



DEPARTMENT OF THE NAVY

NAVAL MEDICAL CLINIC, NORFOLK

6500 HAMPTON BOULEVARD

NORFOLK, VIRGINIA 23508

IN REPLY REFER TO:

311.2:JB:sm

6260.2

24 August 1983

From: Commanding Officer, Naval Medical Clinic, Norfolk, 6500 Hampton Boulevard, Norfolk, Virginia 23508

To: Commander Naval Base, Norfolk, Virginia 23511

Via: Commander Naval Medical Command, Mid-Atlantic Region, 6500 Hampton Boulevard, Norfolk, Virginia 23508

Subj: Camp Allen Landfill, Brig Site; report on

Ref: (a) Commander Naval Base, Norfolk, Virginia ltr 05/RKK 11010 dtd 5 May 1983
 (b) Commander Atlantic Division, Naval Facilities Engineering Command ltr 114:JGW:ssw 11300 dtd 14 June 1983
 (c) Regulations for the Control and Abatement of Air Pollution, Commonwealth of Virginia, State Air Pollution Control Board
 (d) 29 CFR 1910.1000 (OSHA Safety and Health Standards)
 (e) TLVs - Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment with Intended Changes for 1983-84. American Conference of Governmental Industrial Hygienists, Cincinnati, OH

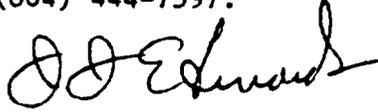
Encl: (1) Report on Ambient Air Sampling at the Camp Allen Brig Site, with Attachment (1)

1. In response to reference (a), ambient air sampling was conducted at the Naval Station Brig to determine the potential for exposure of inmates and staff personnel to possible pollutants from the Camp Allen Landfill site. Air contaminants measured were selected from a list of waste materials, provided by reference (b), suspected to be buried in the landfill. Sampling was conducted by the Industrial Hygiene Division, Sewells Point Section, Naval Medical Clinic, Norfolk, from 28 June to 19 July 1983.

2. The results of the air sampling are reported in enclosure (1). The conclusion is that the majority of measured air contaminants were far below the Virginia Air Pollution Standards, as well as below the Occupational Safety and Health Administration (OSHA) standards; and the American Conference of Governmental Industrial Hygienists (ACGIH) standards. As discussed in enclosure (1), the only measured air contaminant above any standard was in the Training Office of Building CA-483. The average concentration for chloroform exceeded the Virginia Air Pollution Standard and was attributed to the concentration of one sample collected during the painting of the room with enamel paint. However, this particular concentration still fell well below all occupational standards. Therefore, if buried waste materials continue to remain undisturbed, no significant health hazard exists to inmates and staff of the Naval Station Brig under current environmental conditions. References (c) through (e) are the applicable standards.

Subj: Camp Allen Landfill, Brig Site; report on

3. Questions and comments can be addressed to Mr. John Simak, Supervisory Industrial Hygienist, Naval Medical Clinic, Norfolk, 6500 Hampton Boulevard, Norfolk, Virginia 23508; telephone (804) 444-7597.



J. J. EDWARDS
By direction

REPORT ON AMBIENT AIR SAMPLING
AT THE
CAMP ALLEN BRIG SITE

19 August 1983

Prepared by: Industrial Hygiene Division,
Sewells Point Section
Naval Medical Clinic, Norfolk
6500 Hampton Boulevard
Norfolk, Virginia 23508

INTRODUCTION

1. In response to reference (a), ambient air sampling was conducted at the Naval Station Brig to determine the potential exposure of inmates to possible pollutants from the Camp Allen Landfill.
2. As requested by the Industrial Hygiene Division, COMLANTNAVFACENGCOCOM provided a list of possible waste material, reference (b), buried in the landfill. This list was reviewed to determine those contaminants presenting a greater hazard potential as based on volatility (vapor pressure), toxicity, and volume buried.

BACKGROUND

1. Population of Concern

Inmates at the Naval Station Brig are primarily the population of concern. These individuals are incarcerated 24-hours a day, 7 days a week. They are generally young sailors in relatively good health. Therefore, both environmental and occupational health standards can be used as "safe limits" for such a population. Additionally, background samples taken remote to the landfill would be incorporated into an index to determine significant differences.

2. Decision Making Criteria

Environmental (air pollution) Standards:

The Virginia State Air Pollution Standard, reference (c), represents "safe levels" for the general population. This general population includes considerations for the elderly and individuals in poor health. Secondary contaminants, such as those in the sampling protocol, incorporates levels 1/10 of occupational standards. The Virginia Air Pollution Standard covers a 24-hour period, although the population at risk (relatively young healthy sailors) deviates from the general population.

