

3-17-88

Well No. LAT/LONG (LORAN EXTRAPOLATED)

698	34 42.99'	077° 21.80'
699	34 42.14	077° 22.46
700	34 42.14	077° 22.90
701	34 41.85	077° 23.08'
703	34 43.32	077 20.94
704	34 43.60	077 21.08
705	34 43.03	077 20.00
706	34 42.99	077 19.63
707	34 42.70	077 21.78
708	34 42.49	077 17.36
709	34 42.24	077 19.08
710	34 42.20	077 18.64
711	34 41.52	077 18.75
693	34 42.41	077 18.05
5186	34 43.54	077 20.46
BB 47	34 34.92	077 21.89
BB 218	34 35.00	077 20.96

NOTE: COORDINATES EXPRESSED  
as deg. min, and  $\frac{1}{10}$  min  
00° 00.00'

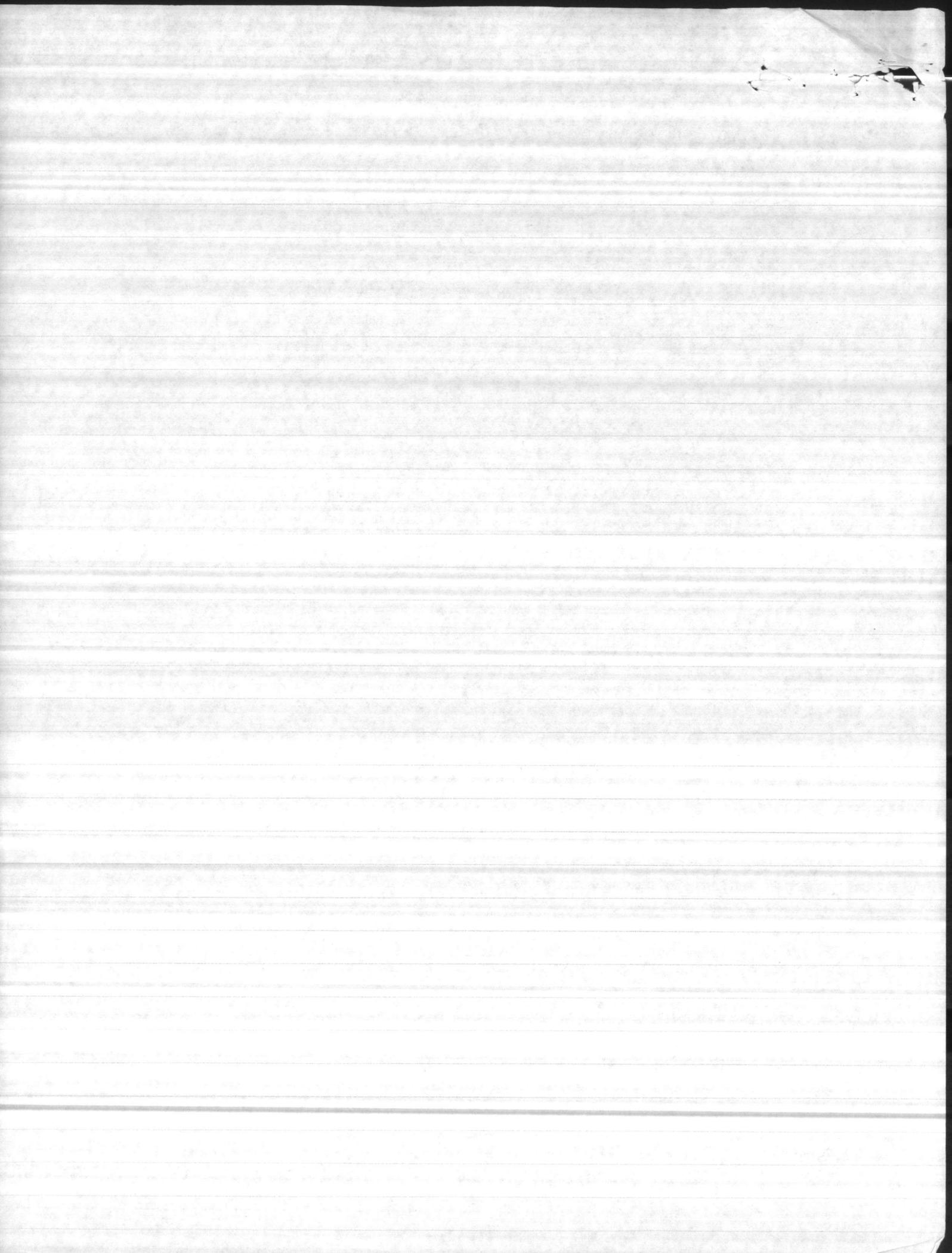
NOT  
deg min sec.  
00° 00' 00"

To convert:

multiply: 00.00' x 60 =  
00' 00"

Example:

34° 42.99'	077° 21.80'
x 60	x 60
<hr/>	<hr/>
34° 42' 59"	077° 21' 48"





# United States Department of the Interior

GEOLOGICAL SURVEY

Post Office Box 2857  
Raleigh, North Carolina 27602

November 16, 1983

Mr. Willard Price  
Base Maintenance Department  
Utilities Section  
Building 1202  
Camp Lejeune, N.C. 28542

Dear Mr. Price

Tables of data for 100 production and observation wells that we discussed earlier this week are enclosed. Much of the data in the table come from information I took from your files when I visited your office in January 1982.

I am also enclosing parts of the report, Public water supplies of North Carolina, Part 5, Southern Coastal Plain. This report contains water-resource appraisals for Onslow County and Camp Lejeune in addition to data on the Hadnot Point water system.

The tabular data and report confirms what we discussed over the telephone: the base water supply comes from the Castle Hayne aquifer.

If we can be of any further assistance, please do not hesitate to ask.

Sincerely,

Ronald W. Coble, Chief  
Hydrologic Studies Section

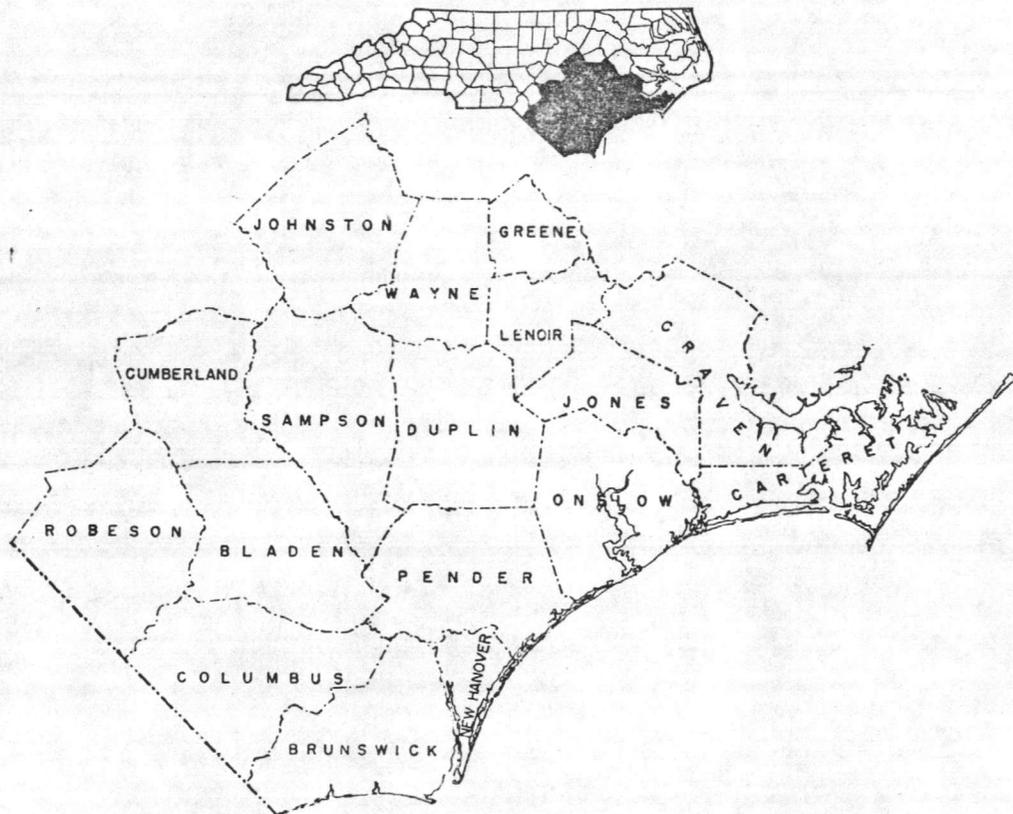
RWC/cht

Enclosures



**STATE OF NORTH CAROLINA  
DEPARTMENT OF NATURAL RESOURCES  
AND COMMUNITY DEVELOPMENT**

**PUBLIC WATER SUPPLIES OF NORTH CAROLINA**



**Part 5  
SOUTHERN COASTAL PLAIN**

By

T. M. Robison and L. T. Mann, Jr.

Prepared by

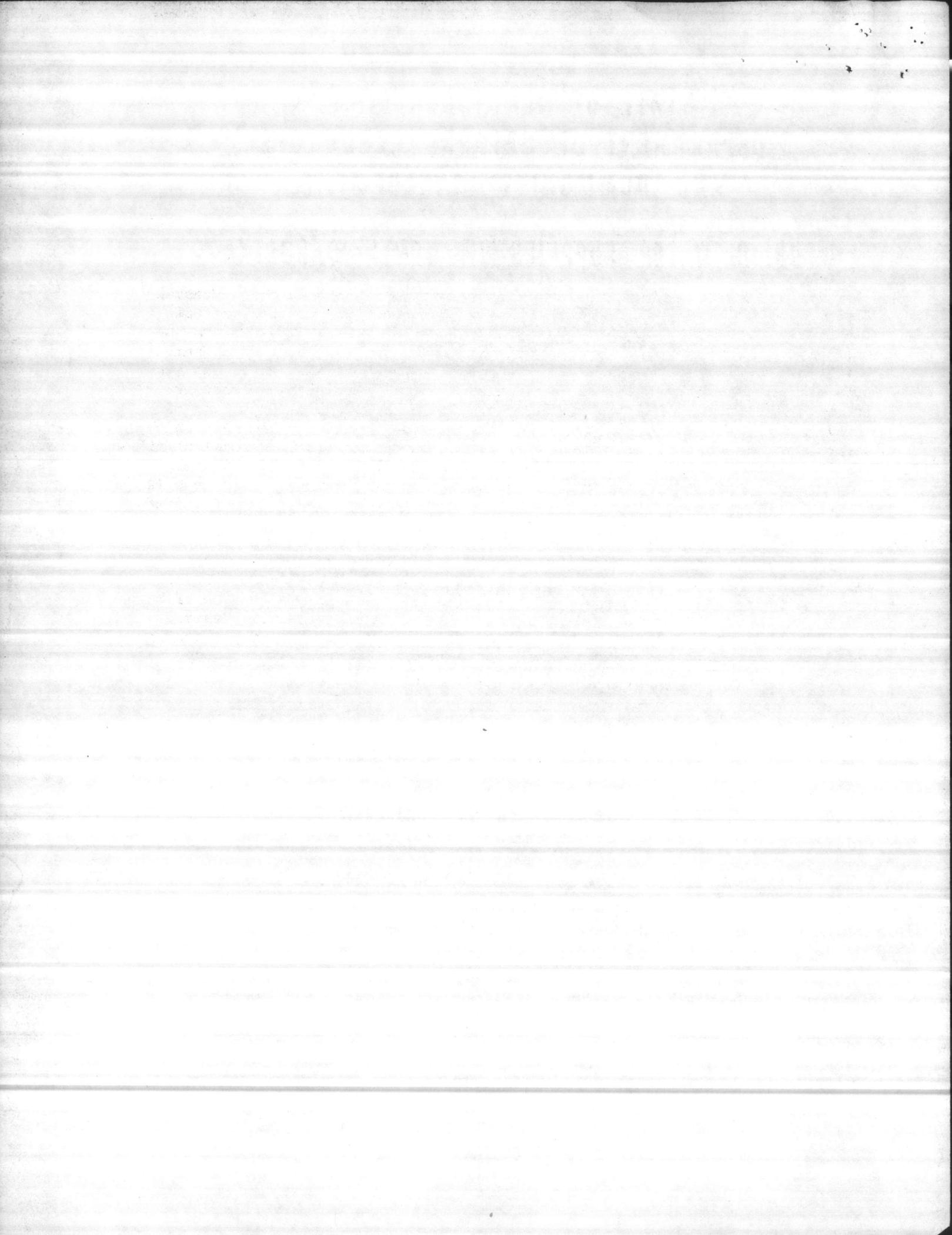
United States Department of the Interior  
Geological Survey

In Cooperation with the

North Carolina Department of Natural Resources and Community Development



Raleigh, N.C.  
JULY 1977



ONSLow COUNTY  
WATER-RESOURCES APPRAISAL

Onslow County is in the southeastern part of the North Carolina Coastal Plain. The topography is flat and swamps are common. The central part of the county is drained by the New River and its tributaries. The western one-quarter of the county is drained by tributaries of the Northeast Cape Fear River, and the eastern one-quarter is drained by the White Oak River and its tributaries. A very small area in the north-central part of the county is drained by a tributary of the Neuse River. The average stream discharge ranges from 0.80 (Mgal/d)/mi<sup>2</sup> in the extreme north to 0.97 (Mgal/d)/mi<sup>2</sup> in the extreme south, and the overall average for the county is 0.93 (Mgal/d)/mi<sup>2</sup>. Drainage basins as large as 27 square miles may go dry in drought. Minimum flows of other streams range from 0.006 to 0.13 (Mgal/d)/mi<sup>2</sup> and average 0.04 (Mgal/d)/mi<sup>2</sup>. The 7-day, 2-year low flow ranges between 0.001 and 0.3 (Mgal/d)/mi<sup>2</sup> and averages 0.1 (Mgal/d)/mi<sup>2</sup>.

Two public water supplies in the county have 500 or more customers, Jacksonville and Camp Lejeune. Actually, Camp Lejeune has no water customers in the strict sense of the word, but was included in this study because of the large size of the water systems there. Only the largest of the several water systems on the base was inventoried for this report. All of the public water supplies in the county depend solely upon ground water. The county population in 1970 was 103,126.



