

01.02-03/15/89-00224

6280/9
FAC

MAR 15 1989

Mr. H. Kirk Lucius, Chief
Site Investigation and Support Branch
Waste Management Division
U.S. Environmental Protection Agency, Region IV
345 Courtland Street
Atlanta, Georgia 30365

RE: SITE INVESTIGATION INFORMATION
MCAS, NEW RIVER

Dear Mr. Lucius:

We are forwarding information requested by your letter of December 20, 1988, and described in the Atlantic Division, Naval Facilities Engineering Command letter of February 17, 1989. Please contact Mr. Bob Alexander, (919) 451-3034, for additional information on this matter.

Sincerely,

T. J. DALZELL
Colonel, U. S. Marine Corps
Assistant Chief of Staff, Facilities
By direction of the Commanding General

Encl:

- (1) Topographic Map "New River" Scale 1:50,000
- (2) Onslow County Water Supply System distribution lines
- (3) Well logs of drinking water supply wells

Copy to:

CMC (LFL) (w/o encls)
CNO (OP-45) (w/o encls)
LANTDIV (Code 115)
NAVFAC (Code 181) (w/o encls)

Blind copy to:

IRP Record
EnvEngr (w/o encls)

NORTH CAROLINA 1:50,000

NEW



ENC: (1)

A
T
L
A
N
T

NEW RIVER INLET

7720'

3430'

773'

WATER SYSTEMS ON SLOW COUNT NORTH CAROLINA

PREPARED BY THE

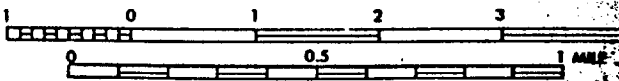
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - PLANNING AND RESEARCH BRANCH

IN COOPERATION WITH THE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

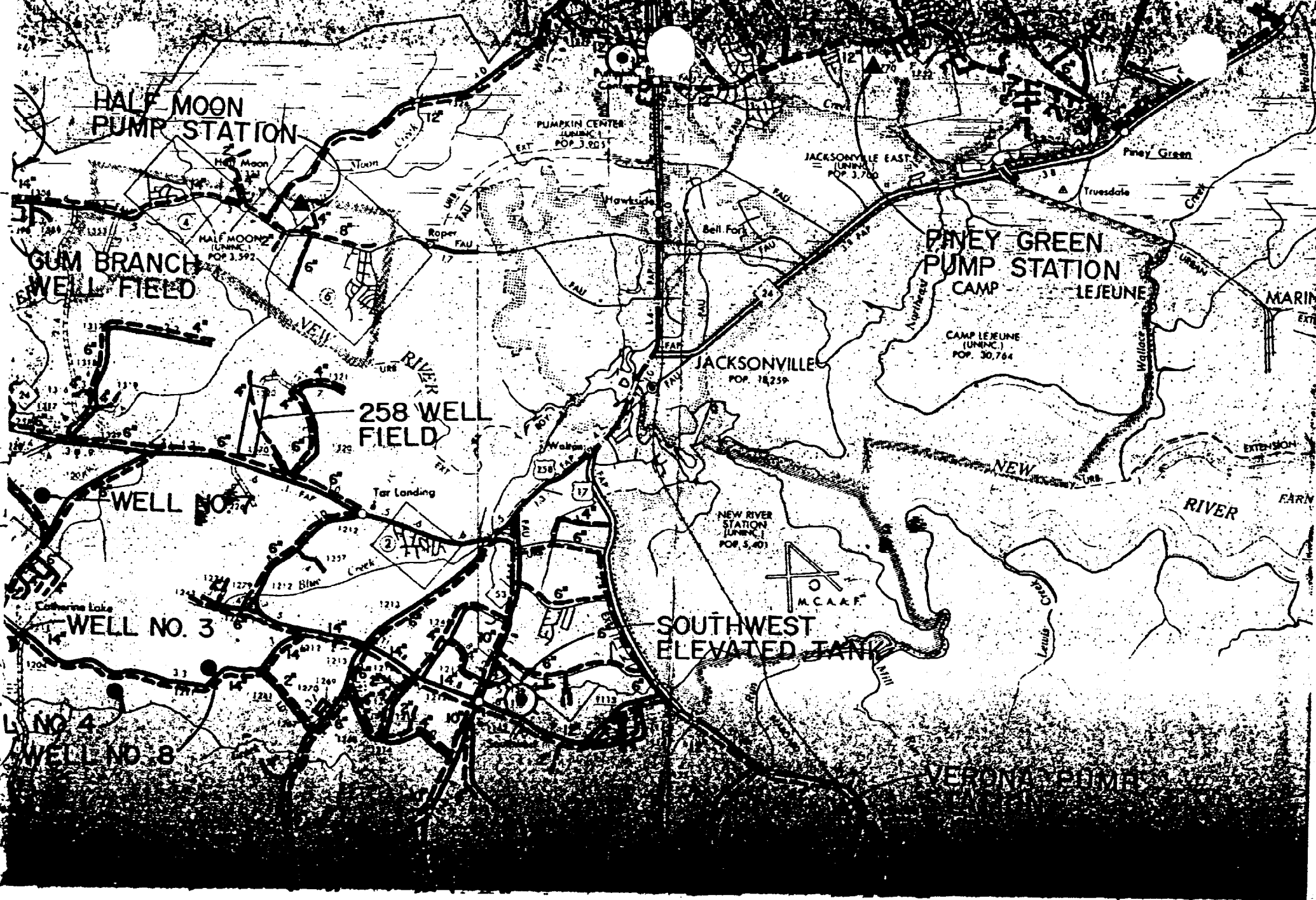
MAP INCLUDES ONLY STATE MAINTAINED ROADS
OR IMPORTANT NON-SYSTEM ROADS.
MILEAGE NOT SHOWN ON FRONTAGE ROADS.
ROADS SHOWN AS OF JAN. 1, 1984.

SCALE



SCALE FOR ENLARGEMENTS

ENCL: (2)



HALF MOON
PUMP STATION

GUM BRANCH
WELL FIELD

258 WELL
FIELD

WELL NO. 1

WELL NO. 3

WELL NO. 4
WELL NO. 8

PUMPKIN CENTER
(UNINC.)
POP. 3,805

JACKSONVILLE EAST
(UNINC.)
POP. 3,700

JACKSONVILLE
POP. 18,250

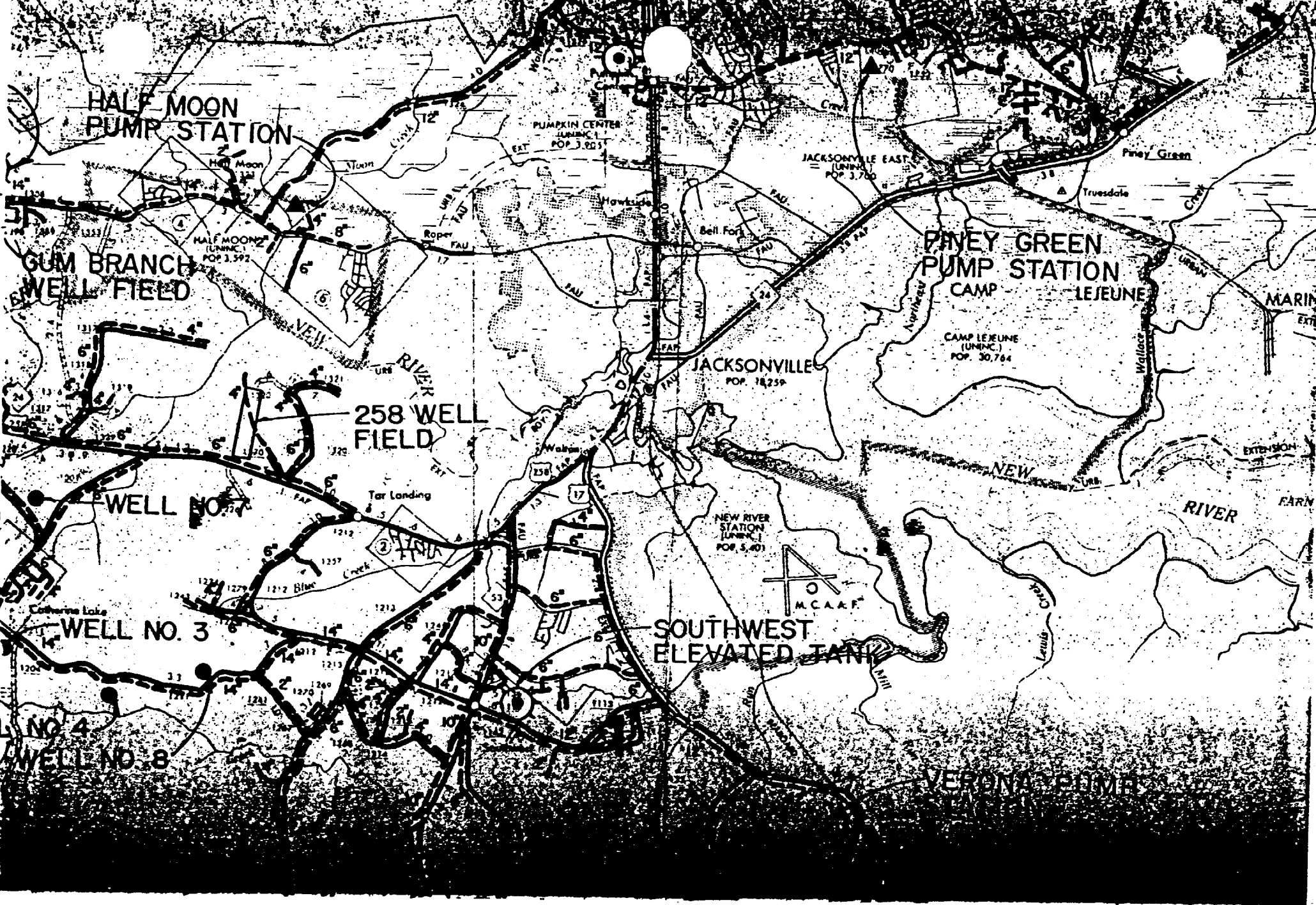
NEW RIVER
STATION
(UNINC.)
POP. 5,401

PINEY GREEN
PUMP STATION
CAMP LEJEUNE

CAMP LEJEUNE
(UNINC.)
POP. 30,764

SOUTHWEST
ELEVATED TANK

VERONA PUMP



WELL LOGS
OF
COMPLETED WATER SUPPLY WELLS

PROVIDED BY
NC DIVISION OF ENVIRONMENTAL MANAGEMENT
WILMINGTON, NORTH CAROLINA
REGIONAL OFFICE

NOTE: Well locations are not readily determined for mapping purposes.

Encl: (3)

NORTH CAROLINA DEPARTMENT OF WATER AND AIR RESOURCES
DIVISION OF GROUND WATER
BOX 9392 - RALEIGH, N. C.

WELL RECORD

Well A

Drilling Contractor HARTSFIELD WATER COMPANY, INC. Reg. No. 178 Well Permit No. 92

1. Town Camp Lejeune, North Carolina County Onslow
2. Location New River area near Jacksonville, N. C. Quadrangle No. _____

Show a sketch of location on back of form

3. Owner Marine Corp Air Facility
Address Camp Lejeune, N. C.

4. Topography: draw, slope, hilltop, valley, flat
Base Water

5. Use of Well Supply Date Completed 9/23/68

6. Rig type or method Rotary Total Depth 164

7. Casing: Depth _____ Diam. _____ Type _____
From _____ to _____ ft. _____ in. _____
See attached well drawing

8. Grout: Depth _____ Material _____ Method _____
From _____ to _____ ft. _____
See attached drillers log

9. Screen: Depth _____ Diam. _____ Type and opening _____
From _____ to _____ ft. _____ in. _____

11. Water Zones (depth) _____

12. Static Water Level: _____ ft. ^{above}/_{below} top of casing
which is _____ ft. above land surface.
Date See attached pumping test

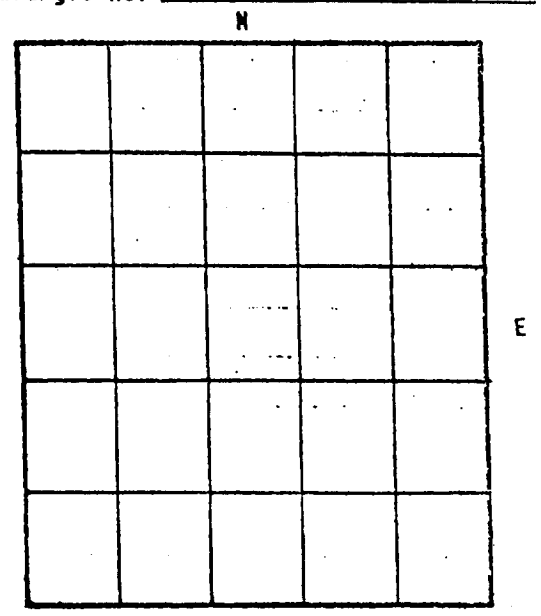
13. Yield (gpm) 133 Method of testing air

14. Pumping Water Level: _____ ft. after _____ hrs.
at _____ gpm.

15. Water Quality See attached water analysis Temperature (°F) _____

16. Well sterilization method H. T. H.

17. Remarks: _____



(place this sheet over correct square on map, match corners and circle a dot at well location.)

