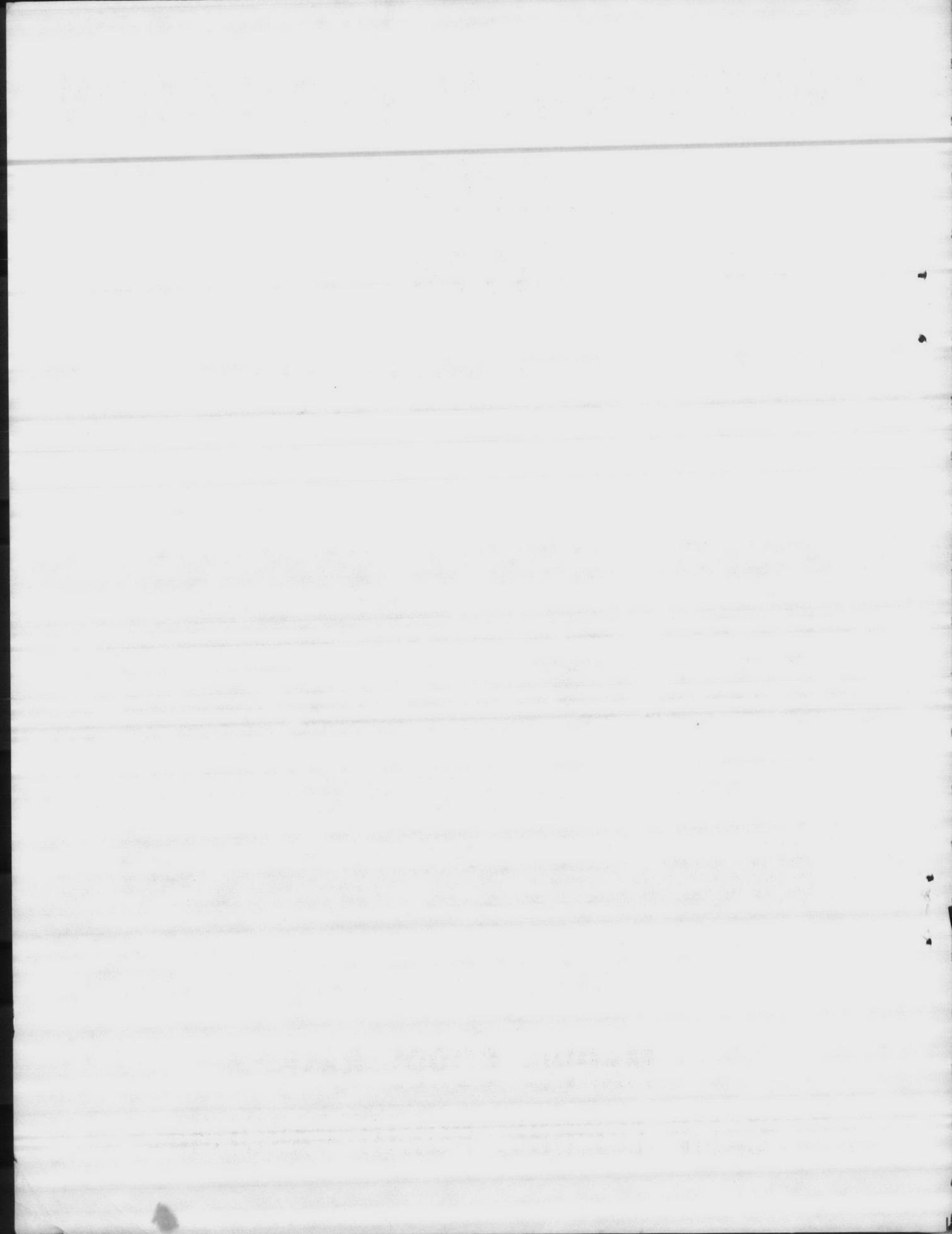


ENVIRONMENTAL PROTECTION REPORT 1974



**MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA**



ABOUT THE COVER - An aerial view of the Hadnot Point sewage treatment plant with the new pond and recreation area in the foreground and part of New River in the background.

Hadnot Point sewage treatment plant and six other secondary treatment plants ensure that the eight million gallons of sewage effluent that flows from Camp Lejeune daily does not downgrade the quality of New River. Many Onslow County residents depend on the fish, oysters, clams, and shrimp produced in New River as a source of income or supplement their regular income by harvesting seafood. Numerous Marines, Marine families, local residents, and tourists turn to New River for recreation in the form of boating, skiing, fishing, and hunting which makes the continued purity of adjacent waters a must. The pond and recreation area, formerly a burn dump site and a source of air pollution and an eyesore, has been turned into an attractive area. The pond has been stocked with fish and will be opened for fishing in July 1974.

