FILE FOLDER

DESCRIPTION ON TAB:

TC. 604 well K

☑ **Outside/inside of actual folder did not contain hand written information**

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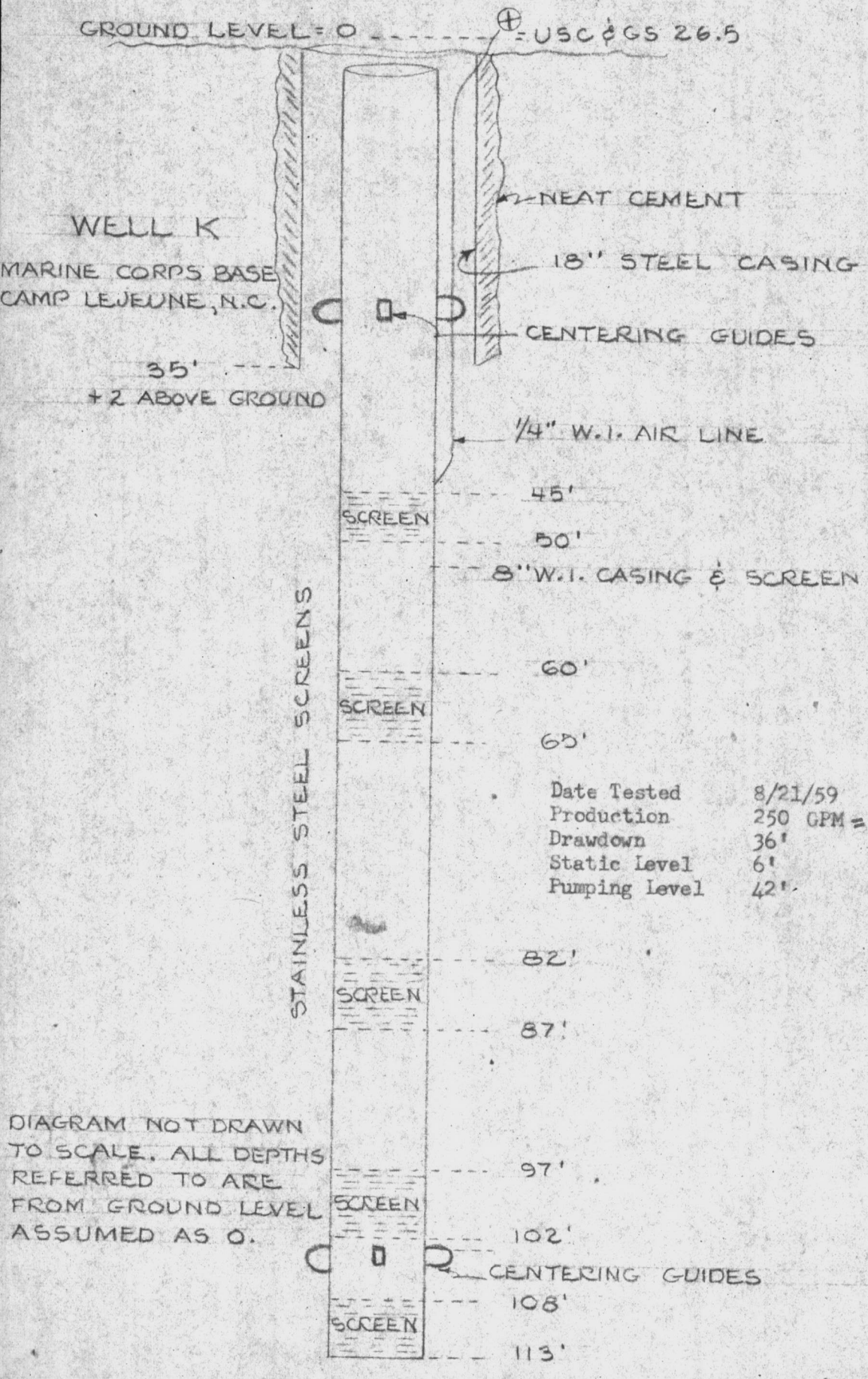
USC & GS ELEV.
AIR TAP = 29.4
FIN. FLOOR = 27.54
ORIGINAL GROUND = 26.5



WELL K

MARINE CORPS BASE
CAMP LEJEUNE, N.C.

35'
+2 ABOVE GROUND

Date Tested	8/21/59
Production	250 GPM = 360,000 G.P.D.
Drawdown	36'
Static Level	6'
Pumping Level	42'

DIAGRAM NOT DRAWN TO SCALE. ALL DEPTHS REFERRED TO ARE FROM GROUND LEVEL ASSUMED AS 0.

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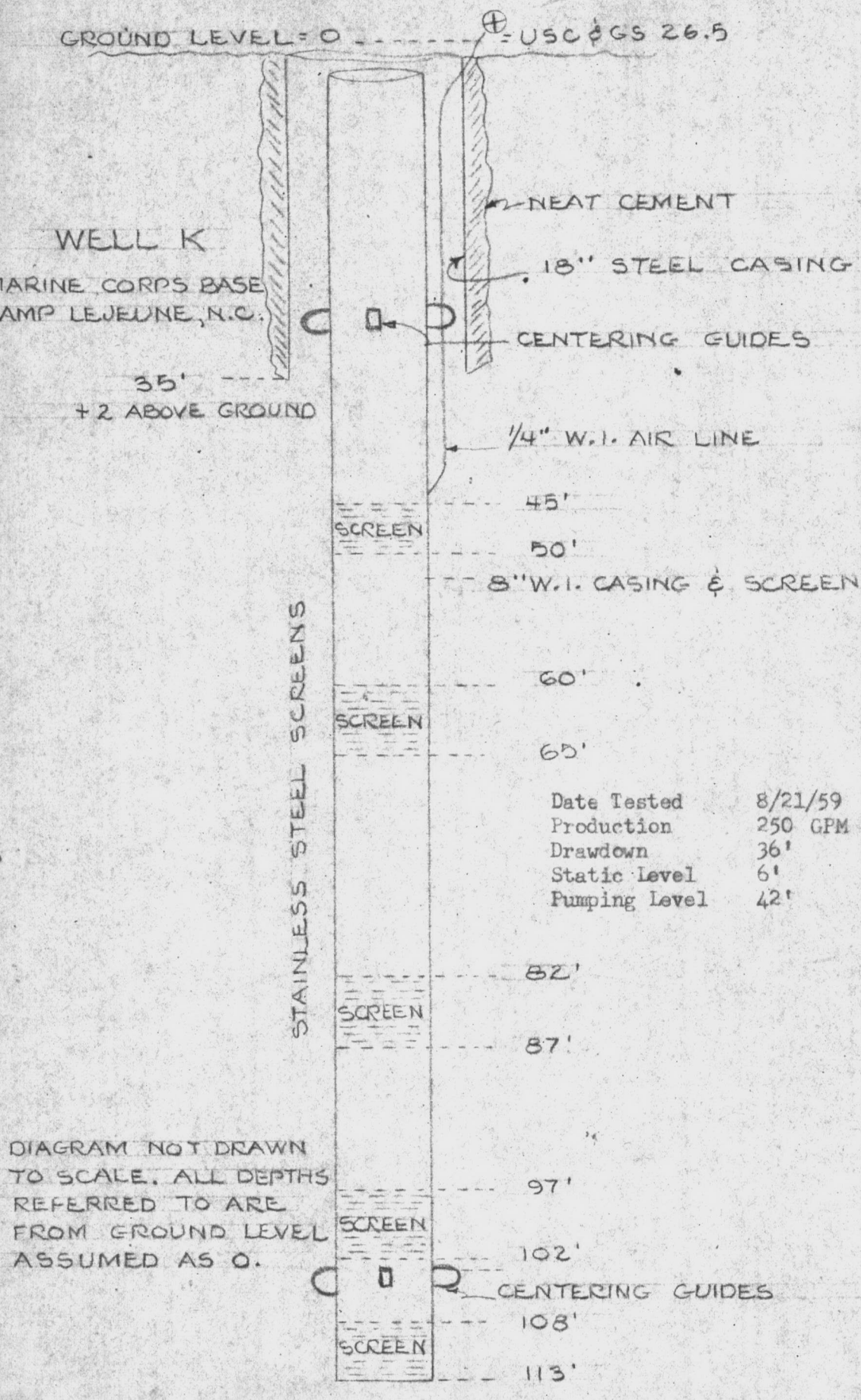