## ONslow COUNTY

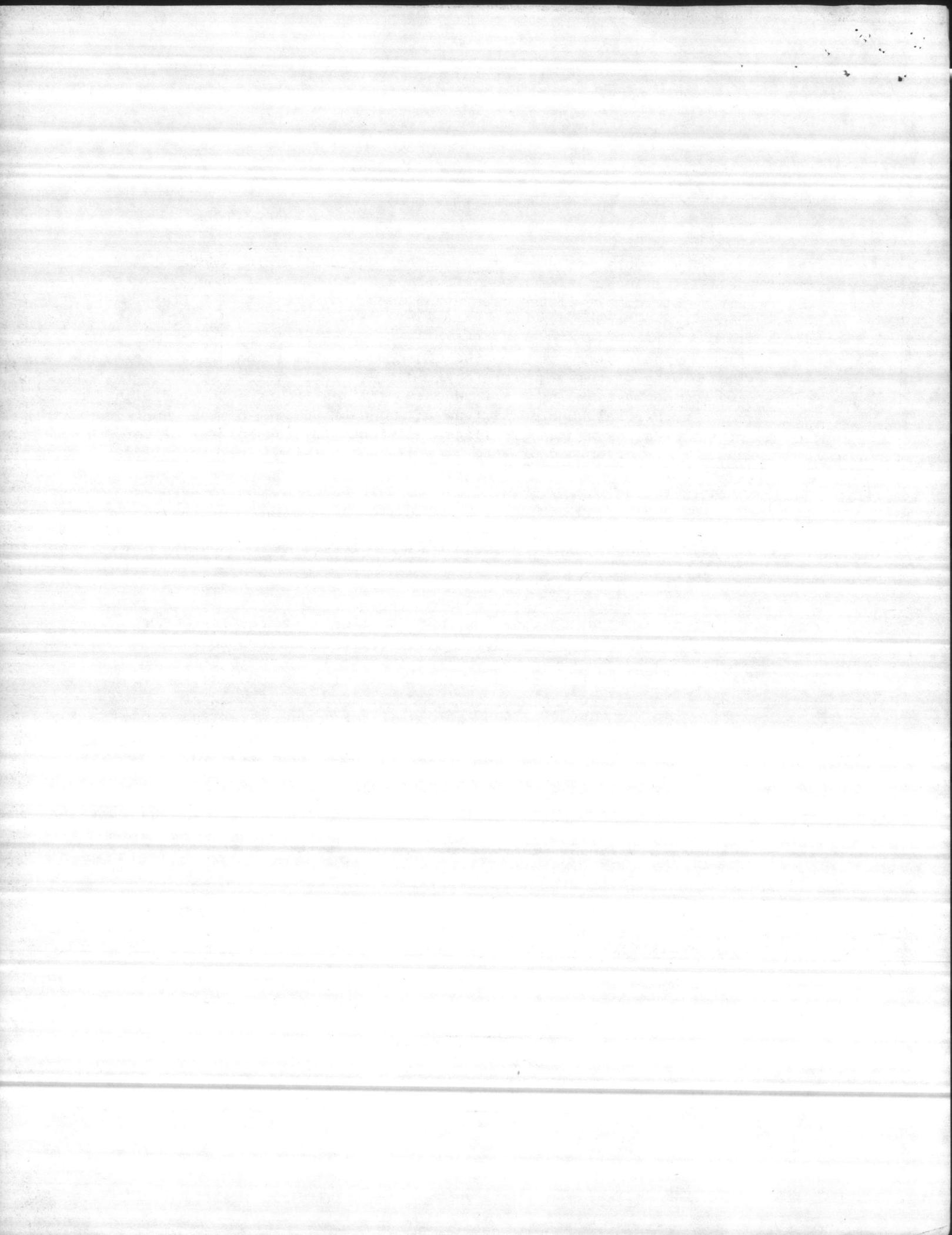
## WATER-RESOURCES APPRAISAL

The county is underlain by an eastward-thickening wedge of sedimentary deposits. The upper sandy aquifer has a thickness of about 20 feet in the northwestern part of the county and about 80 feet in the eastern part. These deposits are underlain by the limestone aquifer. This limestone is very thin in the northwestern part of the county and thickens eastward to about 700 feet in the eastern part of the county. The limestone is very permeable. The ability of this aquifer to yield fresh water varies with its thickness and the depth to salt water. Where the limestone is saturated with fresh water to several hundred feet as in the eastern part of the county, well yields of a few thousand gallons per minute are possible. However, the possibility of upward or lateral migration of salt water to wells, makes lower pumping rates more practical. The depths to salt water tend to be erratic in the county. The depth to salt water in the western and southern part of the county exceeds 600 feet. In the remainder of the county the depth to salt water is about 500 feet, except near the New River estuary, where salt water has been encountered at less than 200 feet in places. Salt water also may be found at shallow depths near the seacoast and on the off-shore islands.

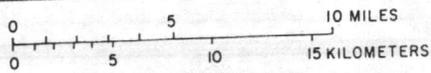
The limestone is underlain by the lower sandy aquifer which is about 800 feet thick in the western part of the county and 1,500 feet thick in the eastern part. In the west, the full thickness of the aquifer may contain fresh water. Here fresh-water yields to wells can probably be as much as 2,000 gal/min. In the eastern third of the county, these sands contain only salt water. The average available yield of ground water in Onslow County is estimated to be 1.0 (Mgal/d)/mi<sup>2</sup>. However, the maximum recharge to the deeper parts of the lower sandy aquifer is estimated to be 0.06 (Mgal/d)/mi<sup>2</sup>.

Water from the upper sandy and limestone aquifers is hard and contains objectionable amounts of iron and hydrogen sulfide in the eastern part of the county. The lower sandy aquifer in the western part of the county yields soft to slightly hard water. Some wells in either aquifer yield water having an excessive fluoride concentration.

*The limestone aquifer referred to here is the  
Castle House aquifer.*



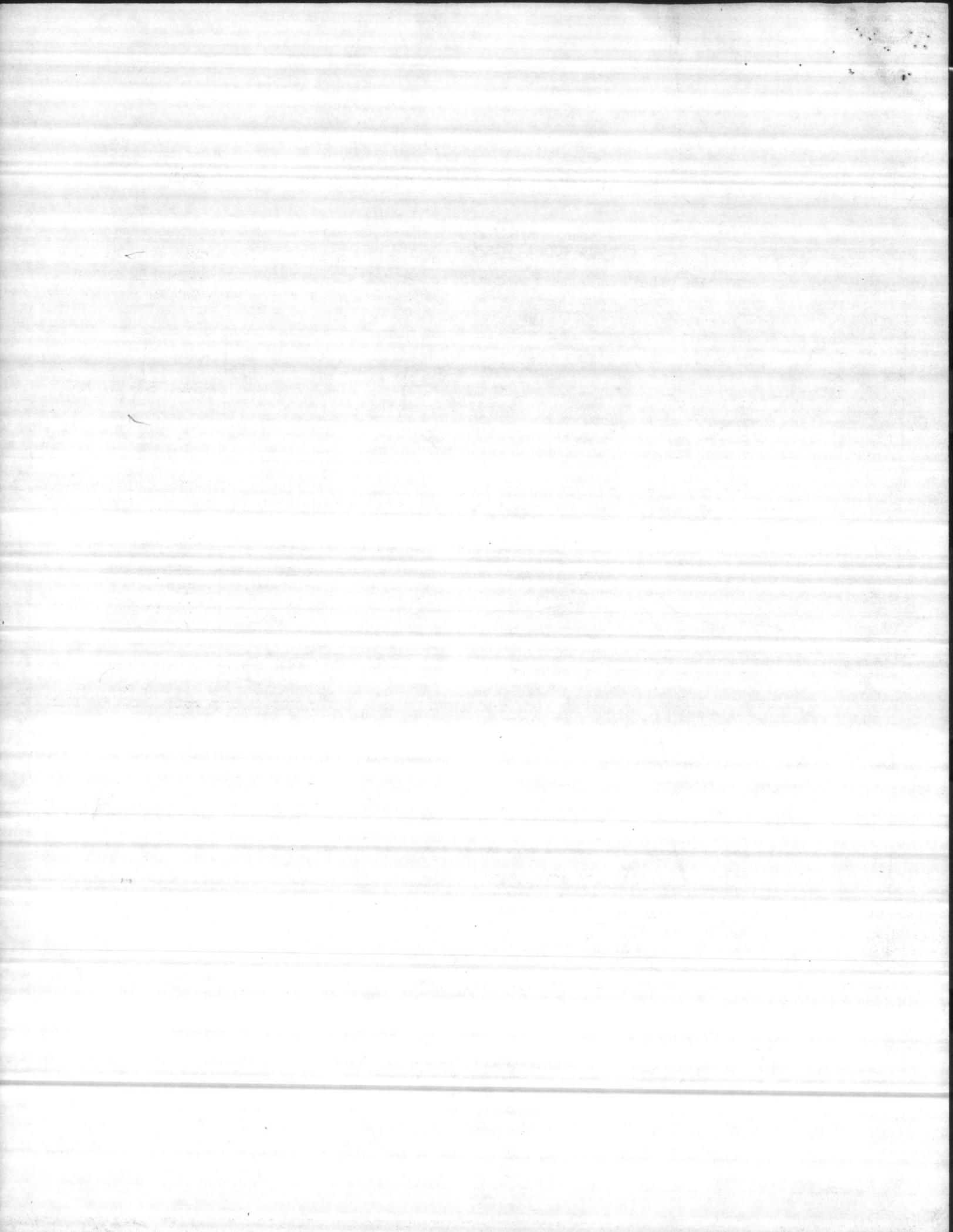
ONSLOW COUNTY



EXPLANATION

Areas served by municipal water systems in 1976

- More than 500 customers
- Less than 500 customers



## CAMP LEJEUNE (HADNOT POINT WATER SYSTEM), ONSLOW COUNTY

## OWNERSHIP:

U.S. Government. Population served by all 9 of the water systems on the base was 34,549 in 1970. The Hadnot Point water system provides almost half of the base's water needs. There are no metered customers; water is provided without charge.

## SOURCE:

Thirty-five wells (Nos. 1-3, 6, 8-17, 19-21, 25-27, 32-42, 51-52, M-1 and M-2). See table on following page.

## TOTAL USE:

Average use (Mar. 1975 - Feb. 1976), 3.41 Mgal/d, metered; maximum daily (Feb. 1976), 3.89 million gallons, metered.

Average daily water use (Mgal/d), Mar. 1975-Feb. 1976

Mar. 1975--3.65	July 1975--3.50	Nov. 1975--3.51
Apr. 1975--3.00	Aug. 1975--3.37	Dec. 1975--3.52
May 1975 -3.01	Sept. 1975--3.47	Jan. 1976--3.56
June 1975--3.21	Oct. 1975--3.34	Feb. 1976--3.81

## INDUSTRIAL USE:

There are industrial-type operations on the base, but water use is not metered.

## TREATMENT:

Prechlorination, coagulation with lime, sedimentation, rapid sand filtration, lime process for softening, adjustment of pH with lime, postchlorination, and fluoridation.

## RATED CAPACITY OF TREATMENT PLANT:

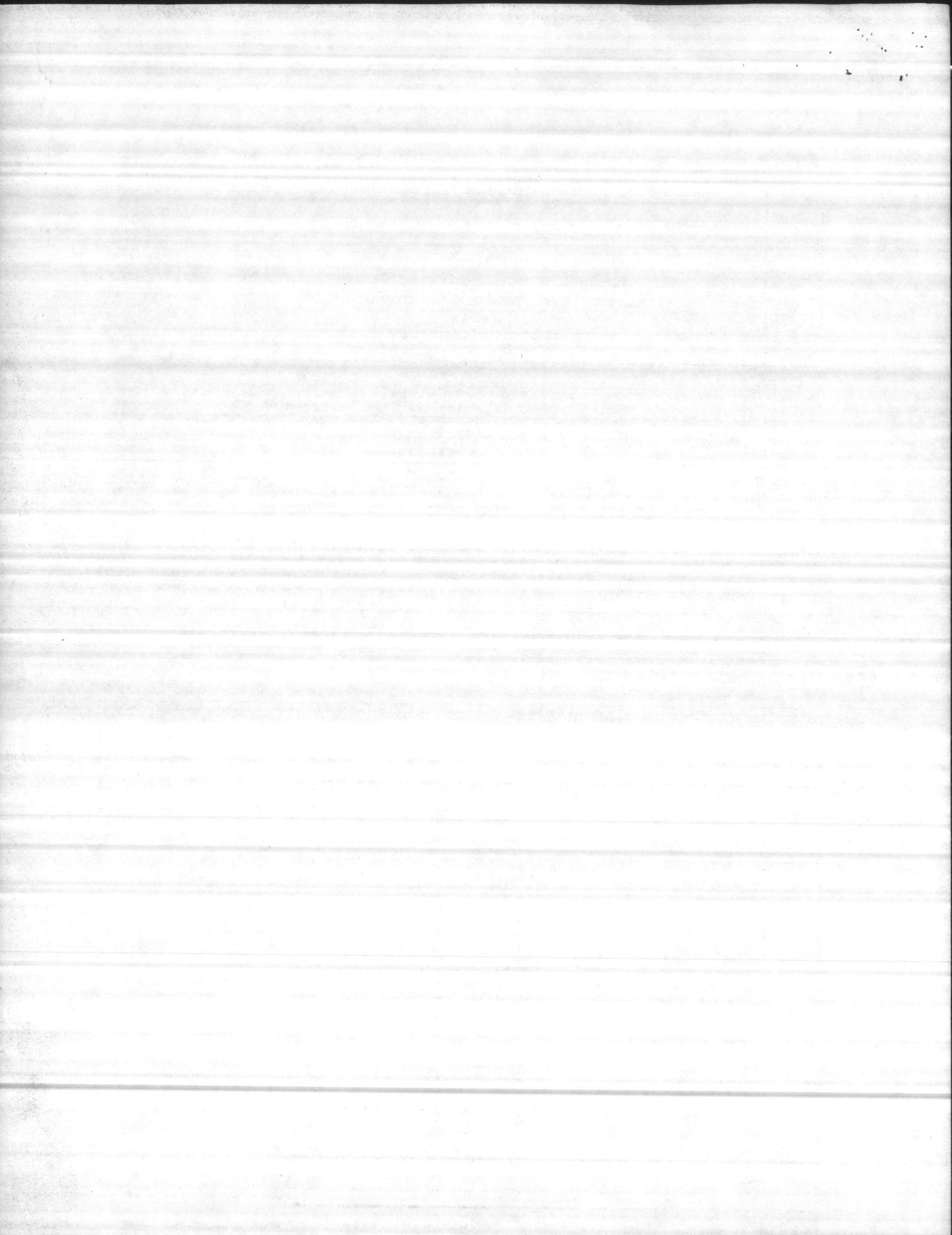
5.0 Mgal/d.

## PUMPING CAPACITY:

Raw water, 5.5 Mgal/d; finished water, 4.6 Mgal/d.

