

Drinking Water Issue

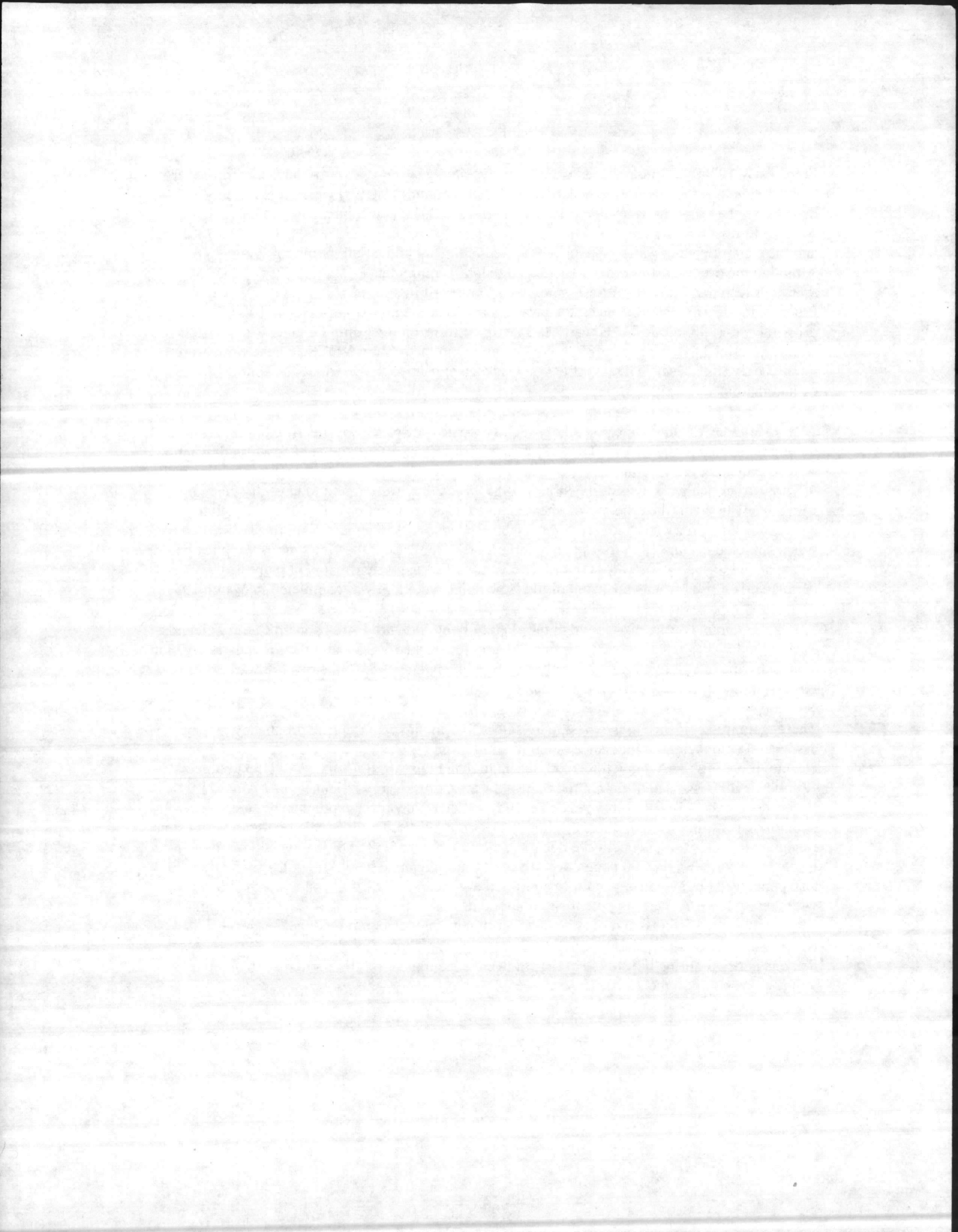
In the early 1980's, during routine testing of water supply systems aboard Marine Corps Base, Camp Lejeune, trace amounts of volatile organic compounds (VOC's) were unexpectedly detected in the drinking water in the Tarawa Terrace and Hadnot Point areas. At the time, there were no limits for VOC's in drinking water (regulatory standards were not established until 1991) and the Camp Lejeune water systems met all requirements of the Safe Drinking Water Act. Although the drinking water met all state and federal requirements, Camp Lejeune began a thorough search via the Naval Assessment and Control of Institutional Pollutants (NACIP) Program to identify potential hazardous waste sites, including possible sources of VOC's in drinking water. In late 1984 and early 1985, twelve wells on the Camp Lejeune water system were determined to have groundwater contamination in the form of VOC's. These wells were immediately shut down. The investigation was then expanded to determine the source of the contamination.