10. Permanent Pump:
Installed- Date _____
By _____
Type _____ Make _____
Capacity _____ (gpm) Hp. _____
Intake depth _____
Airline depth _____

PERMIT WELL

I do hereby certify that this well record is true and exact.

SIGNATURE OF CONTRACTOR OR AGENT

HARTSFIELD WATER COMPANY, Inc.

P. O. DRAWER 3109 - PH. 523-2154
 KINSTON, NORTH CAROLINA 28501
 Well #A

H-1

CUSTOMER: Allen Campbell Company

ADDRESS: Marine Corp Air Facility

TYPE OF FORMATION CLAY - SAND ROCK & ETC.	COLOR	RATE OF DRILLING HARD - SOFT JETTED & ETC.	SIZE OF GRAIN IF SAND	OTHER INFORMATION	THICKNESS	
					FROM	TO
Topsoil	Black	Soft			0	2
Clay	Gray	Soft			2	10
Clay	Gray	Soft			10	19
Clay & Sand	Gray	Soft	MF		19	29
Sand & Shell	Gray	Soft	MF		29	39
Sand & Shell	Gray	Soft	MF		39	49
Sand & Shell	Gray	Soft	MF	Rock at 56'	49	59
Clay & Shell	Gray	Med. Soft		Some Sand	59	69
Clay & Shell	Gray	Med. Soft		Some Sand	69	79
Clay & Shell	Gray	Med. Soft			79	89
Clay & Shell	Gray	Med. Soft		Soft at Bottom	89	99
Clay	Gray	Soft		Some shell	99	109
Clay	Gray	Soft		Some Shell	109	119
Clay	Gray	Soft			119	129
Sand	Gray	Soft			129	133
Shell & Rock	White	Med. Soft	F	Some Sand	133	139
Sand & Shell	Gray	Tight	F	Lots of Sand	139	149
Sand & Shell	Gray	Tight	F	Lots of Sand	149	159
Sand & Shell	Gray	Tight	F	Hard rock at bottom	159	167

PERMIT WELL

B: 4 2000

WELL RECORD

NORTH CAROLINA DEPARTMENT OF WATER AND AIR RESOURCES
DIVISION OF GROUND WATER
BOX 9392 - RALEIGH, N. C.

ON 1069
Well A

Drilling Contractor HARTSFIELD WATER COMPANY, INC. Reg. No. 178 Well Permit No. 92

1. Town Camp Lejeune, North Carolina County Onslow
2. Location New River area near Jacksonville, N. C. Quadrangle No. X-25
Show a sketch of location on back of form

3. Owner Marine Corp Air Facility
Address Camp Lejeune, N. C.

4. Topography: draw, slope, hilltop, valley, flat
5. Use of Well Supply Date Completed 9/23/68

6. Rig type or method Rotary Total Depth 164

7. Casing: Depth Diam. Type
From _____ to _____ ft. _____ in. _____
See attached well drawing

8. Grout: Depth Material Method
From _____ to _____ ft. _____
See attached drillers log

Screen: Depth Diam. Type and opening
From _____ to _____ ft. _____ in. _____

9. Water Zones (depth) _____

12. Static Water Level: _____ ft. ^{above}/_{below} top of casing
which is _____ ft. above land surface.
Date See attached pumping test

13. Yield (gpm) 133 Method of testing air

14. Pumping Water Level: _____ ft. after _____ hrs.
at _____ gpm.

15. Water Quality See attached water analysis Temperature (°F) _____

16. Well sterilization method H. T. H.

17. Remarks: _____
PERMIT WELL

34	40	00		
77	25	00		

(place this sheet over correct square on map, match corners and circle a dot at well location.)

10. Permanent Pump:
Installed- Date _____
By _____
Type _____ Make _____
Capacity _____ (gpm) Hp. _____
Intake depth _____
Airline depth _____

I do hereby certify that this well record is true and exact.

SIGNATURE OF CONTRACTOR OR AGENT

X-25

2-

HARTSFIELD WATER COMPANY, INC.
P. O. DRAWER 3109 - PH. 523-2154
KINSTON, NORTH CAROLINA 28501
Well #A

~~011 1035~~

H-1

CUSTOMER: Allen Campbell Company

ADDRESS: Marine Corp Air Facility

TYPE OF FORMATION CLAY - SAND ROCK & ETC.	COLOR	RATE OF DRILLING HARD - SOFT JETTED & ETC.	SIZE OF GRAIN IF SAND	OTHER INFORMATION	THICKNESS	
					FROM	TO
Topsoil	Black	Soft			0	2
Clay	Gray	Soft			2	10
Clay	Gray	Soft			10	19
Clay & Sand	Gray	Soft	MF		19	29
Sand & Shell	Gray	Soft	MF		29	39
Sand & Shell	Gray	Soft	MF		39	49
Sand & Shell	Gray	Soft	MF	Rock at 56'	49	59
Clay & Shell	Gray	Med. Soft		Some Sand	59	69
Clay & Shell	Gray	Med. Soft		Some Sand	69	79
Clay & Shell	Gray	Med. Soft			79	89
Clay & Shell	Gray	Med. Soft		Soft at Bottom	89	99
Clay	Gray	Soft		Some shell	99	109
Clay	Gray	Soft		Some Shell	109	119
Clay	Gray	Soft			119	129
Sand	Gray	Soft			129	133
Shell & Rock	White	Med. Soft	F	Some Sand	133	139
Sand & Shell	Gray	Tight	F	Lots of Sand	139	149
Sand & Shell	Gray	Tight	F	Lots of Sand	149	159
Sand & Shell	Gray	Tight	F	Hard rock at bottom	159	167

PERMIT WELL

WELL RECORD

NORTH CAROLINA DEPARTMENT OF WATER AND AIR RESOURCES
DIVISION OF GROUND WATER
BOX 9392 - RALEIGH, N. C.

Well B

Drilling Contractor HARTSFIELD WATER COMPANY, INC. Reg. No. 178 Well Permit No. 93

1. Town Camp Lejeune, North Carolina
2. Location New River area near Jacksonville, North Carolina

County Onslow

Show a sketch of location on back of form

3. Owner Marine Corp Air Facility
Address Camp Lejeune, North Carolina

4. Topography: draw, slope, hilltop, valley, flat

5. Use of Well Base Water Supply Completed 10/4/68

6. Rig type or method Rotary Total Depth 168

7. Casing: Depth Diam. Type
From to ft. in.
See attached well drawing

8. Grout: Depth Material Method
From to ft.
See attached Drillers log

9. Screen: Depth Diam. Type and opening
From to ft. in.

11. Water Zones (depth)

12. Static Water Level: ft. above/below top of casing
which is ft. above land surface.
Date See attached pumping test

13. Yield (gpm) 133 Method of testing Air

14. Pumping Water Level: ft. after hrs.
at gpm.

15. Water Quality See attached water analysis Temperature (°F)

16. Well sterilization method H. T. H.

17. Remarks:

Grid for map location with W, E, N, S labels

(place this sheet over correct square on map, match corners and circle a dot at well location.)

10. Permanent Pump:
Installed- Date
By
Type Make
Capacity (gpm) Hp.
Intake depth
Airline depth

PERMIT WELL

I do hereby certify that this well record is true and exact.

SIGNATURE OF CONTRACTOR OR AGENT

B.11 Jala

WELL RECORD

NORTH CAROLINA DEPARTMENT OF WATER AND AIR RESOURCES
DIVISION OF GROUND WATER
BOX 9392 - RALEIGH, N. C.

ON 1068
Well B

Drilling Contractor HARTSFIELD WATER COMPANY, INC. Reg. No. 178 Well Permit No. 93

1. Town Camp Lejeune, North Carolina
2. Location New River area near Jacksonville, North Carolina
Show a sketch of location on back of form

County Onslow
Quadrangle No. X-25

3. Owner Marine Corp Air Facility
Address Camp Lejeune, North Carolina

34	40	00		
77	25	00		

4. Topography: draw, slope, hilltop, valley, flat
5. Use of Well Base Water Supply Completed 10/4/68

6. Rig type or method Rotary Total Depth 168

7. Casing: Depth Diam. Type
From _____ to _____ ft. _____ in. _____
See attached well drawing

8. Grout: Depth Material Method
From _____ to _____ ft. _____
See attached Drillers log

Screen: Depth Diam. Type and opening
From _____ to _____ ft. _____ in. _____

9. Water Zones (depth) _____

12. Static Water Level: _____ ft. above
below top of casing
which is _____ ft. above land surface.
Date See attached pumping test

13. Yield (gpm) 133 Method of testing Air

14. Pumping Water Level: _____ ft. after _____ hrs.
at _____ gpm.

15. Water Quality See attached water analysis Temperature (°F) _____

16. Well sterilization method H. T. H.

17. Remarks: _____

10. Permanent Pump:
Installed- Date _____
By _____
Type _____ Make _____
Capacity _____ (gpm) Hp. _____
Intake depth _____
Airline depth _____

(place this sheet over correct square on map, match corners and circle a dot at well location.)

PERMIT WELL

I do hereby certify that this well record is true and exact.