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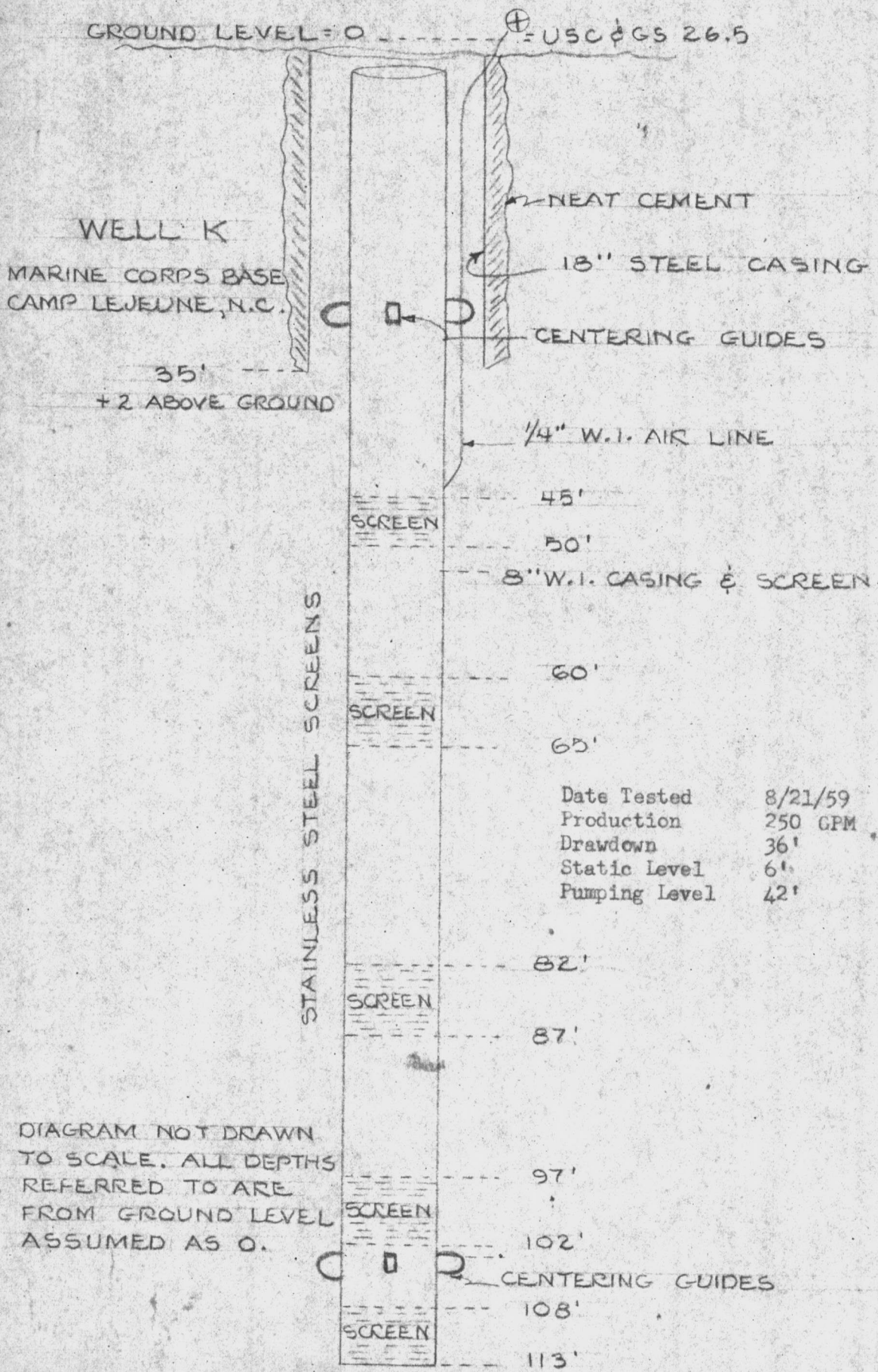

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DATE 6.19.00

PWSID 0467042

WELL # TC-604

WELL NAME AS-110 WATER PLANT

BLDG. TC-604

CODE G

AVAILABILITY P

LOCATION Hwy. 17

LATITUDE 344400 N

LONGITUDE 0772811 W

WELL DIAMETER 8

WELL DEPTH 113

SCREEN INTERVAL 10'

YIELD 164

STATIC LEVEL 6'

PUMPING LEVEL 42'

PUMP TYPE Vertical Turbine

MOTOR HP 5

INTAKE DEPTH 50

DESIGN CAPACITY 250

ACTUAL GPM 154

SIZE OF CONCRETE SLAB 8X8

HEIGHT OF CASING 1Ft 5"

Division of Environmental Health, Public Water Supply

SOURCE INFORMATION
GROUND WATER

Date Form Completed: M M D D Y Y = 0 1 2 7 9 5

PWSID: 0 4 6 7 0 4 2

Owner Assigned Source Code: 604

Well Name (If purchase, name of system): MCAS ~~WATER~~ WELL PLANT TC 604

Code: G (G=Ground, W=Purchase/G, Y=G w/direct influence, Z=W w/direct influence)

If Purchase, seller ID#:

Source Begin Date (M M Y Y):

Source exempt—SWTR? Y N

Direct Influence Date (M M D D Y Y):

Availability: P (P=Permanent, E=Emergency, S=Seasonal, I=Interim, O=Other)

Location of well within the system (If purchase, location of master meter): HIGHWAY 17

Latitude (N) Deg. Min. Sec.: 3 4 4 4 0 0

Longitude (W) Deg. Min. Sec.: 0 7 7 2 8 1 1

How Determined: 0 (G=GPS, M=Map, S=Surveyed)