ABC One-Hour Cleaners, Inc., a laundry facility located off-base, was identified as one source of these compounds in the Tarawa Terrace housing area water system. It is unknown as to when ABC Cleaners began leaching dry cleaning solvents into the groundwater. Two of the nine wells in Tarawa Terrace were closed in February 1985, when they were found to have dry cleaning constituents in them (the other seven showed no VOC contamination). Construction of an emergency auxiliary waterline from the Holcomb Blvd. water treatment plant to Tarawa Terrace was completed in June 1985 to supplement the water supply until the Holcomb Blvd. plant could be expanded to supply Tarawa Terrace. The Tarawa Terrace water treatment plant was permanently closed when expansion of the Holcomb Blvd. plant was completed in March 1987.

Similar compounds were also found in the Hadnot Point Industrial Area aboard Camp Lejeune. Several underground storage tanks of metal degreasers leaked VOC's into the groundwater which were subsequently drawn into the supply water wells. In late 1984 and early 1985, based on NACIP findings, these wells were permanently closed.

There is limited evidence that exposure to VOC's in drinking water during pregnancy may be associated with increased incidence of childhood leukemia. As part of DoD's environmental cleanup program, the Agency for Toxic Substances and Disease Registry (ATSDR) published a "Public Health Assessment for United States Marine Corps, Camp Lejeune" on 4 August 1997. In this document ATSDR recommended a study to determine adverse pregnancy outcomes potentially resulting from mothers drinking water contaminated with certain compounds at Camp Lejeune. Results were inconclusive due to small sample size. ATSDR is now attempting to locate approximately 12,500 people who lived at Camp Lejeune between 1968 - 1985 and who also conceived or gave birth to children during that time. ATSDR will conduct a health survey with these people concerning potential childhood illnesses to determine if there is a potential link between childhood illness and contaminated drinking water at Camp Lejeune.