SIGNATURE OF CONTRACTOR OR AGENT

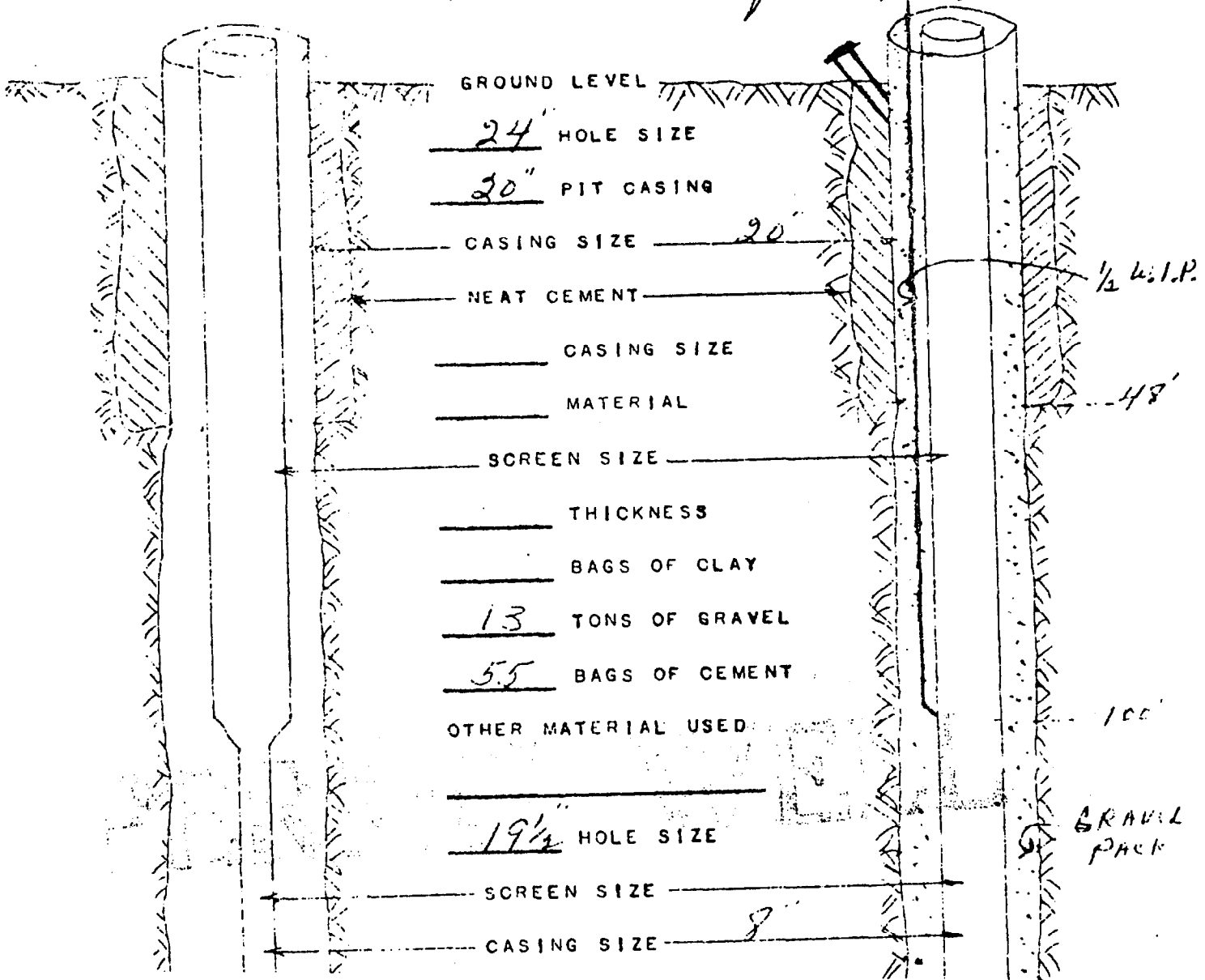
WELL DRAWING & MATERIALS LIST

HARTSFIELD WATER COMPANY, INC.
P. O. DRAWER 309 - PH. 523-2154
KINSTON, NORTH CAROLINA 28501

CUSTOMER: Allen Campbell Company WELL No. B

ADDRESS: Contract No. 4-38179 - Helicopter Training Facility

WELL LOCATION: Marine Corp. Air Facility - Camp Lejeune N.C.



NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES & COMMUNITY DEVELOPMENT
WELL RECORD DIVISION OF ENVIRONMENTAL MANAGEMENT

0N1421

P. O. Box 27687 - RALEIGH, N.C. 27611 919-733-2020

DRILLING CONTRACTOR Carolina Well & Pump REG. NO. 136 WELL CONSTRUCTION PERMIT NO. 66 0135W 001

Company, Inc.

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: Jacksonville, N.C. County: Onslow
Camp Geiger Quadrangle No. Camp Geiger X25C
(Road, Community or Subdivision and Lot No.)

2. OWNER: Camp LeJeune TC 325 DRILLING LOG 344417
772754

3. ADDRESS: Jacksonville, N.C.

4. TOPOGRAPHY: draw, valley, slope, hilltop, flat (circle one)

5. USE OF WELL: Base use DATE: 9/14/81

6. DOES THIS WELL REPLACE AN EXISTING WELL? yes

7. TOTAL DEPTH: 150 RIG TYPE OR METHOD: Rotary

8. FORMATION SAMPLES COLLECTED: YES X NO

9. CASING: Depth Inside Dia. Wall thick. type

From 0 to 40 ft 17 1/4 3/8 Steel 38 70 Rock

+ 1 45 8 #40 Steel 70 125 Clay "Soft"

70 125 8 #40 Steel 125 151 Rock

10. GROUT: 140 Depth 150 Material #40 Method Steel 151 165 Rock-Hard

From 0 to 40 ft Cement Pumped 165 175 Rock

175 200 Clay

11. SCREEN: Depth Dia. Type & Opening

From 45 to 70 ft 8 S.S. 30 Slot

125 140 8 S.S. 30 Slot

LOCATION SKETCH
(Show distance to numbered roads, or other map reference points)

12. GRAVEL: Depth Size Material

From 0 to 160 ft 1/4-1/8 Coarse Sand

13. WATER ZONES (depth): as screen

14. STATIC WATER LEVEL: 15 ft above below top of casing

Casing is 1 ft. above land surface ELEV: 120

15. YIELD (gpm): 178 METHOD OF TESTING: pump

16. PUMPING WATER LEVEL: 30 ft.

after 24 hours at 178 gpm.

17. CHLORINATION: Type H.T.H. Amount 2 lbs.

18. WATER QUALITY: TEMPERATURE (°F)

19. PERMANENT PUMP: Date Installed

Type turbine Capacity 150 (gpm) HP

Make Intake Depth

Airline Depth

20. HAS THE OWNER BEEN PROVIDED A COPY OF THIS RECORD AND INFORMED OF THE DEPARTMENTS REQUIREMENTS AND RECOMMENDATIONS?

21. REMARKS

I do hereby certify that this well was constructed in accordance with N.C. Well Construction Regulations and Standards and that this well record is true and exact.

SIGNATURE OF CONTRACTOR OF AGENT DATE

Submit original to Division of Environmental Management and copy to well owner

WELL COMPLETION REPORT

R City of Jacksonville WELL NO. 16

ADDRESS 21111 Johnson Blvd. Jacksonville N.C. 28540 DRILLER C. Mitchell, J. Mitchell

JOB Municipal Well JOB NO. 58140

COUNTY (JOB) Onslow RIG NO. 68 TYPE Rotary

STATE (JOB) North Carolina DATE START 7-25-85 DATE COMPLETE 9-30-85

WELL LOCATION: 130' South-West of Rt. 1308 (Gum Branch Road)
.5 Miles North-West of Rt. 1314

USGS QUADRANGLE _____ ELEVATION _____ FT. ABOVE M.S.L.

DESCRIPTION: SAND WELL (x) ROCK WELL () SAND & ROCK WELL ()

TOTAL DEPTH 820 FT. NOMINAL DIAMETER _____ IN. ZERO FROM _____

HOLE: _____ DIA. TO _____ FT: _____ DIA. TO _____ FT: _____ DIA. TO _____ FT.

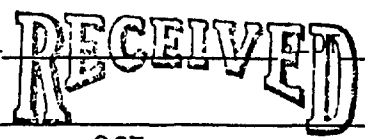
CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____

CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____

CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____

SCREENS _____ IN. _____ D MFG. _____ MATERIAL _____ IN.

SCREEN LOCATION (S): _____



OCT 11 1985

GRAVEL _____ TONS _____ BAGS _____ SIZE _____ EFF. _____ GROUNDWATER SECTION IN. U.C. _____ WILMINGTON REGIONAL OFFICE

SHOES, VALVES, BASKETS, ETC. _____

STATE TYPE: CLASS II-B () II-A () I () DOMESTIC () OTHER ()

CHEMICAL ANALYSIS (-) ELECTRIC LOG () CORE SAMPLES FROM _____ TO _____

TEST DATA: TURBINE () SUBMERSIBLE () PISTON () AIR () JET () BAILER ()

PUMP INTAKE _____ FT. STATIC LEVEL _____ FT. BELOW _____

PUMP STARTED _____ (DATE) _____ (TIME) METERING DEVICE _____

TOTAL HRS. PUMPED _____ FINAL CAPACITY _____ GPM @ _____ FT. Q/S _____

REMARKS: _____

DEPTH (FEET)
FROM TO

FORMATION DESCRIPTION
(Granite, Limestone, Sand, Gravel, Etc.)

REMARKS

DEPTH (FEET) FROM	TO	FORMATION DESCRIPTION (Granite, Limestone, Sand, Gravel, Etc.)	REMARKS
0	1	top soil	
1	9	gray, yellow clay	
9	20	light gray sand clay	
20	23	sticky blue clay	
23	28	shell rock	
28	39	white soft sandy clay	
39	42	hard shell rock	
42	52	soft shell rock	
52	55	hard shell rock	
55	60	shell rock	
60	70	blue silty marl	
70	100	fine white hard sand	
100	112	silty blue clay	
112	137	gray clay with shell and rock streaks	
137	140	shell rock	
140	141	gray clay	
141	144	shell rock	
144	146	gray clay	
146	190	shell rock, hard and soft streaks	
190	210	blue clay and shell	
210	245	gray clay and fine sand	
245	260	tough gray clay	
260	280	sandy gray clay	
280	332	gray sand	
332	334	hard shell rock	
334	336	fine sand	
336	338	hard shell rock	
338	354	gray clay	

RECEIVED

OCT 11 1985

GROUNDWATER SECTION
WILMINGTON REGIONAL OFFICE

City of Jacksonville
 Jacksonville, NC
 Onslow County
 Synon Well #2
 Job # 58140-7
 Proposed Construction
 Well # 16

9-30-85
 Rig 68

Drilled by

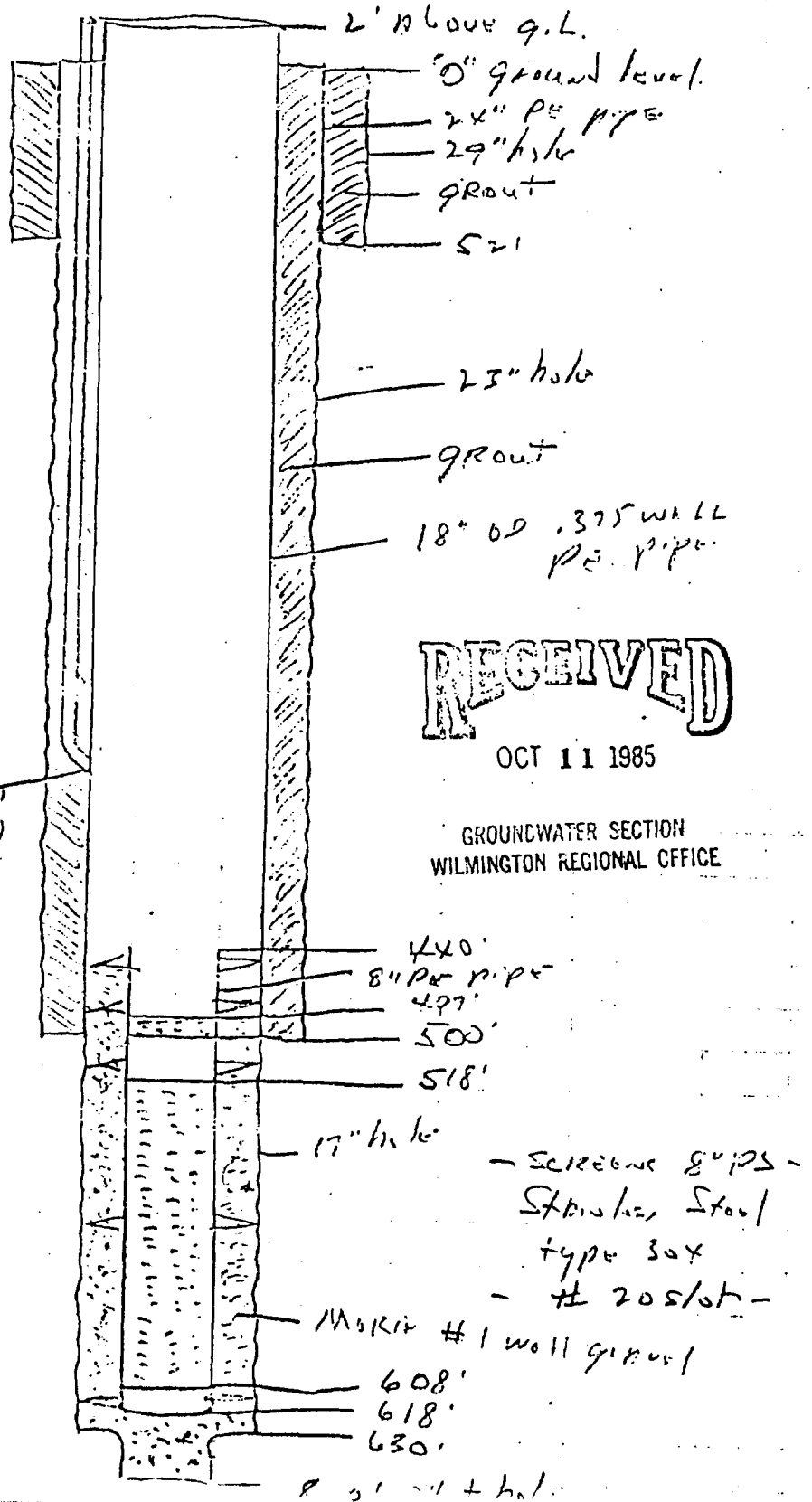
Synon Hydrodynamics, Inc
 P.O. Box 27184
 Richmond, VA 23261

