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**The Naval Reserve Civil Engineer Corps
Environmental Engineering Program**

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INTRODUCTION

The Navy is engaged in a national effort to bring its shore facilities into compliance with all applicable local, state, and federal environmental regulations. This work is being completed by civil service employees, consultants, and contractors under the supervision of Navy Civil Engineer Corps officers. To supplement these active duty and civilian resources, the Reserve Division of the Naval Facilities Engineering Command (RDNAVFAC) has identified Reserve officers with substantial environmental engineering skills who are being assigned to assist Navy shore activities all over the world in this essential task.

The Naval Reserve Civil Engineer Corps (CEC) is composed of over 1200 men and women who are practicing engineers and architects in their civilian careers. As Naval Reserve officers, they participate in weekend training drills and perform two weeks annual active duty training in support of Naval forces. In their civilian workplace, many of these officers work in the field of environmental engineering, in one or more of 32 environmental areas such as asbestos, hazardous waste management, and wastewater treatment. This paper will describe how these reserve officers are being used to enhance the Navy's environmental team. Typical projects in progress will be discussed.

RESERVE ENVIRONMENTAL MANPOWER

Navy Civil Engineer Corps officers have degrees in either engineering or architecture and many are practicing engineers or architects in their civilian careers, while others hold management positions in engineering related businesses such as construction companies. With the increased emphasis on environmental engineering in the civilian sector, a large expertise base in environmental engineering is available among these officers.

To simplify this process of identifying civilian skills, an existing database was modified in 1991 to include a comprehensive listing of civilian professional skills. Thirty two key environmental skills were identified, ranging from Acoustic, Noise Abatement/Prevention to Wetlands Protection. Since it was apparent that the database would be invaluable in future mobilizations (such as Desert Storm or other contingency), the skill list, known as the Engineering Subspecialty List (ESSL), was enlarged to include other engineering skills of interest to the Navy, for a total of eighty engineering skills.

Each officer records their skills (or updates them) on a Reserve Officer Data Card (RODC) which is sent to them annually. The RODC now includes up to five ESSL codes. Officers self rate each code with an A,B, or C suffix to denote their skill level, where:

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|----------------|---|
| <u>A Level</u> | EXTENSIVE: Defined as experience which would qualify the officer as a professional in the field. Typically a degree in a field of engineering or architecture and eight years of experience, or a master's degree and three years experience, or a doctoral degree, or equivalent practical experience. |
| <u>B Level</u> | MODERATE: Defined as a related professional degree and at least four years experience in the field, or equivalent practical experience, but not enough to qualify as extensive. |
| <u>C Level</u> | LIMITED: Defined as a related professional degree and/or practical experience in a field, but not enough to qualify as moderate. |

In 1992 a total of 281 officers reported civilian environmental skills. Table 1 shows the number of officers having skills in the various environmental subspecialties or ESSL codes. (Note that the total is greater than 281, because each officer can report up to 5 ESSL codes.)

FORMATION OF ENVIRONMENTAL TEAMS

In August 1992, two Navy Reserve Environmental Teams were established. Environmental Team West is headquartered in San Diego, California, and Environmental Team East is headquartered in Norfolk, Virginia. Each team is led by a Navy Reserve Captain, and consists of 12 Naval Reserve officers with significant environmental skills, as identified by the RODC and ESSL database. The ESSL was used as a screening mechanism to identify potential candidates. Before assignment to one of the Teams, each candidate was personally interviewed, and resumes, professional registration, and environmental certifications verified.

Naval reservists perform a minimum of 36 work days of Naval service each year. Normally 24 of these days are performed as one weekend a month duty at a Naval Reserve Center near the reservists home, and 12 days are performed as Annual Training duty (AT) at an active duty Naval activity. Recent changes in Naval Reserve regulations now allow reservists to group their weekend duty together in consecutive days and perform the duty at an active duty site instead of a Naval Reserve Center. This flexibility allows reservists to spend longer periods of time at the project site. In 1993 the two Environmental Teams will be contributing a total of 864 mandays of environmental engineering expertise to support the Navy's Environmental Programs. An additional 20 officers, not currently assigned to the Environmental Teams, will also be performing 12 day environmental assignments.