GPS Data: Q# or DOP #

No. of Sats. Locked on:

(If purchase, use seller's primary source lat/long)

Vulnerable (VOCs)? Y N

Assessment Date (M M D D Y Y):

ENTRY POINT INFORMATION

Use Code: C (C=Ground/Permanent, D=Ground/non-permanent)

Availability: P (P=Year-round, S=Seasonal, E=Emergency, I=Interim, O=Other)

Owner Assigned Entry Point Code: 400

Entry Point Name: ~~EG604~~ MCAS NEW RIVER WTP

Location:

Well Site: Owned or controlled? Y (Y,N) Control Area (100' radius)? Y (Y,N) If no, explain:

Sources of pollution/distance: Power Line R/W @ 50'

Surface water within 200'? N Y N If yes, actual distance feet If yes, bact. samples collected? (Y,N)

Adequate slope? Y (Y,N) Flooding? N (Y,N) Maintenance: weeds paint

Well House: Free of stored materials? Y (Y,N) Properly drained? Y (Y,N) Locked? Y (Y,N)

Condition of house: OK Type of freeze protection:

Well: Diameter: 8 Type: SCREEN Yield (gpm): 164 Properly sealed? Y (

Properly vented? N (Y,N) Casing depth 45 ft. (If unknown, put 'UNK') Well depth: 113 Meter available? N (

Concrete slab adequate? Y (Y,N) If no, explain: Size: 8x8

Size of blow-off: 3" Sample tap: Before treatment? Y (Y,N) After treatment? (

Pumps: Capacity: GPM: 154 HP: 5 Pump intake depth: 50 Auxiliary Power? N (

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 1ft / 5"

Storage at well site: Elev: Hydro: Ground:

If hydroautomatic, air volume control? (Y,N) Safety valves? (Y,N) Coded? (Y,N)

High service pumps: 1. gpm hp 2. gpm hp 3. gpm hp Auxiliary Power? N (Y

Is the water treated at this well? N Y N If yes, complete back of form.

If other wells are treated here, which ones? If treated elsewhere, where? MCAS/WATER PLANT

If purchase, retreat? Y N If yes, complete back of form.

1) Repair vent
2) No meter
3) Seal pedestal

DEHNR 3803 (Revised 12/93)
Public Water Supply Section (Review 12/96)

WELL NUMBER TC 604 | BY Thomas T. Brown | DATE 6-16-94

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
50	12	30	18	25	104	
	↑	35	23	20	128	
left set @	~~20 PSI~~ 15 PSI →	40	28	15	154	

REMARKS Dead Head @ 40 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER FC 604 | BY [redacted] THOMAS BROWN | DATE 6-10-91

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
50	9'	20	11	30	104.	00
		25	16	24	137	10
		30	21	18	164	15

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER TC604 BY THOMAS BROWN DATE 11-1-90

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
50	23	35	12	25	110	75
→	~~23~~	40	17	17	150	

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER T.C. 604		BY Thomas & Hunter			DATE 7-6-89	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
50'	12	30	18	45	100	0/10
		24	12	40	104	0/20
		25	13	35	115	0/30
		26	14	30	122	0/40
		28	16	25	130	0/50
		30	18	20	140	0/60
Test set @ →		32	20	15	149	0/10
		35	23	10	157	0/20

REMARKS Dead Head @ 60 psi

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

TC 604

10-9-85

AL	SL	PL	OD	PSI	GPM	Time
50	19	29	10	42	100	15
		31	12	38	108	15
		32	13	35	115	15
		34	15	32	122	15
		35	16	28	128	15
		37	18	24	133	15
		38	19	20	140	15
		39	20	15	151	15

Left at 15 PSI 151 GPM

WELL NUMBER TC 604		BY Thomas - Brown			DATE 1-15-85	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 0800
50'	12'	75'	13	39	100	0815
		75'	13	36	104	0826
		78	16	30	111	0835
		30	18	25	111	0845
		32	20	21	125'	0855

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

TC 604

TC 602

J-LINE
FORMERLY JACUZZI

OWNER'S MANUAL

INSTALLATION INSTRUCTIONS

Water Lubricated Lineshaft Turbine Pumps

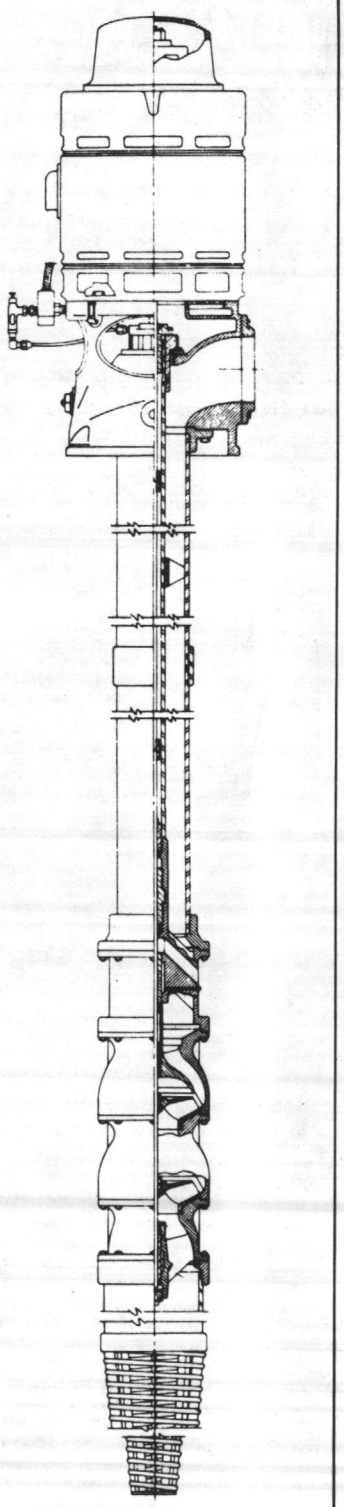


FIG. 1

WELL CHECK: Check well for ample depth, diameter and straightness before starting installation. Completely remove any oil from water surface by bailing, as oil will damage the rubber bearings in the pump and column.

FOUNDATION: An adequate concrete foundation is desirable. For average soil conditions and settings, a foundation 12" thick is sufficient if it is placed on firm soil. See Figure 2.

INSTALLATION RIG: Use a tripod or rig of sufficient strength to lift the complete pump safely with sufficient height to raise the top of the column at least 12 feet above the pump foundation.

TOOLS: Two sets of pipe clamps and the regular hand tools for this class of work.

UNCRATING AND CHECKING: Uncrate all parts and examine carefully for shipping damage or shortages before starting installation. See Figure 1. Lay the column and shafting on cross timbers with the coupling end toward and near the well.

SPECIAL PRECAUTIONS: Check the shafting for straightness and damage, taking great care to keep all threads clean on shaft, column and coupling. Inspect the bowls for damage or foreign material and see that the shaft turns freely and has sufficient end play.

IMPORTANT: All shaft and column joints must butt squarely, metal to metal, and any dirt will prevent proper joints and result in unsatisfactory service. All shaft joints should be tight. Use a good grade of clean thread lubricant or pipe compound on each joint of column and shafting.