Occupational Standards:

Regulatory Occupational Safety and Health Administration (OSHA) standards, reference (d), and guidance American Conference of Governmental Industrial Hygienist (ACGIH) standards, reference (e), are for 8-hour occupational exposures. However, these standards can be extrapolated to encompass a 24-hour period. These levels would be approximately twice that of the Virginia State Air Pollution Secondary Contaminant Standard. This would represent a more realistic comparison for the, relatively young healthy sailor population.

Background Ambient Air Comparison:

The Lafayette River Branch Clinic (LRBC) was selected as the background sampling site, because it is remote from the subject landfill. Lafayette River Branch Clinic is approximately two miles south of the landfill. This is far enough away from the Brig and other industrial operations that sampling results can be considered background.

SAMPLING METHODS/ANALYSIS

1. Samples were collected on charcoal for approximately six hours. These samples were desorbed with carbon disulfide and analyzed on a Perkin-Elmer Sigma 2 Gas Chromatograph equipped with a flame ionization detector. A 10% SP-1000 on 80/100 Supelcoport Column was operated at 100°C at a flow rate of 30cc per minute using nitrogen carrier gas. The retention time on the SP-1000 column was used for identification. Additionally, gas chromatograph scans were compared for significant differences.

2. Sample locations, selection criteria, and sampling dates are provided in Table I.

TABLE I: Sample Locations, Selection Criteria, and Sampling Dates	
NAVAL STATION BRIG AREA SAMPLES	
<u>INDOORS</u>	
<u>Building</u>	<u>Location</u>
CA-482	Control Office
CA-483	Training Office
CA-484	Security Office
<u>OUTDOORS</u>	
<u>Building</u>	<u>Location</u>
CA-482	Roof
CA-483	Roof of Welding Shed
LAFAYETTE RIVER BRANCH CLINIC BACKGROUND SAMPLE	
<u>Building</u>	<u>Location</u>
A	Roof
<p>NOTES: (1) Sampling was conducted on 28 June; and on 5, 8, 12, and 19 July, for approximately six hours at each location.</p> <p>(2) Sample locations were limited to secure areas within the brig complex; therefore, samples were not taken in inmate living spaces. Sampling results in inmate living spaces would not be expected to be significantly different.</p>	

FINDINGS

1. Sampling results provided in attachment (1) are summarized in Table II (page 4). As expected, the sampling results for the secondary contaminants sampled were far below the Virginia State Air Pollution Standards. In Table II, sampling results are computed as arithmetic means and ranges for the five days of sampling in each location. The brig sampling results were compared to environmental and occupational exposure standards and were 100 times less than the environmental (air pollution) standards. Additionally, the brig sampling results did not significantly differ from the background sampling results.
2. Scan differences between brig samples and background appeared insignificant.
3. There have been no health complaints, resulting from daily exposure to brig ambient air, reported to the Industrial Hygiene Division.
4. The 12 July training office sample deviated from the norm due to the painting of the room with enamel paint. However, these sampling results still fell well below occupational standards.

CONCLUSION

The sampling results and findings indicate that there is no significant difference between the ambient air at the brig and background. Therefore, brig inmate exposures are comparable to those in background ambient air, which are considered "safe" and liveable by the Commonwealth of Virginia, State Air Pollution Control Board.

SUMMARY OF SAMPLING RESULTS

Arithmetic mean and range (.) of the five samples taken at each brig and control site are given. All results are in ppm (parts per million) unit of measurement.