Drillers

Charles Mitchell
 John Mitchell

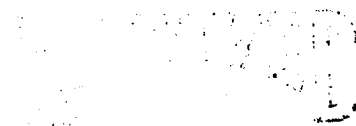
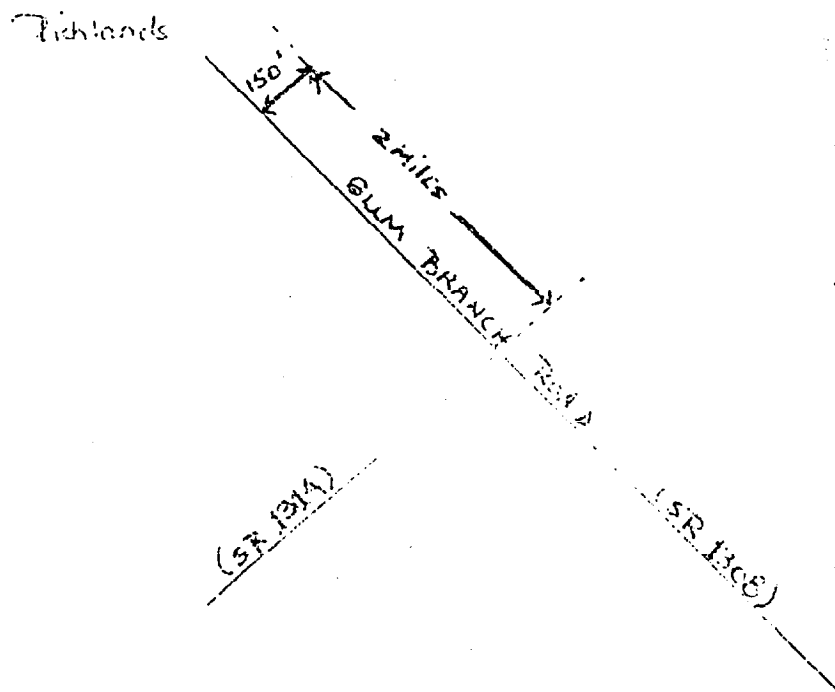
350'
 1" HW
 Water
 Level
 Tube

No Scale - Not to Scale



WELL HEAD COMPLETION: Draw a sketch of the well head showing casing, pump piping, seals, vents, access port, grout, and enclosure.

WELL LOCATION: Draw a location sketch showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.



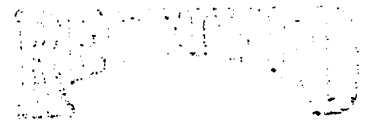
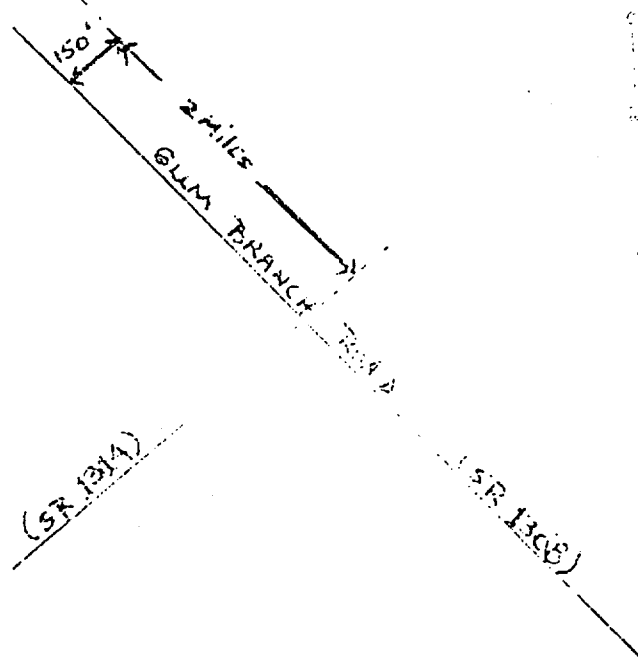
NOV 13 1967

GROUNDEWATER SECTION
FREDERICKSON REGIONAL OFFICE

WELL HEAD COMPLETION: Draw a sketch of the well head showing casing, pump piping, seals, vents, access port, grout, and enclosure.

WELL LOCATION: Draw a location sketch showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.

Picklands



APR 13 1987

GROUNDWATER SECTION
WILMINGTON REGIONAL OFFICE

SYDNOR

DRODYNAMICS... INC.

WELL COMPLETION REPORT

OWNER CITY OF JACKSONVILLE, N.C. WELL NO. #17
ADDRESS P.O. BOX 123, JACKSONVILLE, NC 28511 DRILLER RYLAND BROOKEN
JOB MUNICIPAL JOB NO. #59875-7
COUNTY (JOB) ONSLow COUNTY RIG NO. 64 TYPE ROTARY
STATE (JOB) NORTH CAROLINA DATE START 1-5-87 DATE COMPLETE 3-16-87

WELL LOCATION: 150' NORTHEAST OF GUM BRANCH ROAD
2 MILES WEST OF ROUTE 1314

USGS QUADRANGLE _____ ELEVATION _____ FT. ABOVE M.S.L.

DESCRIPTION: SAND WELL (X) ROCK WELL () SAND & ROCK WELL ()

TOTAL DEPTH 600 FT. NOMINAL DIAMETER 18 IN. ZERO FROM _____

HOLE: _____ DIA. TO _____ FT: _____ DIA. TO _____ FT: _____ DIA. TO _____ FT.

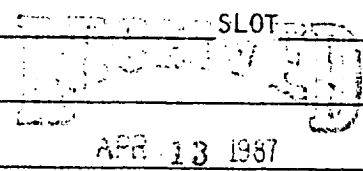
CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____

CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____

CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____

SCREENS _____ IN. _____ D MFG. _____ MATERIAL _____ SLOT _____ IN.

SCREEN LOCATION (S): _____



GRAVEL _____ TONS _____ BAGS _____ SIZE _____ EFF. SIZE _____ IN. U.C. _____

SHOES, VALVES, BASKETS, ETC. _____

STATE TYPE: CLASS II-B () II-A () I () DOMESTIC () OTHER ()

CHEMICAL ANALYSIS () ELECTRIC LOG () CORE SAMPLES FROM _____ TO _____

TEST DATA: TURBINE () SUBMERSIBLE () PISTON () AIR () JET () BAILER ()

PUMP INTAKE _____ FT. STATIC LEVEL _____ FT. BELOW _____

PUMP STARTED _____ (DATE) _____ (TIME) METERING DEVICE _____

TOTAL HRS. PUMPED _____ FINAL CAPACITY _____ GPM @ _____ FT. Q/S _____

REMARKS: _____

SYDNOR

HYDRODYNAMICS... INC.

WELL COMPLETION REPORT

OWNER CITY OF JACKSONVILLE, N.C. WELL NO. #17
 ADDRESS P.O. BOX 123, JACKSONVILLE, NC 28541 DRILLER RYLAND BROOKEN
 JOB MUNICIPAL JOB NO. #59875-7
 COUNTY (JOB) ONslow COUNTY RIG NO. 64 TYPE ROTARY
 STATE (JOB) NORTH CAROLINA DATE START 1-5-87 DATE COMPLETE 3-16-87

WELL LOCATION: 1.50' NORTHEAST OF GUM BRANCH ROAD
2 MILES WEST OF ROUTE 1314

USGS QUADRANGLE _____ ELEVATION _____ FT. ABOVE M.S.L.

DESCRIPTION: SAND WELL (X) ROCK WELL () SAND & ROCK WELL ()
 TOTAL DEPTH 600 FT. NOMINAL DIAMETER 18 IN. ZERO FROM _____
 HOLE: _____ DIA. TO _____ FT: _____ DIA. TO _____ FT: _____ DIA. TO _____ FT.
 CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____
 CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____
 CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____
 SCREENS _____ IN. _____ D MFG. _____ MATERIAL _____ SLOT _____ IN.
 SCREEN LOCATION (S): _____

APR 13 1987
 WILMINGTON REGIONAL OFFICE

GRAVEL _____ TONS _____ BAGS _____ SIZE _____ EFF. SIZE _____ IN. U.C. _____
 SHOES, VALVES, BASKETS, ETC. _____

STATE TYPE: CLASS 11-B () 11-A () 1 () DOMESTIC () OTHER ()
 CHEMICAL ANALYSIS () ELECTRIC LOG () CORE SAMPLES FROM _____ TO _____

TEST DATA: TURBINE () SUBMERSIBLE () PISTON () AIR () JET () BAILER ()
 PUMP INTAKE _____ FT. STATIC LEVEL _____ FT. BELOW _____
 PUMP STARTED _____ (DATE) _____ (TIME) METERING DEVICE _____
 TOTAL HRS. PUMPED _____ FINAL CAPACITY _____ GPM @ _____ FT. Q/S _____

REMARKS: _____

DEPTH (FEET)		FORMATION DESCRIPTION	REMARKS
FROM	TO	(Granite, Limestone, Sand, Gravel, Etc.)	
0	10	RED & WHITE SANDY CLAY	
10	51	GRAY CLAY AND GRAVEL	
51	59	HARD ROCK	
59	80	GRAY CLAY MIXED WITH SHELLS	
80	90	SAND AND SHELL	
90	91	HARD ROCK	
91	100	GRAY CLAY AND SHELLS	
100	109	SAND AND SHELL	
109	110	ROCK	
110	129	SANDY, GRAY CLAY	
129	131	ROCK	
131	132	SANDY, GRAY CLAY	
132	136	HARD ROCK	
136	140	SAND	
140	150	HARD ROCK AND SAND STREAMS	
160	170	GRAY CLAY	
170	171	HARD ROCK	
171	172	GRAY CLAY	
172	173	HARD ROCK	
173	220	SANDY, GRAY CLAY	
220	240	GRAY CLAY	
240	260	SANDY, GRAY CLAY	
260	264	HARD ROCK	
264	276	BLACK AND WHITE SAND	
276	278	HARD ROCK	
278	319	SAND MIXED WITH CLAY	
319	321	HARD ROCK	
321	323	SAND	

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WILMINGTON REGIONAL OFFICE

DEPTH (FEET)		FORMATION DESCRIPTION (Granite, Limestone, Sand, Gravel, Etc.)	REMARKS
FROM	TO		
0	10	RED & WHITE SANDY CLAY	
10	51	GRAY CLAY AND GRAVEL	
51	59	HARD ROCK	
59	80	GRAY CLAY MIXED WITH SHELLS	
80	90	SAND AND SHELL	
90	91	HARD ROCK	
91	100	GRAY CLAY AND SHELLS	
100	109	SAND AND SHELL	
109	110	ROCK	
110	129	SANDY, GRAY CLAY	
129	131	ROCK	
131	132	SANDY, GRAY CLAY	
132	136	HARD ROCK	
136	140	SAND	
140	150	HARD ROCK AND SAND STREAMS	
160	170	GRAY CLAY	
170	171	HARD ROCK	
171	172	GRAY CLAY	
172	173	HARD ROCK	
173	220	SANDY, GRAY CLAY	
220	240	GRAY CLAY	
240	260	SANDY, GRAY CLAY	
260	264	HARD ROCK	
264	276	BLACK AND WHITE SAND	
276	278	HARD ROCK	
278	319	SAND MIXED WITH CLAY	
319	321	HARD ROCK	
321	323	SAND	