CAUTION: This pump is provided with the highest quality rubber bearings, which must be wet before the pump is started, or serious damage may result. Therefore, the pump must be installed with a foot valve or provided with a prelubrication system.

BOWLS: Assemble one end of the suction pipe with the bowls and the other end to the strainer.

CAUTION: Use tapered thread pipe on suction only. Column sections have butt joint thread. Place a pipe clamp near top of the bowls and, using an installation rig, lower the bowls into the well until the pipe clamp rests on the well casing or other support. See Figure 3. Install a shaft coupling on the bowl shaft.

CAUTION: Be certain the shaft coupling and bowl shaft end are perfectly clean. If the bowls and suction pipe are too long for the installation rig, the bowls may be attached to the suction pipe after the pipe is suspended in the well.

COLUMN AND SHAFTING: Insert a 5 foot length of shaft with bearing sleeve up, into a 5 foot length of outer column, attaching pipe clamps just below the pipe coupling. Using a piece of ½" rope, place a clove hitch around the lower end of the outer column and another around the lower end of the shaft. With the rig, raise the column above the pump, maintaining tension on the rope to prevent the shaft from slipping out of the outer column while it is being elevated. CAUTION: Keep column and shafting threads out of the dirt. Lower the lineshaft into the bowl shaft coupling after cleaning both threads and shaft end. tighten until the shaft ends butt. NOTE: Threads are left hand. Lower the outer column into the pump bowls. Apply thread lubricant or compound and tighten until the pipe butts. Raise the pump a few inches, remove the lower clamp, and lower the pump into the well until the upper pipe clamp rests on the clamp supports. With open end down, place the lineshaft bearing assembly over shaft. Screw the bearing assembly into the column coupling until it butts. See Figure 4. Screw the coupling on the shaft until it butts with the sleeve. The shaft under the stainless steel sleeve is rust-proofed before shipping and therefore the sleeve should not be removed except for repair or replacement. Repeat above procedure for the remaining 10 foot lengths of column with the following precautions:

(a) Keep the shaft threads and ends absolutely clean.
(b) Install the shafting with sleeve end up.
(c) Do not bend shafting.
(d) Put pipe compound on the column pipe threads.
(e) Make all threaded joints tight.

Remove the column head flange from the head and screw to remaining 5 foot section of column pipe. The end receiving the column head flange is marked. Install this 5 foot section with the 4 foot length of lineshaft on the last 10 foot section and screw the head shaft into the top lineshaft coupling.

DISCHARGE HEAD: Install and bolt pump head to the column flange using a gasket between flange and head. Raise the pump head slightly, remove the pipe clamps, lower the head on the foundation with the discharge opening in the desired direction. Place the complete packing gland assembly over the head shaft but do not insert the gland in the discharge head but suspend the assembly on the shaft by tightening the packing gland. After removing canopy and drive coupling, lower the motor over the head shaft and bolt to the pump head: CAUTION Do not bend the head shaft or damage threads.

ALIGNMENT OF DISCHARGE HEAD: Center the shaft through the driver quill (bore) by placing metal shims between the pump head and foundation at the proper corners. NEVER USE A SPIRIT LEVEL to align the head since wells are rarely plumb. After the head is aligned, raise it again and place a soft cement grouting on the foundation without disturbing the shims. Apply a coating of grease to the bottom of the head to prevent sticking to the grouting Lower the pump head, allowing the surplus grouting to squeeze out so the head again rests on the shims.

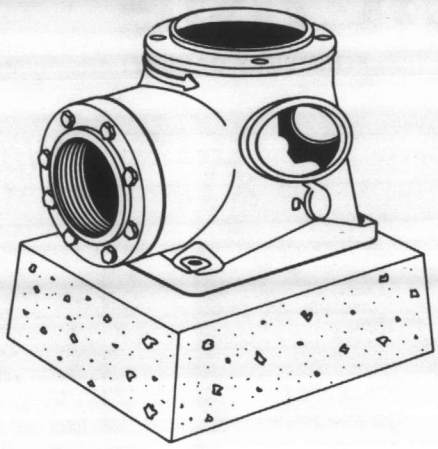


FIG. 2

PACKING GLAND: Loosen the packing gland and install the assembly in the head. Realign head if necessary so gland will fall in place without bending shaft. Place packing so joints of adjacent rings are on opposite side of shaft but do not tighten packing.

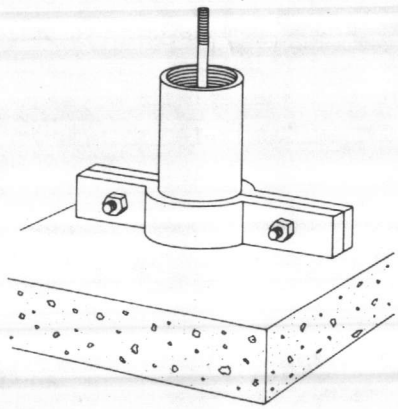


FIG. 3

MOTOR: Check the motor nameplate with the phase, frequency and voltage available and following the manufacturer's instructions attach to motor, connect to the magnetic starter. Check the motor for proper rotation (counter clockwise rotation viewed from the top end) before installing drive key in drive coupling and compare direction of rotation with arrow on discharge head, for wrong rotation may damage the pump. It is recommended that electrical connections be made by a competent electrician. Rotation can be reversed by following motor instructions for single phase motors or by interchanging any two power leads for 3 phase motors. IMPORTANT: The motor must be connected through a proper protective starter or the motor warranty is void. Install drive coupling and drive key on head shaft.

TURBINE IMPELLER ADJUSTMENT TABLES

TABLE I

HYDRAULIC THRUST CONSTANT "K" LBS./FT. HEAD			
Closed Impeller		Semi-Open Impeller	
Bowl Fig. No.	"K"	Bowl Fig. No.	"K"
6JC	1.56	6JS	1.74
6LC	1.56	6LS	1.72
6MC	2.24	6MS	2.43
6HC	2.24	6HS	2.29
6XC	2.83	6XS	2.35
8JC	2.98	8JS	3.52
8LC	2.98	8LS	3.34
8KC	3.93	8KS	4.42
8MC	3.93	8MS	4.28
8HC	5.4	8HS	5.4
10LC	6.6	10LS	7.5
10LC-XD	6.6		
10MC	6.6	10MS	7.5
10MC-XD	6.6		
10HC	8.1	10HS	9.2
10HC-XD	8.1		
10WC	10.3	10WS	11.2
10YC	10.3	10YS	11.4
10ZC	13.7	10ZS	13.5
12LC	10.6	12LS	12.5
12LC-XD	10.6		
12MC	10.6	12MS	12.5
12MC-XD	10.6		
12HC	16.5	12HS	19.0
12HC-XD	16.5		
12XC	18.0		
14LC	17.2	14LS	19.7
14MC	21.8	14MS	23.4
14HC	21.8	14HS	25.2
14XC	21.8	14XS	23.4
14WC	24.8	14WS	26.2
16MC	34.9	16MS	38.9
16HC	34.9	16HS	39.5
20MC	38.0		
20HC	38.0		
24HC	59.0		
28HC	83.0		