Compound	Brig Site Samples					Control Samples	Standards	
	CA-483 Training Office	CA-483 Roof	CA-482 Control Office	CA-482 Roof	CA-484 Security Office	Lafayette River Branch Clinic Bldg. A - Roof	ACGIH TLV* PPM	VIRGI SAPCE PPM
Carbon 113	0.078 (0.037-0.178)	0.094 (0.015-0.404)	0.025 (0.015-0.048)	0.028 (0.011-0.069)	0.082 (0.016-0.220)	0.048 (0.010-0.111)	1000	10
Carbon Tetra-oxide	0.282 (0.044-1.158)	0.028 (0.004-0.509)	0.044 (0.011-0.115)	0.017 (0.007-0.026)	0.045 (0.014-0.119)	0.013 (0.007-0.017)	5	0.
Diethyl Benzene	1.73 (0.019-8.51)	0.024 (0.004-0.038)	0.042 (0.004-0.104)	0.024 (0.002-0.038)	0.070 (0.002-0.255)	0.022 (0.004-0.037)	200	2
Chloro-benzene	3.67 (0.002-17.6)	0.014 (0.004-0.021)	0.070 (0.003-0.269)	0.009 (0.001-0.021)	0.020 (0.007-0.031)	0.009 (0.002-0.019)	50	
Carbon 12	0.630 (0.019-2.98)	0.021 (0.005-0.097)	0.023 (0.007-0.037)	0.019 (0.003-0.030)	0.072 (0.005-0.171)	0.019 (0.003-0.030)	100	1
Carbon 11	0.578 (0.23-0.99)	1.213 (0.010-5.76)	0.268 (0.076-0.472)	0.128 (0.019-0.291)	0.630 (0.183-1.47)	0.163 (0.036-0.419)	1000	10
Carbon 11	3.449 (0.08-15.6)	0.582 (0.026-2.662)	0.282 (0.042-0.871)	0.063 (0.033-0.110)	0.290 (0.084-0.908)	0.038 (0.020-0.065)	1000	10
Diethyl Benzene	0.933 (0.018-3.59)	0.016 (0.003-0.021)	0.06 (0.011-0.162)	0.015 (0.003-0.021)	0.035 (0.016-0.091)	0.018 (0.004-0.030)	350	
Diethyl Benzene	4.77 (0.004-23.7)	0.024 (0.003-0.036)	0.020 (0.003-0.032)	0.021 (0.003-0.033)	0.021 (0.003-0.033)	0.019 (0.003-0.031)	100	
Carbon 11	0.142 (0.004-0.510)	0.023 (0.006-0.035)	0.028 (0.003-0.060)	0.023 (0.005-0.358)	0.026 (0.011-0.357)	0.021 (0.004-0.034)	10	
Carbon 11	2.495 (0.022-12.08)	0.019 (0.007-0.031)	0.021 (0.002-0.053)	0.016 (0.005-0.023)	0.031 (0.015-0.052)	0.014 (0.003-0.022)	10	
Diethyl Benzene	0.029 (0.003-0.054)	0.018 (0.003-0.028)	0.017 (0.003-0.028)	0.018 (0.003-0.028)	0.018 (0.003-0.028)	0.016 (0.003-0.27)	10	
Carbon 11	0.020 (0.007-0.025)	0.015 (0.002-0.024)	0.015 (0.002-0.024)	0.015 (0.002-0.024)	0.015 (0.002-0.024)	0.014 (0.002-0.023)	75	7.
Carbon 1, 2, 2 Tetra-ethane	0.013 (0.002-0.017)	0.010 (0.002-0.016)	0.010 (0.002-0.016)	0.010 (0.002-0.017)	0.010 (0.002-0.017)	0.010 (0.002-0.016)	1	0.

NBN-000022-01.02-08/24/82

Memorandum

311.6
6290.6
DATE: 27 July 1983

FROM: Senior Chemist, Industrial Hygiene Laboratory, Norfolk Naval Shipyard Branch Clinic

TO: John Simak, Industrial Hygiene, Lafayette Branch Clinic

SUBJ: Results of lab samples

Encl. The samples were collected on charcoal that was desorbed with carbon disulfide and analyzed on a Perkin-Elmer Sigma 2 Gas Chromatograph equipped with a flame ionization detector. A 10% SP-1000 on 80/100 Supelcoport Columu was operated at 100°C at a flow rate of 30°C per minute, nitrogen carrier gas was used. The samples were analyzed from a list of EPA pollutants that was supplied by the hygienist. The retention time on the SP-1000 Column was used for identification.

Note that retention time data on a single column or even on a number of columns cannot be considered as conclusive proof of chemical identity.

George A. Lindsay
George A. Lindsay

COMPOUNDS PPM	SAMPLES						BLA 3306
	1 3306-83	2 3301-83	3 3302-83	4 3303-83	5 3304-83	6 3305-83	
Freon 113	0.0374	0.404	0.0162	0.0685	0.0862	0.111	0.00
Carbon Tetrachloride	0.0656	0.00395	0.0107	0.00671	0.0144	0.0109	0.00
Methyl Ethylketone	0.0384	0.00498	0.00383	0.00191	0.00191	0.00377	0.00
Trichloro Ethylene	0.14	0.00441	0.00335	0.00126	0.00692	0.00206	0.00
Toluene	0.039	0.0107	0.0110	0.00284	0.00493	0.00531	0.00
Freon 12	0.23	0.00972	0.0758	0.0291	0.200	0.0362	0.02
Freon 11	0.844	2.662	0.0908	0.0325	0.1058	0.0344	0.19
Methyl Chloroform	0.078	0.00311	0.0110	0.00268	0.0248	0.00448	0.00
Methylene Chloride	0.114	0.0166	0.00324	0.00324	0.00324	0.00320	0.00
Benzene	0.033	0.0056	0.00563	0.00529	0.0113	0.00487	0.00
Chloroform	0.147	0.0104	0.00530	0.00554	0.0145	0.00455	0.00
Ethylene Dichloride	0.0279	0.00279	0.00278	0.00278	0.00278	0.00274	0.00
Bromobenzene	0.0245	0.00245	0.00245	0.00245	0.00245	0.00242	0.00
1,1,2,2 Tetrachloroethane	0.0165	0.00164	0.00163	0.00163	0.00163	0.00161	0.00
TOTAL HYDROCARBONS Mg/M3	0.946	0.394	0.515	0.215	0.310	0.114	...