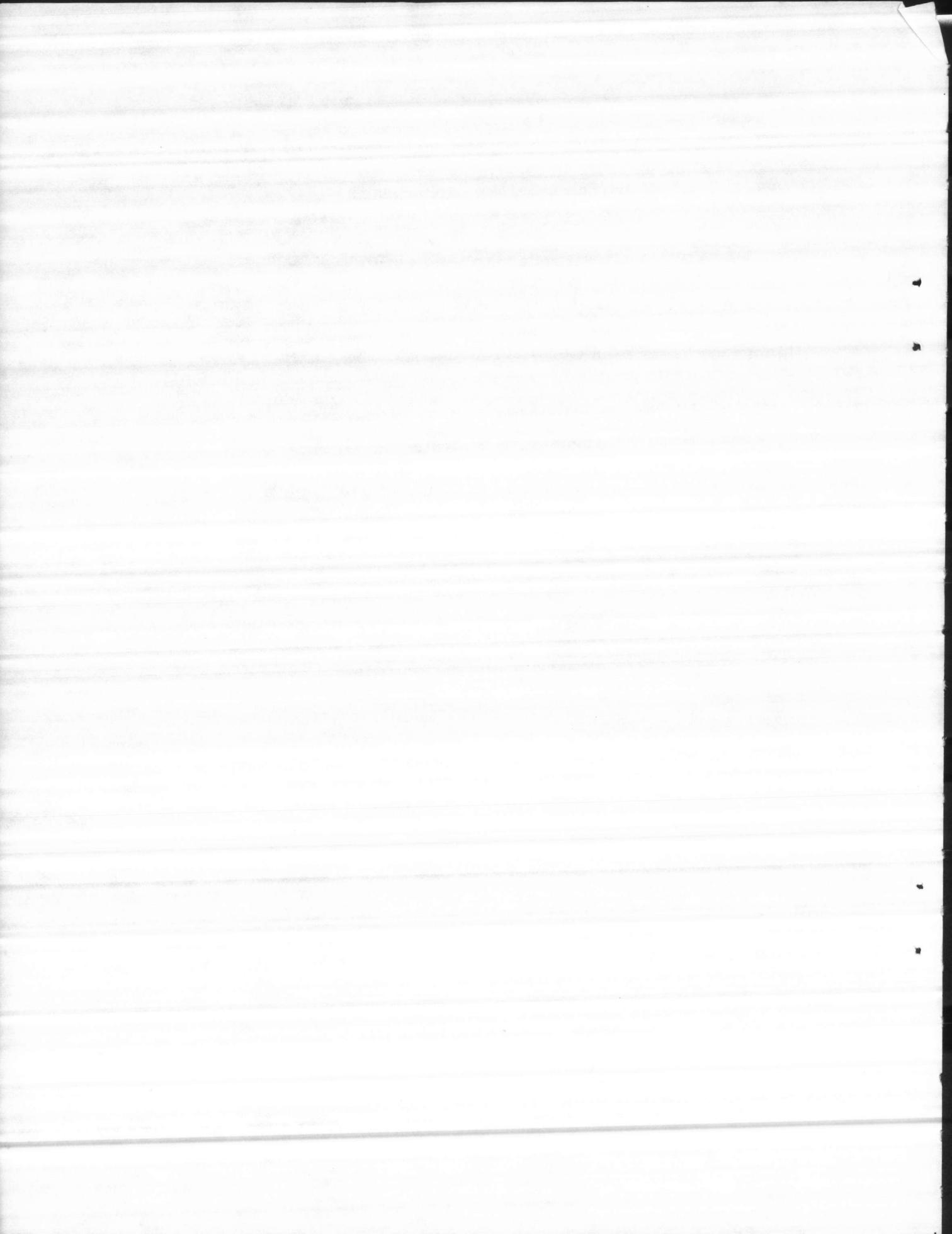


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APPENDIXES

Base Order 11090.2, Subj: Air Pollution Emergencies A

Base Order 11090.1, Subj: Spill Prevention, Containment,
and Countermeasure Plan for Oil and Other Hazardous
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Marine Corps Base Hearing Conservation Program C

Base Bulletin 11102, Subj: Ordnance Detonation on
Bombing and Target Ranges G-10 and BT-3 (N-1
Impact Area/Brown's Island Target Complex);
Restrictions on D

Base Order 4570.1A, Subj: Turn-in of Scrap Lumber;
Procedures for E

Base Order 11080.2, Subj: Management of Natural
Resources; Environmental Quality and Pest
Control F

COMPOSITION AND MISSION

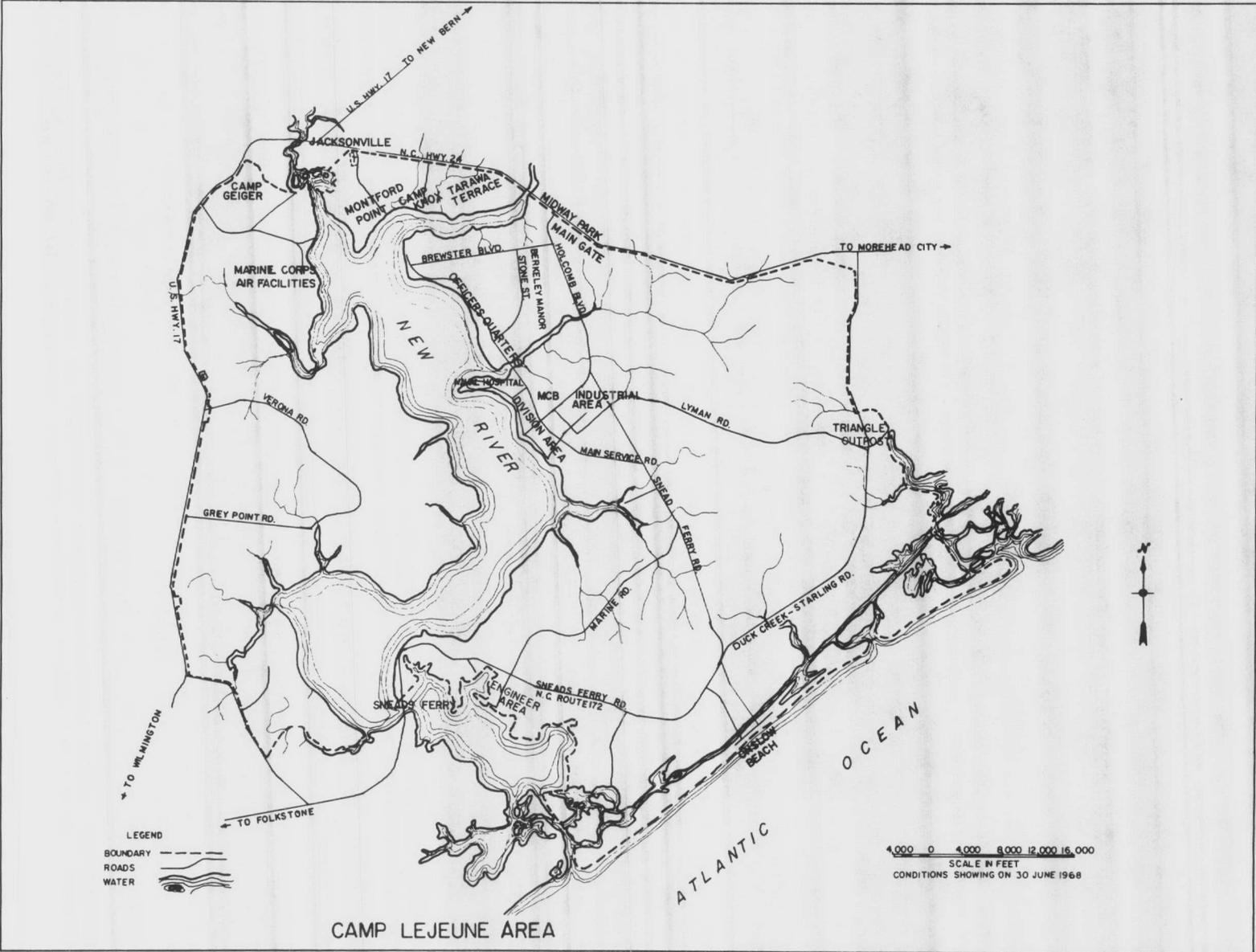
Marine Corps Base, Camp Lejeune, the world's most complete Amphibious Training Base, is situated on the southeast coast of North Carolina with a twelve-mile ocean front extending from Bear Inlet to New River Inlet and encompasses approximately 170 square miles of land and water.

Established in 1941 and named in honor of Lieutenant General John A. Lejeune, the Base houses three Marine Corps Commands and two Navy Commands: Marine Corps Base; 2d Marine Division, FMF; Force Troops, FMFLant; Naval Hospital; and Naval Medical Field Research Laboratory.

The mission of Marine Corps Base, Camp Lejeune, is as follows:

- a. Provide housing, training facilities, logistic support, and certain administrative support for Fleet Marine Force units and other units as assigned.
- b. Conduct specialized schools and other training as directed.
- c. Receive and process personnel as assigned and conduct individual combat training as directed.

The present military population of Camp Lejeune is approximately 27,000 military personnel, augmented by approximately 3,000 civilian employees. Military dependents would be approximately 30,000 on and off Base.



SUMMARY

Air Pollution Control

All open burning was suspended with the exception of prescribed burning under the forest management plan. Forest prescribed burning was done within criteria established by the North Carolina Water and Air Resources Board.

In June 1973, a boiler fuel conversion project was completed at the central heating plant enabling the plant to burn 100% fuel oil (No. 6), and smoke detectors were installed in smoke stacks at all heating plants.

Water Pollution Control

In order to alleviate pollution by oil in run-off to receiving streams, an oil pollution abatement project was completed in 1973. This involved installation of forty waste oil storage tanks at different locations for utilization at the unit level. Also, much time was spent with each unit informing personnel of proper use of storage tanks and other means of preventing oil spillage. A 272,000-gallon storage tank was made available for storing waste oil.