TABLE II

Constant C TDH x Setting x "K"	SHAFT DIAMETER (inches)							
	3/4	1	$1^{3/16}$	$1^{1/2}$	$1^{11/16}$	$1^{15/16}$	$2^{3/16}$	$2^{7/16}$
	Threads per inch							
	16	12	12	12	12	12	12	8
	Turn of Adjusting Nut							
25,000	1/4	1/6	1/6	1/6	1/6	1/6	1/6	1/6
50,000	2/3	1/4	1/6	1/6	1/6	1/6	1/6	1/6
75,000	1	1/3	1/3	1/6	1/6	1/6	1/6	1/6
100,000	1-1/3	1/2	1/2	1/4	1/6	1/6	1/6	1/6
150,000	2-1/6	5/6	2/3	1/3	1/3	1/6	1/6	1/6
200,000	2-3/4	1-1/4	5/6	1/2	1/2	1/4	1/6	1/6
250,000	3-1/2	1-1/2	1-1/6	2/3	1/2	1/3	1/3	1/6
300,000	4-1/16	1-3/4	1-1/4	5/6	2/3	1/2	1/3	1/4
350,000	5	2-1/2	1-1/2	1	2/3	1/2	1/2	1/4
400,000	5-1/2	2-1/3	1-2/3	1-1/6	3/4	2/3	1/2	1/3
450,000	6-1/3	2-2/3	2	1-1/4	5/6	2/3	2/3	1/3
500,000	7-1/2	3	2-1/6	1-1/3	1-1/6	2/3	2/3	1/3
600,000	8-1/3	3-1/2	2-1/2	1-2/3	1-1/4	1	2/3	1/3
700,000		4-1/6	3	2	1-1/2	1-1/6	5/6	1/2
800,000		4-3/4	3-1/3	2-1/6	1-2/3	1-1/4	1	1/2
900,000		5-1/3	3-3/4	2-1/2	1-5/6	1-1/2	1-1/6	2/3
1,000,000		6	4-1/6	2-2/3	2-1/6	1-2/3	1-1/4	2/3
1,200,000			5	3-1/3	2-1/2	2	1-1/2	5/6
1,400,000			5-2/3	3-5/6	3	2-1/4	1-2/3	1
1,600,000			6-2/3	4-1/3	3-1/3	2-1/2	2-1/6	1-1/6
1,800,000				5	3-2/3	3	2-1/4	1-1/4
2,000,000				5-1/2	4-1/3	3-1/4	2-1/2	1-1/3
2,500,000					5-1/3	4	3-1/6	1-3/4
3,000,000					6-1/3	4-5/6	3-3/4	2
3,500,000						5-2/3	4-1/3	2-1/2
4,000,000						6-1/2	5	2-5/6
4,500,000							6-1/3	3-1/6
5,000,000								3-1/2

INSTRUCTIONS FOR USING ADJUSTMENT CHARTS: First determine the constant "C", which is the total head in feet x setting (length of shaft in feet) x thrust constant (K). Thrust constant is determined from Table I, corresponding to bowls installed. Turns of adjusting nut will be found in Table II under the diameter of shaft corresponding to the value of "C" determined.

EXAMPLE:
200 ft. total head – 140' setting – 12MS bowl – 1½" shaft "C" 200 x 140 x 12.5 = 350,000. From Table II, for "C" = 350,000 and shaft diameter of 1½", number of turns = 1.

SIDE SEAL IMPELLERS: For side seal impellers, the impellers should be raised at least one additional turn over that determined from the table.

POWER METER CHECK: If the impellers are dragging, the power input would be excessive, which can be determined with the power meter on electric drive installation. The horsepower can be determined approximately as follows:

Motor HP = .08 x K x R, where K is the meter constant (usually stamped on meter nameplate or on revolving disc) or meter constant times current transformer ratio for a 5 ampere power company meter. R is turns for one minute.

AMMETER CHECK: The load may also be checked by comparing the ampere input with the motor nameplate rating.

INSTALLATION RECORD

Purchased From _____

Date of Installation _____

Well I.D. (In.) 8" Well Depth (ft.) 113'

Water level (Ft.) Standing 9' Pumping 150 GPm

Pump Bowl Model No. 6XCA5

Pump Bowl Serial No. 102555

Bowl Setting (ft.) _____

Suction Pipe, Size (In.) 5" Length (Ft.) 10'

Discharge Column Size (In.) 5" X 50

Discharge Column, Total Length (Ft.) 50'

Discharge Column, Section Length (Ft.) _____

Motor _____ HP _____ Phase _____ Cycle _____ Volts

Motor Speed _____ RPM _____

IMPELLER ADJUSTMENT: Install head shaft nut on top of motor shaft and tighten until the shaft turns freely or impellers are not resting on bottom of the bowls. Holding the shaft, tighten nut carefully until the impellers touch top of the bowls. CAUTION: Care should be taken not to force the impellers against the top of the bowls. Note total distance raised and lower to mid-position and lock the nut by inserting the locking screw in the proper hole of the head shaft nut.

HEAD SHAFT: With a hack saw, cut off the head shaft to a length that will accommodate the motor canopy. CAUTION: Place a clean rag over the bearing and around the shaft to protect the bearing from saw filings.

BELTED DRIVE: The belted head turbine is installed in the same manner as electric drive, except the discharge head should be secured to the foundation to withstand belt pull.

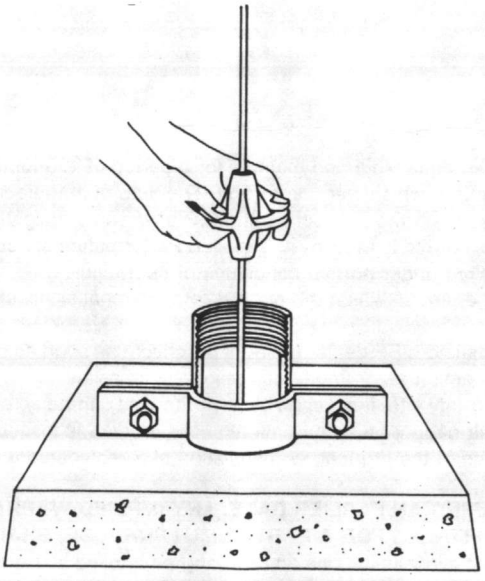


FIG. 4

GEAR DRIVE: A right angle gear drive is installed in the same manner as the electric drive.

PACKING GLAND ADJUSTMENT: Tighten the packing gland until the packing seizes the shaft and then back off the gland until the shaft turns freely.

DISCHARGE PIPE: Install the discharge pipe and valve on the pump discharge.

PRELUBRICATION: Prelubricate lineshaft bearings by introducing water into the pump column through the auxiliary discharge in the back of the head. IMPORTANT: Column bearings must be water lubricated before starting pump.