## RAW-WATER STORAGE:

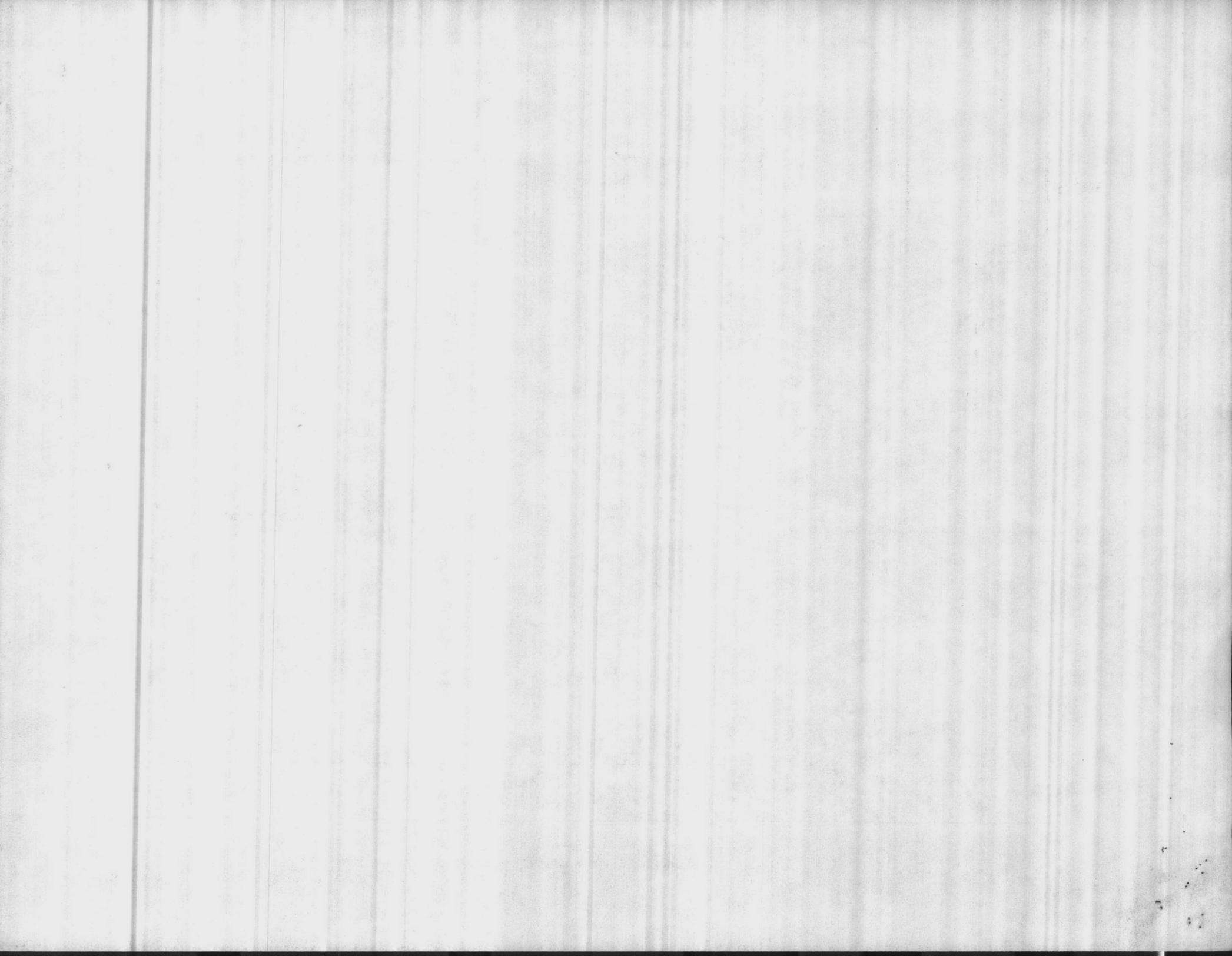
One ground-storage tank, 500,000 gallons.



Well data for Camp Lejeune (Hadnot Point), Onslow County

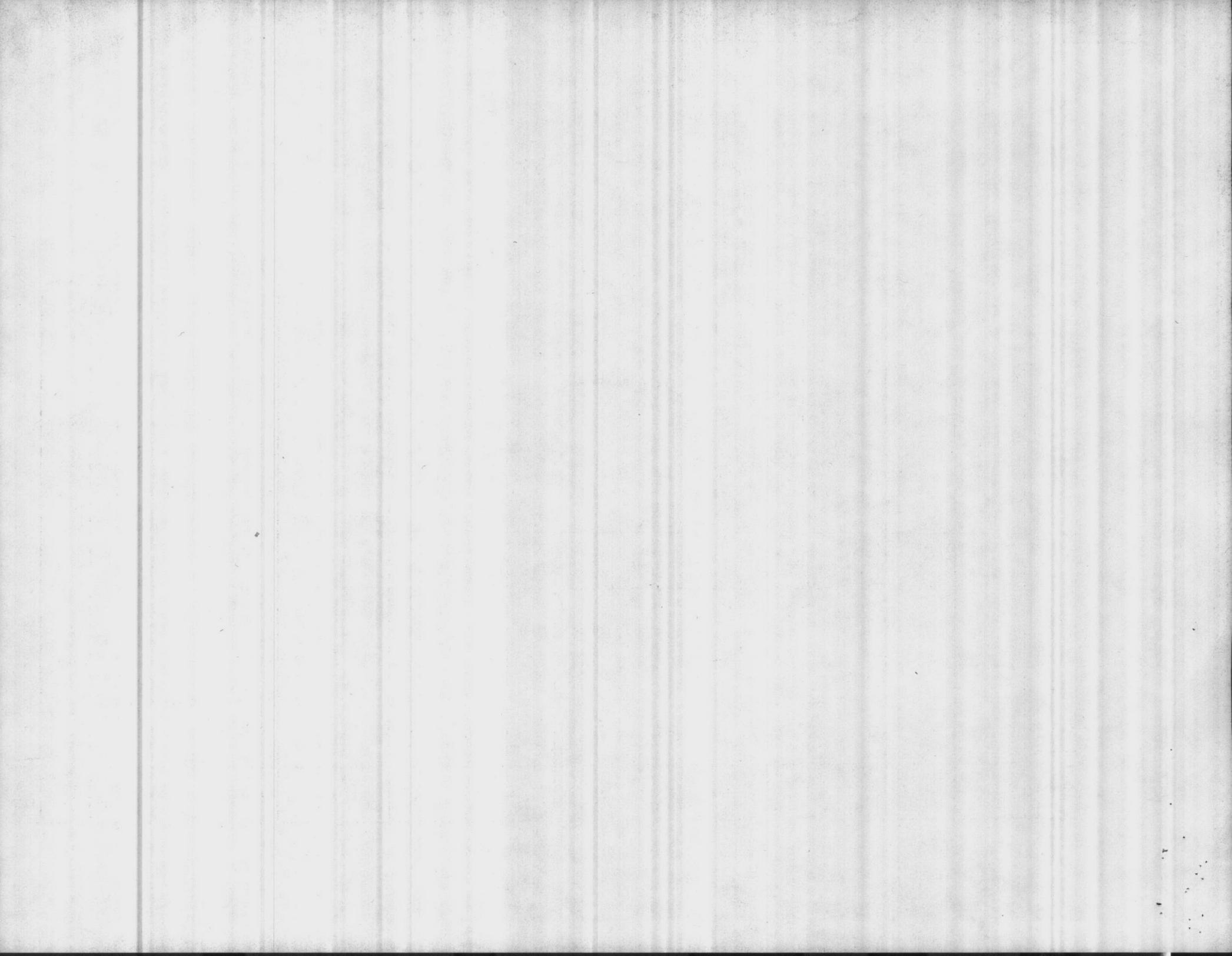
Well No.	Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Static water level below land surface(ft)	Well yield (gal/min)	Pump capacity (gal/min)	Remarks
1	601	On-142	34 40 18	077 20 20	Layne Atlantic	9/1941	195	8	45	gravel, screen	45-60 95-100 115-130 175-195	22	9			
2	602	On-143	34 40 27	077 20 07		1941e	160	8	70	gravel, screen	70-80 100-105 120-125 145-150 155-160	25	13			
3	603	On-144	34 40 10	077 20 32		1941e	195	8	70	gravel, screen	70-80 100-110 130-140 160-170 190-195	22	13			
6	606	On-145	34 39 49	077 19 10	Layne Atlantic	12/1941	210	8	80	gravel, screen	80-90 110-120 140-150 170-180 200-210	20	14.5			
8	608	On-146	34 39 53	077 20 19	Layne Atlantic	3/1941	161.5	8	61.5	gravel, screen	61.5 - 81.5 91.5 - 101.5 121.5 - 131.5 151.5 - 161.5	27	20			
9	609	On-147	34 39 26	077 18 54		1942e	150	8	65	gravel,	65-80 100-110 130-150	19	17.3			

e - estimated



Well data for Camp Lejeune (Hadnot Point), Onslow County--continued

Well No.	Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Static water level below land surface (ft)	Well yield (gal/min)	Pump capacity (gal/min)	Remarks
10	610	On-148	35 41 12	077 19 54	Layne Atlantic	4/1942	190	8	60	gravel, screen	60-70 90-110 130-140 180-190	20	16			
11	611	On-149	35 42 09	077 21 07	Layne Atlantic	6/1942	161	8	61	gravel, screen	61-71 91-101 121-136 156-161	31	15.5			
12	612	On-150	34 42 26	077 20 48	Layne Atlantic	6/1942	190	8	60	gravel, screen	60-70 90-95 115-120 140-145 155-160 170-175 185-190	31	16.85			
13	613	On-151	34 42 29	077 20 20	Layne Atlantic	5/1942	150	8	60	gravel, screen	60-70 90-95 115-120 130-135 145-150	21	12			
14	614	On-152	34 42 37	077 21 21								32				No data
15	615	On-153	34 42 45	077 21 02	Layne Atlantic	6/1942	158	8	58	gravel, screen	58-68 88-98 108-128 148-158	32	16			
16	616	On-154	34 42 47	077 20 28	Layne Atlantic	7/1942	170	8	95	gravel, screen	95-115 130-140 160-170	32	20			



Well data for Camp Lejeune (Hadnot Point), Onslow County--continued

Well No.	Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Static water level below land surface(ft)	Well yield (gal/min)	Pump capacity (gal/min)	Remarks
17	<del>617</del> 653	On-155	34 42 28	077 19 49								32				No data
19	<del>619</del> 654	On-156	34 42 08	077 19 25								30				No data
20	620	On-157	34 42 30	077 18 52	Layne ? Atlantic	9/1944e	54	18	46 1/3	open, end		35	21			
21	621	On-158	34 42 53	077 19 16	Layne Atlantic	10/1942	77	8	57	gravel, screen	57-77	41	20			
25	625	On-159	34 39 08	077 19 05								35				No data
26	626	On-160	34 39 04	077 18 38			159	8	58	screen	58-63 82-92 108-123 129-139 144-154 154-159	30	16			
27	627	On-161	34 38 37	077 18 19			158	8	65	screen	65-75 92-102 117-122 133-158	30	18.3			
32	632	On-162	34 37 11	077 17 36		1957						35	10			
33	633	On-163	34 41 58	077 20 06		1959	205	8	55	screen	55-65 75-80 95-105 123-133 138-143 158-168 178-183 195-205	25				