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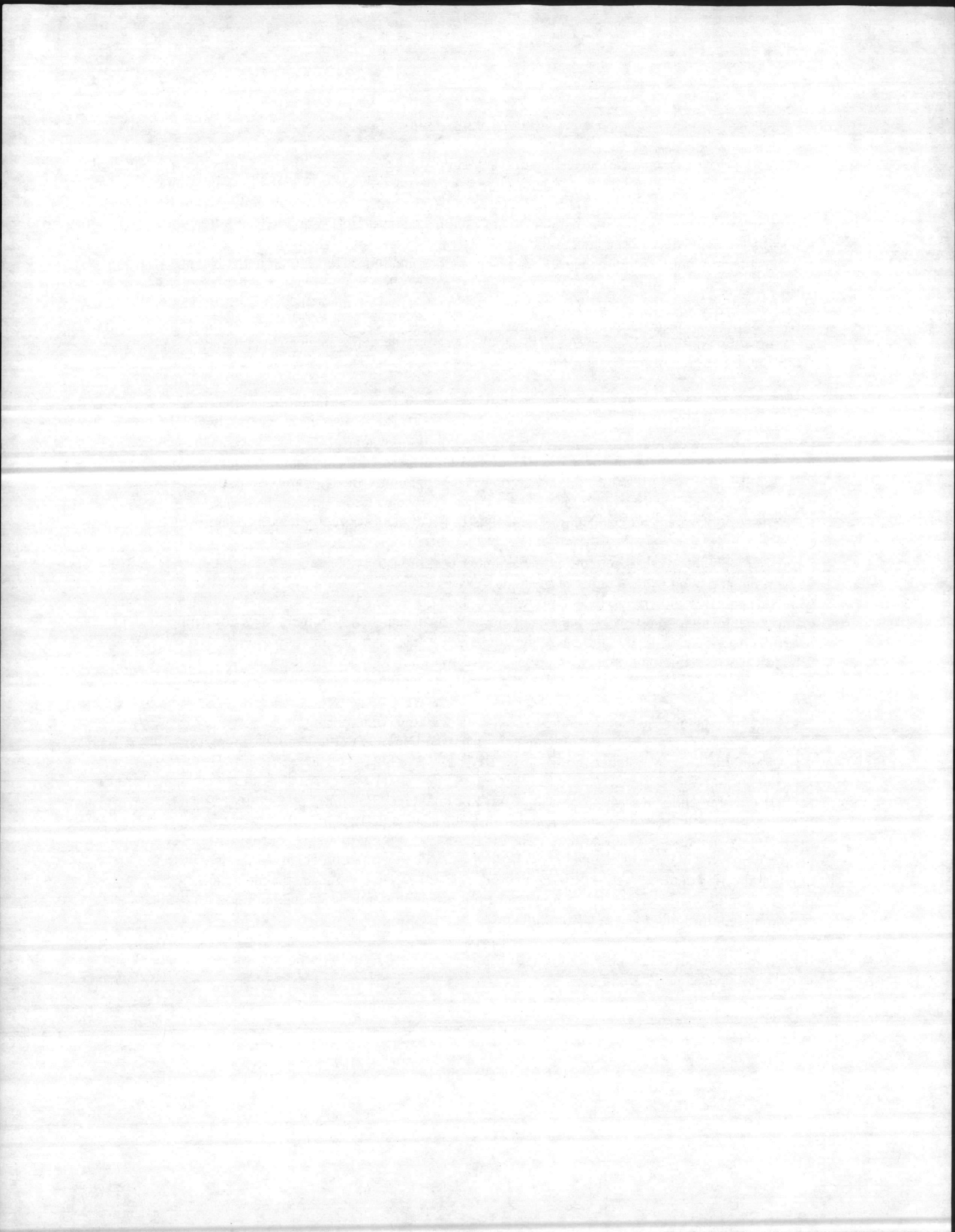
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Similar compounds were also found in the Hadnot Point Industrial Area aboard Camp Lejeune. Several underground storage tanks of metal degreasers leaked VOC's into the groundwater which were subsequently drawn into the supply water wells. The use of VOC's continues on board Camp Lejeune today; however, advances in closed-loop systems and stringent laws governing the use of VOC's have basically eliminated the potential for further contamination. Five groundwater remediation systems (at a total cost of approximately \$25 million) are currently operating throughout the Base to remove VOC's from the groundwater aquifer.

There is limited evidence that exposure to VOC's in drinking water during pregnancy may be associated with adverse pregnancy outcomes. As part of DoD's environmental cleanup program, the Agency for Toxic Substances and Disease Registry (ATSDR) published a "Public Health Assessment for United States Marine Corps, Camp Lejeune" on 4 August 1997. In this document ATSDR recommended a study to determine adverse pregnancy outcomes potentially resulting from mothers drinking water contaminated with VOC's at Camp Lejeune. Results were inconclusive due to small sample size. ATSDR is now attempting to locate approximately 12,500 people who lived at Camp Lejeune between 1968 - 1985 and who also conceived or gave birth to children during that time. ATSDR is conducting a health survey with these people concerning potential childhood illnesses to determine if there is a potential link between childhood illness and contaminated drinking water at Camp Lejeune.