STARTING PUMP: Start the pump with the discharge valve closed, and open in small steps, allowing water to clear of sand between each step. CAUTION: DO NOT STOP PUMP WHEN WELL IS DELIVERING SAND. If necessary, close the valve gradually, allowing the water to clear and stop the pump when valve is closed. After the well is free of sand at open discharge pumping, and after the pump has been started a few times without delivering excess sand, the impellers may be reset to the normal running position.

RESETTING IMPELLERS: For maximum performance, semi-open or end seal impellers should be set only a few thousandths of an inch above the bottom of the bowls. The following table indicates the approximate distance the semi-open or end seal type impellers should be raised above the bowl face to allow for the shaft stretch due to hydraulic thrust. The distance is expressed in turns of the adjusting nut after the impellers start to turn freely. For electric drive, the adjustment should be checked by observing the horsepower; if the power is excessively high the impellers are probably dragging and should be raised slightly.

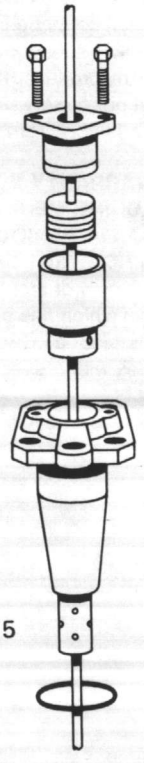


FIG. 5

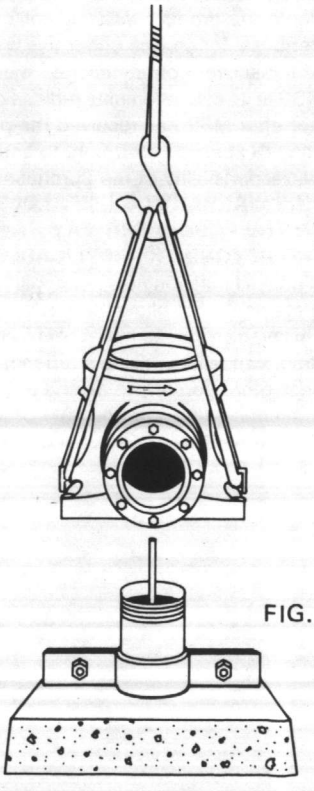


FIG. 6

CAUSES OF IMPROPER OPERATION

MOTOR FAILS TO START

(a) Check to see that the motor shaft turns freely.
(b) See if the power is on.
(c) Check all fuses.
(d) See if the contacts close on the starter, pressure switch, or any other controls.
(e) Check for loose or broken wire connections.
(f) See that the reset button on the starter is pushed in.

MOTOR WILL NOT COME UP TO SPEED

(a) Check to see that motor shaft turns freely.
(b) Check motor connections for proper voltage.
(c) Check to see that impellers are not set too low.
(d) Check for loose electrical connections.
(e) Check packing gland for overheating.

MOTOR RUNS VERY HOT

NOTE: Modern motors are designed to run hot and if the hand can be held on the motor for 10 seconds without extreme discomfort the temperature is not dangerous.

(a) Check the motor current with an ammeter, and if the current under normal pressures does not exceed the motor nameplate reading by more than 15% for the 3 HP motors or larger, the load may be considered safe.
(b) Check to see that the motor shaft turns freely.
(c) Check the packing gland for over-heating.
(d) Check for proper voltage and motor connections.

LOW CAPACITY OR PRESSURE

(a) Check for proper speed.
(b) Check for correct setting of impellers and refer to installation instructions for proper adjustment.
(c) Measure water level when pump is running. If lower than anticipated, capacity and pressure will normally be less.
(d) Ascertain if well contains foreign matter, such as leaves, sticks, mud, etc., that may clog strainer or impeller and bowl passages.

PUMP VIBRATES BADLY

(a) This pump when properly installed should not vibrate or rattle; if the pump does vibrate, check for misalignment or faulty installation. See installation instructions for proper installation and aligning technique.
(b) If the pump shakes and rattles on starting only, the lineshaft bearing may not be getting proper pre-lubrication. Make certain that the pump lineshaft bearings are fully wetted before each start.

LIMITED WARRANTY

Mid-South Pump (MSP) warrants its new products to be free from defects in workmanship and material for a period of 12 months from the date of initial sale to the ultimate user or 36 months from the date of manufacture, whichever comes first. The date of manufacture will be clearly marked or imprinted on the product package, in the product literature, or on the product itself. MSP's warranty obligation with regard to equipment not of its own manufacture is limited to the warranty actually extended to MSP by its supplier. Performance of equipment is further warranted to be in accordance with stated ratings when properly installed under normal conditions of operation.

This warranty extends only to the original retail purchaser and only during the time in which the original retail purchaser occupies the site where the product was originally installed.

Requests for service under this warranty shall be made by contacting the installing MSP dealer (point of purchase) as soon as possible after the discovery of any alleged defect. MSP will subsequently take corrective action as promptly as reasonably possible.

MSP at its discretion may replace or repair any product that fails under this warranty after inspection by an authorized company representative or after MSP has received the product at our factory. Replacement or repair cannot be made until after the product is inspected. All charges or expenses for freight to and from the factory, remov al and reinstallation of the product, or installation of a replacement product are the responsibility of the purchaser.

THIS WARRANTY SUPERSEDES ANY WARRANTY NOT DATED OR BEARING AN EARLIER DATE. ANY IMPLIED WARRANTIES WHICH THE PURCHASER MAY HAVE, INCLUDING MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE APPLICABLE WARRANTY PERIOD. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. **IN NO EVENT SHALL MSP BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.** Some states do not allow the exclusion or limitation of incidential or consequential damages, so the above may not apply to you.

This warranty does not apply to any product which has been subjected to negligence, alteration, accident, abuse, misuse, improper installation, vandalism, civil disturbances, or acts of God. The only warranties suthorized by MSP are those set forth herein. MSP does not authorize other persons to extend any warranties with respect to its products, nor will MSP assume liability for any unauthorized warranties made in connection with the sale of its products.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

Mid-South Pump Company

1555 THREE PLACE • MEMPHIS, TENNESSEE 38116 • (901) 345-7204 • TOLL FREE: 1-800-238-7167

WATER ANALYSIS

By _____

Date Oct 4 1942

Sample from Well K

Total Solids	210 PPM	Dissolved Solids	190 PPM
Suspended Solids	20 PPM	Volatile Solids	PPM

Phenol. Alk. as $CaCo_3$	0 PPM	Silica as Sio_2	13 PPM
Total Alk. " "	170 "	Ferrous Iron as Fe	0 "
Carbonates " "	0 "	Total Iron as Fe	1.3 "
Bicarbonates " "	170 "	Aluminum as Al.	2.1 "
Chlorides as Cl.	10 "	Calcium as Ca.	61.8 "
Sulphates as SO_4	5.7 "	Magnesium as Mg.	40 "
Nitrites as No_2	"	Sodium as Na.	6.5 "
Carbon Dioxide as CO_2	"		

pH 7.3 Soap Hardness as $CaCO_3$ 180 PPM

Odor Slight Turbidity 5

REMARKS

FORM A-4
(JUNE '66)

