STAFF REPORT: THE APPLICATION OF
15 NCAC 2L TO THE WELL CONTAMINATION
PROBLEM AT THE CAMP LEJEUNE MARINE
CORPS BASE, ONSLOW COUNTY

During July 1984 groundwater studies downgradient from the industrial area tank farm revealed the presence of organic contaminants in well HP-602. Expanded studies completed during March 1985 confirmed the presence of organic contaminants in ten of the seventy-seven community water supply wells at the base.

Volatile organic compounds (mostly organic solvents) were found present in eight wells in the Hadnot Point System, and organic solvents were found present in two wells in the Tarawa Terrace System. Use of these wells were discontinued although no drinking water MCLS have been violated.

Figures 1 and 2 show the location of the impacted wells. Table 2 lists what is known about the construction details of the wells. Table 3 shows the available analytical data. The by lines which appeared in the Jacksonville and Wilmington newspapers are shown in Attachment I.

Presently, there is not sufficient data to identify the source(s) of this pollution problem. However, it is very probable that off-base sources have impacted the two Tarawa Terrace (TT) wells. Consequently, groundwater staff with the Wilmington Regional Office are inventorying those sources (dry cleaners?) which may be linked to the TT problem.

In summary, the data substantiates that standards assigned to GA classified groundwater have been (or will be) violated at the perimeter of compliance. Thus, it is recommended that the division send the Marine Corps a notice of violation which requires them to: 1) identify the source(s) of well contamination, 2) define the geometry of the contaminant plume(s), 3) define the quality characteristics of the plume(s), and 5) propose actions to remedy the pollution problems. Additionally, it is recommended that the Marine Corps provide us a schedule which shows when these tasks will be performed.

This report was written on May 15, 1985 by Mr. Rick Shiver, Regional Hydrologist, Wilmington Regional Office.