QUALIFICATIONS OF ENVIRONMENTAL TEAM MEMBERS

The officers assigned to the Environmental Teams are full time environmental professionals in their civilian careers. Typical occupations include consulting engineers; state, local, and federal regulatory officials, and federal and state engineers. Many are key managers or principals in their businesses. The majority of the officers are registered engineers, educated at the masters degree level.

Since Navy Civil Engineer Corps officers must hold degrees in engineering or architecture, the Environmental Teams, as currently established only represent those two disciplines. It is planned to enlarge the Teams to 37 members each in Fiscal Year 1994 and to include qualified Naval reserve officers with other designators (i.e. Line or Aviation). Many of these officers hold degrees in the physical or life sciences and also practice in the environmental field in their civilian careers. These new assignments will add additional interdisciplinary breadth to the Program.

TYPICAL PROJECT ASSIGNMENTS

Project assignments for the Environmental Teams are determined after close consultation with environmental engineering officers and staff of the Navy's Atlantic and Pacific Fleets. Project assignments are also coordinated with the cognizant Navy Engineering Field Division. Officers are assigned to projects where their expertise can make the greatest contribution to the Navy's Environmental mission and which can be completed within the time limitations of the reservists assignment. Typical projects now underway are summarized in Table 2.

CONCLUSIONS

Two Navy Reserve Environmental Teams have been established to assist the Navy's Atlantic and Pacific Fleets in achieving environmental compliance. The two teams will contribute over 800 mandays of environmental engineering expertise to the Navy's Environmental Programs in Fiscal Year 1993.

Table 1. Officers Reporting Environmental Skills

ESSL Code	No. of Officers Reporting ^{a, b}	Code Description
001	5	Acoustic, Noise Abatement/Prevention
002	11	Air Pollution Control
003	2	Archeological Resources Protection
004	20	Asbestos Control
007	3	Chlorinated Fluorocarbon Technology
014	35	Drinking Water Treatment and Distribution
015	1	Ecological Assessments
018	0	Endangered Species
019	45	Environmental Audits/Assessments
020	25	Environmental Legal or Permitting
024	7	Hazardous Material Control
025	29	Hazardous Material Management/Disposal
027	22	Historical Site Preservation
030	6	Industrial Hygiene
033	9	Installation Restoration Program, Navy
036	13	Natural Resources Management
040	11	Oil Spill Prevention/Spill Control
041	19	OSHA Regulations
042	4	PCB Management
043	1	Pesticides/Insecticide Pollution Prevention
052	7	Radon Assessment and Control
056	18	Recycling/Resource Recovery
057	17	Risk Assessment
059	22	Site Remediation
061	21	Solid Waste Management, General
063	31	Stormwater Management; Permitting
070	26	Underground Storage Tanks
073	7	Waste Minimization/Prevention
074	55	Wastewater; Collection, Treatment, and Disposal
075	6	Water Conservation
077	9	Wetlands Protection
079	3	Diplomate, American Academy of Environmental. Engrs.

^aAs of 12 Dec 91

^bOfficers may report up to 5 ESSL Codes so duplications may exist

**Table 2. Typical Naval Reserve Environmental Team Assignments
Fiscal Year 1993**

Project	Location
Solid Waste Management Plans	Submarine Base New London, CN Naval Station, Roosevelt Rds, PR Naval Support Activity, Souda Bay, Crete
Environmental Audits	Naval Station, Roosevelt Rds, PR Naval Station, Naples, Italy Submarine Base, Kings Bay, GA Naval Air Station, Jacksonville, FL Naval Facility, Argentia, NF Naval Station, Panama Canal Zone Naval Air Station, Keflavik, Iceland
Hazardous Waste Plan	Naval Station, Mayport, FL
Clean Air Act Implementation	Naval Amphib. Base, San Diego, CA Submarine Base, San Diego, CA
Waste Water Study	Naval Air Station, North Island, CA
Underground Storage Tank Plans	Naval Air Station, North Island, CA Naval Station, Mayport, FL
Spill Contingency Control Plan	Public Works Center, Pearl Harbor, HI Naval Air Station, Bermuda

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