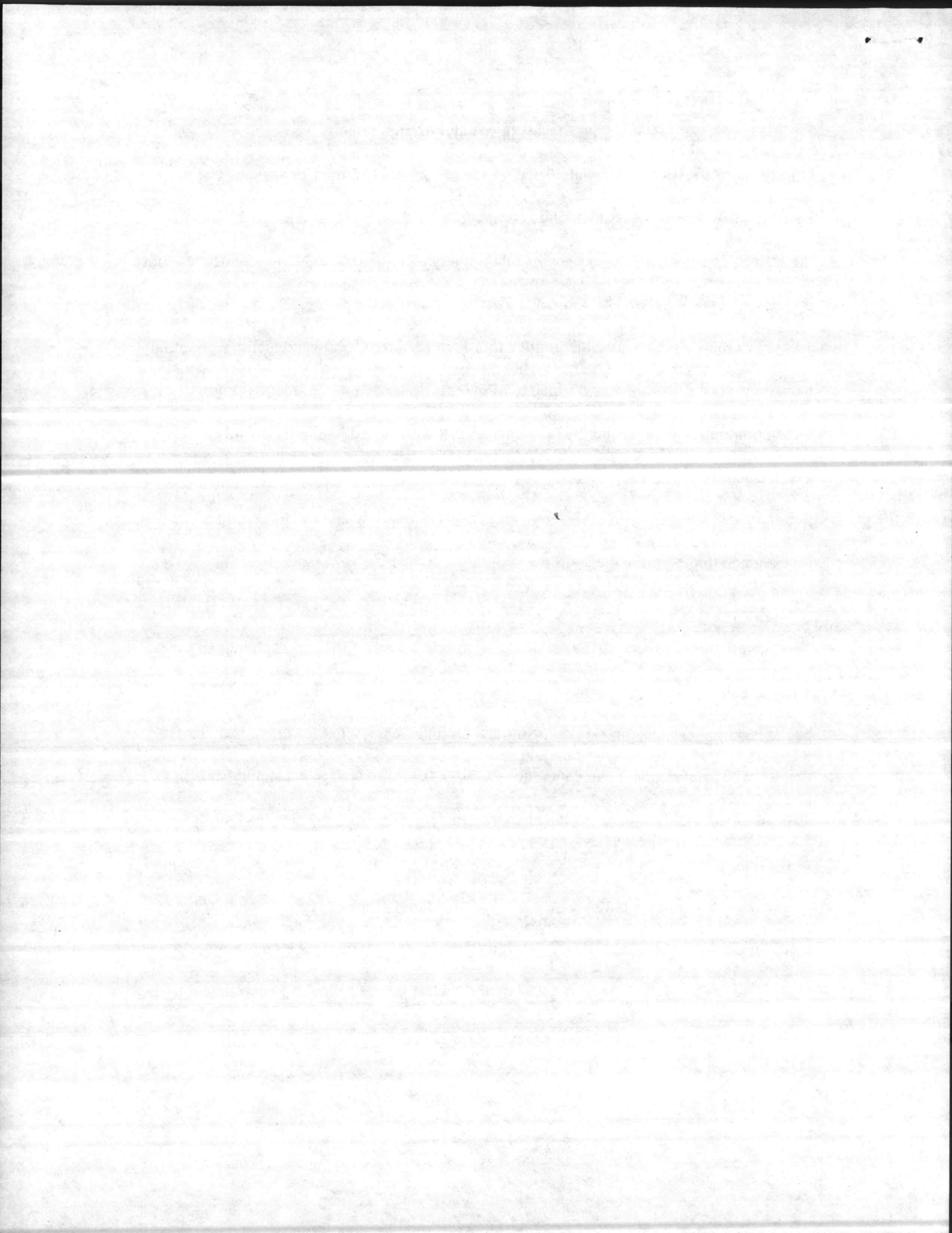
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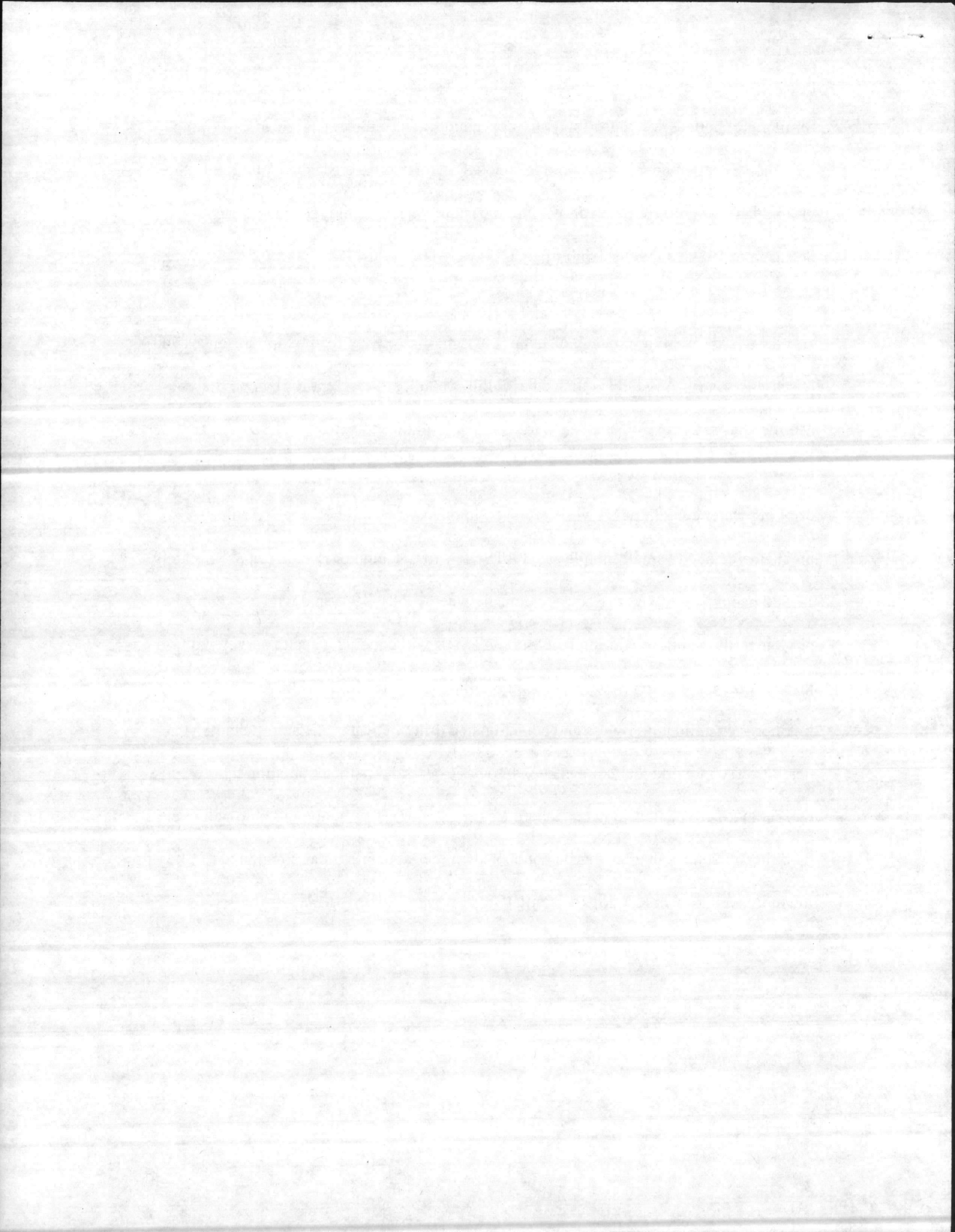