Sample results for 28 June

Temperature 92

Wind Speed 9

Direction SW

Samples

Location

- 1 CA-483 Training Office
- 2 CA-483 Roof
- 3 CA-482 Control Office
- 4 CA-482 Roof
- 5 CA-484 Security Office
- 6 Bldg. A LRBC Roof

COMPOUNDS PPM	SAMPLES						BLA Mg
	1	2	3	4	5	6	
Freon 113	3308-83 0.0415	3309-83 0.0160	3310-83 0.0241	3311-83 0.0110	3312-83 0.0416	3313-83 0.00976	3314 0.00
Carbon Tetrachloride	0.0442	0.0359	0.0138	0.0259	0.0387	0.00729	0.00
Methyl Ethylketone	0.0185	0.00364	0.0218	0.00365	0.0179	0.00361	0.00
Trichloro Ethylene	0.00239	0.00359	0.00399	0.00200	0.0196	0.00198	0.00
Toluene	0.0194	0.00512	0.00740	0.00542	0.0123	0.00283	0.00
Freon 12	0.273	0.0962	0.371	0.0189	0.183	0.0451	0.02
Freon 11	0.446	0.105	0.158	0.04707	0.169	0.0645	0.19
Methyl Chloroform	0.0179	0.0145	0.0550	0.0104	0.0157	0.0297	0.00
Methylene Chloride	0.00309	0.00308	0.00308	0.00310	0.00311	0.00307	0.00
Benzene	0.00436	0.00638	0.00336	0.00539	0.0146	0.00434	0.00
Chloroform	0.0457	0.00659	0.00220	0.00462	0.0341	0.00349	0.00
Ethylene Dichloride	0.00265	0.00265	0.00265	0.00265	0.00265	0.00263	0.00
Chlorobenzene	0.00675	0.00239	0.00239	0.00239	0.00239	0.00239	0.00
1,1,2,2 Tetrachloroethane	0.00156	0.00156	0.00156	0.00156	0.00156	0.00156	<0.0
TOTAL HYDROCARBONS Mg/M3	0.942	0.179	0.0416	0.125	0.604	0.2752	

Sample results for 5 July 1983

Temperature 85
 Wind Speed 8
 Direction W

Samples	Location
1	CA-483 Training Office
2	CA-483 Roof
3	CA-482 Control Office
4	CA-482 Roof
5	CA-484 Security Office
6	Bldg. A LRBC Roof

DATE 11 July 1983WIND SPEED 7SAMPLE TIME: Approx 6-hr
Duration (Actual
sample time is fourTEMPERATURE 78°DIRECTION NE

SAMPLE NUMBER:

3451-83

3452-83

3453-83

3454-83

3455-83

3456-83

COMPOUND (ppm)	CA-483 Training	CA-483 Roof	CA-482 Control	CA-482 Roof	CA-484 Security Office	LRBC Bldg A Roof	ACGIH TLV *	Virginia SAPCB **
on 113	0.0436	0.01734	0.0476	0.021	0.01578	0.01342		
on Tetrachloride	0.0788	0.0226	0.0424	0.01736	0.021	0.0162		
nyl Ethyl Ketone	0.0376	0.0378	0.0404	0.037	0.0368	0.0346		
chloroethylene	0.186	0.0208	0.0412	0.0202	0.0202	0.01908		
uene	0.044	0.0296	0.0288	0.029	0.1428	0.0272		
on 12	0.418	5.76	0.472	0.1456	0.324	0.1974		
on 11	0.08	0.0682	0.248	0.1104	0.0842	0.0197		
nyl chloroform	0.748	0.0204	0.0666	0.02	0.01992	0.0188		
ethylene chloride	0.032	0.0322	0.0312	0.0314	0.0314	0.0296		
zene	0.0638	0.035	0.034	0.0342	0.034	0.0322		
oroform	0.18	0.0308	0.053	0.0224	0.0332	0.021		
ylene dichloride	0.0324	0.0276	0.0236	0.027	0.0266	0.0254		
orobenzene	0.0242	0.0242	0.0236	0.0236	0.0236	0.0222		
22 Tetrachloroethane	0.01618	0.01628	0.01578	0.01588	0.01582	0.01494		
al Hydrocarbons mg/M ³								

REMARKS: The Chromatogram of all the samples were similar to the control.