FIGURE 1: MAP THAT SHOWS LOCATION OF POSSIBLE SOURCES TO CONTAMINATED WELLS, TARAWA TERRACE I, CLASS, ONSLOW COUNTY

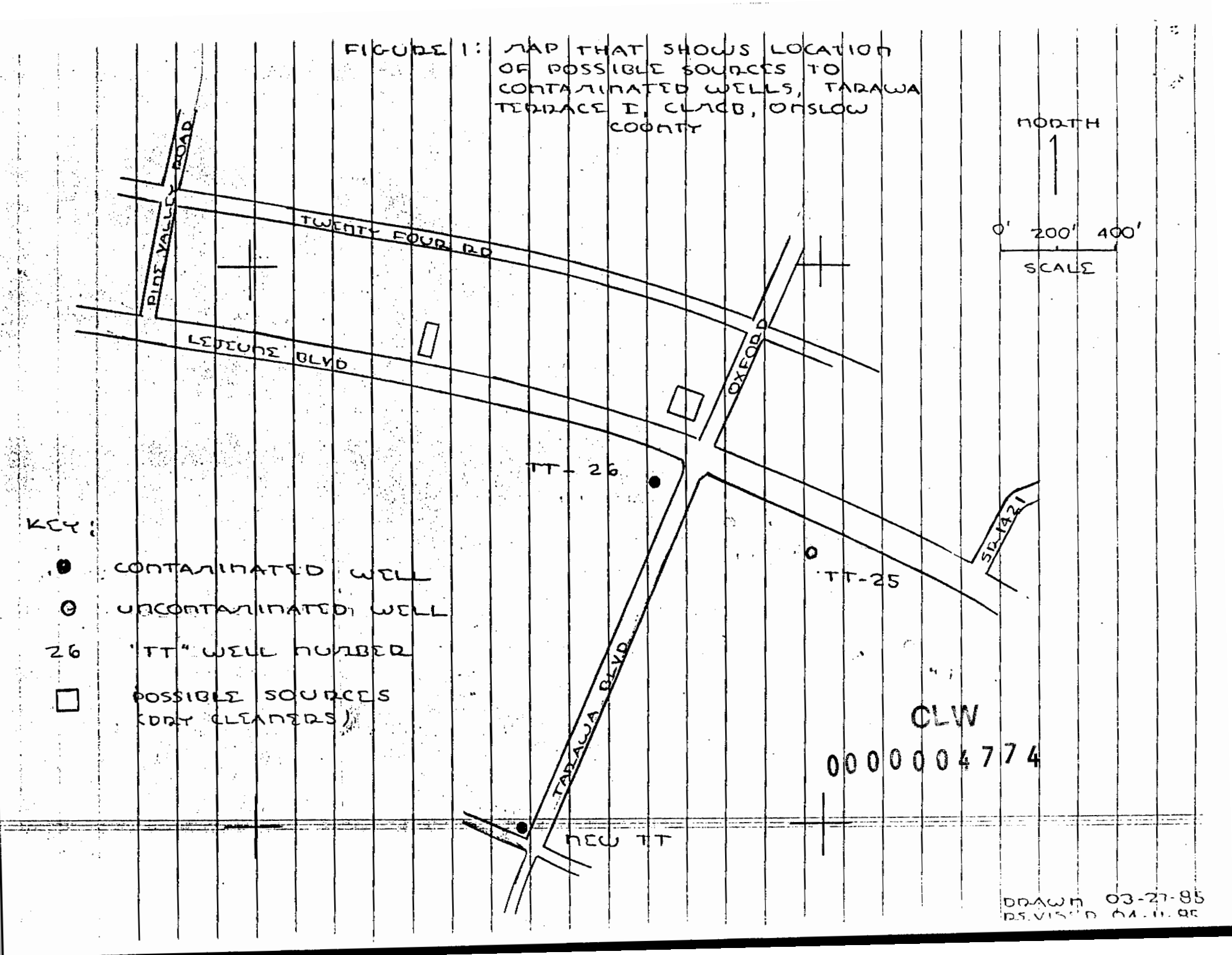
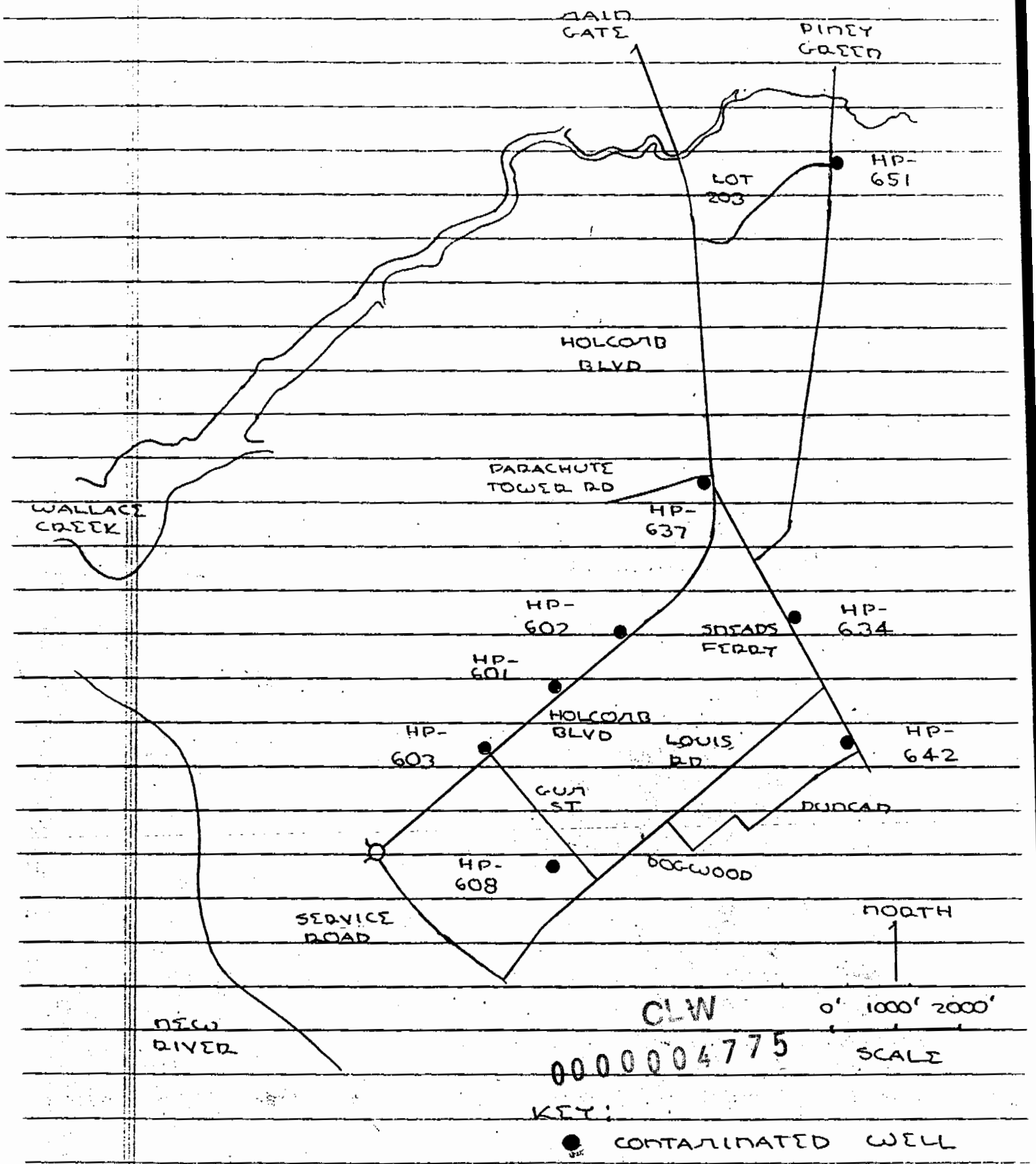