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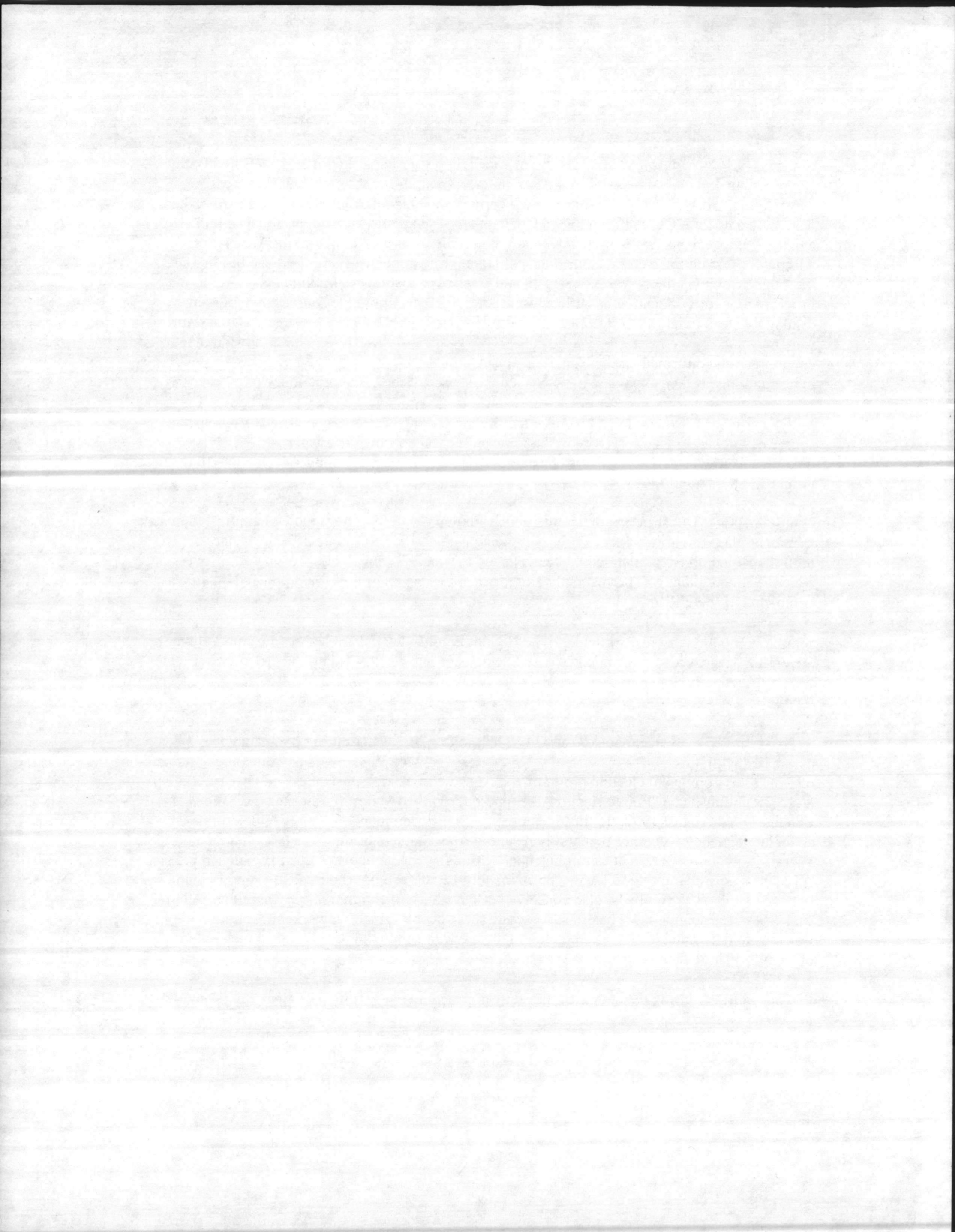
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