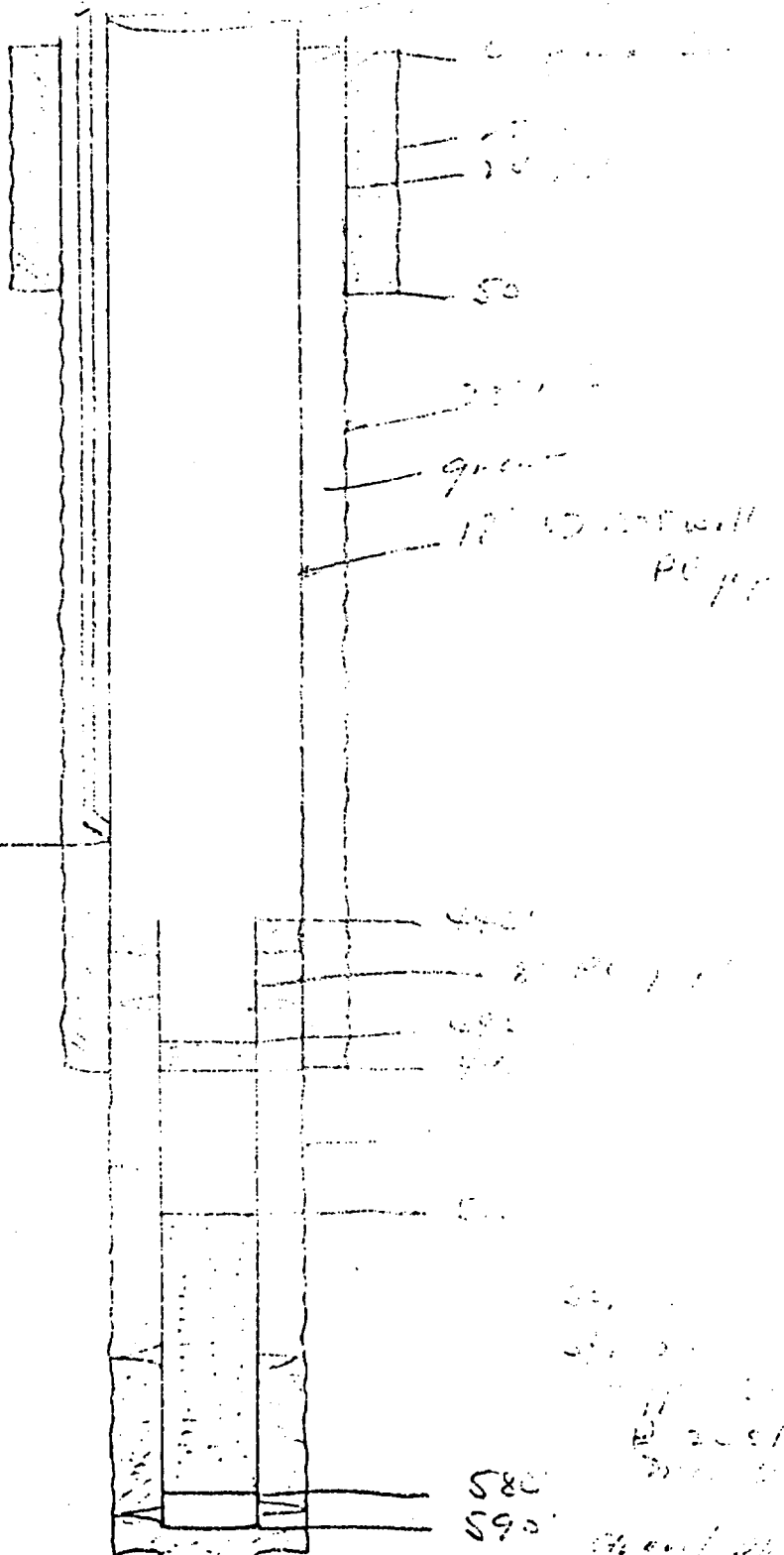
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 APR 13 1981
 GROUNDWATER SECTION
 WILMINGTON REGIONAL OFFICE

City of Jackson
117 South
Crestview
Wichita
Kansas

12-1-87

Dear

System
P.O. Box 2716
Wichita, Kansas



Dear

System

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APR 13 1987

ENGINEERING
GENERAL OFFICE

580
590

Handwritten notes and signatures at the bottom right of the page, including the date '4/13/87' and some illegible text.

DEPARTMENT OF NATURAL AND ECONOMIC RESOURCES

OFFICE OF WATER AND AIR RESOURCES

GROUND WATER DIVISION

P. O. BOX 27687 - RALEIGH, N.C. 27611

66-0197-WS-0137

WELL RECORD

DRILLING CONTRACTOR SYDNOR HYDRODYNAMICS, INC. REG. NO. 114 WELL CONSTRUCTION PERMIT NO.

1. WELL LOCATION: (Show a sketch of the location on the back of this form) RICHLANDS, NORTH CAROLINA County: ONSLOW COUNTY, N.C. Nearest Town: RICHLANDS, NORTH CAROLINA

2. OWNER: CITY OF JACKSONVILLE

3. ADDRESS: P. O. BOX 128, JACKSONVILLE, NC 28541

4. TOPOGRAPHY: draw, valley, slope, hilltop, flat

5. USE OF WELL: MUNICIPAL DATE: 4-27-87

6. DOES THIS WELL REPLACE AN EXISTING WELL? NO.

7. TOTAL DEPTH: 650' RIG TYPE OR METHOD: ROTARY

8. FORMATION SAMPLES COLLECTED: [XX] YES No. of Bags 65

From	Depth	Inside	Wall thick or weight / ft	Type
0	20	23 1/4"	.375	STEEL
+2	470	17 1/4"	.375	STEEL
420	465	8"	.322	STEEL
470	487	8"	.322	STEEL

From	Depth	Material	Method
0	470	CEMENT	PUMPED

From	Depth	Type and Finish
465	470	STAINLESS STEEL
487	554	#20 SLOT

From	Depth	Material
425	564	MORTAR WELL GRAVEL

13. WATER TABLE: 434' - 554'

14. STATIC WATER LEVEL: 150' 3" ft. XXXX below top of casing. Casing is 2 ft above land surface. ELEV. DATE MEASURED: APRIL 20, 1987

15. YIELD (gpm): 473 METHOD OF TESTING: TURBINE

16. PUMPING WATER LEVEL: 209' 11" ft after 24 hours at 473 gpm

17. DISINFECTION Type: CHLORINE Amount: 5 GALLON

18. WATER QUALITY: ATTACHED ANALYSIS TEMPERATURE (°F)

19. PERMANENT PUMPS (show a sketch of well head on back of form) Date installed: Type: Make: Capacity: (gpm) HP Intake Depth: Airline Depth:

20. HAVE YOU INFORMED THE WELL OWNER OF THE DEPARTMENTS REQUIREMENTS AND RECOMMENDATIONS?

21. REMARKS:

DRILLING LOG		
DEPTH		FORMATION DESCRIPTION
FROM	TO	
0	15	CLAY
15	18	ROCK
18	25	HARD ROCK
25	55	SOFT BLACK & GREEN CLAY
55	60	ROCK & CLAY STREAKS
60	80	HARD BLACK CLAY
80	95	GRAY CLAY
95	100	ROCK
100	105	HARD ROCK
105	107	SAND
107	120	ROCK--HARD & SOFT STREAKS
120	126	HARD ROCK
126	136	HARD GRAY CLAY
136	140	ROCK
140	143	HARD ROCK
143	148	HARD ROCK
148	160	BLUE CLAY W/STREAKS OF SAND
160	180	BLUE CLAY
180	220	BLUE CLAY, THIN ROCK LAYERS
220	228	BLUE CLAY
228	233	SAND
233	240	HARD ROCK
240	260	BLUE CLAY
260	280	BLUE CLAY W/SAND STREAKS
280	285	BLUE CLAY
285	289	ROCK
289	296	SAND
296	300	ROCK
300	316	BLUE CLAY
316	320	ROCK
320	328	BLUE CLAY

I do hereby certify that this well record is true and exact.

Signature of Contractor or Agent: [Signature] DATE: 3-27-87

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NORTH CAROLINA DEPARTMENT OF WATER AND AIR RESOURCES

DIVISION OF GROUND WATER

BOX 9392 - RALEIGH, N. C.

WELL RECORD
Circulation Sheet

Driller SYDOR HYDRODYNAMICS, INC.

Reg. No. 144

Well Permit No. 66-0197-WS-0

NEAREST

Town RICHLANDS, NORTH CAROLINA County ONSLOW COUNTY, NORTH CAROLINA

Location CITY OF JACKSONVILLE, NC, P. O. BOX 128, JACKSONVILLE, NC 28541

Owner SAME AS LOCATION ABOVE! Date MARCH 27, 1987

DRILLING LOG

Depth		Formation	Depth		Formation
From	To		From	To	
328	335	HARD ROCK			
335	340	ROCK AND SAND STREAKS			
340	374	BLUE CLAY			
374	378	HARD ROCK			
378	380	SAND			
380	388	BLUE CLAY			
388	395	SAND			
395	412	BLUE CLAY			
412	415	ROCK			
415	417	SAND			
417	418	ROCK			
418	420	SAND			
420	470	BLUE CLAY			
470	479	ROCK			
479	499	BLUE CLAY, STREAKS OF WOOD			
499	539	FINE, GRAY SAND			
539	555	FINE, GRAY SAND; STREAKS OF ROCK			
555	560	SANDY, GRAY CLAY			
560	564	HARD ROCK			
564	575	SAND WITH SOME CLAY			
575	650	SAND, STICKY CLAY			

RECEIVED
MARCH 25 1987

City of Jacksonville
 Jacksonville, FL
 Duval County - Gas. Panel #2
 W. # 19
 S. 5-1-1

4-27-86
 Rig 69

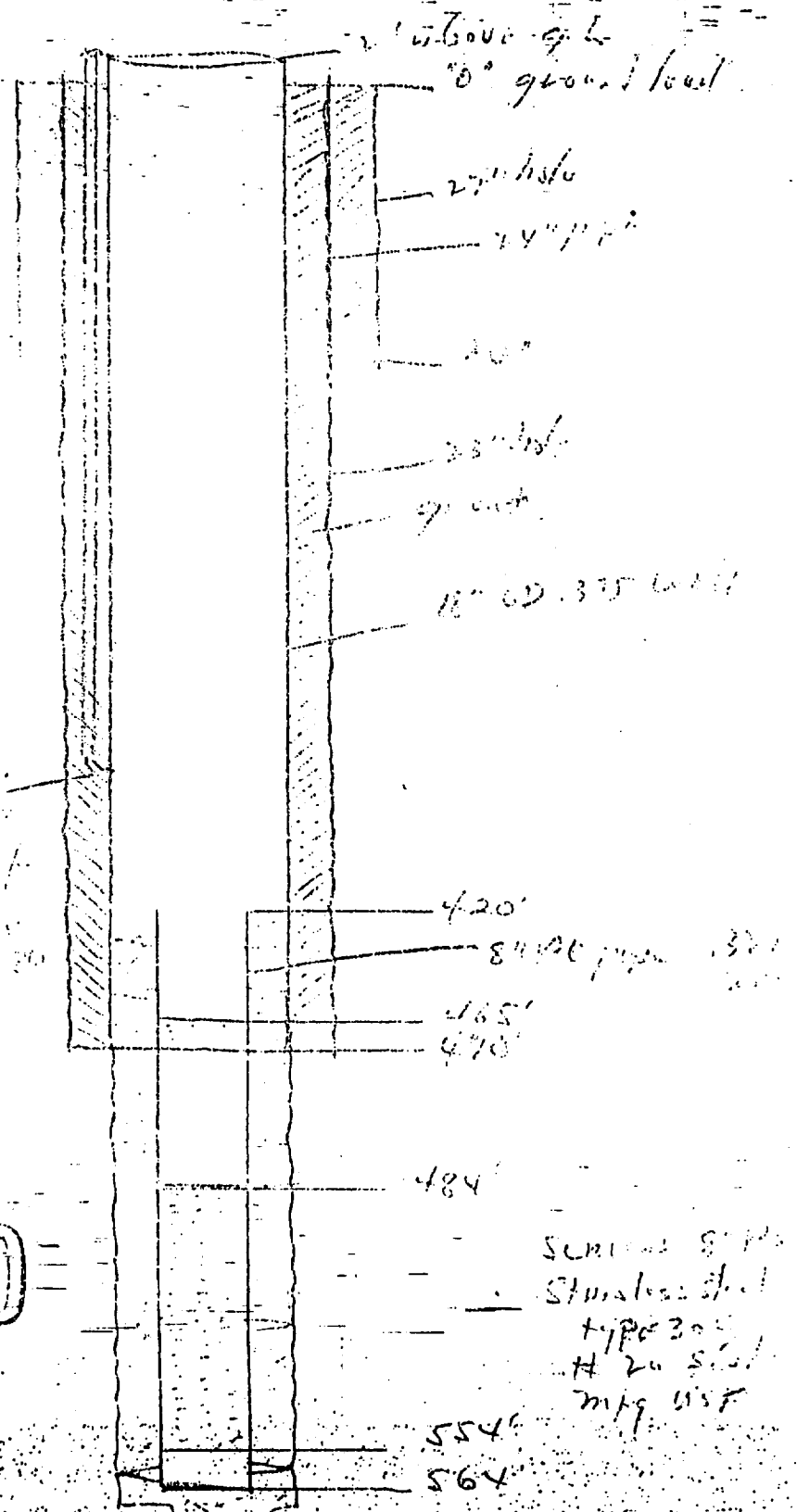
D. H. L.

