



DEPARTMENT OF THE NAVY
NAVAL HOSPITAL
CAMP LEJEUNE, N.C. 28542

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1-12-84
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Ken SKJ
IN REPLY REFER TO
371-dlm
6260-10
T-6
30 Dec 1983

Betz

From: Commanding Officer
To: Commanding General, Marine Corps Base, Camp Lejeune, NC 28542
(Attn: Public Works Officer)

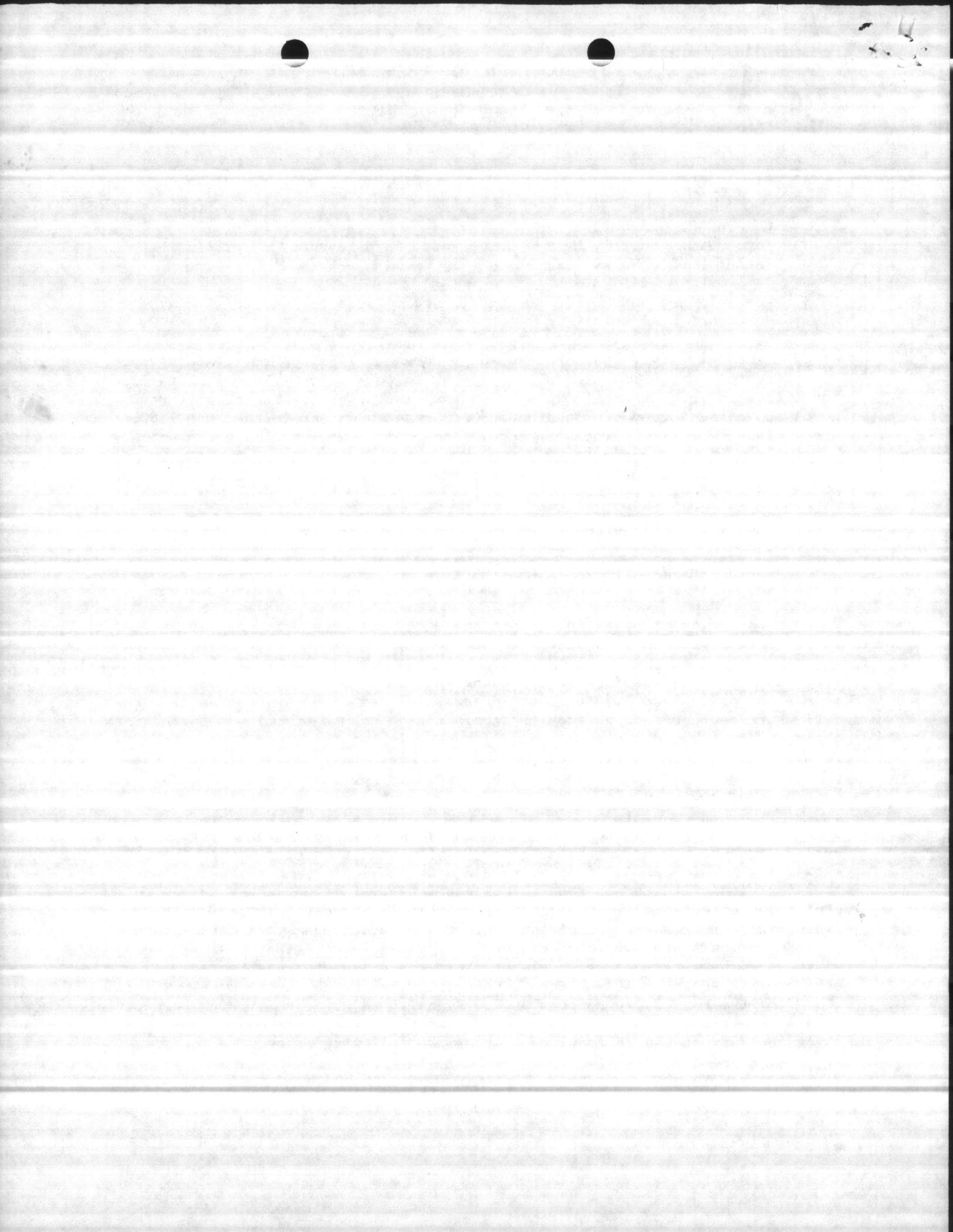
Subj: Possible Health Hazards Present in Steam Tunnels; industrial hygiene survey of

1. The subject survey was conducted on 9 December 1983 by Mr. J. McCloskey, Environmental Health Technician in response to workers remarks which indicated the likelihood of personnel exposure to toxic substances. The steam tunnels involved in the survey are located on Gum Street adjacent to the Bldg 1700, Steam Plant coal pile. The substance of the complaints are listed below:

- a. The workers feet warm up when standing in the surface drainage waters which accumulated in the tunnels.
- b. Footwear exposed to these waters wear out quickly.
- c. Skin and eye irritation has been experienced when working in the steam tunnel/pit.
- d. Corrosion of pipes in the pit has accelerated, eg, it has been necessary to replace galvanized pipe after two weeks.

2. Findings. Observations in the tunnel/pit and the surrounding area did not reveal any obvious hazards that could be associated with the complaints. However, surface runoff water from the coal storage area was noticed flowing into the steam tunnel and toward a steam pit. Samples of this runoff were taken from a small stream in the coal yard and from the sump pump well in the steam pit. The samples were examined at the Base Water Quality Lab and found to have a Ph of 2.2 which is highly acidic.

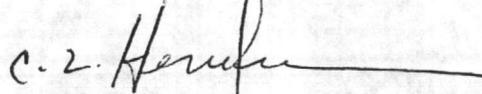
3. Comments and Recommendations. The Environmental Protection Association has defined aqueous wastes which exhibit a Ph of 2 or less as corrosive. Wastes with a low or high Ph (12.5 or over) can cause harm to human tissue, promote the migration of toxic substances from other wastes, react dangerously with other substances and harm aquatic life. From all indications the low Ph results from rain/surface water leaching through the adjacent coal yard. Formation of acid fumes/mists probably account for the skin and eye irritations. These fumes/mists would be more intense in places where the acid water was heated, ie, in contact with steam or steam lines. Reportedly, plans to divert surface drainage away from the tunnel are contemplated. Plans to adjust the Ph prior to emptying into streams, etc. should be considered. In the interim personnel working in the tunnel/pit should be required to wear the following protective items:



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- a. acid resistant clothing including foot coverings
- b. protective (splash) goggles
- c. acid/gas respirators such as the 3M Brand #8714 with pre-filter



C. Z. HENDERSON
By direction

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