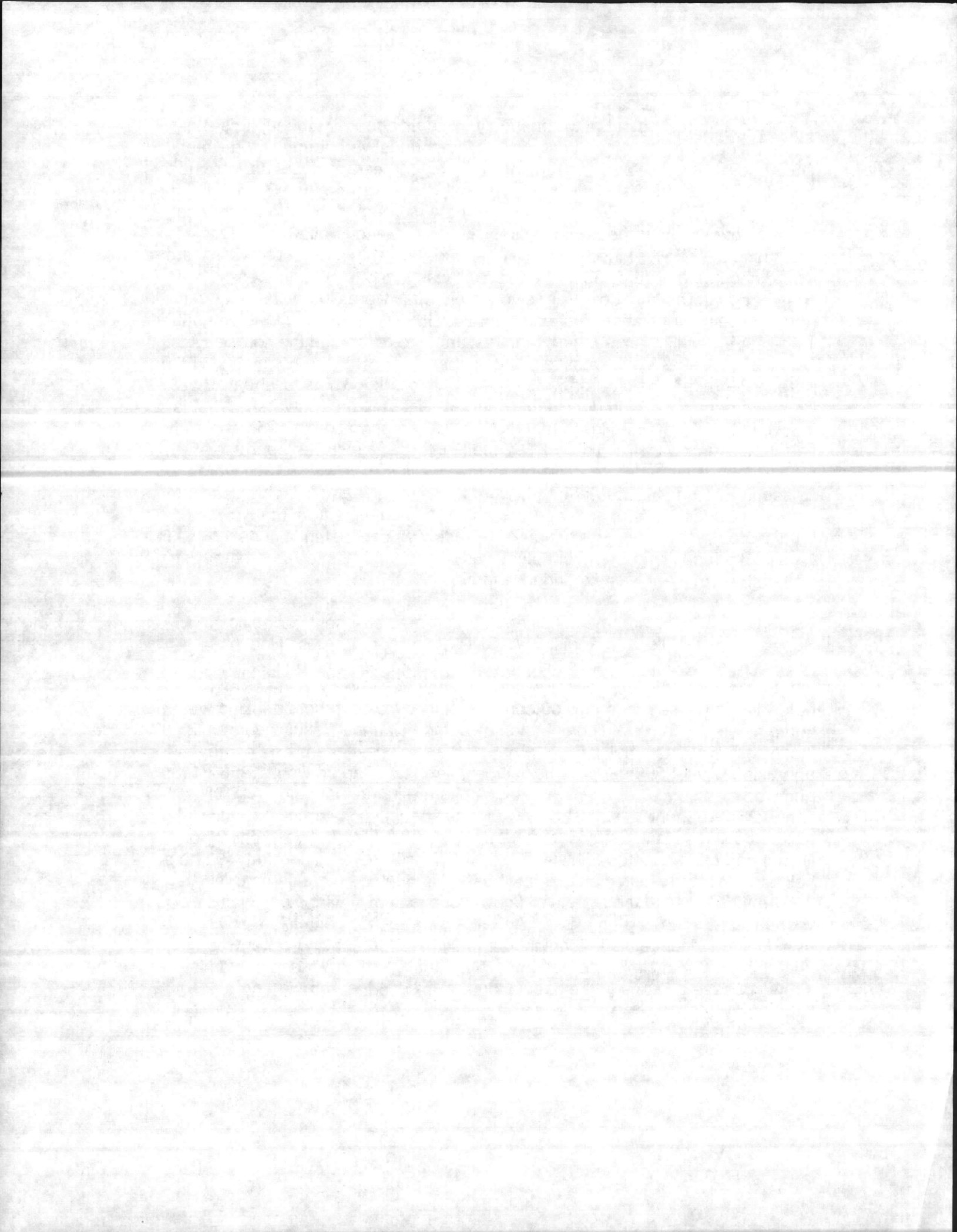
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Table 1. Water Issues