NAVSTA BRIG

DATE 12 July 1983

WIND SP 8

SAMPLE TIME: Approximate 6-hr

TEMPERATURE 89

DIRECTION NW

sample time is found on sample data sheet

SAMPLE NUMBER:	3458-83	3459-83	3460-83	3461-83	3462-83	3463-83		
COMPOUND (ppm)	CA-483 Training.	CA-483 Roof	CA-482 Control	CA-482 Roof	CA-484 Security Office	LRBC Bldg A Roof	ACGIH TLV *	Virginia SAPCB **
on 113	0.178	0.0191	<0.0146	0.0172	0.0347	0.0141		
on Tetrachloride	1.158	0.0275	0.0378	<0.0182	0.0317	0.0172		
nyl Ethyl Ketone	8.51	<0.0379	<0.0379	<0.0388	0.0386	0.0367		
chloroethylene	17.58	<0.0208	0.0279	<0.00213	0.0212	0.00201		
ene	2.98	<0.0297	0.0297	<0.0303	<0.0303	0.0287		
on 12	0.991	0.0671	0.166	0.153	0.975	0.118		
on 11	15.6	0.0261	0.871	0.0369	0.1823	<0.0384		
nyl chloroform	3.59	<0.0205	0.0205	0.0209	0.0241	<0.0198		
ylene chloride	23.69	0.0364	<0.0322	<0.0329	0.0329	<0.0311		
zene	0.510	<0.0350	<0.0350	<0.0358	0.0357	<0.0339		
oroform	12.08	<0.0229	<0.0229	<0.0234	0.0233	<0.0221		
ylene dichloride	0.054	<0.0276	<0.02761	0.0282	0.0281	<0.0267		
orobenzene	could not determine	<0.0243	<0.0243	<0.0248	0.0247	<0.0234		
22 Tetrachloroethane	could not determine	<0.0163	<0.0163	<0.0166	<0.0166	<0.0157		
al Hydrocarbons mg/M ³								

REMARKS: The Chromatogram of the samples were similar to the control except number 3458 which appears to have an oil present

NRN-00022-01.02-08/24/83

NAVSTA BRIG

DATE 19 July 1983WIND SPEED 14SAMPLE TIME: Approximately 6-hr
Duration (Actual)TEMPERATURE 96°DIRECTION W

SAMPLE NUMBER: 3527-83 3528-83 3529-83 3530-83 3531-83 3532-83 on sample data sheet

COMPOUND (ppm)	CA-483 Training	CA-483 Roof	CA-482 Control	CA-482 Roof	CA-484 Security Office	LRBC Bldg A Roof	ACGIH TLV *	Virginia SAPCB **
on 113	0.0509	0.0146	0.0231	0.0212	0.220	0.0898		
on Tetrachloride	0.0657	0.0509	0.115	0.0178	0.119	0.0151		
yl Ethyl Ketone	0.0369	0.0379	0.104	0.0380	0.255	0.0323		
chloroethylene	0.422	0.0208	0.269	0.0208	0.0312	0.0177		
ene	0.0661	0.0297	0.0372	0.0297	0.171	0.0298		
on 12	0.976	0.132	0.2531	0.291	1.47	0.419		
on 11	0.273	0.050	0.0422	0.0879	0.908	0.0331		
yl chloroform	0.236	0.0210	0.162	0.0205	0.0912	0.0175		
ylene chloride	<0.0313	<0.0320	<0.0323	0.0323	0.0320	0.0274		
ene	0.097	0.0350	0.0601	0.0351	0.0348	0.0299		
roform	0.0223	0.0240	0.0229	0.0229	0.0516	0.0195		
ylene dichloride	0.0268	0.0280	0.0277	0.0277	0.0274	0.0235		
robenzene	0.0236	0.0240	0.0243	0.0243	0.0241	0.0207		
2 Tetrachloroethane	0.0158	0.0160	0.0163	0.0163	0.0162	0.0139		
al Hydrocarbons mg/M ³								

REMARKS: The Chromatogram of all the samples were similar to the control.

NBN-09002-01.02-08/24/83