0000
 0000
 0000

20'

Bill Hall

400'
 1 1/4"
 1/2"
 1/2"
 1/2"



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MAY 26 1987

GROUNDWATER SECTION,
 WILMINGTON REGIONAL OFFICE

Screen 8' dia
 Structural steel
 type 304
 # 20 steel
 mfg USF

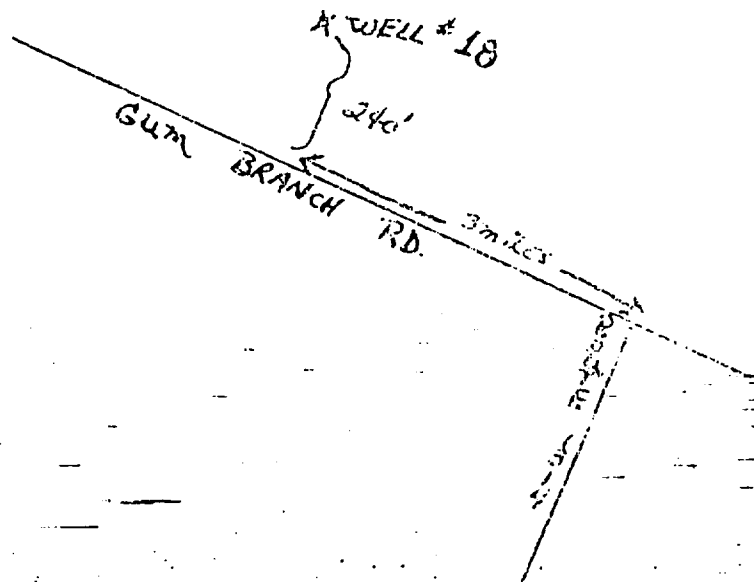
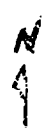
554'
 564'

650'

WELL HEAD COMPLETION: Draw a sketch of the well head showing casing, pump piping, seals, vents, access port, grout, and enclosure.

(SEE ATTACHED SKETCH)

WELL LOCATION: Draw a location sketch showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.



CONCRETE FOOTING

WELL NO. 1

WELL NO. 2

20" Steel casing
1/2" thickness

16" Steel casing
5/8" wall thickness

NEAT CEMENT

NEAT CEMENT

10" Steel casing
1/2" thickness

350'

380'

400'

Gravel filter

Gravel filter

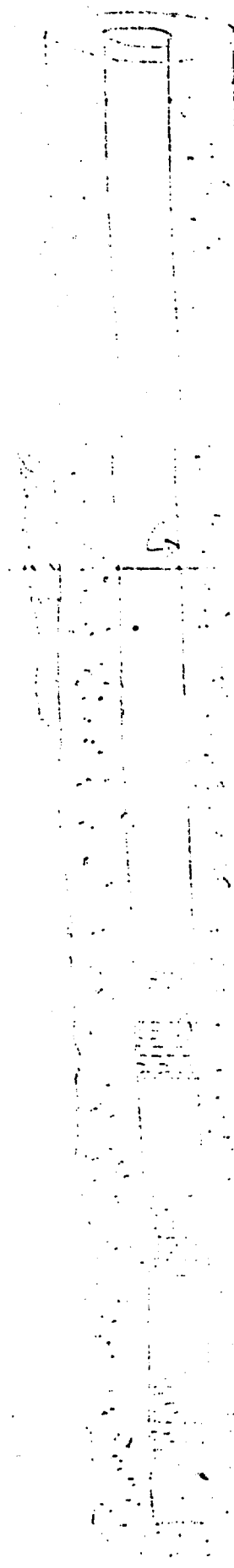
10" Steel casing
1/2" thickness

6" steel casing
1/2" thickness

6" standard steel
5/8" thickness

350'

400'



WELL # w-25, f-
 SERIAL # _____
 LAT/LONG _____

Page 1

HARTSFIELD WATER COMPANY, Inc.

Test well

P. O. DRAWER 3109 - PH. 523-2154
 KINSTON, NORTH CAROLINA 28501

H-1

CUSTOMER: City of Jacksonville, N.C. ADDRESS: Jacksonville, N.C.

TYPE OF FORMATION CLAY - SAND ROCK & ETC.	COLOR	RATE OF DRILLING HARD - SOFT JETTED & ETC.	SIZE OF GRAIN IF SAND	OTHER INFORMATION	THICKNESS	
					FROM	TO
clay	brown	hard			0	4
sand & clay	white	soft	fine		4	14
sand & clay	gray	soft	fine		14	24
sand	ru	soft	fine		24	34
sand & clay		hard	fine	thin rock at 38'	34	42
limestone		hard			42	44
limestone		soft			44	54
sand & limestone		soft	fine		54	57
rock		hard		no sample	57	66
sand		soft	fine	rock at 70 to 72' hard	66	74
sand		soft	fine	rock at 79 to 101' hard	74	81
sand		soft	fine		86	94
sand		soft	fine		94	102
sand & clay	gray	soft	fine	thin rock at 110	102	115
sand & clay	gray	soft	fine	thin rock at 121	116	126
clay	gray	soft			124	136
sand & clay	gray	soft	fine	hard thin rocks at 141 & 143 sand loose	136	146
sand & rock		loose	coarse	rocks hard	146	156
sand clay & rocks		soft	fine	rocks hard	156	166
sand clay & rocks		soft	fine	rocks hard	166	176
clay & rock		soft		rocks hard	176	182
sand		loose			182	192
sand		loose	fine		192	202
sand		jet	fine		202	212
sand		jet	fine		212	222
sand & clay		soft	fine		222	232

HARTSFIELD WATER COMPANY, Inc.

Test Well

P. O. DRAWER 3109 - PH. 523-2154
KINSTON, NORTH CAROLINA 28501

H-1

CUSTOMER: City of Jacksonville,

ADDRESS: Jacksonville, . . .

TYPE OF FORMATION CLAY - SAND ROCK & ETC.	COLOR	RATE OF DRILLING HARD - SOFT JETTED & ETC.	SIZE OF GRAIN IF SAND	OTHER INFORMATION	THICKNESS	
					FROM	TO
clay	black	soft			252	252
clay	black	soft			262	252
clay	black	soft			252	262
Clay	black	soft			262	270
sand		jet	fine		270	280
sand		jet	fine		280	290
sand		jet	fine		270	300
Hard		jet	fine		300	310
Hard		jet	fine		310	320
sand & clay		soft	fine		320	330
sand		jet	fine		330	340
sand		jet	fine	small rock at 347	340	350
sand		jet	fine		350	360
sand		jet	fine		360	370
sand		jet	fine		370	380
sand & clay		soft	fine	small rock at 381	380	390
clay		soft			390	400
clay		soft			400	410
clay		hard			410	420
clay		hard			420	430
clay		hard			430	440
clay & sand		soft	fine		440	450
clay & sand		soft	fine		450	460
clay & sand		soft	fine		460	470
clay & sand		soft	fine		470	480
clay & sand		soft	fine		480	490

HARTSFIELD WATER COMPANY, Inc.

P. O. DRAWER 3109 - PH, 523-2154
KINSTON, NORTH CAROLINA 28501

H-1

Page 10
Customer:

Address:

TYPE OF FORMATION CLAY - SAND ROCK & ETC.	COLOR	RATE OF DRILLING HARD - SOFT JETTED & ETC.	SIZE OF GRAIN IF SAND	OTHER INFORMATION	THICKNESS	
					FROM	TO
clay		soft	fine		511	511
clay		soft	fine		511	514
clay		soft	fine		514	529
clay		soft	fine		529	539
clay		soft	fine		539	540
sand		soft	fine		540	550
clay		soft	fine		550	569
sand		soft	fine		569	570
sand		soft	fine		570	580
sand		soft	fine		580	590
sand		soft	fine		590	600
sand		soft	fine		600	600
sand & clay		soft	fine	2 ft of rock at 600' hard	600	610
sand & clay		soft	fine		610	620
sand & clay		soft	fine	1' of rock at 610' hard	620	630
sand & clay		soft	fine		630	640
sand & clay		soft	fine		640	650
sand & clay		soft	fine		650	660
clay		hard			660	670
clay		hard			670	680
sand		hard	fine		680	690
sand		soft	fine		690	700
sand		soft	fine		700	710
sand		soft	fine		710	720
clay		hard			720	730
clay & sand		soft	fine		730	740
clay		hard			740	750

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SYDNOR HYDRODYNAMICS, INC.

MAY 26 1987

WELL TEST INFORMATION SHEET

CUSTOMER: CITY OF JACKSONVILLE DATE STARTED: 4-20-87
 JACKSONVILLE, NORTH CAROLINA DATE COMPLETED: 4-22-87
 LOCATION: ONSLOW COUNTY, NORTH CAROLINA WELL NO.: 18
 WELL #18 JOB NUMBER: 59875-7

WELL DESCRIPTION: Sand or Screened Well (XX) Rock Well ()
 Total Depth 564 Ft. Size 1 1/4" to 420' and 8" to 564'
 Casing Depth 564 Ft. Screens 465'-470', 484'-554'
 Construction: Domestic () Class 11-R () 11-A () 1 ()
 Static Water Level 150'-3" Ft. Measured April 20, 1987
 Description of Formations: SAND, CLAY, AND SHELL ROCK

TEST PUMP: Turbine (X) Sump () Piston () Air () Bailer ()
 M-SCOPE
 Pump Intake 320 Ft. Below Ground; Air Line Ft. Below Ground
 Size Pump Discharge Ft. Metering Device 6 X 5 ORifice
 Description of Pump 10" TURBINE, 6" COLUMN AND SHAFT,
 GMC 453 DIESEL UNIT.

TEST DATA: Static Level Before Installing Pump 150'-3" Ft.
 Air Line PSI Before Starting Pump; Time of Measurement
 Time Test Pump Started (4-20) 5:00PM; Time Test Pump Stopped (4-21) 5:00
 Total Hours Pumped 2 1/2 Final Capacity 473 GPM @ 209'-1" Ft.
 Static Level Ft. 154'-2 1/4" Ft., 12 Hr. Min. After Pump Stopped.

INSTRUCTIONS: For the first hour of pumping, take readings at least every 5 minutes and thereafter at least every 15 minutes. Obtain two 1-gallon representative samples of water near the end of the test. If possible, measure recovery for time equal to 1/3 length of the test.

CITY OF JACKSONVILLE, N.C.--PRODUCTION WELL #18--JOB #59875-7-
 READINGS TAKEN 2 FEET ABOVE GROUND LEVEL

PUMP TEST

TIME OF READING HR. MIN.	ORIFICE READING INCHES	TIME TO FILL CONT. MIN. SEC.	AIR LINE PSI	TAPE READING FEET	PUMP DISCHARGE GPM	PUMPING LEVEL FEET	REMARKS - (e.g., water clear, cloudy, taking air, etc.)
4:30				150'-3"			STATIC LEVEL
5:00 PM	14½				473	190'-2"	CLEAR
5:01						192'-2"	
5:02						193'-1"	
5:03						193'-5"	
5:04						193'-10"	
5:05	14½				473	193'-11"	CLEAR
5:06						195'-0"	
5:07						"	
5:08						195'-11"	
5:09						195'-10"	
5:10	14½				473	196'-5½"	CLEAR
5:15						196'-9"	
5:20						197'-2½"	
5:25						198'-4"	
5:30						198'-9"	
5:40	14½				473	199'-7"	CLEAR
5:50						200'-1½"	
6:00						200'-5½"	
6:10						200'-11"	
6:20						201'-5½"	
6:30						201'-6½"	
6:45	14½				473	201'-10"	CLEAR
7:00						202'-1½"	
7:15						202'-2½"	
7:30						202'-5"	
8:00						202'-6½"	
8:00	14½				473	202'-11"	
9:00						203'-4"	

ALL READINGS TAKEN
2 FEET ABOVE GROUND LEVEL!