FIGURE 2: MAP WHICH SHOWS THE LOCATION OF THE CONTAMINATED WELLS, HADNOT POINT AREA, CAMP LEJEUNE NCB



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KEY:

● CONTAMINATED WELL

TABLE 1: ATTRIBUTES OF CONTAMINATED WELLS, CAMP LEJEUNE MARINE CORPS BASE, ONSLOW COUNTY

WELL NO.	DATE	TOTAL DEPTH	OUTER CASING I.D.	OUTER CASING DEPTH	GROUT INTER-VAL	GRAVEL INTER-VAL	INNER CASING DIAM	SCREEN DIAM	SCREEN INTER-VAL	Q CGPM
	M-D-Y	(FT)	(IN)	(FT)	(FT-FT)	(FT-FT)	(I.D.)	(I.D.)	(FT-FT)	
HP-601	11-21-83	193	18	50	0-50	0-200	8	8	94-97	
									108-140	
									175-187	
HP-602	1941	160						8	70-80	
									100-105	
									120-125	
									145-150	
									155-160	
HP-603	1941	195						8	70-80	
									100-110	
									130-140	
									160-170	
									190-195	
P-608	3-JUL-41	162						8	62-82	
									92-102	
									122-132	
									152-162	
P-634	1959	225						8	65-70	
									73-78	
									83-88	
									93-98	
									107-117	
									124-129	
									135-140	
									153-163	
									170-175	
									195-200	
									215-225	
P-637	1969	172						8	90-98	
									102-114	
									120-128	
									140-148	
									156-172	
P-642	NO DATA									
P-651	NO DATA									
-26		100								

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TABLE 1: ATTRIBUTES OF CONTAMINATED WELLS, CAMP LEJEUNE MARINE CORPS BASE, ONSLOW COUNTY

WELL NO.	DATE	TOTAL DEPTH	OUTER CASING O.D.	OUTER CASING DEPTH	GROUT INTERVAL	GRAVEL INTERVAL	INNER CASING DIAM	SCREEN DIAM	SCREEN INTERVAL	%
	M-D-Y	(FT)	(IN)	(FT)	(FT-FT)	(FT-FT)	(I.D.)	(I.D.)	(FT-FT)	CG P
DEW TT	3-14-83	147	24	50	0-50	0-155	10	10	70-95	4.54
									132-142	

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TABLE 2: ORGANIC ANALYSIS RESULTS ON WATER ON WATER SAMPLES COLLECTED FROM COMMUNITY WATER SUPPLY WELLS, CAMP LEJEUNE MARINE CORPS BASE, ONSLOW COUNTY

PARAMETER	UNIT	RESULTS FOR WELL HP-60			
		12-4-84	12-10-84	1-16-85	
TETRACHLOROETHYLENE	UG/L	–	–	–	
DICHLOROETHYLENE	UG/L	207	230	26	
1,2-TRANS-DICHLOROETHYLENE	UG/L	88	99	–	
ETHYLENE CHLORIDE	UG/L	–	10	–	
BENZENE	UG/L	–	–	–	
TOLUENE	UG/L	–	–	–	
DICHLOROBENZENE	UG/L	–	–	–	
1,1-DICHLOROETHANE	UG/L	–	–	–	
VINYL CHLORIDE	UG/L	–	–	–	
CHLOROFORM	UG/L	–	–	–	
METHYLENE CHLORIDE	UG/L	–	–	–	
	UG/L				
	UG/L				
	UG/L				
	UG/L				
	UG/L				
	UG/L				
	UG/L				