In compliance with Marine Corps Bulletin 6240 of 28 August 1973, the following equipment for cleaning up oil spills has been made available: small john boat, oil skimmer, vacuum truck, sorbent mats, straw, and other miscellaneous hand tools.

In January 1974, an environmental oriented slide/lecture presentation was included in the training program for automotive mechanics and drivers at the Base Motor Transport School. The Base Ecologist gives this presentation with emphasis placed on oil pollution.

Sedimentation caused by soil erosion is a source of water pollution. Tracked vehicles such as tanks and amphibian tractors are restricted to designated trails and training areas. The Soil Conservation Service is currently assisting Base personnel in developing a soil and water management plan.

Secondary treatment is accomplished at all seven sewage treatment plants aboard Base. An efficiency of approximately 90% is realized in relation to biochemical oxygen demand and suspended solids. Coliform bacteria removal approaches 100% in the chlorine contact chambers. Highly qualified plant operators have successfully completed the examination for certification by the North Carolina Water and Air Resources Board. In January 1974, the Environmental Protection Agency issued the National Pollutant Discharge Elimination System permits to Camp Lejeune for all seven sewage treatment plants.

Noise Control

The Hearing Conservation Center of the Base Medical Department is responsible for establishing and maintaining a hearing conservation program. Objectives are to prevent hearing losses before occurrence.

During the current year, 30,000 hearing tests were conducted. A recently completed noise abatement project was the acoustical treatment of the 2d Marine Division Band rehearsal area.

Community Relations

In September 1973, sewage treatment plant supervisors acted as instructors for a 10-week waste water treatment school held at nearby Coastal Carolina Community College. Thirty-five students participated.

In an effort to minimize structural damage and noise pollution, a system of "blast focus forecasting" was instituted which places restrictions on ordnance detonation.

Base Attractiveness

During the current year, 1,800 flowering trees, shrubs, and flowers were planted by the Nursery and Landscaping Section, Base Maintenance Department, for environmental enhancement of troop and industrial areas, road intersections, and golf courses.

Solid Waste Disposal

During the past year, 700,000 cubic yards of solid waste were disposed of at the sanitary landfill. Six 45-cubic yard compaction devices were installed at selected points Basewide. Only recyclable cardboard is disposed of in these units. Two "Pitch in" containers were installed on Holcomb Boulevard. Wet garbage is sold as hog food.

Responsibility and Organization

Base Maintenance Officer has responsibility for management of

environmental affairs. Management is accomplished primarily through the Natural Resources and Environmental Affairs Division of the Base Maintenance Department.

Monitoring of Pollution Sources

The Camp Lejeune potable water supply is monitored weekly by testing water samples from approximately 40 sampling points. Waters of New River and Intracoastal Waterway are monitored by testing monthly water samples from 23 sites.

AIR POLLUTION CONTROL

Camp Lejeune has never had major air pollution problems. Located far from any large industrial center, there are few sources of air pollution for the area.

The existing possible sources of air pollution are mainly the ten steam generating plants aboard Base. The central heating plant, designed to burn coal or No. 6 fuel oil, produces approximately 75% of all the heating energy for the Base. Five plants burn only No. 6 fuel oil and four plants burn only No. 2 fuel oil.

In June 1973, an air pollution abatement project of importance was completed. This consisted of boiler fuel conversion at the central heating plant making it possible to burn 100% No. 6 fuel oil, and the installation of smoke detectors in the smoke stacks at all heating plants. With the advent of the fuel crisis, the central heating plant now operates 50% coal-50% No. 6 fuel oil. Also, a spray down chamber for removal of particulate matter from smoke emission was installed at the Commissary incinerator. Recently, however, with the installation of a 45-cubic yard container for cardboard, burning has been terminated in this facility.

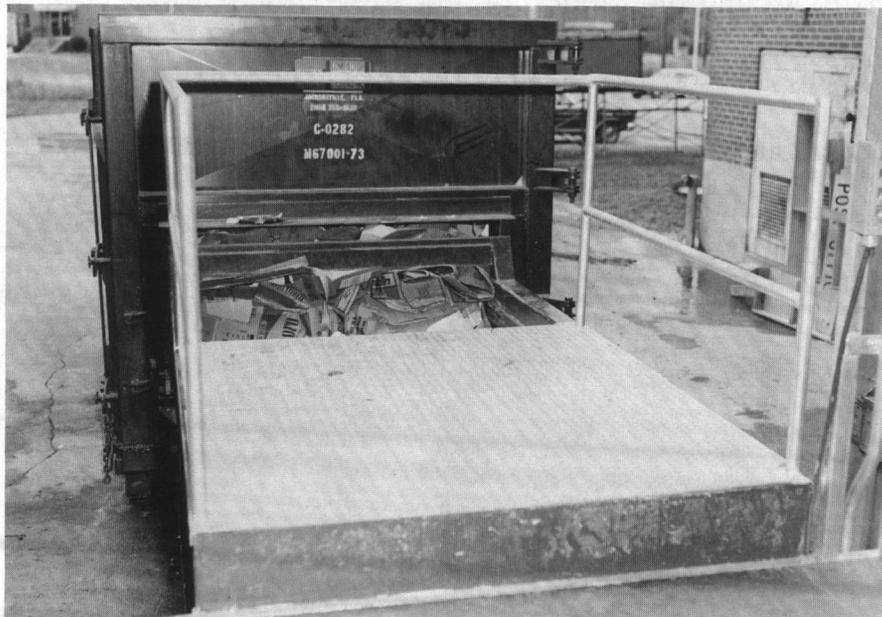
A great source of air pollution was eliminated in 1972 when all open dump burning ceased. Since then, all solid waste has been disposed of at the sanitary landfill. One of the former burn dumps was converted to

a Base recreation area complete with a pond now stocked with fish. The pond will be opened for fishing on 1 July 1974. The Nursery and Landscaping Section, Base Maintenance Department, has done a commendable job in beautifying the area, and the former eyesore has become a valuable asset. Another former burn dump is scheduled to be reforested with pine seedlings in FY-75.

In the event there is an air pollution emergency in the Camp Lejeune area, certain emergency measures are taken. Base Order 11090.2 gives detailed instructions for air pollution emergencies. (See Appendix A).



INCINERATOR AT BASE COMMISSARY (above) HAS BEEN REPLACED BY COMPACTION DEVICE (below)