PUMP TEST

TIME OF READING HR. MIN.	ORIFICE READING INCHES	TIME TO FILL CONT. MIN. SEC.	AIR LINE PSI	TAPE READING FEET	PUMP DISCHARGE GPM	PUMPING LEVEL FEET	REMARKS - (e.g., water clear, cloudy, taking air, etc.)
9:30	14					203'-9 $\frac{1}{2}$ "	CLEAR
10:30						204'-1 $\frac{1}{2}$ "	
11:30						205'-5 $\frac{1}{2}$ "	
12:30 AM						205'-8"	
1:30						205'-11"	
2:30	14 $\frac{1}{2}$					206'-0"	CLEAR
3:30						"	
4:30						206'-3"	
5:30						206'-6"	
6:30						206'-8 $\frac{1}{2}$ "	
7:30	14 $\frac{1}{2}$					207'-3"	
8:30						207'-5 $\frac{1}{2}$ "	
9:30						207'-6"	
10:30						"	
11:30						207'-9"	
12:30 PM	14 $\frac{1}{2}$					208'-2"	
1:30						208'-10"	
2:30						208'-9"	
3:30						208'-10 $\frac{1}{2}$ "	
4:30						208'-11"	
5:30	14 $\frac{1}{2}$					209'-1"	CLEAR

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MAY 28 1981

GROUNDWATER SECTION
WILMINGTON REGIONAL OFFICE

CITY OF JACKSONVILLE, N.C. -- PRODUCTION WELL #18 -- JOB #59875-7
 ALL READINGS TAKEN 2 FEET ABOVE GROUND LEVEL

RECOVERY

TIME OF READING HR. MIN.	ORIFICE READING INCHES	TIME TO FILL CONT. MIN. SEC.	AIR LINE PSI	TAPE READING FEET	PUMP DISCHARGE GPM	PUMPING LEVEL FEET	REMARKS -- (e.g., water clear, cloudy, taking air, etc.)
5:01				165'-0"			
5:02				163'-8"			
5:03				165'-7"			
5:04				165'-1½"			
5:05				164'-10"			
5:06				164'-8"			
5:07				164'-4"			
5:08				164'-1"			
5:09				163'-11½"			
5:10				163'-10"			
5:15				163'-4½"			
5:20				162'-6"			
5:30				161'-10"			
5:30				161'-6½"			
5:40				161'-1½"			
5:50				160'-9½"			
6:00				159'-10"			
6:10				159'-6"			
6:20				159'-2½"			
6:30				158'-8"			
6:45				158'-5"			
7:00				158'-2"			
7:15				157'-10½"			
7:30				157'-7½"			
8:00				157'-2"			
8:30				156'-10"			
9:00				156'-6"			
9:30				156'-2"			
10:30				155'-8"			
11:30				155'-5½"			

RECOVERED
 11/26/55
 GROUND WATER SECTION
 WILMINGTON REGIONAL OFFICE

CITY OF JACKSONVILLE, N.C. -- OBSERVATION WELL @ WELL #18 -- JOB #59875-7
 ALL READINGS TAKEN AT 2 FEET ABOVE GROUND LEVEL!

PUMP TEST

TIME OF READING HR. MIN.	ORIFICE READING INCHES	TIME TO FILL CONT. MIN. SEC.	AIR LINE PSI	TAPE READING FEET	PUMP DISCHARGE GPM	PUMPING LEVEL FEET	REMARKS -- (e.g., water clear, cloudy, taking air, etc.)
4:30				152'-2"			STATIC LEVEL
5:00						152'-2"	
5:01						164'-5"	
5:02						164'-9"	
5:03						164'-9½"	
5:04						164'-11½"	
5:05						165'-0"	
5:06						"	
5:07						165'-2"	
5:08						"	
5:09						165'-5"	
5:10						165'-8½"	
5						167'-6"	
5:20						167'-11"	
5:25						168'-6"	
5:30						169'-3"	
5:40						169'-7½"	
5:50						170'-4"	
6:00						170'-11½"	
6:10						171'-3½"	
6:20						171'-9"	
6:30						172'-1"	
6:40						172'-5"	
7:00						172'-9"	
7:15						172'-11½"	
7:30						173'-2"	
8:00						173'-8"	
8:15						173'-11½"	
9:00						174'-5"	
9:30						174'-8½"	

APPROVED
 [Signature]

CITY WATER DEPARTMENT
 JACKSONVILLE, N.C.

CITY OF JACKSONVILLE, NC.--OBSERVATION WELL @ WELL #18--JOB #59875-7
 ALL READINGS TAKEN AT 2 FEET ABOVE GROUND LEVEL!

RECOVERY

TIME OF READING HR. MIN.	ORIFICE READING INCHES	TIME TO FILL CONT. MIN. SEC.	AIR LINE PSI	TAPE READING FEET	PUMP DISCHARGE GPM	PUMPING LEVEL FEET	REMARKS -- (e.g., water clear, cloudy, taking air, etc.)
5:01				175'-0"			
5:02				170'-10"			
5:03				168'-9"			
5:04				167'-8"			
5:05				166'-7"			
5:06				165'-11"			
5:07				165'-4"			
5:08				164'-11"			
5:09				164'-6 1/2"			
5:10				164'-3"			
5:15				162'-8"			
5:20				162'-1 1/2"			
5:25				161'-7 1/2"			
5:30				161'-2"			
5:40				160'-10"			
5:50				160'-0"			
6:00				159'-5 1/2"			
6:10				159'-0"			
6:20				158'-8 1/2"			
6:30				158'-6"			
6:45				158'-2"			
7:00				157'-9 1/2"			
7:15				157'-5"			
7:30				157'-1"			
8:00				156'-9"			
8:30				156'-5 1/2"			
9:00				156'-1"			
				155'-9 1/2"			
10:30				155'-5 1/2"			
11:30				155'-0"			

RECEIVED

MAY 26 1987

GROUNDWATER SECTION
 WILMINGTON REGIONAL OFFICE

SYDNOR

HYDRODYNAMICS... INC.

WELL COMPLETION REPORT

OWNER CITY OF JACKSONVILLE, N.C. WELL NO. #17
ADDRESS P.O. BOX 128, JACKSONVILLE, NC 28541 DRILLER RYLAND BROOKEN
JOB MUNICIPAL JOB NO. #59875-7
COUNTY (JOB) ONslow COUNTY RIG NO. 64 TYPE ROTARY
STATE (JOB) NORTH CAROLINA DATE START 1-5-87 DATE COMPLETE 3-16-87

WELL LOCATION: 1.50' NORTHEAST OF GUM BRANCH ROAD
2 MILES WEST OF ROUTE 1314

USGS QUADRANGLE _____ ELEVATION _____ FT. ABOVE M.S.L.

DESCRIPTION: SAND WELL (x) ROCK WELL () SAND & ROCK WELL ()
TOTAL DEPTH 600 FT. NOMINAL DIAMETER 18 IN. ZERO FROM _____
HOLE: _____ DIA. TO _____ FT: _____ DIA. TO _____ FT: _____ DIA. TO _____ FT.
CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____
CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____
CASING _____ IN. _____ D _____ LB/FT. TOTAL OF _____ FT. FROM _____ TO _____
SCREENS _____ IN. _____ D MFG. _____ MATERIAL _____ SLOT _____ IN.
SCREEN LOCATION (S): _____

GRAVEL _____ TONS _____ BAGS _____ SIZE _____ EFF. SIZE _____ IN. U.C. _____

SHOES, VALVES, BASKETS, ETC. _____

STATE TYPE: CLASS II-B () II-A () I () DOMESTIC () OTHER ()

CHEMICAL ANALYSIS () ELECTRIC LOG () CORE SAMPLES FROM _____ TO _____

TEST DATA: TURBINE () SUBMERSIBLE () PISTON () AIR () JET () BAILER ()
PUMP INTAKE _____ FT. STATIC LEVEL _____ FT. BELOW _____
PUMP STARTED _____ (DATE) _____ (TIME) METERING DEVICE _____
TOTAL HRS. PUMPED _____ FINAL CAPACITY _____ GPM @ _____ FT. Q/S _____

REMARKS: _____

DEPTH (FEET)		FORMATION DESCRIPTION	REMARKS
FROM	TO	(Granite, Limestone, Sand, Gravel, Etc.)	
0	10	RED & WHITE SANDY CLAY	
10	51	GRAY CLAY AND GRAVEL	
51	59	HARD ROCK	
59	80	GRAY CLAY MIXED WITH SHELLS	
80	90	SAND AND SHELL	
90	91	HARD ROCK	
91	100	GRAY CLAY AND SHELLS	
100	109	SAND AND SHELL	
109	110	ROCK	
110	129	SANDY, GRAY CLAY	
129	131	ROCK	
131	132	SANDY, GRAY CLAY	
132	136	HARD ROCK	
136	140	SAND	
140	160	HARD ROCK AND SAND STREAKS	
160	170	GRAY CLAY	
170	171	HARD ROCK	
171	172	GRAY CLAY	
172	173	HARD ROCK	
173	220	SANDY, GRAY CLAY	
220	240	GRAY CLAY	
240	260	SANDY, GRAY CLAY	
260	264	HARD ROCK	
264	276	BLACK AND WHITE SAND	
276	278	HARD ROCK	
278	319	SAND MIXED WITH CLAY	
319	321	HARD ROCK	
321	323	SAND	

