Mechanic 3rd Class Aaron Prescod and Aviation Structural Mechanic 3rd Class Jeck Maigue conduct painting and preservation maintenance on an F-14D.

U.S. Navy photo by Photographer's Mate Airman Jessica Davis

All needs must be received no later than 1 March 2004 to be included in the 2004 Survey.

https://www.enviro-navair.navy.mil. From the main menu of the web site, choose "TNS" and follow the prompts to "Submit New Needs". This is the preferred method for submitting a need. Alternatively, you may complete and mail the abbreviated survey form at the end of this article. (This method will require follow-up to ensure the need is fully understood and completely captured.)

You are encouraged to take a few minutes and submit your ESOH needs no later than 1 March 2004 to be included in the 2004 Survey. NAVAIR relies on the Fleet's continued participation in TNS to ensure that they are working the right needs—the ones that provide the greatest benefit to the Fleet.

The Environmental Acquisition, Policy & Program Support Team (AIR-1.1E) within NAVAIR's Program Support Department (AIR-1.1) sponsors the 2004 TNS; the Lead Maintenance Technology Center for the Environment (LMTCE) Working Integrated Product Team (WIPT) actually executes the Survey. For detailed information for submitting a new need or a need captured in a previous Survey, contact Tom Cowherd. ⚓

CONTACTS

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NAVAIR 2004

TECHNOLOGY NEEDS SURVEY FORM

All needs must be received by 1 March 2004.

Need Submitted By:

Name _____

Address 1 _____

Address 2 _____

City, State, ZIP _____

Phone _____

Email _____

End User of the Need:

(The person who would actually use/apply the solution to the identified need.)

Name _____

Address 1 _____

Address 2 _____

City, State, ZIP _____

Phone _____

Email _____

FAX completed survey form to:

Tom Cowherd • LMTCE • 904-542-0078

OR

MAIL completed survey form to:

Tom Cowherd • LMTCE
Building 168, Second floor • Naval Air Depot
NAS Jacksonville, FL 32212-0016
904-542-0516, x-118

Need Title:

(Short statement (20 words or less) that identifies the problem.)

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Need Description:

(A one to two paragraph concise description of the problem in terms of regulatory driver(s), requirement(s) (manuals, local instructions, and procedures), environmental and financial cost/benefit, and the local extent of the problem.)

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