WATER POLLUTION CONTROL

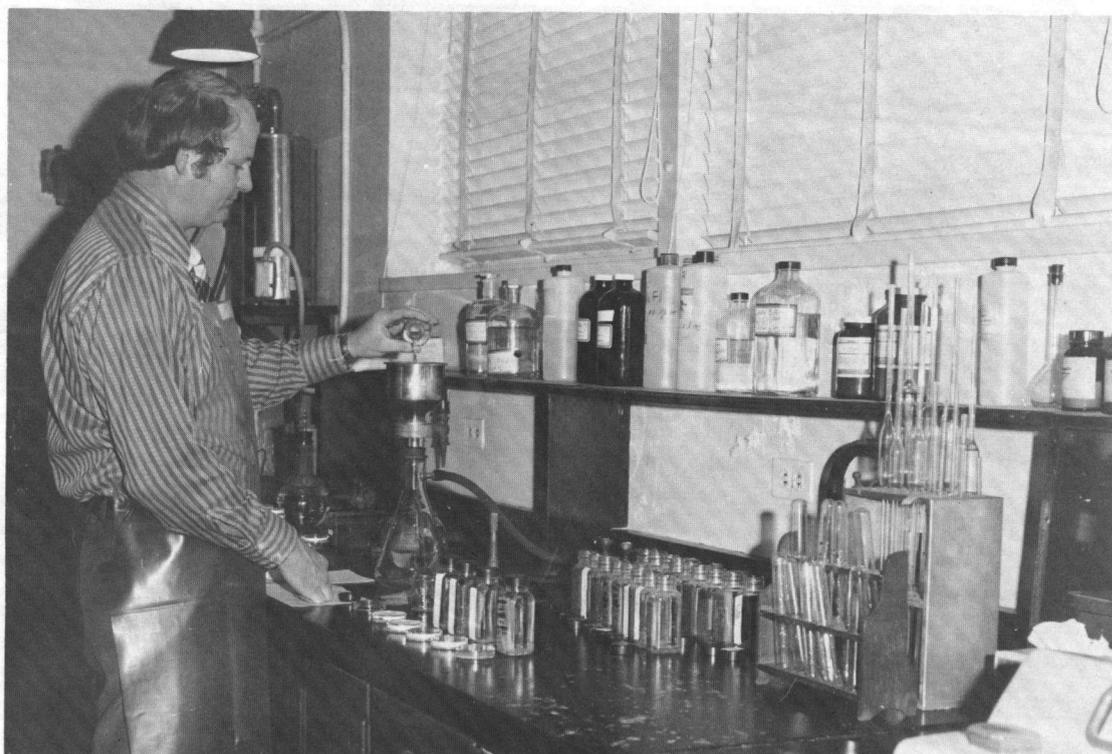
Water Treatment

The Utilities Division, Base Maintenance Department, is charged with the responsibility to provide the Base with good quality potable water. Eight water treatment plants serve the various geographical areas of the Base providing approximately ten million gallons of potable water per day.

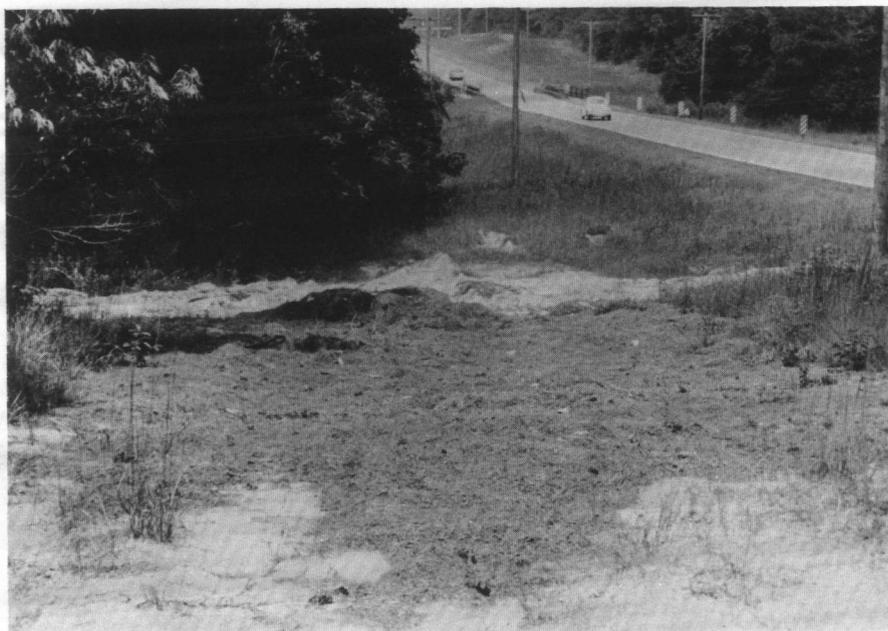
Deep wells are utilized to provide a source of water for the treatment plants. This water receives the lime or sodium zeolite treatment to remove the hardness producing minerals. The softened water is then filtered, chlorinated, fluorinated, and pumped to the distribution system.

Thirty well-trained water treatment plant operators monitor water quality around the clock in order to provide quality water at Camp Lejeune. In addition to plant control, the Utilities Laboratory, headed by a graduate chemist, performs weekly bacteriological and chemical analysis of the treated water to ensure the quality of the finished product. Treated water meets standards established by the Department of the Navy, Bureau of Medicine and Surgery.

3



CHEMIST PERFORMS BACTERIOLOGICAL
TEST ON POTABLE WATER



A COVER OF PINE NEEDLES HELPS CONTROL SOIL EROSION
AFTER BEING DISTURBED BY TRACKED VEHICLES



AN UNDISTURBED COVER OF AMERICAN BEACH GRASS AND
SEA OATS PREVENTS DUNE EROSION AT ONSLOW BEACH

SEWAGE TREATMENT AND SOIL EROSION CONTROL

Sedimentation caused by soil erosion, sewage effluent, and oil spills are three potential sources of water pollution at Camp Lejeune. The forces of nature (wind, tide, and wave action) cause some erosion at Onslow Beach and certain points along the banks of New River. Stone and concrete have been used to eliminate part of the New River bank erosion problem. It is recognized that some damage or wear and tear occurs to inland areas due to the nature of military training. For example, natural vegetation is destroyed and soil disturbed, resulting in a potential soil erosion problem. To avoid unnecessary damage incidental to field training, tracked vehicles have been restricted to designated training areas and access trails. Also, the Soil Conservation Service is in the process of assisting Base personnel in developing a soil and water management plan. This plan will include procedures for combating soil erosion at Camp Lejeune.

The Camp Lejeune sewage treatment complex consists of seven sewage treatment plants and forty-five lift stations, with a total design capacity of 13,095,000 gallons per day. Secondary treatment is accomplished at all seven sewage treatment plants. The rotating trickling filters at each facility enable an efficiency of approximately 90% in relation to biochemical oxygen demand and suspended solids. Coliform bacteria removal approaches 100% with the passage of the

effluent through a continuous feed chlorine contact chamber before emptying into New River.

Continuous attention and control at these sewage plants by thirty-eight qualified employees assures that effluents meet and exceed water quality standards established by the Environmental Protection Agency and the state of North Carolina. To help improve the qualifications of sewage treatment plant operators, all recently employed personnel are engaged in an intensive 2-year on the job training program set up and administered by the Civilian Personnel Office. The final step of this training program requires the employee to pass the Waste Water Treatment Operator Examination (Grade II) administered by the North Carolina Water and Air Resources Board. Twenty-one sewage treatment plant operators have successfully completed examinations for certification with grades ranging from I to IV.

The sewage treatment plants have their own laboratory where the sewage is analyzed to ensure that the effluents meet federal and state specifications. On 18 January 1974, the Environmental Protection Agency issued the National Pollutant Discharge Elimination System permits to Camp Lejeune authorizing the discharge of sewage effluent from all seven sewage treatment plants into receiving waters. Camp Lejeune's discharge permits were among the first issued under the National Pollution Elimination System; a fact that speaks for itself as

to the present condition of our discharges.

Starting 1 July 1974, sampling points established by the Environmental Protection Agency will be used to monitor those waters receiving effluent from Base sewage treatment plants. This sampling analysis and subsequent reporting will meet the requirements of the Environmental Protection Agency and the state of North Carolina.

To comply with Environmental Protection Agency's requirements, the following laboratory equipment has been ordered: total Kjeldahl nitrogen analysis equipment, chemical oxygen demand equipment, conductivity meter, miscellaneous chemicals, automatic sampler (24 hours composit sample test), portable pH meter, dissolved oxygen, and temperature meter.