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF WATER DATA COORDINATION
INVENTORY OF HYDROLOGIC DATA STATIONS
QUALITY OF WATER

APPROVED.
Budget Bureau No. 42-R1485
Approval Expires June 30, 1968

1. AGENCY CODE	2. TYPE	3. LATITUDE	4. LONGITUDE	5.
MC	Q	34 44 00 N	77 28 11 W	

6. AGENCY STATION NO.	7. STATION NAME
TC604	TC508-K

8. DRAINAGE BASIN CODE	9. STATE CODE	10. COUNTY CODE	11. COUNTY NAME
No. 6 Letter N	32	133	ONSLOW

12. PERIOD OF RECORD		13.	14.
Began 1959	Discontinued	Y ☐ Continuous Interruption Exceeds 1 Year	

15. SITE

- ☐ 101 Stream
- ☐ 102 Canal
- ☐ 103 Lake
- ☐ 104 Reservoir
- ☐ 105 Estuary
- ☐ 106 Spring
- ☒ 107 Well
- ☐ 110 Other

16. FREQUENCY OF MEASUREMENT

- ☐ 201 Continuous Recorder
- ☐ 202 Telemetered
- ☐ 203 Daily
- ☐ 204 Weekly
- ☐ 205 Monthly
- ☐ 206 Quarterly
- ☐ 207 Seasonal
- ☐ 208 Annual
- ☐ 209 Other Periodic
- ☒ 210 Occasional

17. TYPES OF DATA AVAILABLE

Physical
- ☐ 311 Temperature
- ☐ 312 Specific Conductance
- ☐ 313 Turbidity
- ☐ 314 Color
- ☐ 315 Odor
- ☐ 316 Radioactivity
- ☐ 317 pH (field)
- ☒ 318 pH (lab)
- ☐ 319 Eh
- ☐ 320 Other

Chemical
- ☐ 331 Dissolved solids
- ☒ 332 Chlorides Only
- ☐ 333 Nutrients (Nitrogen and phosphorus compounds)
- ☐ 334 Common ions
- ☒ 335 Hardness
- ☐ 336 Radiochemical
- ☐ 337 Dissolved oxygen
- ☐ 338 Other Gases
- ☐ 339 Other

Organic
- ☐ 351 Pesticides (insecticides, herbicides, etc.)
- ☐ 352 Synthetic detergents
- ☐ 353 Other

Biologic
- ☐ 361 Coliforms
- ☐ 362 Other Micro-organisms
- ☐ 363 BOD
- ☐ 364 Other

Sediment
- ☐ 371 Concentration
- ☐ 372 Particle size
- ☐ 373 Other

18. SUPPLEMENTARY DATA FOR SITE

- ☐ 421 Surface Water Station
- ☐ 422 Ground Water Station
- ☐ 423 Water Stage or Level
- ☒ 424 Water discharge
- ☐ 425 Time of Travel
- ☐ 426 Drainage Area

19. STORAGE OF DATA

- ☐ 501 Periodic Report
- ☐ 502 Areal Report
- ☒ 503 Not Published
- ☐ 504 Data on Punchcard
- ☐ 505 Data on Magnetic Tape
- ☐ 506 Other

20. OFFICE AT WHICH DATA AVAILABLE

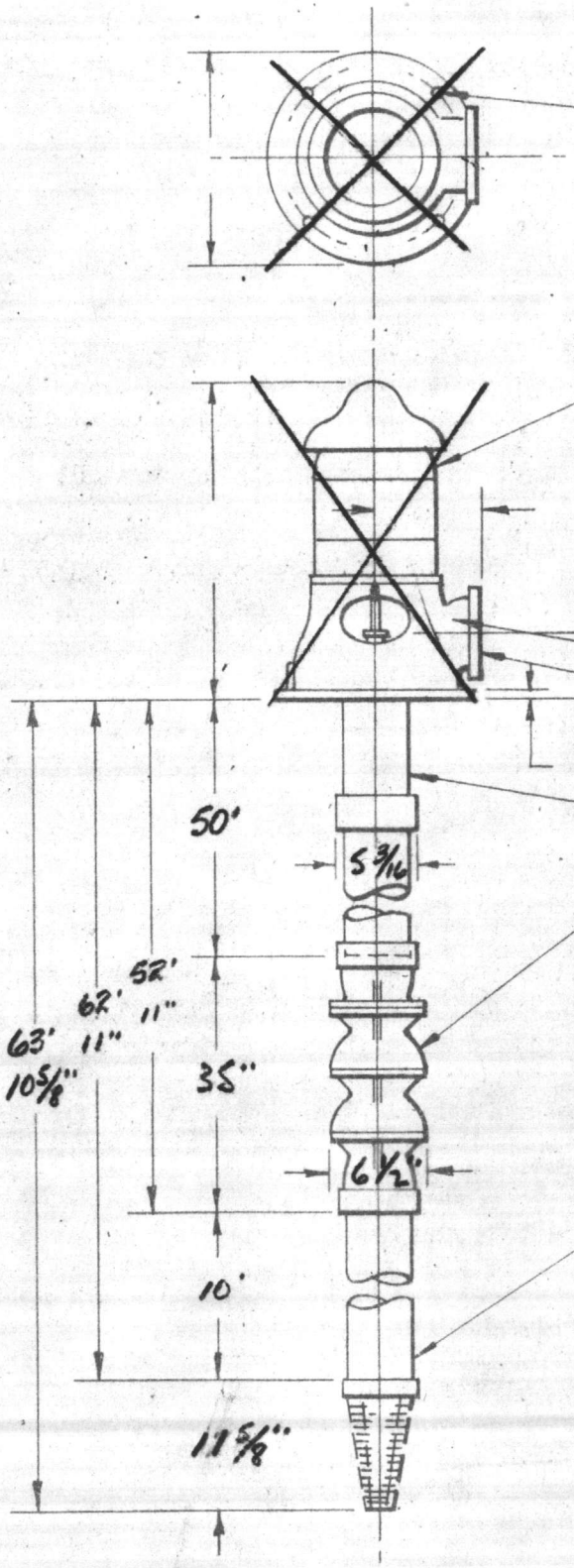
Office: BASE MAINTENANCE DEPARTMENT
Street No.: MARINE CORPS BASE
City, State, Zip: CAMP LEJEUNE, N. C. 28542
City Code: 0735

21. OFFICE COMPLETING FORM: BASE MAINTENANCE DEPARTMENT

22. COMPILER'S NAME: F. E. TEW, JR.

23. DATE: Month 09 Year 19 66

JOHNSTON VERTICAL TURBINE PUMP



Furnished By Others
VERTICAL HOLLOW SHAFT MOTOR

HP PHASE CYCLE
VOLT RPM
ENCLOSURE

Furnished By Others
TYPE "A" DISCHARGE HEAD
" X 125# FLANGE

GWI
4" x 2" x 1 3/16" COLUMN ASSEMBLY

4 STAGE 78C BOWL ASSEMBLY

CONDITIONS:
100 USGPM
65 FT. TOTAL HEAD
LIQUID WATER
SPEC. GRAV 1.0 @ °F PUMPING TEMP.