PARAMETER	UNIT	RESULTS FOR WELL HP-602			
		7-6-84	11-30-84	12-10-84	12-17-84
TETRACHLOROETHYLENE	UG/L	–	24	–	–
DICHLOROETHYLENE	UG/L	–	1600	540	300
1,2-TRANS-DICHLOROETHYLENE	UG/L	–	630	380	110
ETHYLENE CHLORIDE	UG/L	–	–	–	–
BENZENE	UG/L	380	121	720	–
TOLUENE	UG/L	10	–	–	12
DICHLOROBENZENE	UG/L	–	–	–	–
1,1-DICHLOROETHANE	UG/L	46	46	–	34
VINYL CHLORIDE	UG/L	–	–	–	–
CHLOROFORM	UG/L	–	–	–	–
METHYLENE CHLORIDE	UG/L	–	–	–	–
	UG/L				
	UG/L				
	UG/L				
	UG/L				
	UG/L				
	UG/L				

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TABLE 2: ORGANIC ANALYSES RESULTS ON WATER ON WATER SAMPLES COLLECTED FROM COMMUNITY WATER SUPPLY WELLS, CAMP LEJEUNE MARINE CORPS BASE, ONSLOW COUNTY

PARAMETER	UNIT	RESULTS FOR WELL HP-603
TRACHLOROETHYLENE	UG/L	
DICHLOROETHYLENE	UG/L	
1,2-TRANS-DICHLOROETHYLENE	UG/L	
ETHYLENE CHLORIDE	UG/L	
BENZENE	UG/L	
TOLUENE	UG/L	
CHLOROBENZENE	UG/L	
1,1-DICHLOROETHANE	UG/L	
VINYL CHLORIDE	UG/L	
CHLOROFORM	UG/L	
1,2-DICHLOROETHANE	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	

PARAMETER	UNIT	RESULTS FOR WELL HP-608	
		12-4-84	12-10-84
TRACHLOROETHYLENE	UG/L	—	—
DICHLOROETHYLENE	UG/L	140	13
1,2-TRANS-DICHLOROETHYLENE	UG/L	—	—
ETHYLENE CHLORIDE	UG/L	—	14
BENZENE	UG/L	—	—
TOLUENE	UG/L	—	—
CHLOROBENZENE	UG/L	—	—
1,1-DICHLOROETHANE	UG/L	—	—
VINYL CHLORIDE	UG/L	—	—
CHLOROFORM	UG/L	—	—
1,2-DICHLOROETHANE	UG/L	—	—
	UG/L		
	UG/L		
	UG/L		
	UG/L		
	UG/L		
	UG/L		

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TABLE 2: ORGANIC ANALYSIS RESULTS ON WATER ON WATER SAMPLES COLLECTED FROM COMMUNITY WATER SUPPLY WELLS, CAMP LEJEUNE MARINE CORPS BASE, ONSLOW COUNTY

PARAMETER	UNIT	RESULTS FOR WELL HP-634	
		12-10-84	1-16-85
TRACHLOROETHYLENE	UG/L	–	10
DICHLOROETHYLENE	UG/L	–	1300
1,2-TRANS-DICHLOROETHYLENE	UG/L	–	700
ETHYLENE CHLORIDE	UG/L	130	–
BENZENE	UG/L	–	–
TOLUENE	UG/L	–	–
CHLOROBENZENE	UG/L	–	–
1,1-DICHLOROETHANE	UG/L	–	–
VINYL CHLORIDE	UG/L	–	–
CHLOROFORM	UG/L	–	–
CARBON TETRACHLORIDE	UG/L	–	–
	UG/L		
	UG/L		
	UG/L		
	UG/L		
	UG/L		
	UG/L		
	UG/L		

PARAMETER	UNIT	RESULTS FOR WELL HP-637
		12-10-84
TRACHLOROETHYLENE	UG/L	–
DICHLOROETHYLENE	UG/L	–
1,2-TRANS-DICHLOROETHYLENE	UG/L	–
ETHYLENE CHLORIDE	UG/L	237
BENZENE	UG/L	–
TOLUENE	UG/L	–
CHLOROBENZENE	UG/L	–
1,1-DICHLOROETHANE	UG/L	–
VINYL CHLORIDE	UG/L	–
CHLOROFORM	UG/L	–
CARBON TETRACHLORIDE	UG/L	–
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	

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TABLE 2: ORGANIC ANALYSIS RESULTS ON WATER ON WATER SAMPLES COLLECTED FROM COMMUNITY WATER SUPPLY WELLS, CAMP LEJEUNE MARINE CORPS BASE, ONSLOW COUNTY