CHLORINE CONTACT CHAMBER ASSURES BACTERIA
FREE EFFLUENT FROM HADNOT POINT SECONDARY
TREATMENT PLANT

SPECIFIC PROJECTS AND ACHIEVEMENTS COMPLETED, UNDERWAY,
OR PLANNED

In 1973, the Rifle Range outfall line was cleaned and extended into New River to allow better dispersion of effluents.

To comply with Environmental Protection Agency regulations, the following proposals were made regarding Camp Lejeune sewage disposal:

- a. Seal by-passes at all sewage lift stations and sewage treatment plants.
- b. Provide high liquid alarm system at all outlying sewage lift stations and sewage treatment plants.
- c. Provide standby power at all sewage treatment plants and lift stations.
- d. Recycle sludge drying bed liquor at all sewage treatment plants.
- e. Provide additional anaerobic digester at Tarawa Terrace sewage treatment plant.
- f. Provide four additional sludge drying beds at Tarawa Terrace sewage treatment plant.
- g. Add chlorine contact chamber at Tarawa Terrace sewage treatment plant.

Work on these projects is planned for FY-75, which will further upgrade the sewage treatment facilities at Camp Lejeune.

OIL POLLUTION ABATEMENT

Pollution from oil continues to be a potential problem as large quantities of petroleum products are delivered daily to the Base by truck or rail. The fuel is stored in underground tanks and in properly diked surface tanks and fuel bladders. Camp Lejeune has been fortunate in that no major oil spills have occurred in its offshore or inland waterways; however, a few minor accidental spills have occurred at storage facilities and refueling stations. Steps have been taken to eliminate the problem. Other minor oil spills have occurred around maintenance areas, motor pools, etc. In an effort to eliminate the problem, approximately 40 waste oil storage tanks have been modified and installed at different locations for utilization at the unit level. Time has been spent with each unit informing personnel of ways to reduce oil spillage in their respective areas.

Oil contaminated soil in various locations has been replaced with new soil, reseeded, and landscaped. Further work is planned in the future to improve appearance of the grounds around maintenance buildings, motor pools, etc.

In the past, most of the waste oil collected at Camp Lejeune was used for dust control on unpaved roads and parking lots. This practice has been approved by the Environmental Protection Agency. A 272,000-gallon tank is now available for storing excess waste oil that is not



ONE OF THE 40 WASTE OIL COLLECTION TANKS INSTALLED BASEWIDE

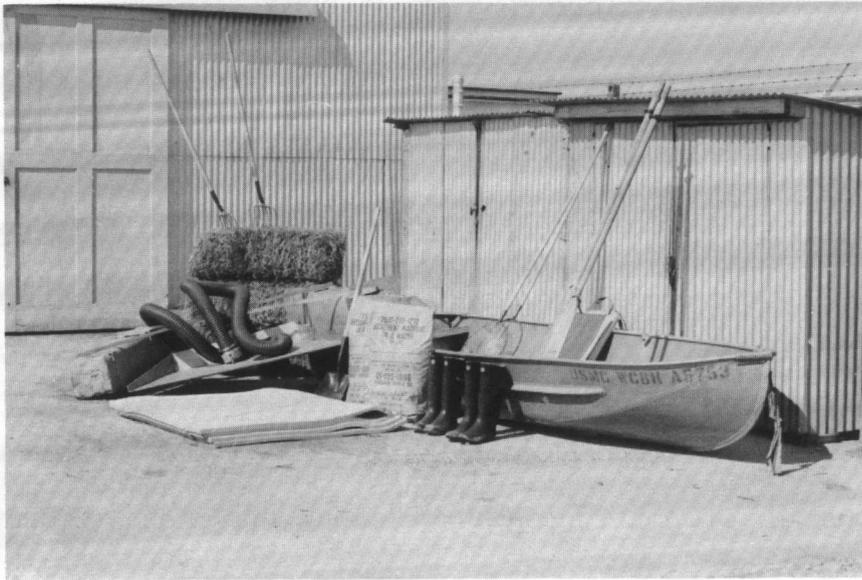


WASTE OIL COLLECTION TRUCK EMPTYING INTO THE 272,000-GALLON STORAGE TANK

needed for dust abatement. Approximately 29,000 gallons have been stored in the tank. This excess oil is expected to be used for heating fuel or reclamation. Base Order 11090.1 (Appendix B) of 28 September 1972 contains, in addition to command policy, the Base Spill Prevention, Containment, and Countermeasure Plan for Oil and Other Hazardous Substances.

Marine Corps Bulletin 6240 of 28 August 1973 directs activities to have on hand certain oil containment and cleanup equipment to combat any possible oil spill. Camp Lejeune has a boat, oil skimmer, vacuum truck, sorbent mats, straw, and other equipment that can be used to contain and clean up oil spills. This equipment is located at Base Maintenance and, upon notification, can be transported to the site of an oil spill. Also, 600 feet of oil containment boom is on order.

Beginning in January 1974, the educational process is being used in an effort to promote the pollution abatement program. Classroom time was granted for a slide/lecture presentation on the environment to be routinely included as a part of the Motor Transport School Company, Montford Point, student training program. The Base Ecologist gives the presentations with special emphasis being placed on oil pollution. By making each student more aware of environmental problems, it is hoped more desirable habits and attitudes will be developed, resulting in better Marines and eventually better citizens. To date, approximately 600 students have attended the lecture.



DISPLAY OF OIL SPILL CLEAN UP EQUIPMENT



BASE ECOLOGIST GIVES SLIDE PRESENTATION ON OIL POLLUTION TO STUDENTS OF MOTOR TRANSPORT SCHOOL COMPANY, MONTFORD POINT

NOISE CONTROL

Sources of noise pollution are many and varied on Base. In the Industrial Complex such areas as carpenter shops, metalworking shops, sand blasting, compressed air, heavy equipment, and steam plants are sources of noise pollution. Areas and conditions under which military personnel in the field are subjected to noise pollution are: all types of gunfire, rockets, explosives, aircraft, tanks, heavy equipment, and motor vehicles. The Hearing Conservation Center of the Base Medical Department is charged with the responsibility of establishing and maintaining a hearing conservation program. This responsibility is established in Appendix C (Base Order 6260.2, Subj: Marine Corps Base Hearing Conservation Program). The Hearing Conservation Center tests and designates noise hazard areas and conducts approximately 30,000 hearing tests annually. The staff consists of one civilian audiology technician and three Navy EENT (eyes, ears, nose, and throat) technicians.

The objective of the Hearing Conservation Program is to prevent hearing loss before it becomes a problem. If, upon testing, it is found that machinery or equipment emits 90 decibels or more, signs are posted designating it to be a noise hazardous area and personnel in the area are required to wear hearing protective devices while in

that area. Also, personnel who work regularly in noise hazardous areas are subjected to annual hearing tests. If it is determined that anyone has a hearing loss, he is tested more often and, if a loss continues, he is assigned work in an area where there is no noise hazard.

A recently completed noise control project was the acoustical treatment of the 2d Marine Division Band rehearsal area. Before treatment, the noise was well above the safe level. After treatment, tests showed a safe level of 86 decibels.