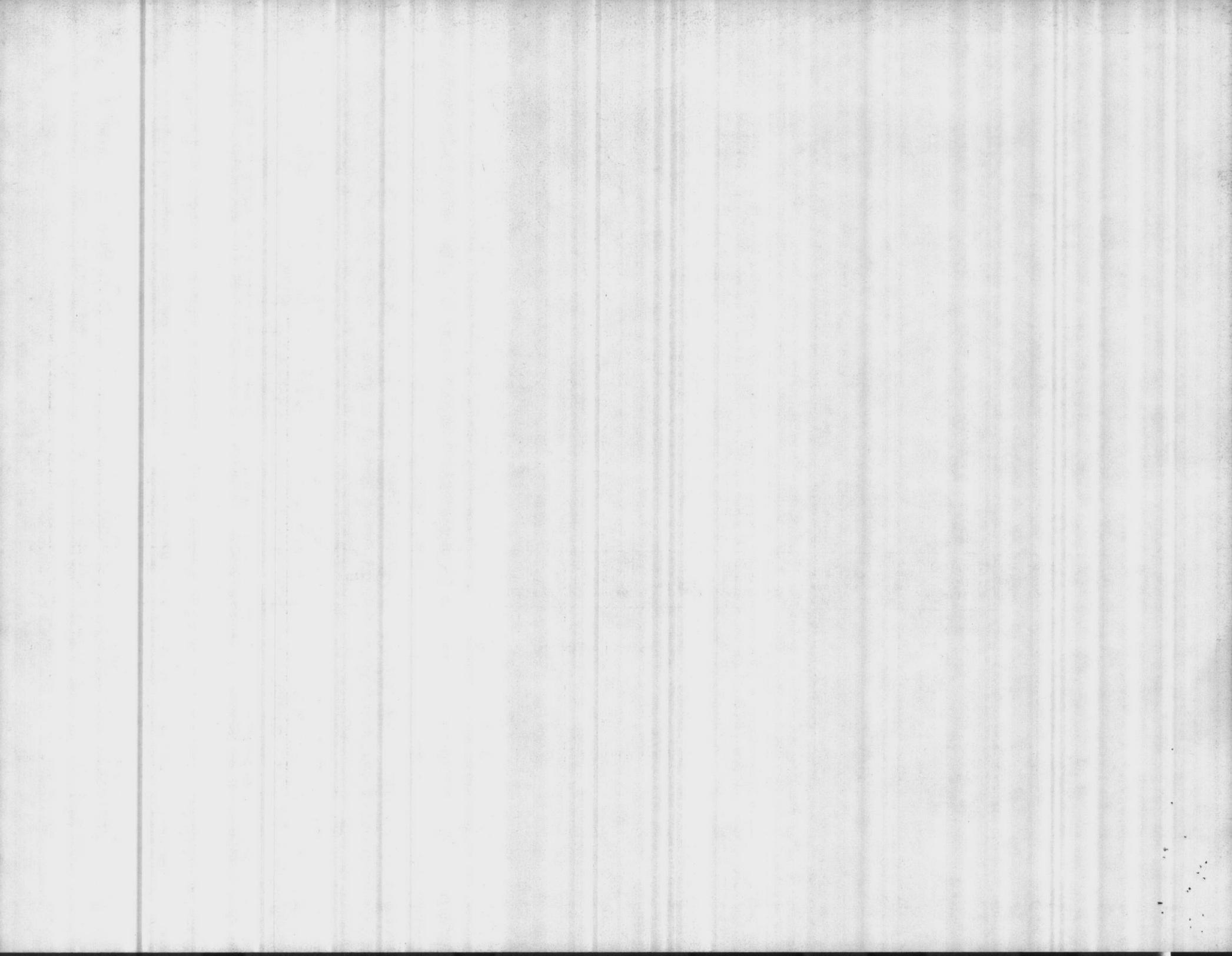
e - estimated



Well data for Camp Lejeune (Hadnot Point), Onslow County--continued

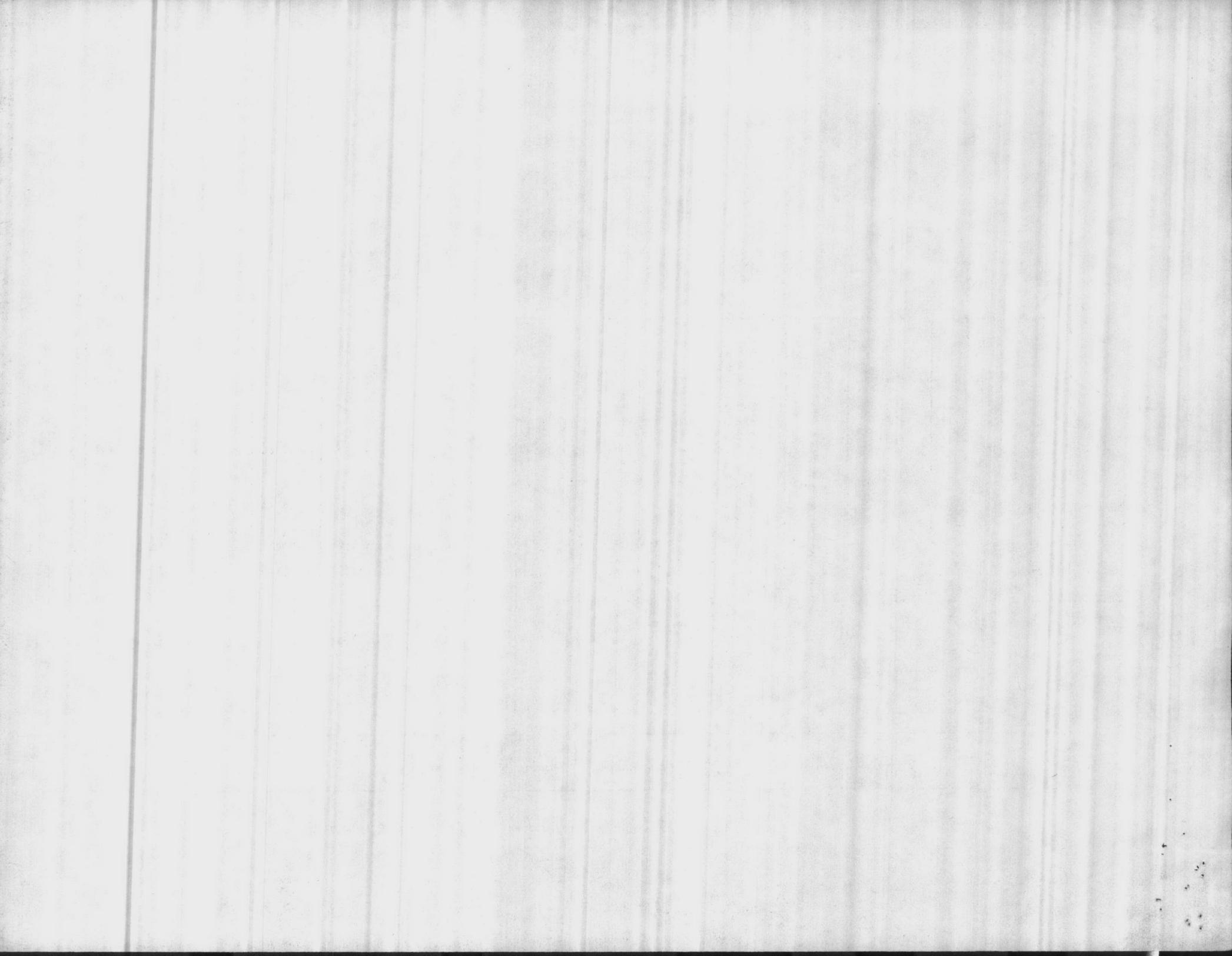
Well No.	Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Static water level below land surface(ft)	Well yield (gal/min)	Pump capacity (gal/min)	Remarks
34	634	On-164	34 40 30	077 19 35		1959e	225	8	65	gravel; screen	65-70 73-78 83-88 93-98 107-117 124-129 135-140 153-163 170-175 195-200 215-225	30	14			
35	635	On-165	34 40 55	077 19 33		1959e	215	8	65	gravel, screen	65-75 93-108 122-127 136-146 150-155 170-175 185-190 210-215	16	15			
36	636	On-166	34 41 19	077 19 29		1959e	227	8	90	gravel, screen	90-100 115-120 130-135 140-150 158-163 170-175 185-190 200-210 222-227	29	13			

e - estimated



## Well data for Camp Lejeune (Hadnot Point), Onslow County--continued

Well No.	Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Static water level below land surface (ft)	Well yield (gal/min)	Pump capacity (gal/min)	Remarks
37	637	On-167	34 40 39	077 19 54	Hartsfield	1969	172	8	90	gravel, screen	90-98 102-114 120-128 140-148 156-172	26	35	150	150	
38	638	On-168	34 39 12	077 19 43	Hartsfield	1969	196	8	106	gravel, screen	106-114 126-134 150-158 162-170 176-184 188-196	26	19.5	200	180	
39	639	On-169	34 38 05	077 18 00	Hartsfield	1969	176	8	62	gravel, screen	62-70 85-93 120-132 136-148 155-163 168-176	23	4	180	180	
40	640	On-170	34 37 38	077 17 46	Hartsfield	1969	176	8	64	gravel, screen	64-72 76-80 92-100 112-120 130-134 140-148 157-165 172-176	30	9.5	298	290	
41	641	On-171	34 42 29	077 19 22								32				No data
42	642	On-172	34 40 10	077 19 24								30				No data

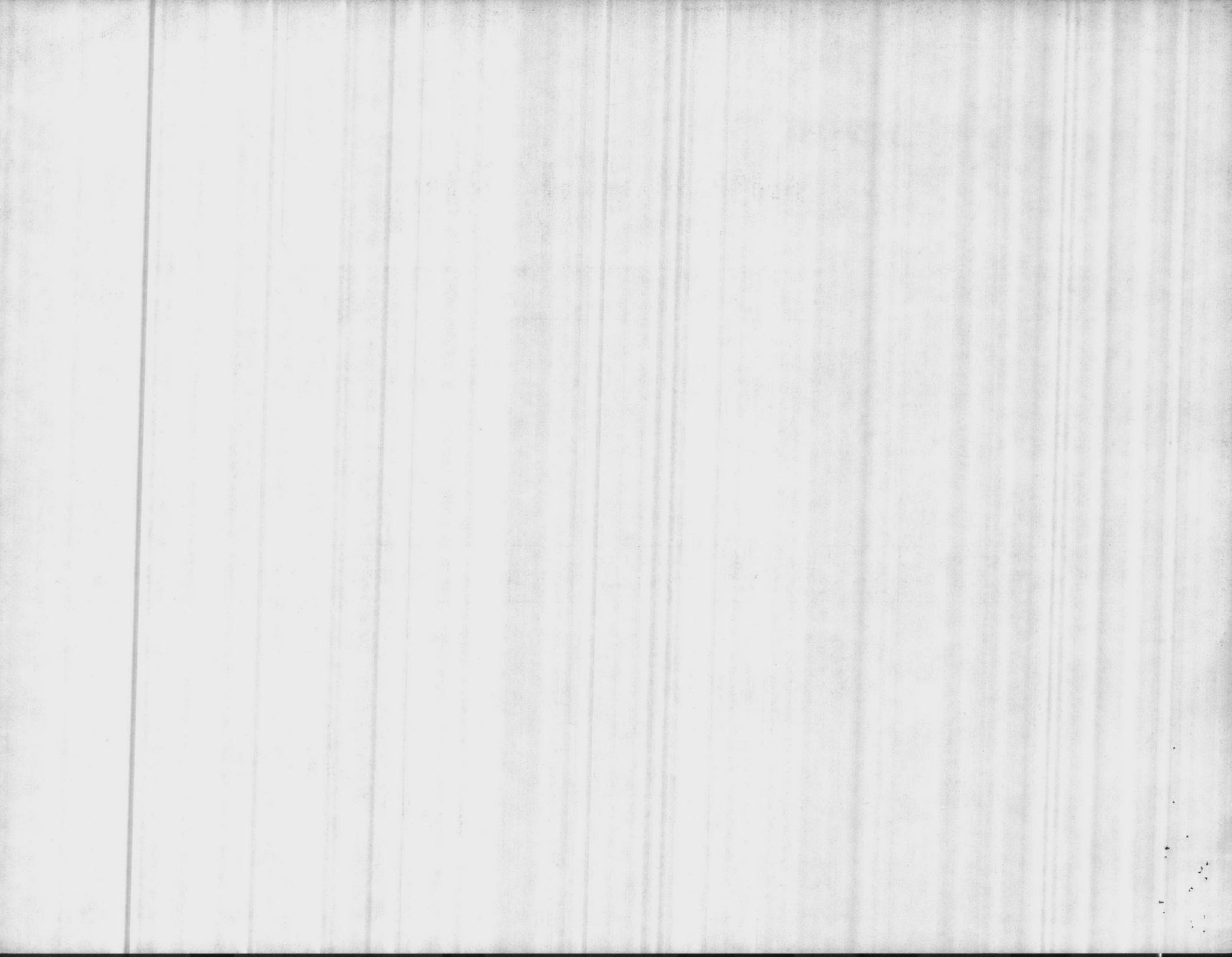


Well data for Camp Lejeune (Hadnot Point), Onslow County--continued

Well No.	Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Static water level below land surface(ft)	Well yield (gal/min)	Pump capacity (gal/min)	Remarks
51	651	On-173	34 41 41	077 19 27								31				No data
52	652	On-174	34 40 19	077 18 47								30				No data
M-1	LCH 4007	On-176	34 43 11	077 19 53	Layne Atlantic	1946e	145.2	8	49.5	screen	49.5-59.5 69-99 120-130 140-145	41	23.7			
M-2	LCH 4006	On-175	34 43 27	077 20 17	Layne Atlantic	1941e	125	8	25	screen	25-40 60-70 75-95 115-125	33	16			

e - estimated

Note: All the wells are located in a flat area, have turbine pumps, and are completed in the limestone aquifer.  
A few wells may also tap the upper sandy aquifer.



## CAMP LEJEUNE (HADNOT POINT WATER SYSTEM), ONSLOW COUNTY

## FINISHED-WATER STORAGE:

Two clear wells, 75,000 and 2,000,000 gallons; four elevated tanks, 300,000 gallons each.

## FUTURE PLANS:

Presently rebuilding filters.

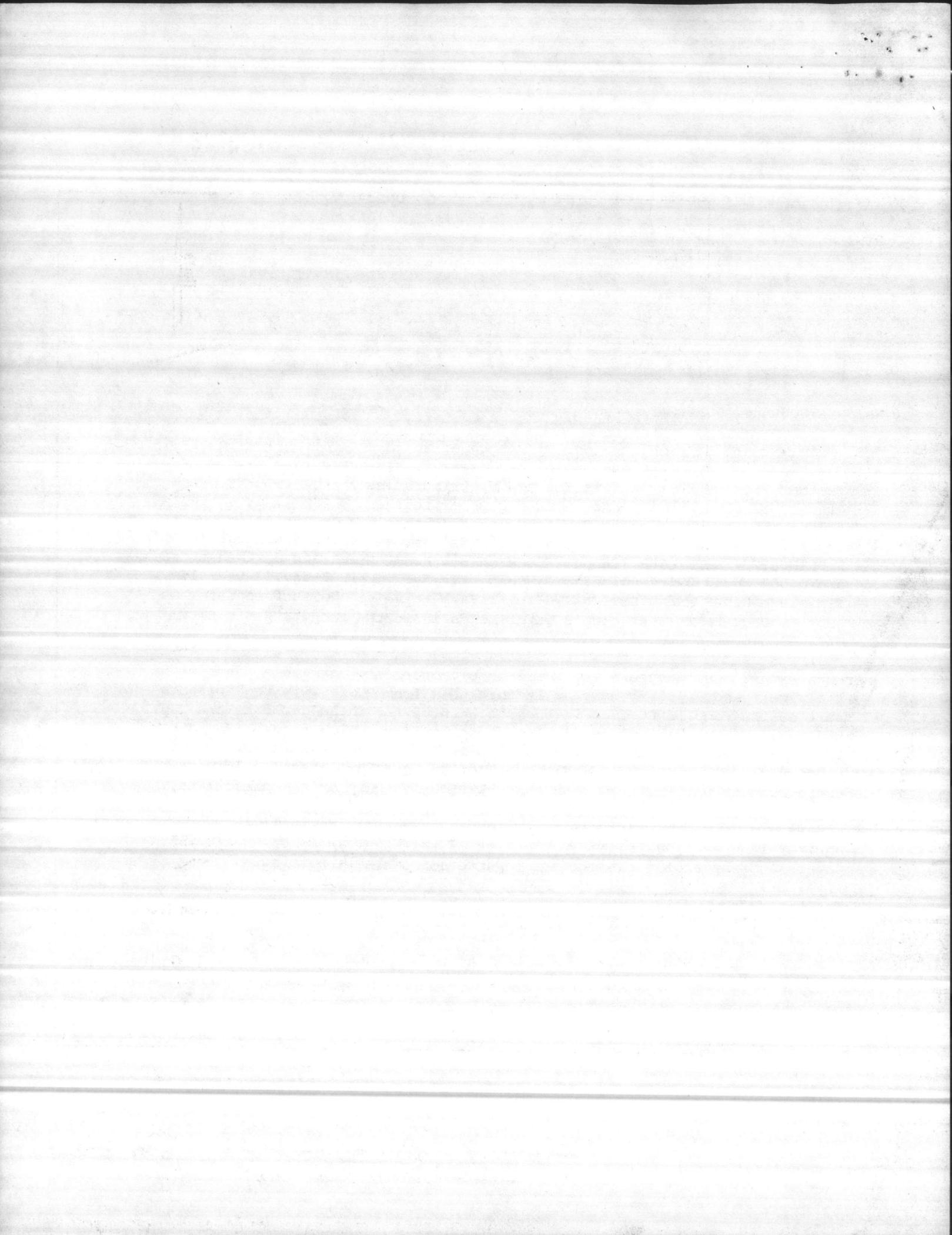
## WATER-RESOURCES APPRAISAL:

Surface water: Camp Lejeune occupies much of south-central Onslow County. The topography is flat and, in places, swampy. The camp is bisected by the New River estuary and is drained by tributaries of the estuary. The estuary is always salty except in its upper reaches, where it is variably salty. The tributaries to the estuary are themselves estuarine in their lower reaches and are variably salty. The average stream discharge is 0.9 (Mgal/d)/mi<sup>2</sup>. The minimum flows on Southwest Creek and Northeast Creek are 0.008 and 0.021 (Mgal/d)/mi<sup>2</sup>, respectively. Their 7-day, 2-year low flows are 0.046 and 0.08 (Mgal/d)/mi<sup>2</sup>, respectively. No surface water supply adequate for the camp's water needs is in the immediate vicinity of the camp.