City of Jackson
 1100 S. Main St.
 Jackson, Louisiana
 Well # 19
 Job 59770000

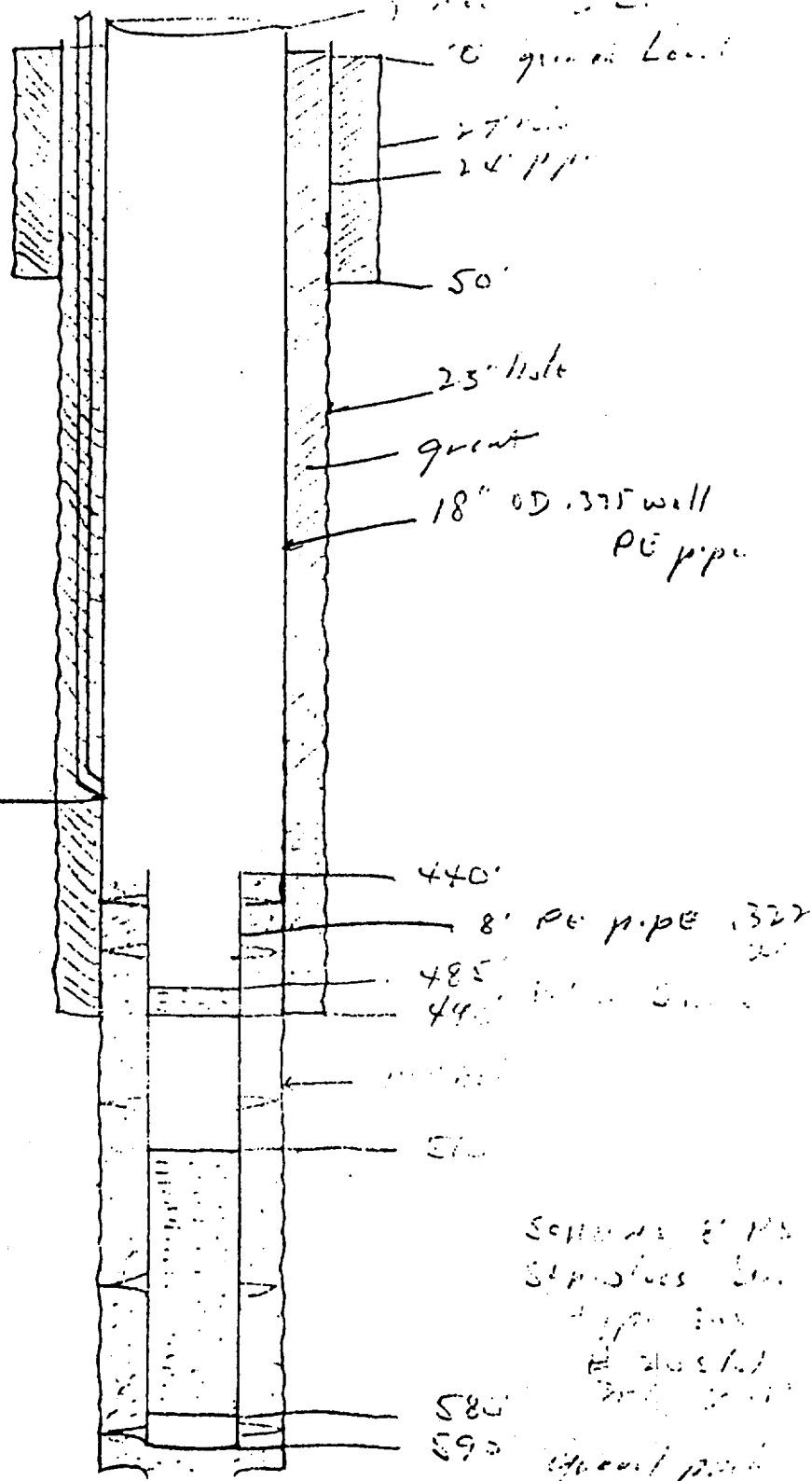
12-12-00

Drilled by

Sydnor Hydrodynamics, Inc
 P.O. Box 27186
 Baton Rouge, LA 70824

Drilled by

Ryan's Producers



400'
 1 1/4 PE
 Black
 Steel
 pipe
 sch 80

440'
 8' PE pipe sch 80

485'
 440'

570'

580'
 590'

Schedule 80 PE
 Structures Inc.
 1100 S. Main St.
 Baton Rouge, LA
 70824

No. 19 - 1100 S. Main St.

SENIOR HYDRODYNAMICS, INC.

WELL TEST INFORMATION SHEET

CUSTOMER: CITY OF JACKSONVILLE, N.C.

DATE STARTED: 3-11-87

DATE COMPLETED: 3-12-87

LOCATION: RICHLANDS, N.C.

WELL TEST NO.: 17

JOB NUMBER: #59875-7

WELL DESCRIPTION: Sand or Screened Well (XX) Rock Well ()
Total Depth 590 Ft. Size 18 " to 490 ' and 8 " to 590
Casing Depth 590 Ft. Screens 510-580 FEET
Construction: Domestic () Class 11-B () 11-A () 1 (XX)
Static Water Level 178'-1 1/4" Ft. Measured MARCH 11, 1987 Dat
Description of Formations: SAND, CLAY, SHELL ROCK

TEST PUMP: Turbine (XX) Sumo () Piston () Air () Bailer ()
Pump Intake 359 Ft. Below Ground; Air Line M-SCOPE Ft. Below Ground
Size Pump Discharge _____ Ft. Metering Device 6" X 5" ORFICE
Description of Pump 12" TURBINE, 8" COLUMN, CUMMINGS DIESEL

TEST DATA: Static Level Before Installing Pump 178'-10" Ft.
Air Line _____ PSI Before Starting Pump; Time of Measurement _____
Time Test Pump Started 7:00 ; Time Test Pump Stopped 7:00
Total Hours Pumped 24 Final Capacity 488 GPM @ 239'-1" Ft.
Static Level Ft. 180'-9 1/2" 12 Hr. _____ Min. After Pump Stopped.

INSTRUCTIONS: For the first hour of pumping, take readings at least every 5 minutes and thereafter at least every 15 minutes. Obtain two 1-gallon representative samples of water near the end of the test. If possible, measure recovery for time equal to 1/3 length of the test.

CITY OF JACKSONVILLE, N.C. -- WELL #17 -- JOB #59875-7

PUMP TEST -- DRAWN DOWN 2 FEET ABOVE GROUND LEVEL.

TIME OF READING HR. MIN.	ORIFICE READING INCHES	TIME TO FILL CONT. MIN. SEC.	AIR LINE PSI	TAPE READING FEET	PUMP DISCHARGE GPM	PUMPING LEVEL FEET	REMARKS -- (e.g., water clear, cloudy, taking air, etc.)
7:00				178'-1 1/4"			STATIC LEVEL
7:01	1			212'-3 1/2"	488		WATER-MILKY/AIR
7:02	2			216'-1"	"		" "
7:03	3			217'-6"	"		" "
7:04	4			223'-11"	"		" "
7:05	5			224'-1 1/2"	"		" "
7:06	6			225'-6"	"		" "
7:07	7			225'-11"	"		" "
7:08	8			226'-6"	"		" "
7:09	9			226'-11"	"		" "
7:10	10			227'-2"	"		" "
7:15	15			228'-8 1/4"	"		CLEAR
:20	20			229'-6"	"		"
7:25	25			229'-9"	"		"
7:30	30			230'-1 1/4"	"		"
7:35	35			230'-8"	"		"
7:40	40			231'-1"	"		"
7:45	45			231'-5"	"		"
8:00	60			232'-1"	"		"
8:15	75			230'-11"	"		"
8:30	90			232'-8 1/2"	"		"
8:45	105			233'-3 1/2"	"		"
9:00	120			233'-8"	"		"
9:30	150			233'-3 3/4"	"		"
10:00	180			233'-8"	"		"
10:30	210			234'-7 1/2"	"		"
:00	240			235'-4 1/2"	"		"
12:00	300			235'-11"	"		"
1:00	360			236'-4"	"		"
2:00	420			236'-5"	"		"

CITY OF JACKSONVILLE, N.C.--WELL #17--JOB #59875-7

RECOVERY---2 FEET ABOVE GROUND LEVEL.

TIME OF READING HR. MIN.	ORIFICE READING INCHES	TIME TO FILL CONT. MIN. SEC	AIR LINE PSI	TAPE READING FEET	PUMP DISCHARGE GPM	PUMPING LEVEL FEET	REMARKS -- (e.g., water clear, cloudy, taking air, etc.)
7:01	1441	1	1441	190'-0"			
7:02	1442	2	721	192'-8 1/4"			
7:03	1443	3	481	193'-8 1/2"			
7:04	1444	4	361	193'-6"			
7:05	1445	5	289	192'-9 1/2"			
7:06	1446	6	241	192'-6 1/2"			
7:07	1447	7	207	192'-3"			
7:08	1448	8	181	192'-0"			
7:09	1449	9	161	191'-7 1/2"			
7:10	1450	10	145	191'-7 1/2"			
7:15	1455	15	97	190'-1"			
7:20	1460	20	73	189'-4 1/2"			
7:25	1465	25	58.6	188'-7 1/2"			
7:30	1470	30	49	188'-3 1/4"			
7:35	1475	35	42.1	187'-10"			
7:40	1480	40	37	187'-6"			
7:45	1485	45	33	187'-2 1/2"			
8:00	1500	60	25	186'-6"			
8:15	1515	75	20.2	186'-2 1/2"			
8:30	1530	90	17	185'-10"			
8:45	1545	105	14.7	184'-7"			
9:00	1560	120	13	184'-7"			
9:30	1590	150	10.6	184'-0"			
10:00	1620	180	9	184'-3"			
10:30	1650	210	7.86	183'-6"			
11:00	1680	240	7	183'-2"			
00	1740	300	5.8	182'-7"			
1:00	1800	360	5.0	182'-2 1/2"			
2:00	1860	420	4.67	181'-9 1/2"			
3:00	1920	480	4	181'-7"			

CITY OF JACKSONVILLE, N.C. -- TEST WELL FOR WELL #17 -- JOB #59875-7

PUMP TEST FOR TEST WELL FOR WELL #17
(4" ABOVE GROUND LEVEL)
(48' FROM WELL #17)

TIME OF READING HR. MIN.	ORIFICE READING INCHES	TIME TO FILL CONT. MIN. SEC.	AIR LINE PSI	TAPE READING FEET	PUMP DISCHARGE GPM	PUMPING LEVEL FEET	REMARKS - (e.g., water clear, cloudy, taking air, etc.)
7:00				180'-5"			STATIC LEVEL
7:25				196'-2"			
7:30				197'-7"			
7:35				198'-0"			
7:40				198'-4"			
7:45				198'-7"			
8:00				199'-4"			
8:15				199'-9"			
8:30				200'-5"			
8:45				201'-1 1/2"			
9:00				201'-3"			
9:30				201'-6"			
10:00				201'-11 1/2"			
10:30				202'-9"			
11:00				203'-0"			
12:00				203'-5 1/4"			
1:00				203'-11"			
2:00				204'-3 3/4"			
3:00				204'-6"			
4:00				204'-11"			
5:00				205'-0"			
6:00				205'-5"			
7:00				205'-5 1/2"			
8:00				205'-8 1/2"			
9:00				205'-11 1/2"			
10:00				206'-1"			
11:00				206'-1 1/2"			
12:00				206'-2 1/4"			
1:00				206'-3"			
2:00				206'-7"			



FROEHLING & ROBERTSON, INC.

FULL SERVICE LABORATORIES • ENGINEERS & CHEMISTS
"OVER ONE HUNDRED YEARS OF SERVICE"

March 23, 1987

No: N-52-028-3-G

Analysis of Water

Made For: Sydnor Hydrodynamics, Inc.
P.O. Box 27186
Richmond, Virginia 23261

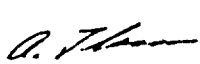
Marked: City of Jacksonville, N.C.
Well #17, Job #59875-7
Rig 64


P.O. #: 11034

0 - 0 - 0

pH value	8.8
Color	10
Total Alkalinity as CaCO ₃ , mg/l.	241
Total Dissolved Solids, mg/l.	353
Total Hardness as CaCO ₃ , mg/l.	8.6
Chloride (Cl), mg/l.	6.4
Hydrogen Sulfide (H ₂ S), mg/l.	<0.01
Iron (Fe), mg/l.	0.05
Manganese (Mn), mg/l.	<0.025
Calcium (Ca), mg/l.	2.52
Corrosion Index (L.I.)	+0.03

Respectfully,


August A. Thieme
Chief Chemist


Robert Wichser
Manager, Chemical Services

AAT/RW/prg

HEADQUARTERS: 3015 DUMBARTON ROAD • BOX 27524 • RICHMOND, VA 23251 •
TELEPHONE AREA CODE (804) 264-2701
BRANCHES: ASHEVILLE, NC • BALTIMORE, MD • CHARLOTTE, NC • CROZET, VA •
GREENVILLE, SC • NORFOLK, VA • RALEIGH, NC • ROANOKE, VA • STERLING, VA.



CHARTER MEMBER



CHARTER MEMBER



MEMBER SINCE 1904

SINCE



1881

FROEHLING & ROBERTSON, INC.

FULL SERVICE LABORATORIES • ENGINEERS & CHEMISTS

"OVER ONE HUNDRED YEARS OF SERVICE"

March 31, 1987

No: N-52-028-3-I

Analysis of Water (*SAND CONTENT*)

Made For: Sydnor Hydrodynamics, Inc.
P.O. Box 27186
Richmond, Virginia 23261

Marked: City of Jacksonville, N.C.
Well #17, Job #59875-7
Rig 64

P.O. No.: 11034

0 - 0 - 0

Sand Content, mg/l.

0.13

Respectfully,

August A. Thieme
Chief Chemist

Robert Wichser
Manager, Chemical Services

AAT/RW/prg

HEADQUARTERS: 3015 DUMBARTON ROAD • BOX 27524 • RICHMOND, VA. 23261 •
TELEPHONE AREA CODE (804) 264-2701

BRANCHES: ASHEVILLE, NC • BALTIMORE, MD • CHARLOTTE, NC • CROZET, VA •
GREENVILLE, SC • NORFOLK, VA • RALEIGH, NC • ROANOKE, VA • STERLING, VA.