The Hearing Conservation Center has underway a special audio survey that will eventually involve a large number of personnel at Camp Lejeune. A hearing analysis data collection card will be established for about 25,000 personnel for data processing. This will greatly enhance the hearing conservation program by furnishing detailed hearing records and much needed hearing research data.



"IF IT'S OVER 90 DECIBELS, WEAR 'EM"

COMMUNITY RELATIONS

The general foreman and foreman of the sewage treatment plants, Utilities Division, Base Maintenance Department, are involved in a unique training program with the North Carolina Department of Air and Water Resources and the Coastal Carolina Community College, Jacksonville, North Carolina. In September 1973, the Camp Lejeune sewage plant supervisors were the instructors for a 10-week Waste Water Treatment School held at Coastal Carolina Community College. The class was conducted at night with 35 students from throughout eastern North Carolina participating. Twenty-seven of the 35 original students successfully completed all requirements of the course and each was awarded Sewage Treatment Plant Operator Grade II Certification by the State of North Carolina. Most of the training was conducted on campus; however, Base sewage treatment facilities were visited on several occasions for special instructions with the laboratory being utilized for the chemical analysis part of the course.

According to the Director of Operator Training for the North Carolina Air and Water Resources Board, the training program was the most successful completed in this field; a comment well received by Camp Lejeune.

Good relations are maintained with local, state, and federal

authorities in our efforts to foster the environmental enhancement program at Camp Lejeune.

During the fall of 1972, Mutual Fire Fighting Assistance Agreements were entered into with the city of Jacksonville, North Carolina, Onslow County, and the U. S. Department of Agriculture Forest Service. In addition, the existing agreement with the North Carolina Department of Natural and Economic Resources was updated. Under these agreements, mutual available fire fighting support is rendered when required.

In the past, the detonation of ordnance in the G-10 bombing and target range and the Brown's Island target complex has resulted in numerous complaints of noise pollution and structural property damage by residents of nearby communities. In an effort to minimize the amount of structural damage and noise pollution, a system of "blast focus forecasting" was devised which places some restrictions on ordnance detonation at Camp Lejeune. (See Appendix D - Base Bulletin 11102 of 27 February 1974.)



BIOLOGY STUDENTS FROM NEARBY COLLEGE PARTICIPATE
IN A FIELD TRIP ABOARD BASE

FOREST MANAGEMENT

5
-
It is the policy of the command to maintain a sustained-yield multiple-use forest management program that is commensurate with military training requirements while correlating timber management with the best wildlife habitat possible. The 60,000 acres of Camp Lejeune woodlands under management are divided into 60 compartments and each compartment into its component stands. Six compartments receive annual silvicultural treatment from prescription prepared by the Base Forester. Timber stands requiring a timber harvest are marked, volumes computed, and offered for public sale by sealed bids. In FY-73, 3,807,212 board feet of sawtimber and 5,336 cords of pulpwood were sold for \$591,336. Since the value of this timber as an end product is estimated at about \$4,000,000, approximately \$1,500,000 was injected into the local economy by contracting companies.

Reforestation is carried out by two distinct methods - natural and artificial. Natural regeneration is accomplished by pre-selection of 10 - 12 seed trees per acre. After timber harvest, site preparation is accomplished by use of a heavy disk or KG blade to scarify the soil and prepare a seed bed. Artificial regeneration is accomplished by the same means of site preparation followed by mechanical or hand planting of tree seedlings. Seedlings are usually planted on a spacing

of 8' x 8'.

Prescribed burning, one of the most useful and economical tools of forest management, was completed on approximately 12,000 acres in FY-74. This means burning off by a broadcast burn certain areas of a compartment on an as needed basis. The burning was accomplished during winter months when vegetation was dormant and little damage was done to existing tree growth. Reasons for prescribed burning are for rough reduction, improvement of wildlife habitat, control of undesirable vegetation, disease control, and improvement of training areas. To avoid air pollution, this burning is done within limitation of standards set by the Department of Natural and Economic Resources of the State of North Carolina.



NOT ONLY IS THIS TREE STAND PRODUCING MUCH NEEDED FIBER,
BUT ALSO AFFORDS WILDLIFE HABITAT AND WATERSHED PROTECTION

A somewhat severe infestation of southern pine beetle occurred in October and November 1973, provoked by drought conditions. The best known control for southern pine beetle is to cut and remove infested trees. By early March, practically all beetle infested trees had been removed through salvage cutting by timber contractor.

WILDLIFE MANAGEMENT

The Wildlife Management Program of Camp Lejeune is designed to provide optimum environmental conditions for the wide variety of fauna that inhabit the Base. Extensive habitat management programs, such as the proper harvest of timber, prescribed burning, creation of food plots, maintenance of wildlife openings, and the preservation of habitat occupied by unique species have resulted in abundant, healthy populations of wildlife available for both consumptive and nonconsumptive use. Federal, state, and Base game laws regulate the taking of all wildlife. A new 10-year management plan was formulated this year and placed into effect. Progressive improvement is expected to be realized under the plan since it is adjusted to meet the increasing needs of the public using the local fish and wildlife resources.

Fifty-four food plots totaling 250 acres have been established to supplement the natural food supply, provide edge effects, and enhance natural brood range. A fall planting of rye or wheat is made on one-half of each plot annually to provide winter grazing, while the remaining half lies fallow for invasion by grasses and succulent herbs.

A 1,300-acre area is intensively managed for small game by making a summer planting in 1/4-acre strips of small grain at fifty-four locations. Thirteen miles of forest access roads were planted in perennial grasses to provide supplemental game food sources, reduce

road maintenance cost, act as a green fire break, and to improve the aesthetic quality of the area.

Base regulations provide legal protection for endangered species and all nongame animals. Also, management programs are designed to preserve the habitat of such endangered species as the red cockaded woodpecker and the American alligator.



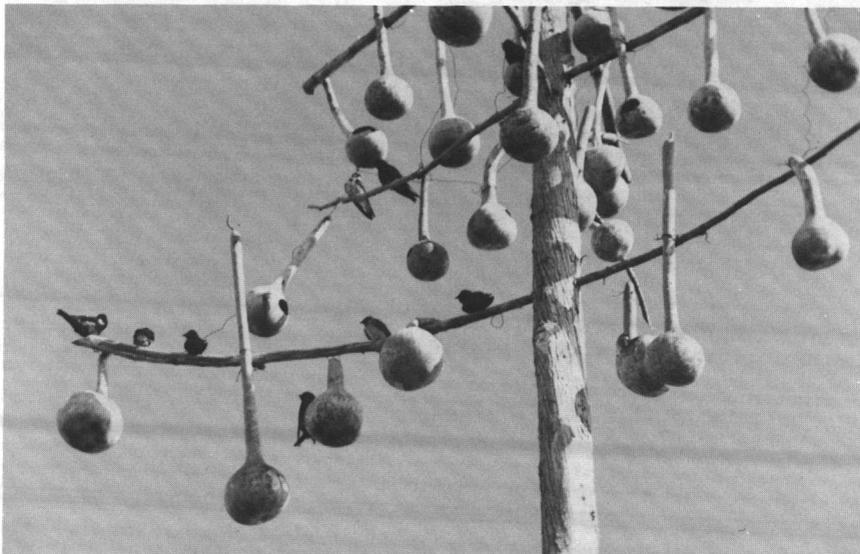
FOOD PLOTS ENHANCE WILDLIFE HABITAT

FISH MANAGEMENT

A wide variety of fresh and salt water fish inhabit the fresh water ponds and streams, salt water bays, and the Atlantic Ocean adjoining the Base. Eleven fresh water ponds are currently under management. Eight of these are natural ponds and three are man-made with a total of 33 acres under management. Management techniques consist of fertilization to promote plankton and other microscopic plant growth, liming to control pH factor, and use of aquatic herbicides for weed control. Stocking is done on an as necessary basis. It is estimated that 150,000 man-days of fishing in both fresh and salt water have been provided at Camp Lejeune during the current year.