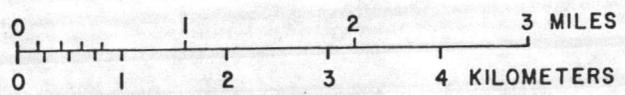
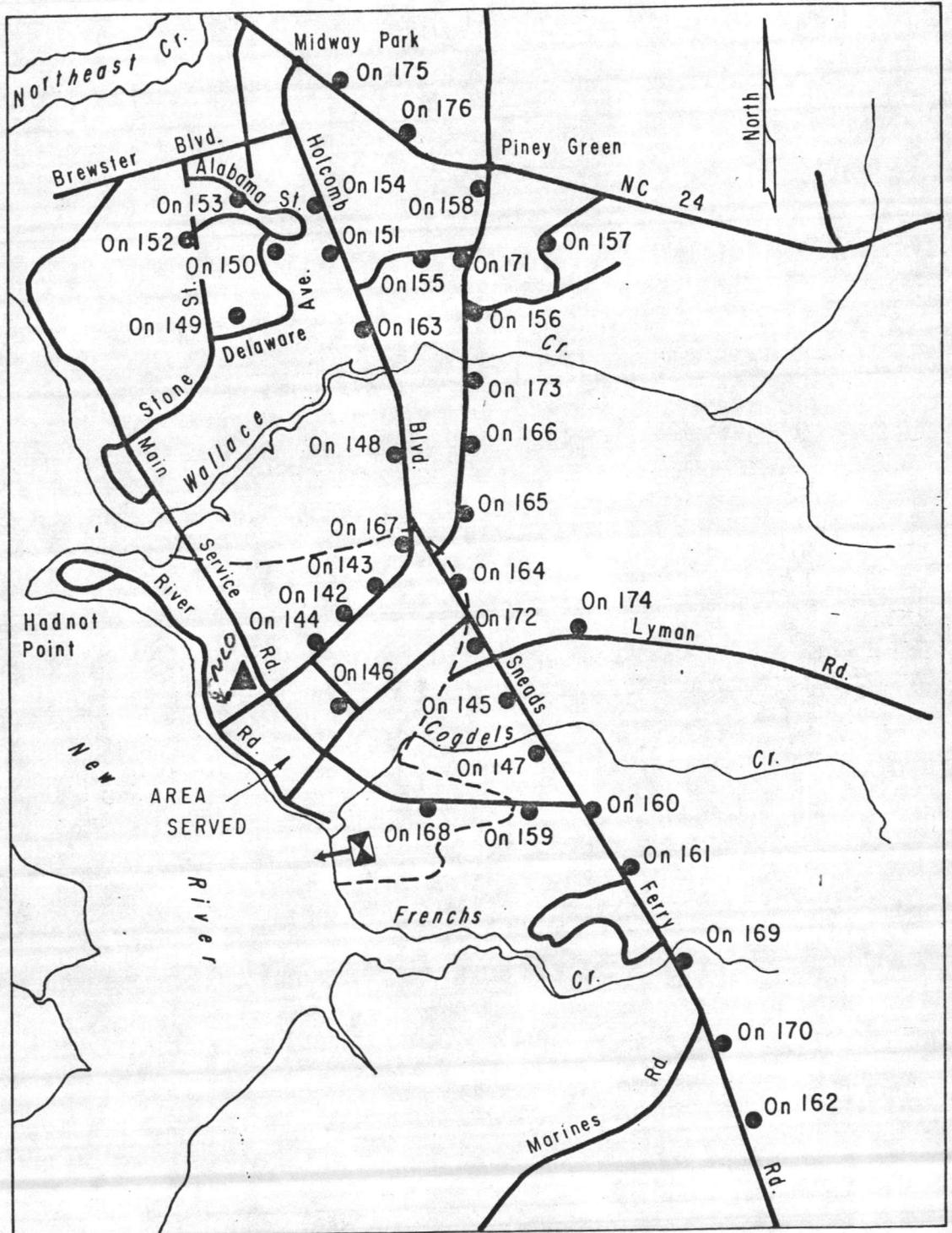
Ground water: Camp Lejeune is underlain by moderately permeable sands of the upper sandy aquifer ranging in thickness from 20 feet in the northern part of the camp to 80 feet in the southern part. These deposits are underlain by the very permeable limestone aquifer, which ranges from 350 to 500 feet in thickness. This aquifer is capable of yielding over 2,000 gal/min to wells. However, the threat of vertical or lateral salt-water encroachment, particularly near the New River estuary or the coast line, makes lower yields more prudent. The limestone aquifer is underlain by moderately-permeable sands of the lower sandy aquifer. The lower sandy aquifer is over 1,000 feet thick. Most of this aquifer contains salt water, and any exploitation would require considerable testing.

The water from wells in the camp area is hard and may contain excessive concentrations of iron, hydrogen sulfide, and fluoride.

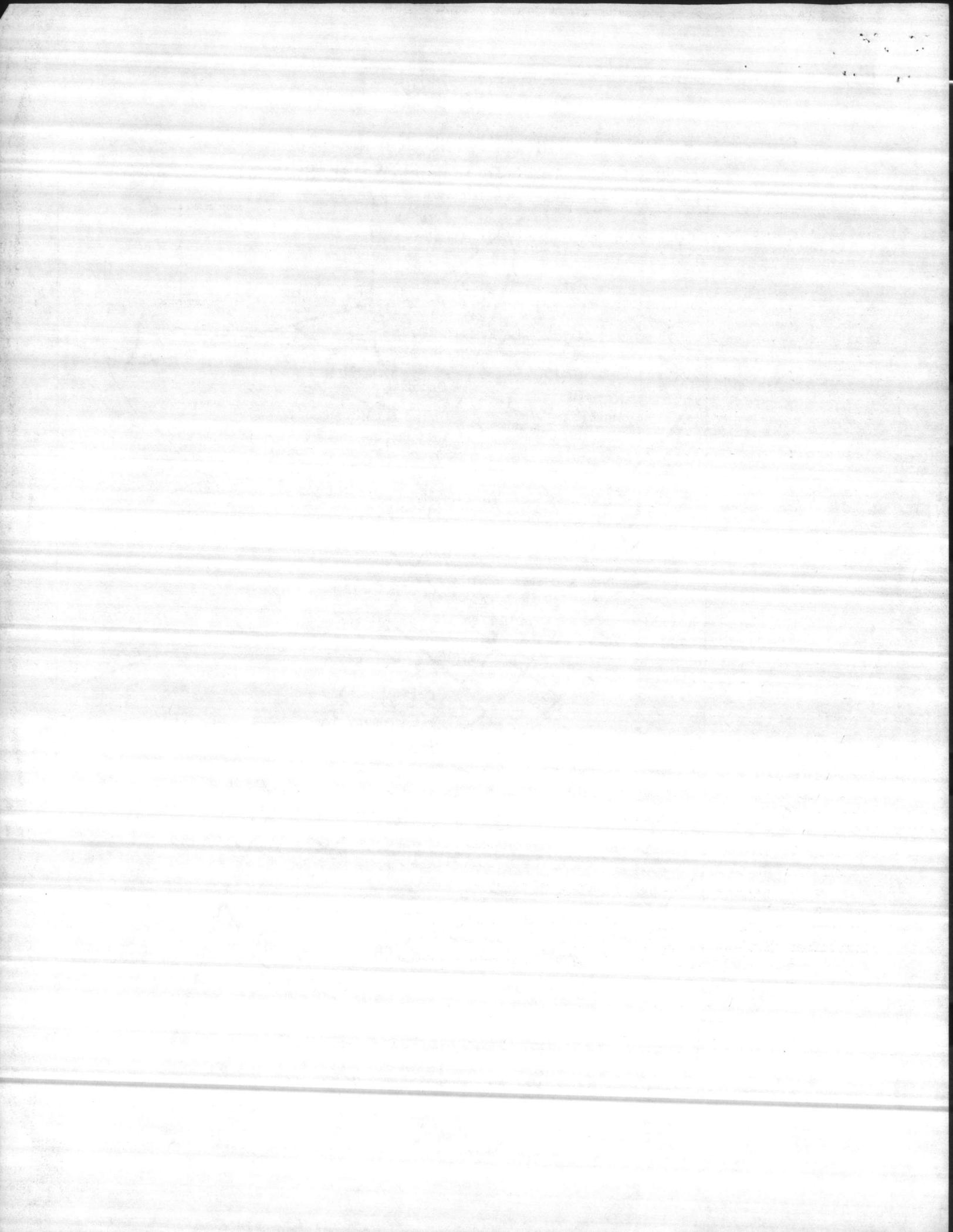
*upper sandy aquifer also called surficial aquifer  
limestone aquifer also known as Castle Hayne aquifer.*



### CAMP LEJEUNE MARINE CORPS BASE (Hadnot Point Water System)



- EXPLANATION**
- On 150 Well
  - ▲ Treatment plant
  - ⊠ Sewage treatment plant
  - ↘ Sewage outfall
  - Boundary of area served



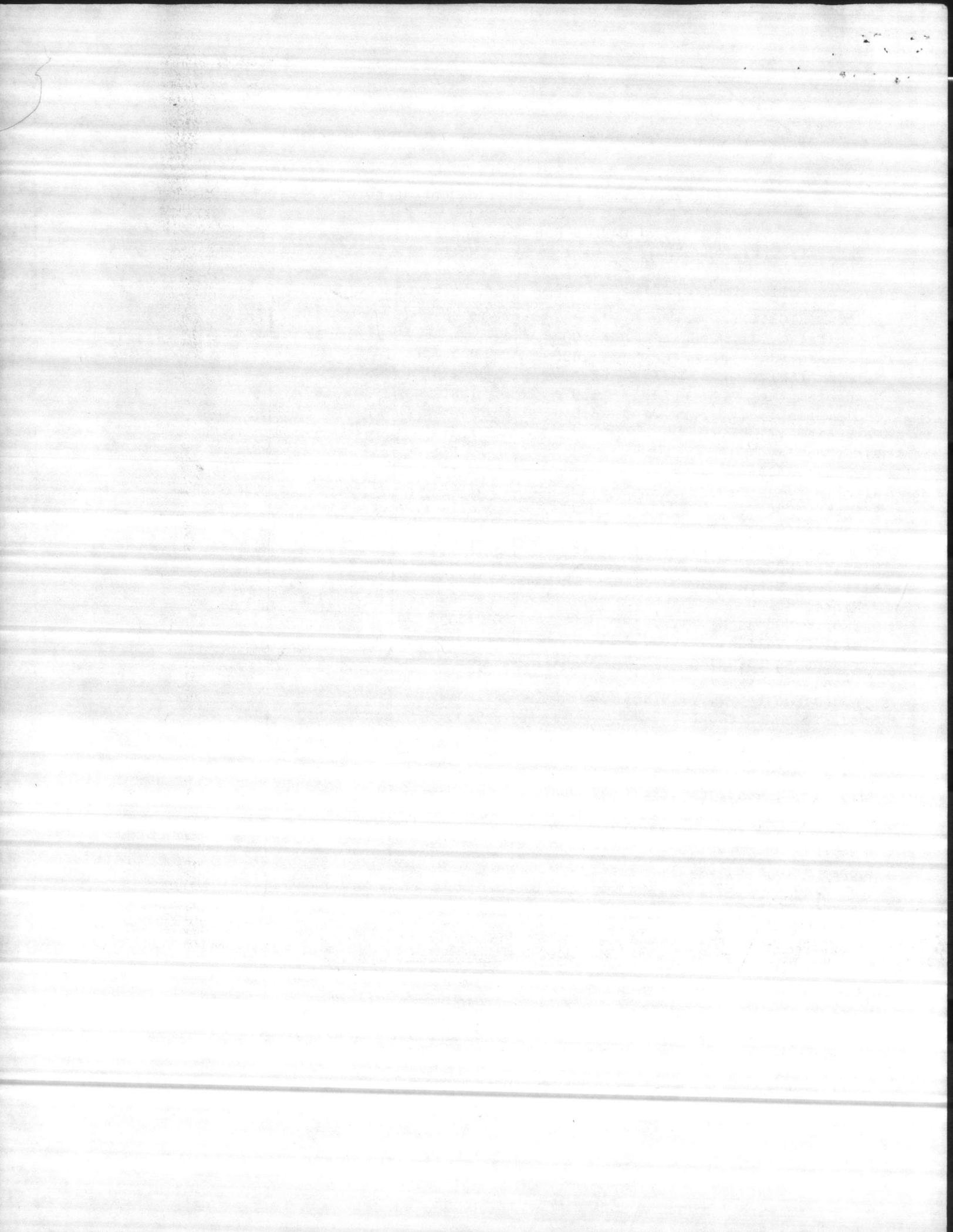
## CAMP LEJEUNE (HADNOT POINT WATER SYSTEM), ONSLOW COUNTY

## ANALYSES

(In milligrams per liter, except as noted)

Source, or type of water (raw; finished)...	Hadnot Pt* Well Raw 3-2-76	Hadnot Pt* Well Finished 3-2-76		
Date of collection.....	3-2-76	3-2-76		
Silica (SiO <sub>2</sub> ).....	14	14		
Iron (Fe).....	.00	-----		
Manganese (Mn).....	.000	-----		
Calcium (Ca).....	62	26		
Magnesium (Mg).....	1.3	1.8		
Sodium (Na).....	6.0	7.0		
Potassium (K).....	1.2	1.2		
Bicarbonate (HCO <sub>3</sub> ).....	180	75		
Carbonate (CO <sub>3</sub> ).....	0	0		
Alkalinity as CaCO <sub>3</sub> .....	150	62		
Sulfate (SO <sub>4</sub> ).....	6.9	8.1		
Chloride (Cl).....	10	11		
Fluoride (F).....	.4	1.0		
Nitrate (NO <sub>3</sub> ).....	-----	-----		
Nitrite + Nitrate as Nitrogen (NO <sub>2</sub> + NO <sub>3</sub> as N).....	.04	.02		
Dissolved Solids.....	191	107		
Hardness as CaCO <sub>3</sub> :				
Total.....	160	72		
Noncarbonate.....	12	11		
Specific conductance (micromhos at 25°C)....	321	173		
Arsenic (As).....	.000	-----		
Barium (Ba).....	.0	-----		
Boron (B).....	.00	-----		
Cadmium (Cd).....	.000	-----		
Chromium (Cr).....	.000	-----		
Cobalt (Co).....	.000	-----		
Copper (Cu).....	.000	-----		
Lead (Pb).....	-----	-----		
Lithium (Li).....	.00	-----		
Mercury (Hg).....	-----	-----		
Strontium (Sr).....	.12	-----		
Zinc (Zn).....	.00	-----		
pH (units).....	7.5	8.3		
Temperature (°C).....	-----	-----		

\*Wells 8, 10-15, 20, 21, M-1, 26, 27, 32, 35-37, 39, 41, 42, 51.



Well data for Hadnot Point and Holcomb Boulevard water systems, Camp Lejeune Marine Base, Onslow County, N.C.--Continued

Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airline setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks	
														Original static	January 1982		Orig.	1/1982		
														Non-pumping	Pumping					
HP-627	On-161	34 38 37	077 18 19	-	-	158	8	65	Screened	65-75 92-102 117-122 133-158	30.7	-	-	18.3	16.2; 1953 26; 1966 23.9; 1969	-	-	-	-	Out of service 1/1981
HP-632	On-162	34 37 11	077 17 36	-	1957	75	-	-	-	-	35	75	65	10	23	47	350	154		
HP-633	On-163	34 41 58	077 20 06	-	1959	205	8	55	screened	55-65 75-80 95-105 123-133 138-143 158-168 178-183 195-205	25	93	56	-	38	30	200	219	1982 water-level values questionable. Readings may be reversed or not corrected for airline setting.	
HP-634	On-164	34 40 30	077 19 35	-	1959e	225	8	65	gravel pack	65-70 73-78 83-88 93-98 107-117 124-129 135-140 153-163 170-175 195-200 215-225	30	98	66	14	20	41	200	178		
HP-635	On-165	34 40 55	077 19 33	-	1959e	215	8	65	gravel pack	65-75 93-108 122-127 136-146 150-155 170-175 185-190 210-215	16	110	78	15	35	50	200	143		
HP-636	On-166	34 41 19	077 19 29	-	1959e	227	8	90	gravel pack	90-100 115-125 130-135 140-150 158-163 170-175 185-190 200-210 222-227	29	88	93	13	50	65	200	157		
HP-637	On-167	34 40 39	077 19 54	Hartsfield	1969	172	8	90	gravel pack	90-98 102-114 120-128 140-148 156-172	26	132	130	35	53	95	150	146		
HP-638	On-168	34 39 12	077 19 43	Hartsfield	1969	196	8	106	gravel pack	106-114 126-134 150-158 162-170 176-184 188-196	26	125	125	19.5	19	84	180	170		
HP-639	On-169	34 38 05	077 18 00	Hartsfield	1969	176	8	62	gravel pack	62-70 85-93 120-132 136-148 155-163 168-176	23	76	88	4	23	75	180	100		
HP-640	On-170	34 37 38	077 17 46	Hartsfield	1969	176	8	64	gravel pack	64-72 76-80 92-100 112-120 130-134 140-148 157-165 172-176	30	75	61	9.5	19	51	290	104		
HP-641	On-171	34 42 29	077 19 22	-	-	178	-	-	-	-	32	86	105	-	45	74	315	290		
HP-642	On-172	34 40 10	077 19 24	-	-	210	-	-	-	-	30	96	112	-	40	87	136	108		