Following testing of the water supply system at the Marine Corps Camp Lejeune in July 1982, various organic compounds (VOCs) were not previously found in the water. This finding was not only an regulatory finding for these compounds, but also established the fact that the Marine Corps Camp Lejeune was the source of the VOCs. The early 1980s Camp Lejeune was undergoing a through overhaul to state and federal budgetary constraints. It was decided to allow the process to begin in July 1983. These compounds, subsequently, although wells were tested beginning in July 1983. When a well was found to contain these VOCs, a water supply well was closed. The first well closed was the 8334 well in February 1984. The order of the closure of the supply wells was then further investigated to determine the source.

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The nine wells in the area were closed in February 1985. When they were found to have any residual contamination, the concentration of the VOCs was found to be within the limits of the drinking water. The water treatment plant in the area was closed when the Holland Blvd. plant was expanded in March 1987.

Similar compounds were also found in the Marine Corps Camp Lejeune. Several underground storage tanks of metal degreasers and solvents leaked VOCs into the ground water which were drawn into the supply wells. Testing of each well occurred in 1984 and wells containing VOCs were closed.

As part of the environmental cleanup program, the Agency for Toxic Substances and Hazardous Waste (ATSDR) published a Public Health Assessment for United States Marine Corps Camp Lejeune in August 1985 in the document, ATSDR.

ATSDR conducted a study to determine adverse pregnancy outcomes resulting from mother and child water contaminated with certain compounds of Camp Lejeune. Results were inconclusive due to small sample size. ATSDR will now attempt to locate

approximately 12,000 people who lived at Camp Lejeune between 1953 and 1982. ATSDR will attempt to give birth to children during that time. ATSDR will conduct a

retrospective health survey with these people containing potential health outcomes to determine if there is a potential link between childhood illness and contaminated drinking water at Camp Lejeune. The study will include other health studies that have been

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