PURPLE MARTIN PROJECT

The purple martin termed by some conservationists as America's most wanted bird because of its voracious appetite for flying insects is found at Camp Lejeune. This bird will eat as many as 2,000 mosquitoes per day and can be attracted by providing good nesting sites. For the past several years, good housing has been provided by suspending gourds from a high pole. Last year, approximately 24 nests were successful in producing broods. In addition to 24 gourd nests this year, five commercially made aluminum houses with a total of 72 nesting compartments have been erected recently at strategic places aboard Base. The mosquito has always been a problem in the coastal environment of Camp Lejeune. By enhancing the purple martin nesting site, thereby increasing the total population, it is expected the mosquito population will decrease and somewhat relieve control efforts by insect vector personnel.





NEW HOME FOR THE MOSQUITO EATERS!

PESTICIDES CONTROL

6 The use of pesticides on Base is carefully regulated and all pesticides are stored in locked storage facilities and issued under strict controls. The Base Medical Officer is tasked with the responsibility to maintain surveillance over the types used, methods of application, formulation procedures, and recommended strengths.

The application of pesticides is carried out by Base Insect Vector Control. Personnel of this section are required to take a one-week course every two years instructing them in proper methods of application and safety precautions.

Technical assistance is provided by Naval Facilities Engineering Command, Norfolk, Virginia.

Pesticides used on Base are listed below:

Botanical Pesticides

Pyrethrum SLN

Carbamates

Sevin Carbaryl WP
Sevin Carbaryl Dust
Baygon Granular
Baygon EC

Natural Petroleums

Kerosene White Deodorized
No. 2 Grade Fuel Oil
Summer Oil Emulsion

Phosphorous Compounds

Diazinon 4E
Diazinon 4S
Naled Dibrom
Malathion WP
Malathion EC
Dichlorvous EC
Abate EC
Cygon

Chlorinated Hydrocarbon

Chlordan EC (limited for
termite and fire ant
control)

Fumigants

Phostoxin Tablets
Paradichlorobensene Flakes

Rodenticides

Warfrin Anticoagulant

BASE ATTRACTIVENESS

Camp Lejeune with its natural beauty and well designed layout has long been noted as one of the most attractive military Bases in the United States. To keep it this way requires constant endeavor by the various military units and the Groundskeeping Section, Base Maintenance Department. All main thoroughfares are policed daily by Groundskeeping personnel or by military units. During summer months, all grass or lawn areas are maintained at a maximum height of four inches.

During the current year, the Nursery and Landscaping Section, Base Maintenance, completed beautification projects at Force Troops, industrial and central areas, road intersections, golf courses, and horse stables. In excess of 1,800 flowering trees, shrubs, and flowers have been planted in support of the above projects. In addition, approximately 200 azaleas were replaced around quarters in Paradise Point.



RECENTLY PLANTED SHRUBBERY CON-
TRIBUTES TO BASE ATTRACTIVENESS

SOLID WASTE DISPOSAL

Waste disposal is a laborious and expensive operation as approximately 700,000 cubic yards of garbage and other waste must be disposed of at Camp Lejeune each year. Waste of all kinds is transported to the sanitary landfill for disposal. The sanitary landfill is located on a well drained 40-acre site on Sneads Ferry Road. A large trench approximately 40 feet wide and 12 feet deep is excavated to receive waste material. A bulldozer is used to compact the refuse as it is placed in the trench. At the end of each work day, the filled area is covered with soil, which eliminates insect attraction, fly breeding, and rodent habitat. Shortly following the opening of the sanitary landfill, twenty-one compaction devices were installed in Base messhalls. These devices exert a 10-to-1 compression ratio making them popular with mess personnel by greatly reducing the laborious task of transporting refuse to waste containers. Basewide requirements of waste containers at messhalls have been reduced by half; the poundage per trip in the dumpmaster truck has been increased; and the space per pound in the sanitary landfill is substantially reduced.

Six additional compaction devices have been installed at selected points aboard Base to compress cardboard boxes. This equipment exerts a 4-to-1 compression ratio and is equipped with a 45-cubic yard container which holds approximately 5-1/2 tons of cardboard, further

reducing the necessity for waste containers.

Pending funding for additional equipment in FY-75, Camp Lejeune's cardboard recycling program will be completed with the baled cardboard being disposed of by the Defense Property Disposal Agency. Presently, the Onslow County Workshop for the handicapped, a nonprofit, organization, is recycling the cardboard generated at Camp Lejeune.

Recently, two "Pitch In" containers were installed at convenient locations on Holcomb Boulevard. These containers have helped keep Camp Lejeune's roads clean by providing a place for motorists to deposit litter. The volume of trash being removed from these containers indicates heavy utilization.

Another waste item generated is scrap lumber which includes used lumber or boxes not required for the foreseeable needs of the generating activity or in such condition as to be unacceptable for further use. This material will be turned in and disposed of according to procedures set forth in Base Order 4570.1A of 28 January 1974. (Appendix E)

Liquid garbage (produce and leftover food from messhalls, cafeteria, etc.) is being handled by contract issued by the Defense Property Disposal Agency. A 5-year contract was awarded a local hog farmer who pays the government \$500 per year for the garbage. Garbage is picked up by the farmer and transported off Base where it is prepared and fed to swine. This contract benefits the government financially as well as reduced usage of disposals and reduced load of sewage treatment plants.



CLEAN UP AFTER A TRAINING EXERCISE



"DOING WHAT IT SEZ"

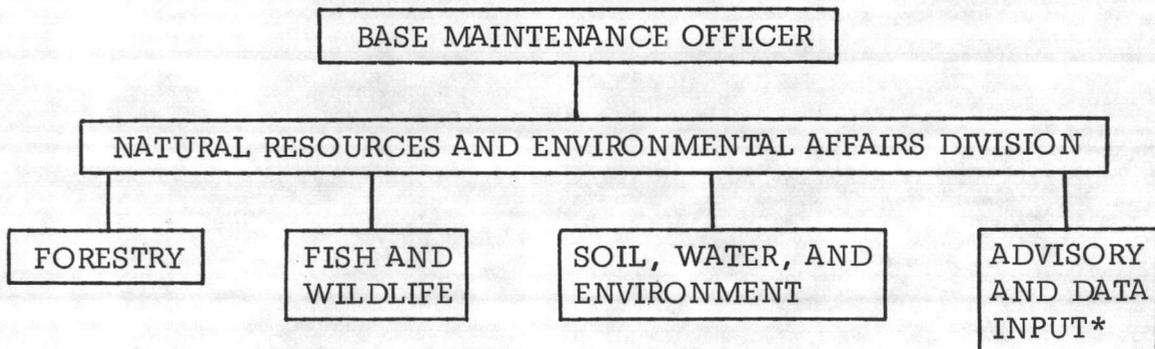


SANITARY LANDFILL IN OPERATION

GENERAL INFORMATION

7
Responsibility and organization for environmental protection is established in Base Order 11080.2, Subj: Management of Natural Resources; Environmental Quality and Pest Control (Appendix F) and Base Order 11090.1, Subj: Spill Prevention, Containment, and Countermeasure Plan for Oil and Other Hazardous Substances (Appendix B).