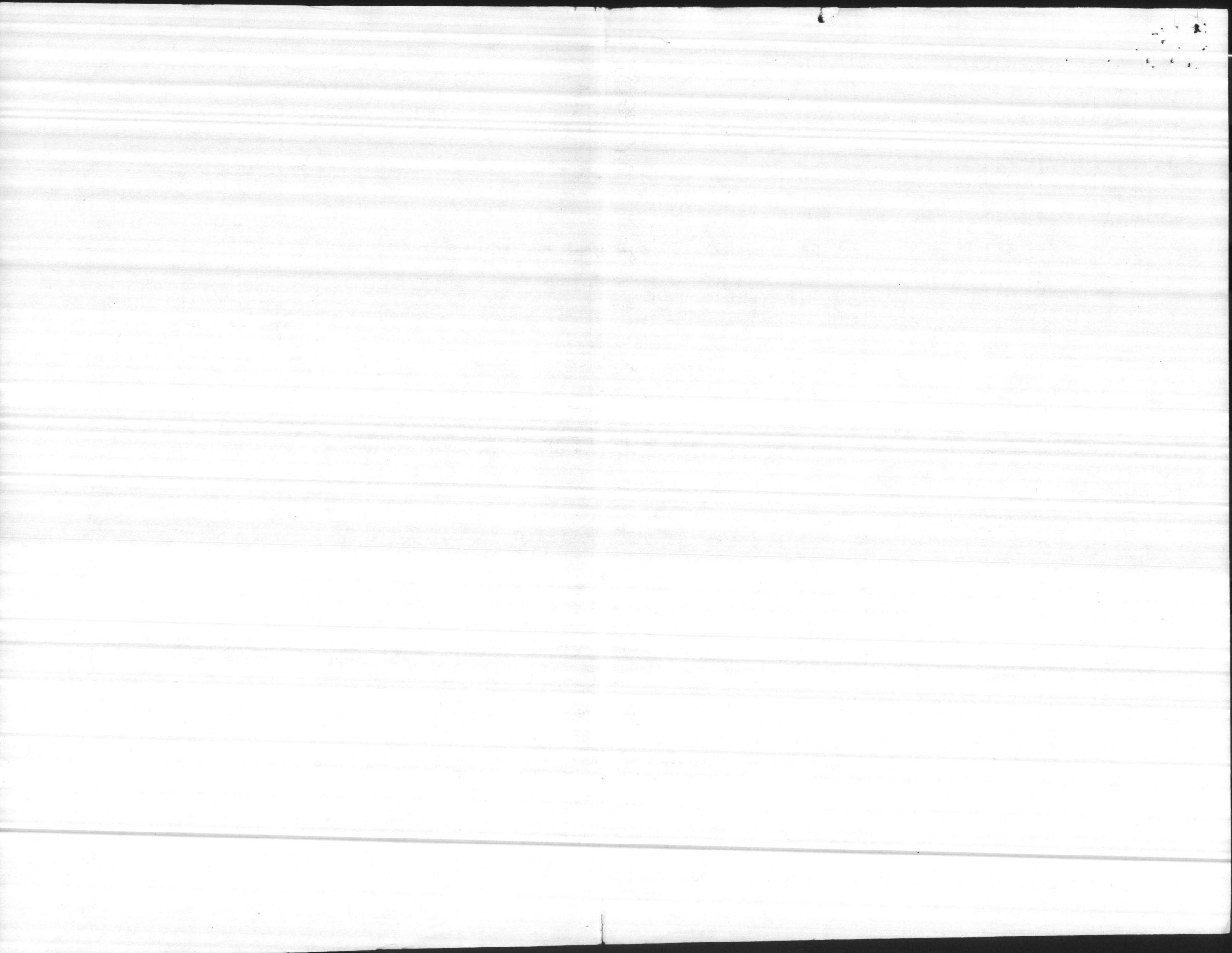


Well data for Hadnot Point and Holcomb Boulevard water systems, Camp Lejeune Marine Base, Onslow County, N.C.

[All wells are located in flat areas, have turbine pumps and are completed in the Castle Hayne aquifer. A few wells also may tap the surficial aquifer.  
HP - Hadnot Point, LCH - low-cost housing, e - estimated, topo - land surface altitude estimated from topographic maps]

Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airline setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks
														Original static	January 1982		Orig.	1/1982	
															Non-pumping	Pumping			
HP-601	On-142	34 40 18	077 20 20	Layne Atlantic	9/1941	195	8	45	Gravel pack	45-60 95-100 115-130 175-195	22	-	-	9	-	-	-	-	Out of service 1/1982
HP-602	On-143	34 40 18	077 20 07	-	1941e	160	8	70	gravel pack	70-80 100-105 120-125 145-150 155-160	25	50	60	13	30	58	200	90	Low producer
HP-603	On-144	34 40 10	077 20 32	-	1941e	195	8	70	gravel pack	70-80 100-110 130-140 160-170 190-195	22	90	63	13	34	58	250	157	
HP-606	On-145	34 39 49	077 19 10	Layne Atlantic	12/1941	210	8	80	gravel pack	80-90 110-120 140-150 170-180 200-210	20	80	70	14.5	32	55	250	133	
HP-608	On-146	34 39 53	077 20 19	Layne Atlantic	3/1941	161.5	8	61.5	gravel pack	61.5-81.5 91.5-101.5 121.5-131.5 151.5-161.5	27	76	63	20	40	47	250	214	
HP-609	On-147	34 39 26	077 18 54	-	1942e	150	8	65	gravel pack	65-80 100-110 130-150	19	60	60	17.3	30	56	200	100	
HP-610	On-148	34 41 12	077 19 54	Layne Atlantic	4/1942	190	8	60	gravel pack	60-70 90-110 130-140 180-190	28.3	-	50	16	25 21; 1978	48	200	128	Out of Service 1/1982. Pumping rock and sand.
HP-611	On-149	35 42 09	077 21 07	Layne Atlantic	6/1942	161	8	61	gravel pack	61-71 91-101 121-136 156-161	31	-	-	15.5	38; 1979	-	-	-	Out of Service 1/1982
HP-612	On-150	34 42 26	077 20 48	Layne Atlantic	6/1942	190	8	60	gravel pack	60-70 90-95 115-120 140-145 155-160 170-175 185-190	31.8	-	-	16.85	20.7; 1978	-	-	-	Out of Service 1/1982
HP-613	On-151	34 42 29	077 20 20	Layne Atlantic	5/1942	150	8	60	gravel pack	60-70 90-95 115-120 130-135 145-150	21	64	51	12	29	49	310	162	
HP-614	On-152	34 42 37	077 21 21	-	-	-	-	-	-	-	31.4	-	-	18	-	-	-	-	Out of service 1/1982
HP-615	On-153	34 42 45	077 21 02	Layne Atlantic	6/1942	158	8	58	gravel pack	58-68 88-98 108-128 148-158	32	65	47	16	30	40	225	119	
HP-616	On-154	34 42 47	077 20 28	Layne Atlantic	7/1942	170	8	95	gravel pack	95-115 130-140 160-170	32	66	62	20	40	60	200	100	
HP-619	On-156	34 42 08	077 19 25	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	Out of service 1/1982
HP-620	On-157	34 42 30	077 18 52	Layne Atlantic?	9/1944e	54	18	46.3	Open hole	-	35	32	50	21	40	50	200	150	
HP-621	On-158	34 42 53	077 19 16	Layne Atlantic	10/1942	77	8	57	gravel pack	57-77	40.8	-	-	20	-	-	-	-	Out of service 1/1982
HP-625	On-159	34 39 08	077 19 05	-	-	-	-	-	-	-	35	-	-	-	31; 1944	-	-	-	
HP-626	On-160	34 39 04	077 18 38	-	-	159	8	58	Screened	58-63 82-92 108-123 129-139 144-154 154-159	28.3	-	-	18.3	21; 1977	-	-	-	Replaced by new well at same location. No data available 1/1982. Out of service 1/1982

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Well data for Hadnot Point and Holcomb Boulevard water systems, Camp Lejeune Marine Base, Onslow County, N.C.--Continued

Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airline setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks
														Original static	January 1982		Orig.	1/1982	
															Non-pumping	Pumping			
HP-643	On-177	34 43 03	077 21 18	Layne Atlantic	1971	270	10	88	gravel packed	88-98 135-150 260-265	27(topo)	70	80	18.17; 3-16-1971	58	69	260	197	Test hole 309 ft deep. Well depth reported 232 ft 1/1982. Holcomb Blvd well 5.
HP-644	On-178	34 43 04	077 21 00	Layne Atlantic	1971	255	10	85	gravel packed	85-100 235-250	27(topo)	90	90	18.6; 7-1971	68	79	260	180	Test hole 310 ft deep. Holcomb Blvd well 6.
HP-645	On-179	34 43 05	077 20 43	Layne Atlantic	1971	245	10	90	gravel packed	90-100 138-148 230-240	29(topo)	80	70	18.83; 8-1971	56	59	260	185	25-slot screen. Holcomb Blvd well 7.
HP-646	On-180	34 43 16	077 20 35	-	-	266	-	-	-	-	28(topo)	70	70	-	24	40	260	219	Holcomb Blvd well 8
HP-647	On-181	34 43 03	077 20 17	Layne Atlantic	1971	200	10	105	gravel packed	105-115 138-143 175-190	33(topo)	-	-	21.56; 1-1972	28	47	260	200	Pump pulled in 1/1982. Holcomb Blvd well 1.
HP-648	On-182	34 42 51	077 18 48	Layne Atlantic	1971	260	10	107	gravel packed	107-122 245-260	37(topo)	110	110	-	19	90	230	200	Holcomb Blvd well 2
HP-649	On-183	34 42 44	077 18 22	Layne Atlantic	1971	279	10	126	gravel pack	126-136 158-164 205-210 232-237 273-279	41(topo)	110	111	18.33; 10-1971	20	90	250	250	Holcomb Blvd well 3
HP-650	On-184	34 42 39	077 18 00	Layne Atlantic	1971	179	10	128	gravel pack	128-133 140-150 155-165 169-174	38(topo)	110	111	8.75; 11-1971	9	94	400	300	Holcomb Blvd well 4
HP-651	On-173	34 41 41	077 19 27	-	-	199	-	-	-	-	31	126	125	-	51	125	200	167	
HP-652	On-174	34 40 19	077 18 47	-	-	183	-	-	-	-	30	126	110	-	30	87	200	185	
HP-653	On-185	34 42 28	077 19 49	-	-	250	-	-	-	-	32	75.5	65	-	55 15; 5-1978	63	200	200	Replaces well HP 617. USGS On-155.
HP-654	On-186	-	-	-	-	270	-	-	-	-	-	95	94	-	40	78	225	200	
LCH 4006	*On-175	34 43 27	077 20 17	Layne Atlantic	1941e	125	8	25	screened	25-40 60-70 75-95 115-125	33	-	52	16	41?	5?	272	180	Also called well no. M-1. 1982 water level values questionable. Readings may be reversed, or not corrected for airline setting.
LCH 4007	**On-176	34 43 11	077 19 53	Layne Atlantic	1946e	145.2	8	49.5	screened	49.5-59.5 69-99 120-130 140-145	41	70	70	23.7	45	62	320	133	Also called well No. M-2
Observation well 2	On-187	34 39 40	077 20 59	-	-	90	-	-	-	-	13(topo)	-	-	-	7.0; 7/1980 7.7; 1/1981 8.0; 7/9/1981	-	-	-	Between well HP 608 and New River. Chemical analysis available.
Observation well 3	On-188	34 42 28	077 20 18	-	-	77	-	-	-	-	20(topo)	-	-	-	13.0; 7/1980 16.7; 1/1981 16.0; 7/9/1981	-	-	-	Near well HP 613. Chemical analysis available.
Observation well 4	On-189	34 40 56	077 19 35	-	-	231	-	-	-	-	16(topo)	-	-	-	18.5; 7/1980 19.0; 7/9/1981	-	-	-	Near well HP 635
Observation well 5	On-190	34 39 07	077 19 47	-	-	134	-	-	-	-	24(topo)	-	-	-	18.0; 7/1980 20.0; 1/1981 20.0; 7/9/1981	-	-	-	Near well HP 638. Chemical analysis available.

\*Also listed as On-56.

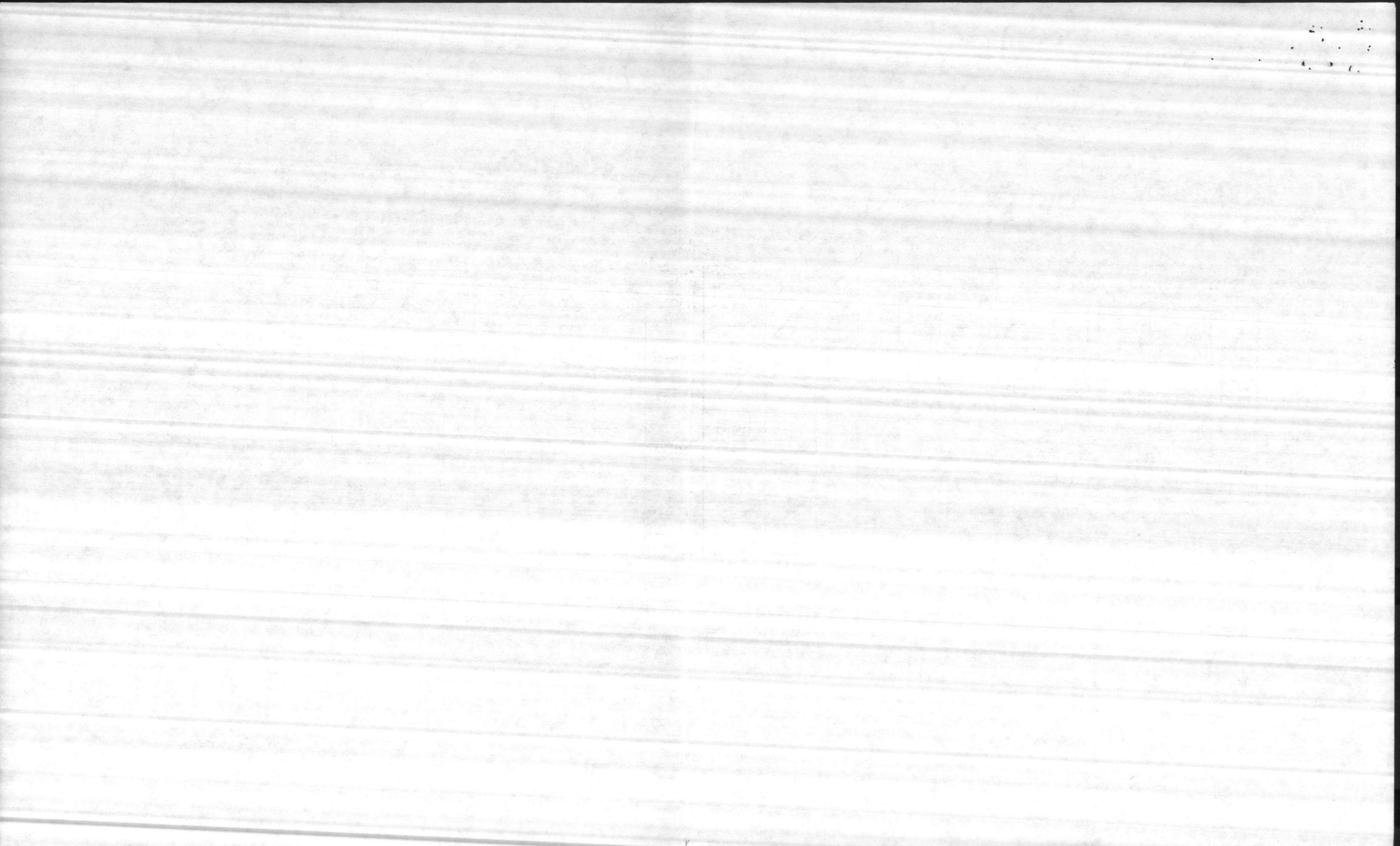
\*\*Also listed as On-57.