PARAMETER	UNIT	RESULTS FOR WELL HP-64
		12-10-84
TETRACHLOROETHYLENE	UG/L	—
DICHLOROETHYLENE	UG/L	—
1,2-TRANS-DICHLOROETHYLENE	UG/L	—
METHYLENE CHLORIDE	UG/L	38
BENZENE	UG/L	—
TOLUENE	UG/L	—
CHLOROBENZENE	UG/L	—
1,1-DICHLOROETHANE	UG/L	—
VINYL CHLORIDE	UG/L	—
CHLOROFORM	UG/L	—
CARBON TETRACHLORIDE	UG/L	—
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	

PARAMETER	UNIT	RESULTS FOR WELL HP-651
		1-16-85
TETRACHLOROETHYLENE	UG/L	361
DICHLOROETHYLENE	UG/L	3200
1,2-TRANS-DICHLOROETHYLENE	UG/L	3800
METHYLENE CHLORIDE	UG/L	—
BENZENE	UG/L	—
TOLUENE	UG/L	—
CHLOROBENZENE	UG/L	—
1,1-DICHLOROETHANE	UG/L	—
VINYL CHLORIDE	UG/L	—
CHLOROFORM	UG/L	—
CARBON TETRACHLORIDE	UG/L	—
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	

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TABLE 2: ORGANIC ANALYSIS RESULTS ON WATER ON WATER SAMPLES COLLECTED FROM COMMUNITY WATER SUPPLY WELLS, CAMP LEJEUNE MARINE CORPS BASE, ONSLOW COUNTY

PARAMETER	UNIT	RESULTS FOR WELL TT-26		
		1-16-85	2-19-85	2-19-85
TRACHLOROETHYLENE	UG/L	1580	55	64
DICHLOROETHYLENE	UG/L	57	—	—
1,2-TRANS-DICHLOROETHYLENE	UG/L	92	—	—
ETHYLENE CHLORIDE	UG/L	—	—	—
BENZENE	UG/L	—	—	—
TOLUENE	UG/L	—	—	—
DICHLOROBENZENE	UG/L	—	—	—
1,1-DICHLOROETHANE	UG/L	—	—	—
VINYL CHLORIDE	UG/L	—	—	—
CHLOROFORM	UG/L	27	—	—
BROMODICHLOROMETHANE	UG/L	—	—	—
	UG/L			
	UG/L			
	UG/L			
	UG/L			
	UG/L			
	UG/L			

PARAMETER	UNIT	RESULTS FOR WELL TT-26
TRACHLOROETHYLENE	UG/L	
DICHLOROETHYLENE	UG/L	
1,2-TRANS-DICHLOROETHYLENE	UG/L	
ETHYLENE CHLORIDE	UG/L	
BENZENE	UG/L	
TOLUENE	UG/L	
DICHLOROBENZENE	UG/L	
1,1-DICHLOROETHANE	UG/L	
VINYL CHLORIDE	UG/L	
CHLOROFORM	UG/L	
BROMODICHLOROMETHANE	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	
	UG/L	

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TABLE 2: ORGANIC ANALYSIS RESULTS ON WATER ON WATER SAMPLES COLLECTED FROM COMMUNITY WATER SUPPLY WELLS, CAMP LEJEUNE MARINE CORPS BASE, ONSLOW COUNTY

PARAMETER	UNIT	RESULTS FOR WELL		NEW	TT
		1-16-85	2-12-85	2-19-85	2-19-85
TETRACHLOROETHYLENE	UG/L	132	37	26	–
DICHLOROETHYLENE	UG/L	–	–	53	–
1,2-TRANS-DICHLOROETHYLENE	UG/L	–	–	–	13
VINYL CHLORIDE	UG/L	–	–	–	–
BENZENE	UG/L	–	–	–	–
TOLUENE	UG/L	–	–	–	–
DICHLOROBENZENE	UG/L	–	–	–	–
1,1-DICHLOROETHANE	UG/L	–	–	–	–
VINYL CHLORIDE	UG/L	–	–	–	–
CHLOROFORM	UG/L	–	–	–	–
BROMODICHLOROMETHANE	UG/L	–	–	–	–
	UG/L				
	UG/L				
	UG/L				
	UG/L				
	UG/L				
	UG/L				