The Assistant Chief of Staff, Facilities, exercises staff cognizance over all matters pertaining to environmental protection while the Base Maintenance Officer has direct responsibility for management of environmental affairs. Management is accomplished primarily through the Natural Resources and Environmental Affairs Division of the Base Maintenance Department. However, other divisions of Base Maintenance also provide significant contributions. The Natural Resources and Environmental Affairs Division was organized in October 1972 and a further refinement has been restructured as depicted below.



*This section consists of advisory and coordinating personnel from Base Public Works Department and other divisions of Base Maintenance Department on a collateral duty basis.



TAKING WATER SAMPLES (above) AND CHECKING THEM OUT (below)



MONITORING OF POLLUTION SOURCES

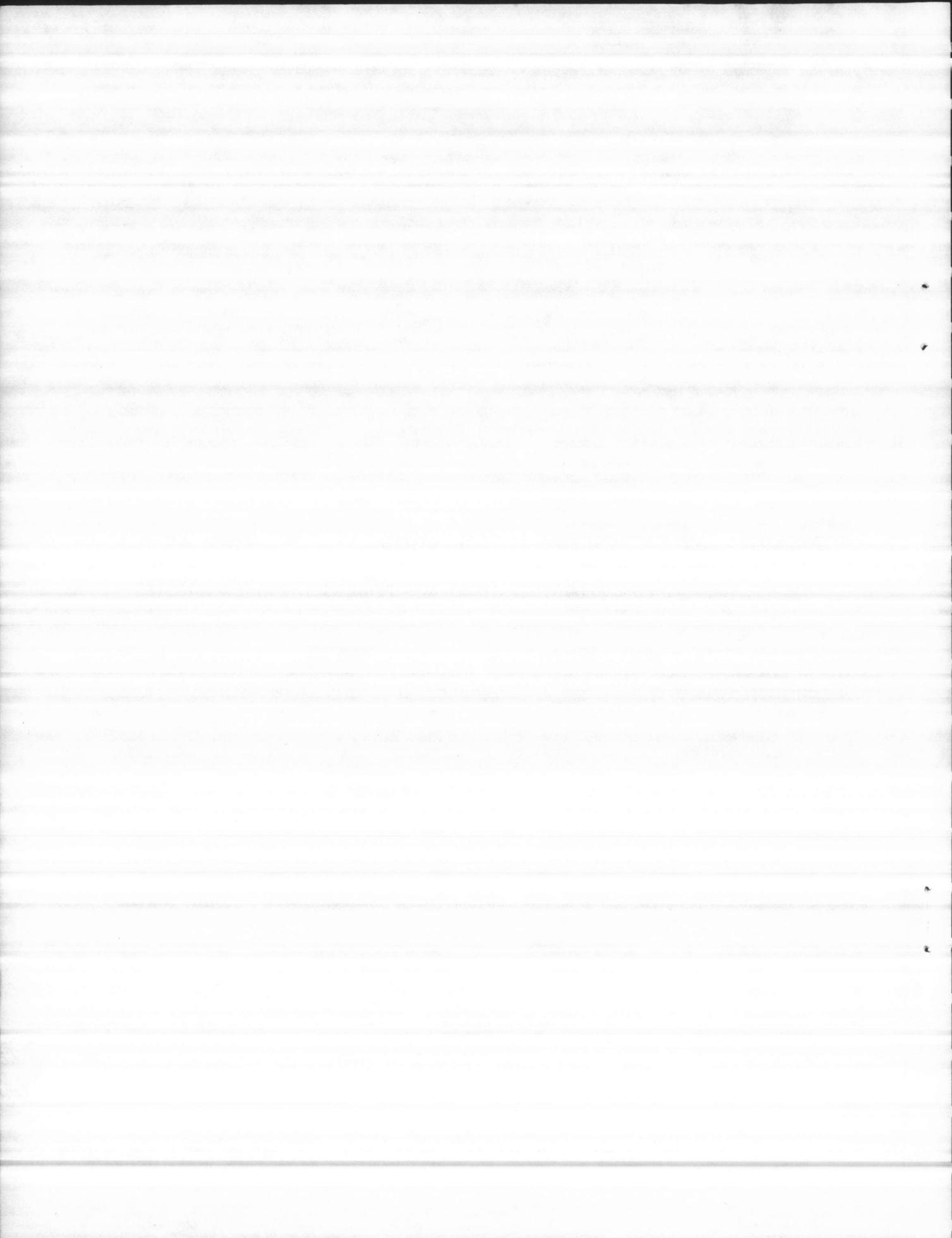
The potable water supply of Camp Lejeune is closely monitored throughout the system. Samples are taken weekly at 35 to 40 sampling points and tested for bacteria content. At each water treatment plant, samples are tested every two hours for chlorine content.

By checking the map on page 2 it is readily seen that New River is an important factor in the total environment of Camp Lejeune. It is the receiving stream for all effluent from six sewage treatment plants while the seventh plant at Onslow Beach empties into the Intracoastal Waterway. In order to comply with State and Environmental Protection Agency regulations on water quality standards, an intricate and comprehensive monitoring program is required. Water samples from 23 sites on New River and the Intracoastal Waterway are taken monthly near the upstream and downstream side of the effluent outfall lines from all sewage treatment plants. In addition, samples are taken at a number of random sites. These samples are tested for fecal coliform count, suspended solids, biological oxygen demand, dissolved oxygen pH, salinity and temperature. Water samples from the influent and effluent of each sewage treatment plant is also tested weekly.

In order to ensure a more credible monitoring program an employee with a master's degree in chemistry has recently been added to the Utilities Division, Base Maintenance Department.

APPENDIX A

BASE ORDER 11090.2, SUBJ: AIR POLLUTION EMERGENCIES



HEADQUARTERS, MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

BO 11090.2
4B/LD/mkc
31 Oct 1972

BASE ORDER 11090.2

From: Commanding General
To: Distribution List

Subj: Air Pollution Emergencies

Ref: (a) MCO P11000.8
(b) Article 21 of Chapter 143, General Statutes of North Carolina (Rules and Regulations Governing the Control of Air Pollution)

Encl: (1) Definitions
(2) Episode Criteria and Action to be Taken

1. Purpose. To publish regulations to prevent the excessive buildup of air contaminants during air pollution episodes, thereby preventing the occurrence of an emergency due to the effects of these contaminants on the public health, in accordance with the instructions contained in references (a) and (b).
2. Policy. It is the continuing policy of the Commanding General to actively participate in environmental pollution abatement and to take positive planning and programming action to prevent air pollution.
3. Responsibility. The Assistant Chief of Staff, Facilities is charged with the overall responsibility of coordinating the various measures of this Order.
4. Action. Cognizant officers will take the necessary action to ensure compliance with this Order.
5. Applicability. Having received the concurrence of the Commanding General, 2d Marine Division, FMF; the Commanding General, Force Troops, FMF, Atlantic; the Commanding Officer, Marine Corps Air Station (H), New River; and the Commanding Officer, Naval Hospital, Camp Lejeune, this Order is applicable to those Commands.



D. T. KANE
Chief of Staff

DISTRIBUTION: "A"