Well data for Tarawa Terrace water system, Camp Lejeune Marine Base, Onslow County, N.C.

[All wells are located in flat areas, have turbine pumps, and are completed in the Castle Hayne Aquifer. A few wells also may tap the surficial aquifer. TT - Tarawa Terrace, e - estimated, topo - land surface altitude estimated from topographic maps.]

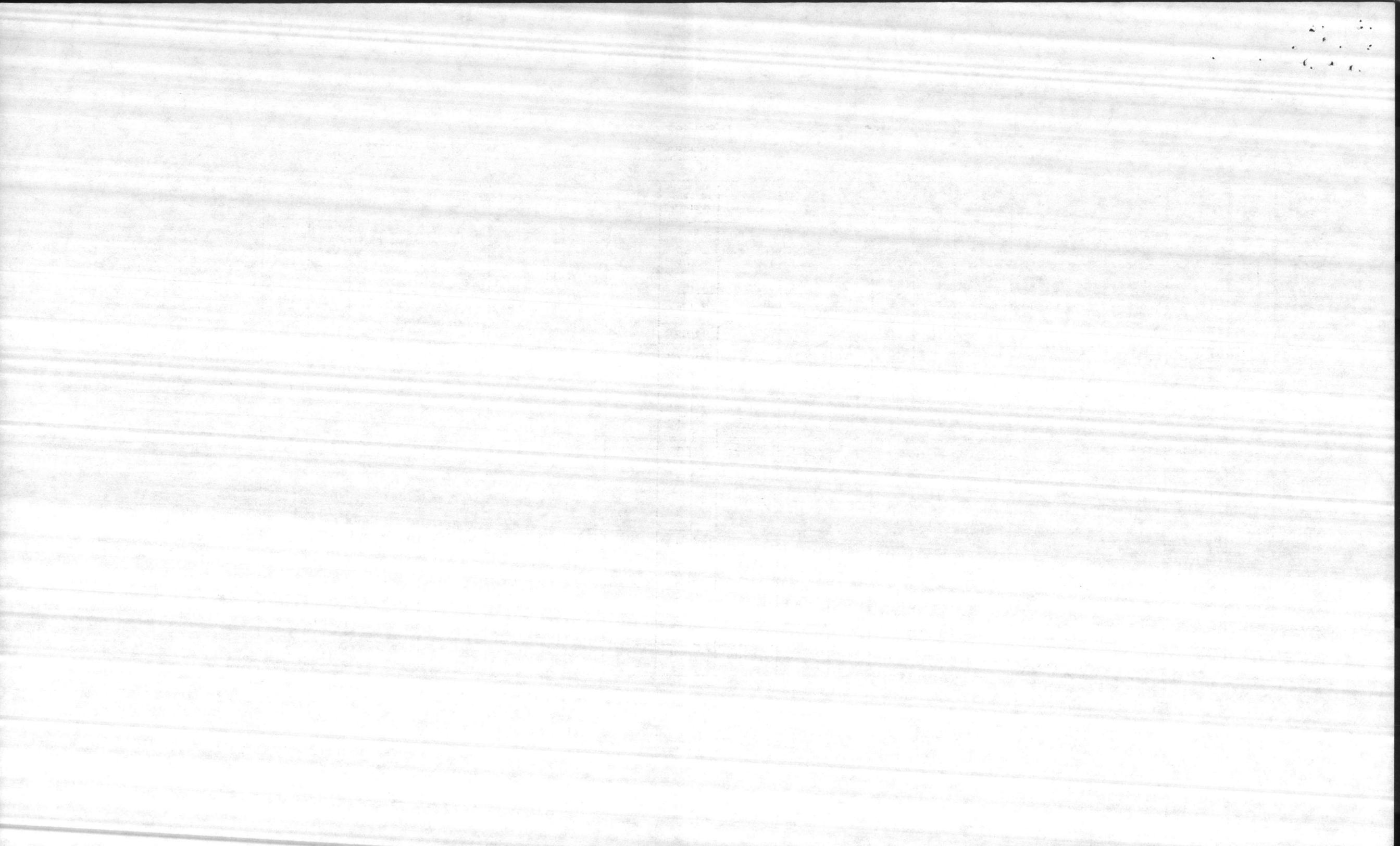
Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airline setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks
														Original static	January 1982		Orig.	1/1982	
															Non-pumping	Pumping			
TT-26	On-191	34 44 22	077 21 52	-	1958e	100	-	-	-	-	31(topo)	80	80	-	43	63	200	200	Also known as well No. 1
TT-30	On-192	34 44 31	077 22 42	Carolina Well and Pump Co.	-	110	-	-	-	-	31(topo)	70	71	-	34	64	100	150	Also known as well No. 13
TT-31	On-193	34 44 02	077 22 10	-	-	94	-	-	-	-	25(topo)	70	70	-	36	64	145	145	Also known as well No. 14
TT-52	On-194	34 44 03	077 22 20	Hartsfield Water Company	1961	98	-	-	-	-	23(topo)	50	53	12; 10/1961	36	48	300	300	Also known as well No. 9
TT-53	On-195	34 44 14	077 22 12	Hartsfield Water Company	1961	90	10	42	gravel packed	42-62 68-83	25(topo)	70	73	11; 7/1961	36	60	350	80	Low producer. Also known as well No. 10
TT-54	On-196	34 44 02	077 22 02	Hartsfield Water Company	1961	104	-	-	-	-	20(topo)	65	85	10; 6/1961	36	58	200	200	Also known as well No. 11
TT-67	On-197	34 44 09	077 22 07	-	-	98	-	-	-	-	26(topo)	75	75	-	38	66	150	100	Also known as well No. 12



Well data for Montford Point water system, Camp Lejeune Marine Base, Onslow County, N.C.

[All wells are located in flat areas, have turbine pumps, and are completed in the Castle Hayne aquifer. A few wells also may tap the surficial aquifer. M - Montford Point, e - estimated, topo - land surface altitude estimated from topographic maps, AMSL - above mean sea level. This area also known as Mumford Point and Camp Johnson.]

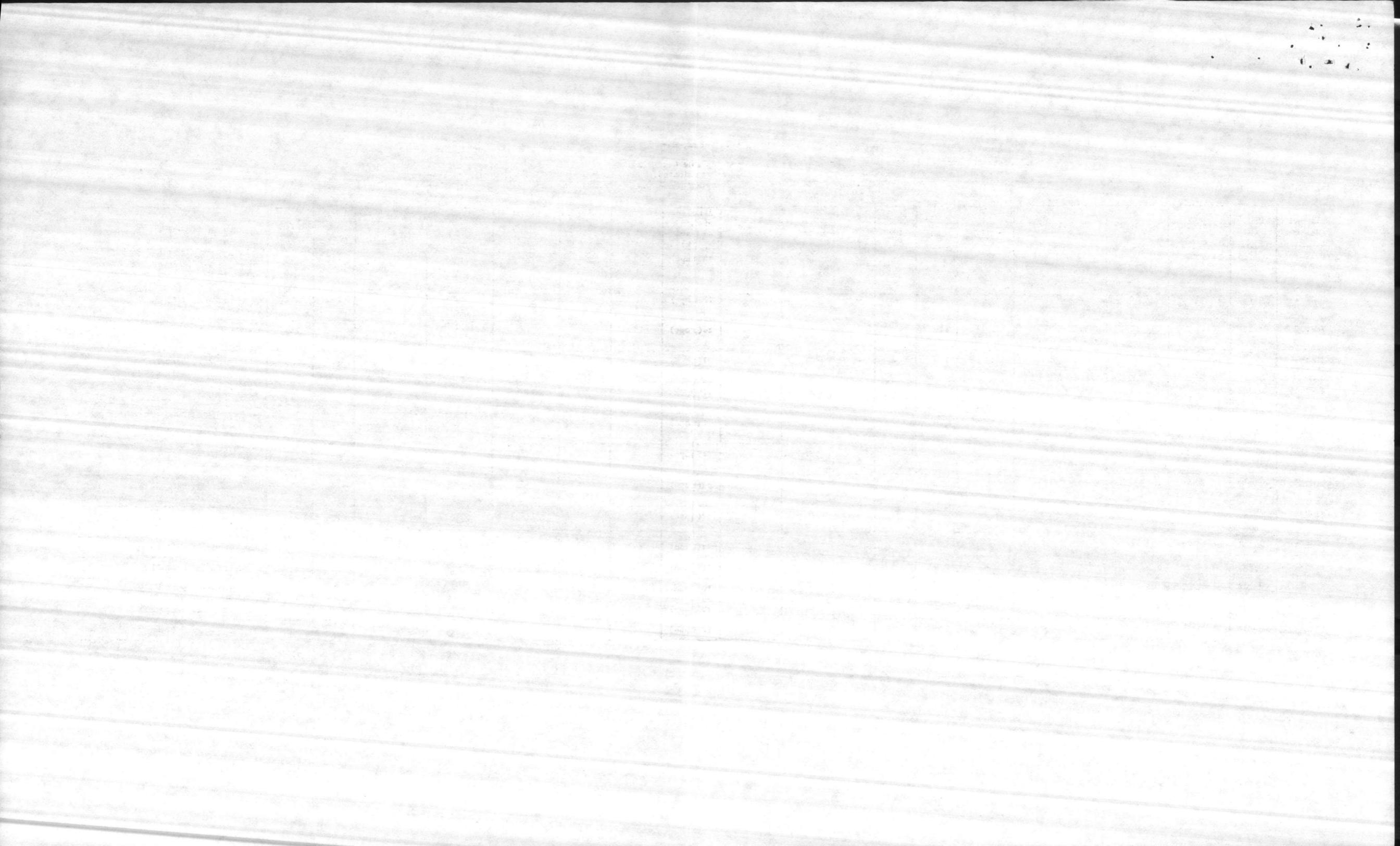
Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airline setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks
														Original static	January 1982		Orig.	1/1982	
															Non-pumping	Pumping			
M-142	On-136	34 43 47	077 24 30	-	1942	69	8	52	open hole	-	20.5	55	55	-	16 35; 7/1955 16; 1956 33.5; 7/1967	52	100	50	Shell rock. Also known as well Z-1
M-168	On-140	34 44 12	077 24 38	Heater Well Co.	1953	151	8	46	screen	46-61 76-86 137-142	19(topo)	70	70	11.4; 6/1953	27	54	100	75	Shell rock and sand
M-197	On-141	34 43 58	077 24 38	Carolina Well and Pump Company	1971	200	8	54	screen	54-64 76-92 124-129 136-145	20.6	70	70	-	32	66	155	119	Limestone and sand
M-628	On-139	34 44 10	077 24 17	-	-	67	-	-	-	-	15(topo)	55	60	-	24 7.4 AMSL, 1956	42	130	130	
M-629	On-198	34 43 47	077 24 50	Carolina Well and Pump Company	1975e	70	-	-	-	-	18(topo)	46	50	-	27	45	150	100	
M-630	On-199	34 43 56	077 24 57	Carolina Well and Pump Company	-	80	-	-	-	-	18(topo)	50	60	-	19 16.2; 4/1976	44	150	157	
M-243	On-137	34 43 42	077 24 49	-	-	-	-	-	-	-	22.5	-	-	24	25; 7/1967 18.7; 3/1978	-	-	-	1/1982 out of service. This well will be replaced by a new well.



Well data for Camp Geiger water system, Camp Lejeune Marine Base, Onslow County, N.C.

[All wells are located in flat areas, have turbine pumps and are completed in the Castle Hayne aquifer. A few wells also may tap the surficial aquifer. TC - Tent Camp, topo - land surface altitude estimated from topographic maps. Area also known as Tent Camp]