PARAMETER	UNIT	RESULTS FOR WELL	NEW	TT
		3-11-85		
TETRACHLOROETHYLENE	UG/L	41		
DICHLOROETHYLENE	UG/L	–		
1,2-TRANS-DICHLOROETHYLENE	UG/L	–		
VINYL CHLORIDE	UG/L	–		
BENZENE	UG/L	–		
TOLUENE	UG/L	–		
DICHLOROBENZENE	UG/L	–		
1,1-DICHLOROETHANE	UG/L	–		
VINYL CHLORIDE	UG/L	–		
CHLOROFORM	UG/L	–		
BROMODICHLOROMETHANE	UG/L	–		
	UG/L			
	UG/L			
	UG/L			
	UG/L			
	UG/L			
	UG/L			

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CONTROL COMPANY

Chemicals discovered in Lejeune water wells

By RICHARD F. SMITH
Daily News Staff

A Navy study of industrial contamination has found volatile chemicals in 10 deep-water wells at Camp Lejeune, causing Tarawa Terrace residents to face restrictions on water use while a new line is built.

Substances found in the wells were described today as "volatile organic chemicals" by Gunnery Sgt. John Simmons of Lejeune's Joint Public Affairs Office.

He said he had no information on whether the well water is dangerous to humans.

"According to the memo from the chief of staff, facilities, no federal or state regulations mandate an unacceptable level of these organic chemicals in drinking water," Simmons said.

"The wells were ordered closed pending further study and analysis under the Navy Assessment and Control of Installation Pollutants Program," the spokesman said.

"Ten deep-water wells aboard base have been taken off-line since December as a result of a Navy-wide study of industrial contamination aboard Navy and Marine Corps installations," Simmons said.

"Eight of the closed wells are in the Hadnot Point water-supply system, which services the main-side area of the base. The other two wells are in Tarawa Terrace," he said.

"The well closures have not created any water-supply problems for Hadnot Point, but the Tarawa Terrace system can barely meet current demand for finished water.

"As a result, the commanding general (Maj. Gen. Louis H. Buehl III) has imposed some water restrictions on Tarawa Terrace residents," Simmons said.

"A recent bulletin sent to Tarawa Terrace housing residents urged them to conserve water in the following ways: water lawns Monday through Thursday from 6 a.m. to 9 a.m. only, do not wash cars, do not let the water run while brushing your teeth or washing dishes and

Base closes ten wells; wastes found

10 wells serving two base housing areas have been closed.

By Donna Long
and Shannon Brennan

Ten wells serving Camp Lejeune housing areas have been closed due to chemical contamination.

The contamination apparently comes from one or more of 72 old waste disposal sites at Camp Lejeune, said Lee Mittelstadt, public information officer for the Solid and Hazardous Waste Management Branch of the N.C. Department of Human Resources.

The chemicals include chlorinated solvents — dichloroethylene, trichloroethylene and tetrachloroethylene — and are toxic, she said. They are found in many types of cleaning products.

Because Camp Lejeune is a federal reservation, the state cannot fine the base for its old disposal sites and the base is not eligible for federal Superfund cleanup money, she said.

Chuck Rundgren, head of the state's Water Supply Branch, said the Navy has contracted with a private firm to analyze the water further. Rundgren said he did not think Camp Lejeune residents need to worry about getting bad drinking water.

"I think we kind of caught it right at the beginning," he said.

Eight of the closed wells served the Hadnot Point housing area and two served Tarawa Terrace. The closures leave Hadnot Point with an adequate water supply, but Tarawa Terrace residents have been ordered to conserve.

"That system can just barely meet the current water demand," Gunnery Sgt. John Simmons of Lejeune's Joint Public Affairs office said of Tarawa Terrace.

Lawns in the housing project may be watered only between 6 and 9 a.m. Monday through Thursday and washing cars is prohibited.

Residents are urged not to let water run while they wash dishes or brush their teeth and to flush toilets only for sanitary purposes.

Simmons said an auxiliary water line to ease the water shortage in Tarawa Terrace should be completed in early June.

The wells were closed after a Navy study in December of industrial contamination on Navy and Marine Corps bases, Simmons said.

Simmons said all 10 of the contaminated wells will remain closed pending "further study and analysis under the Navy Assessment and Control of Installation Pollutants Program."

Simmons said he could not say how the contamination got in the wells. He did not know how deep the wells were.

Simmons said that while there were no state or federal regulations that mandate an unacceptable level of such contaminants in drinking water, "we ordered the closure of all wells that showed even a trace amount."

Donna Long is a Star-News correspondent; Shannon Brennan is a staff writer.

WILMINGTON MORNING STAR,
MAY 11, 1985, PAGE C-11W

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JACKSONVILLE DAILY NEWS,
MAY 10, 1985, FRONT PAGE