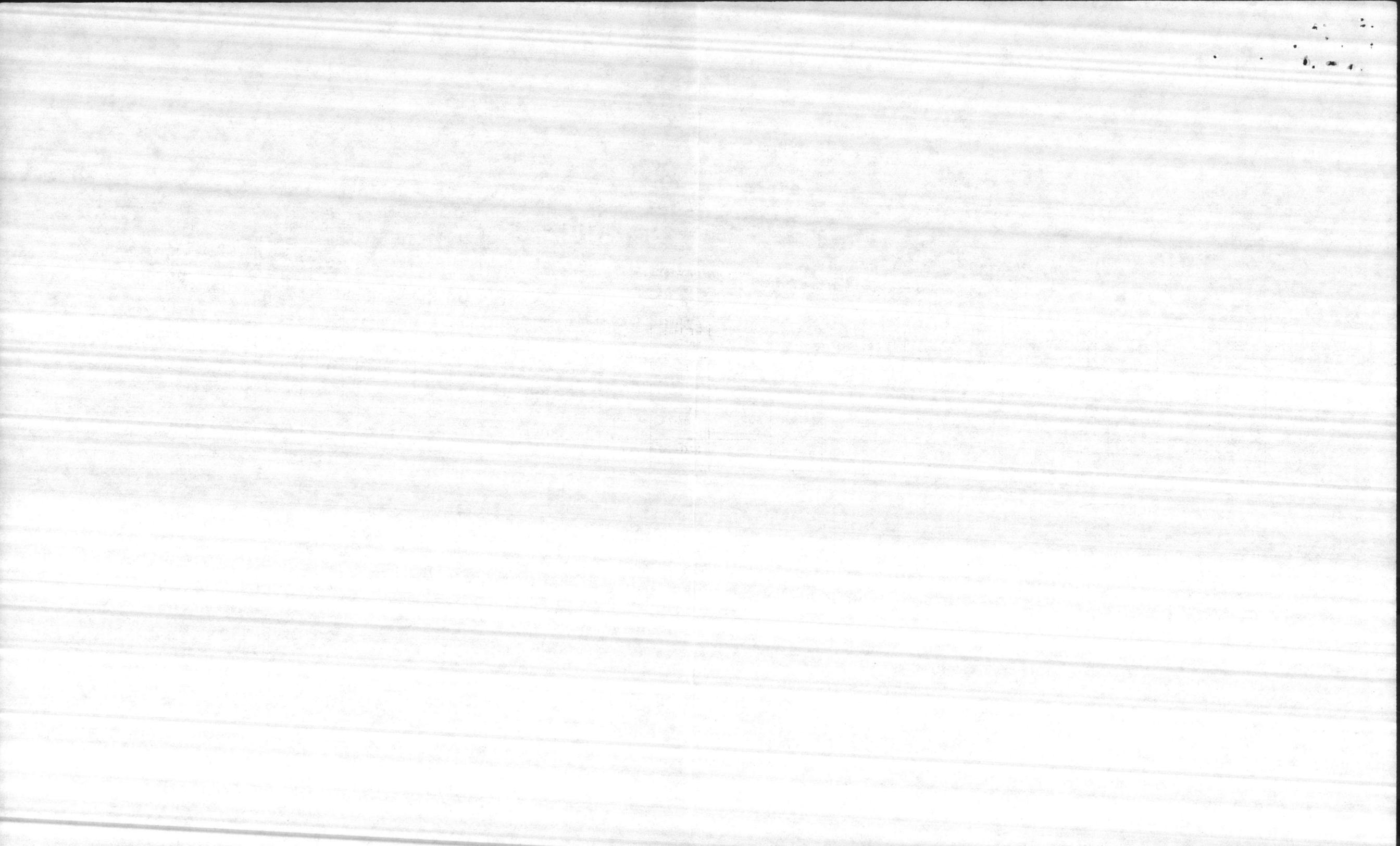
Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airline setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks
														Original static	January 1982		Orig.	1/1982	
															Non-pumping	Pumping			
TC-100	On-27	34 44 28	077 27 29	Layne Atlantic	1941	67	18	24	open hole	-	19.5	50	50	-	15	35	75	50	Also known as well B. Drawdown 24 ft at 65 gpm; 37 ft at 84 gpm.
TC-104	On-26	34 44 30	077 27 29	Virginia Machine and Well Co.	1941	182	10	107	open hole 107-182	-	18.4	-	-	14.4	-	-	-	-	Also known as well A. Drawdown 12 ft at 450 gpm; shell rock. Out of service 1-1982.
TC-201	On-200	34 43 28	077 28 31	Layne Atlantic	1941	68	8	46	gravel pack	46-66	37(topo)	50	50	9.25	48	50	150	150	Also known as well H. Hard rock with sand pockets. 1982, pump removed, broken shaft.
TC-202	On-201	34 44 12	077 27 55.1	-	1942	-	-	-	-	-	20.9	-	-	4	5; 1959	-	-	-	Will be replaced by TC 325
TC-325	On-202	34 44 12	077 27 55.2	-	-	-	-	-	-	-	21(topo)	-	-	-	-	-	-	-	1-1982, under contract, not complete. Replaces TC 202.
TC-502	On-36	34 44 07	077 27 28	Virginia Machine and Well Co.	1941	184	10	110	open hole 110-184	-	20.3	-	-	3.5	26	-	-	400	Also known as well D. Drawdown 26 ft at 400 gpm. 1-1982, pump needs repair.
TC-504	On-203	34 44 09	077 28 04	Layne Atlantic	1942	113	8	50	gravel pack	50-60 75-85	22(topo)	80	75	3	-	-	250	-	Also known as well J. Shell rock and sand.
TC-600	On-37	34 44 05	077 27 28	Layne Atlantic	1941	70	8	48	gravel pack	48-70	19.6	50	50	3.5	32 3.5; 1957	25	130	130	Also known as well E. Drawdown 24.1 ft at 130 gpm.
TC-604	On-204	34 44 00	077 28 11	Layne Atlantic	1942	113	8	45	screen	45-50 60-65 82-87 97-102 108-113	26.5	50	60	6.2	35 3.8; 1957 6; 1959	14	250	100	Also known as well K. White sand, coquina. 1982 water level values questionable. Readings may be reversed or not corrected for airline setting.
TC-700	On-38	34 43 56	077 27 27	-	1941	76	18	27.5	open hole 27.5-76	-	22.1	50	55	-	38	25	125	110	Also known as well F. Coquina. See remark about 1982 water levels for well TC 604.
TC-901	On-39	34 43 45	077 27 27	-	1941	77	8	46	screen	46-56 66-76	21.4	50	56	3.5	18 17.9; 1957	55	70	-	Also known as well G. Fine sand and coquina. 1-1982, out of service, pump in bottom of well, drawdown 27.4 ft at 100 gpm.
TC-1000	On-33	34 43 43	077 28 25	Layne Atlantic	1942	137	8	86	gravel pack	86-96 116-136	32.4	60	60	-	26 8; 1957	42	155	140	Also known as well L. Gray sand and coquina.
TC-1001	On-32	34 44 27	077 27 29	Layne Atlantic	1942	100	8	70	gravel pack	70-100	32.74	50	60	4.67	44	20	175	170	Also known as well M. Sand, rock coquina. See remark about 1982 water levels for well TC 604.



Well data for Marine Corps Air Station Water System, Camp Lejeune Marine Base, Onslow County, N.C.

[All wells are located in flat areas, have turbine pumps, and tap the Castle Hayne Aquifer. A few wells also may tap the surficial aquifer. MCAS - Marine Corps Air Station, TC - Tent Camp, e - estimated, topo - land surface altitude estimated from topographic maps. Area also known as Peters Point Field Glider Base; recently named New River Air Station.]

Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airline setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks
														Original static	January 1982		Orig.	1/1982	
Non-pumping	Pumping																		
MCAS-106	On-205	34 43 26	077 27 01	-	1954e	-	-	-	-	-	18(topo)	50	78	-	37	30	125	125	Also known as well 4. 1982 water level values questionable. Readings may be reversed or not corrected for airline setting.
MCAS-131	On-206	34 43 09	077 26 48	-	-	200	-	-	-	-	17(topo)	70	70	-	18 18; 3/1981	41	260	254	Also known as well 5
TC-190	On-207	34 43 17	077 27 37	Carolina Well and Pump Co.	1978e	180	-	-	screened	-	28(topo)	60	123	27.92; 4/1978	46	45	250	250	Also known as well 5. Also known as MCAS-190. See Remark about 1982 water levels for well MCAS-106.
TC-191	On-208	34 43 07	077 27 29	Carolina Well and Pump Co.	1977e	180	-	-	screened	-	27(topo)	60	117	-	42	44	250	250	Also known as well T
TC-1251	On-209	34 43 29	077 27 10	Carolina Well and Pump Co.	1975	240	-	-	screened	-	19(topo)	-	82	14.9; 7/1975	36	28	200	190	Also known as well R. See remark about 1982 water levels for well MCAS-106.
TC-1253	On-210	34 43 37	077 27 29	Carolina Well and Pump Co.	1975	250	-	-	screened	-	22(topo)	70	82	18.6; 8/1975	39	41	200	200	Also known as well Q. Out of service 1/1982; needs coupling.
TC-1254	On-211	34 43 29	077 27 36	Carolina Well and Pump Co.	1975	195	-	-	screened	-	27(topo)	-	82	-	20	33	200	180	Also known as well P
TC-1255	On-212	34 43 29	077 27 54	Carolina Well and Pump Co.	1975	250	-	-	screened	-	30(topo)	70	82	23.11 8/1975	20	53	200	175	Also known as well Ø
TC-1256	On-213	34 43 35	077 28 05	Carolina Well and Pump Co.	-	204	-	-	screened	-	29(topo)	60	82	25; 7/1975	17	60	200	200	Also known as well N
MCAS-4140	On-134	34 42 57	077 27 16	-	-	-	-	-	-	-	22(topo)	-	100	-	42	38	-	110	Also known as well 10
MCAS-4150	On-135	34 42 38	077 27 24	-	-	-	-	-	-	-	21(topo)	-	100	-	30	72	-	140	Also known as well 11
MCAS-5001	On-214	34 42 23	077 27 28	-	-	193	-	-	-	-	20(topo)	75	75	-	19	60	130	130	Also known as well 7
MCAS-5009	On-215	34 42 20	077 27 19	-	-	-	-	-	-	-	20(topo)	-	75	-	28	36	-	150	Also known as well 8
MCAS-203	On-216	34 43 23	077 26 53	-	-	173	-	-	-	-	17(topo)	60	77	9?	9	28	150	110	Also known as well 6



Well data for Rifle Range water sytem, Camp Lejeune Marine Base, Onslow County, N.C.

[All wells are located in flat areas, have turbine pumps, and are completed in the Castle Hayne aquifer. A few wells also may tap the surficial aquifer. RR - rifle range, e - estimated, topo - land surface altitude estimated from topographic maps.]

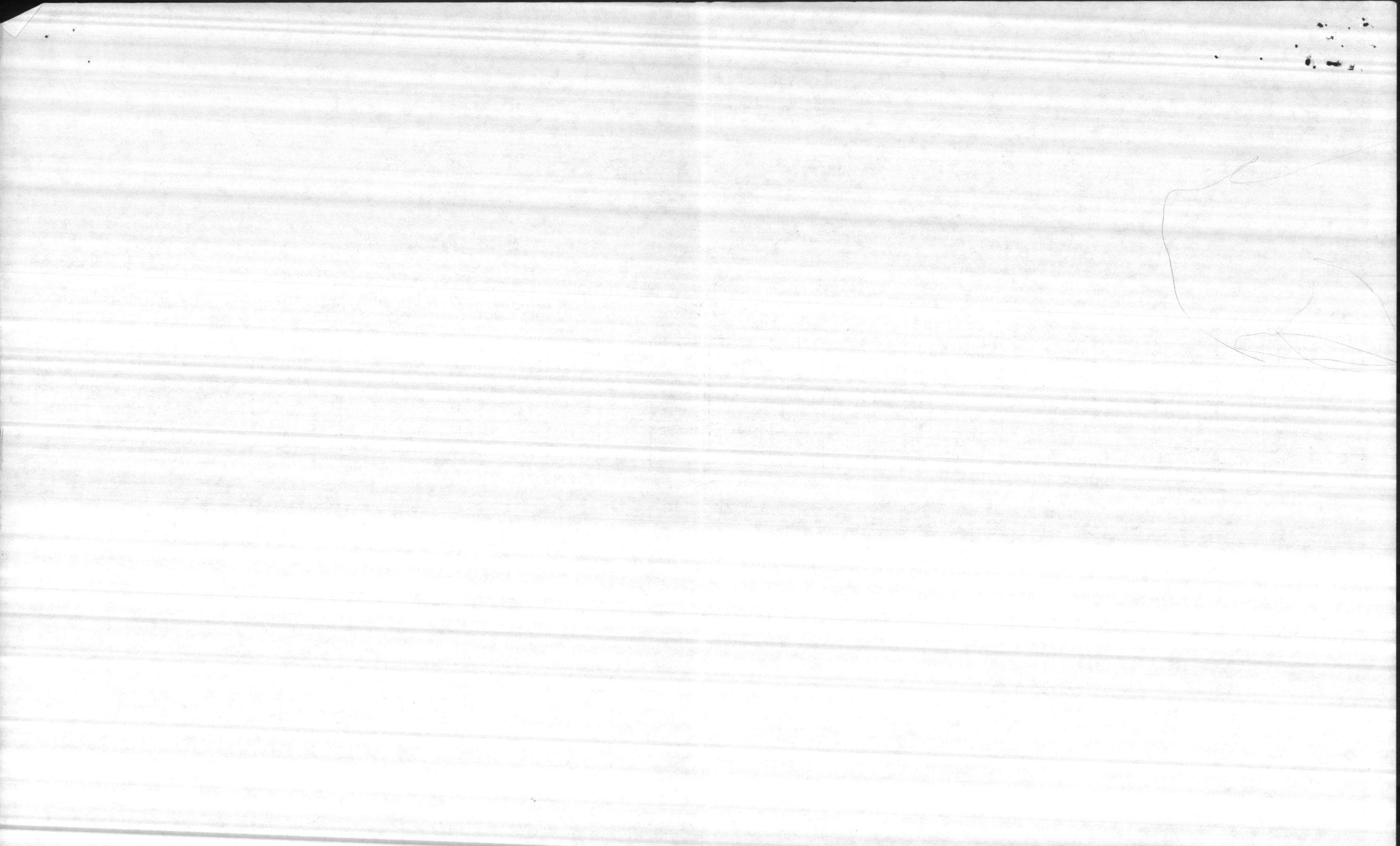
Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airlie setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks
														Original static	January 1982		Orig.	1/1982	
															Non-pumping	Pumping			
RR-45	On-105	34 35 20	077 26 58	Layne Atlantic	1942	130	8	75	gravel pack	75-80 90-95 105-115 125-130	54.7	90	90	-	54 56; 1957 50; 1963	62	150	135	Shell, rock, sand. Drawdown 32 ft at 150 gpm.
RR-47	On-217	34 35 38	077 26 59	-	1943e	85	8	71	gravel pack	71-81	49.8	65	70	-	57 44.5; 1944 44.5; 1957	62	250	250	Shell rock
RR-97	On-218	34 35 12	077 26 56	Carolina Well and Pump Co.	1977	200	-	-	-	-	51(topo)	80	88	-	52 46.6; 1978	66	150	140	Soft rock, limestone. Replaces RR-46. Used only for fires.



Well data for Court House Bay water system, Camp Lejeune Marine Base, Onslow County, N.C.

[All wells are located in flat areas, have turbine pumps, and are completed in the Castle Hayne Aquifer. A few wells also may top the surficial aquifer. BB - balloon barrage, A - Amphibian, e - estimated, topo - land surface altitude estimated from topographic maps.]

Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airline setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks
														Original static	January 1982		Orig.	1/1982	
															Non-pumping	Pumping			
A-5	On-107	34 35 30	077 22 34	Layne Atlantic	1942	116	8	46.5	gravel pack	46.5-61.5 101-116	12.71	-	-	8.26	4	14	355	150	Coquina and sand. Also known as well U. Drawdown 21 ft at 250 gpm; 39 ft at 450 gpm.
BB-43	On-109	34 34 55	077 21 48	Layne Atlantic	1942	60	8	30	gravel pack	30-60	13.1	40	60	6.16	15 7; 1957	22	175	119	Sand and coquina. Also known as well W. Drawdown 30 ft at 150 gpm.
BB-44	On-108	34 35 04	077 21 43	Layne Atlantic	1942	62	8	32	gravel pack	32-62	17.8	40	42	-	27 7.8; 1957	18	200	200	Soft shellrock and sand. Also known as well V. Drawdown 45 ft after 40 hrs at 460 gpm.
BB-220	On-219	34 35 14	077 21 36	Carolina Well and Pump Co.	1975e	150	-	55	gravel pack	55-70 85-95 130-145	37(topo)	51	51	-	38 36; 1981	45	150	104	Limestone
BB-221	On-220	34 35 22	077 21 22	Carolina Well and Pump Co.	-	200	-	60	-	60-80 135-155	40(topo)	51	54	-	54 51; 9/14/1981	66.5	300	224	Limestone and shellrock



Well data for Onslow Beach water system, Camp Lejeune Marine Base, Onslow County, N.C.

[All wells are located in flat areas, have turbine pumps, and are completed in the Castle Hayne Aquifer. A few also may tap the surficial aquifer. BA - Beach area, topo - land surface altitude estimated from topographic maps. Also known as mock up area.]

Well and Bldg. No.	USGS No.	Latitude	Longitude	Driller	Date drilled	Total depth (ft)	Diam. (in)	Cased to (ft)	Type of finish	Screened intervals (ft)	Altitude of land surface (ft)	Pump setting (ft)	Airline setting (ft)	Water levels (feet below land surface)			Pumping rate (gal/min.)		Remarks
														Original static	January 1982		Orig.	1/1982	
															Non-pumping	Pumping			
BA-164	On-221	34 34 51	077 17 04	-	-	110	-	-	-	-	18(topo)	45	50	-	37	16	275	275	1982 water level values questionable. Readings may be reversed or not corrected for airline setting. Repaired 1972.
BA-190	On-222	34 34 32	077 16 51	-	-	105	-	-	-	-	11(topo)	60	60	-	56	41	250	250	See remark about 1982 water levels for well BA-164.
BA-109	On-223	-	-	Carolina Well and Pump Co.	1977	-	-	62	screen	62-67 85-90	-	-	-	-	4; 1978	-	-	-	Destroyed