4" SUCTION PIPE 4" CONE STRAINER

CUSTOMER
PO#
DEALER HEATER WELL CO.
PO#
JOHNSTON SERIAL #
JOHNSTON QUOTATION #

NOTE: DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

Pump # K

JOHNSTON PUMP COMPANY
PASADENA, CALIFORNIA

5-20-57

H-1253-A

PUBLIC WORKS DEPARTMENT
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT NO. 3886 SPEC. NO. 3886/56

TITLE Repairs to Well Pumps, Camp Geiger

DATE: 4 June 57 W. J. Evans, Jr.

BY DIRECTION OF OFFICER
IN CHARGE OF CONSTRUCTION

HYDRAULIC PERFORMANCE IS CONTINGENT ON WELL BEING PUMP WITH CLEAR, FRESH NON-AERATED OR NON-GASEOUS WATER FREE FROM DETRITUS WITH NO SUCTION LIFT AND TEMPERATURE NOT TO EXCEED 85 DEGREES FAHRENHEIT

NOTE: ALL COLUMN LOSSES ARE INCLUDED

CUSTOMER: _____

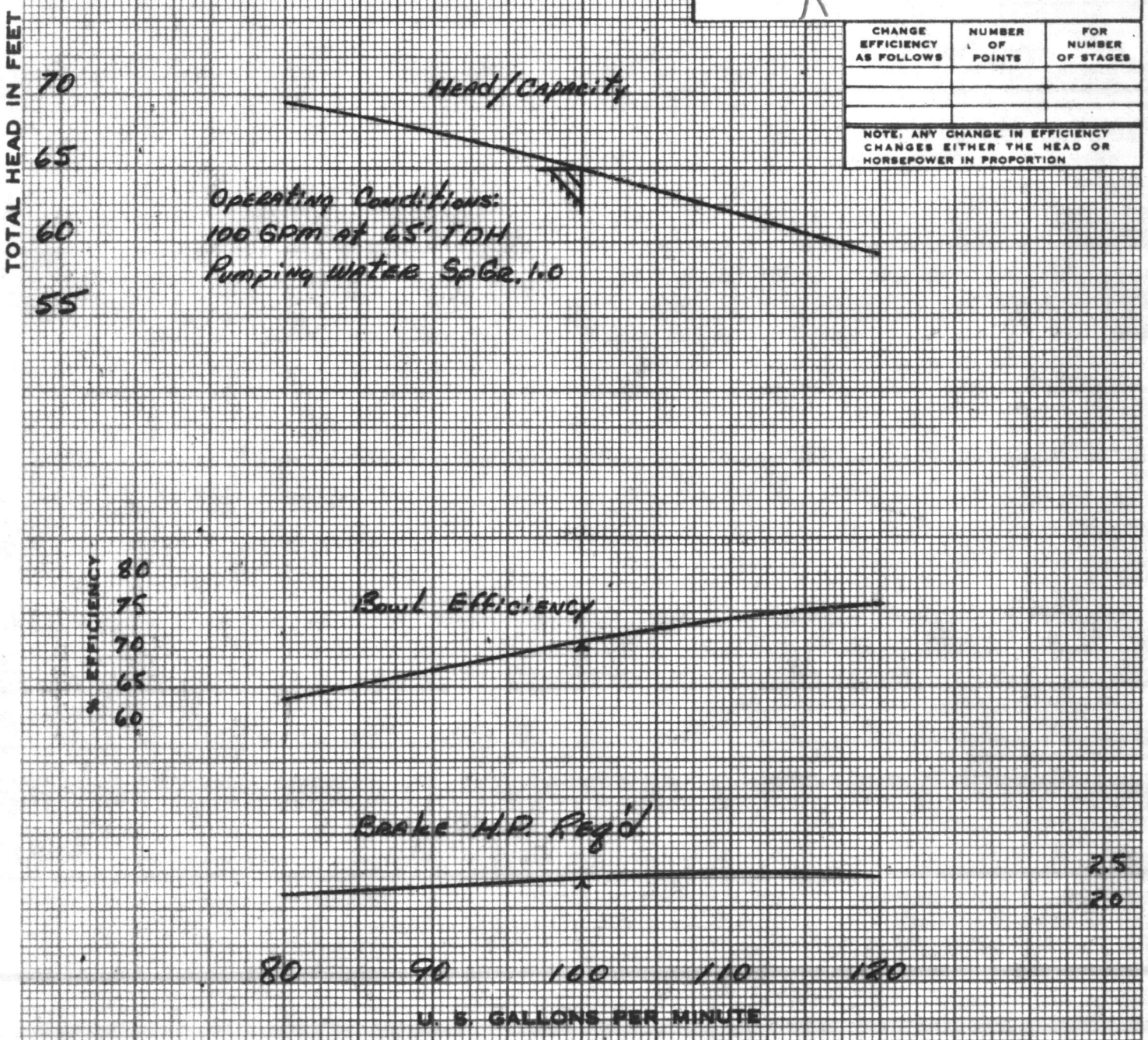
P.O.#

DEALER: Heater Well Co. P.O.#

JOHNSTON SERIAL: _____

CHANGE EFFICIENCY AS FOLLOWS	NUMBER OF POINTS	FOR NUMBER OF STAGES

NOTE: ANY CHANGE IN EFFICIENCY CHANGES EITHER THE HEAD OR HORSEPOWER IN PROPORTION



IMPELLER Brz. DIA.

DATE: 5-20-57 BY: JDM

JOHNSTON PUMP CO.

JOHNSTON

VERTICAL PUMPS

PASADENA · CALIFORNIA · USA

PERFORMANCE 4 STAGE

7BC DEEP WELL TURBINE PUMP

1800 R. P. M.

CURVE SHEET No.

PUBLIC WORKS DEPARTMENT
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT NO. 3886 SPEC. NO. 3886/56

TITLE Repairs to Well Pumps, Camp Geiger

DATE: 4 June 57 W. F. Evans, Jr.

BY DIRECTION OF OFFICER IN CHARGE OF CONSTRUCTION

WELL # K

PLACE - Geiger DATE - 18 Jan 1957

ORIGINAL WELL CAPACITY G.P.M. 150

ORIGINAL WELL		TESTING	
Depth of Well	138	Depth after Cleaning	94'
Pump Size		Test Pump Setting	60
Pump Setting	50	Measured Static Water Level	13'
Static Water Level	22.7 ele.	Depth of Air Line	60

Static on gauge 15.6

CONDITION OF WELL - Cleaned to 108'; well filled in to 98.; later to 94'. Muck and sand. Much oil.

STATIC LEVEL ON GAUGE

Inches of water in dizometer tube	G.P.M.	30 Min.	45 Min.	60 Min.	1 Hour
	75	PL	PL	PL	PL 30
	90	PL	PL	PL	PL 34
	105	PL	PL	PL	PL 37
	120	PL	PL	PL	PL 44(s)
	135	PL	PL	PL	PL 48(s)
	150	PL	PL	PL	PL 55(s)
		PL	PL	PL	PL
		PL	PL	PL	PL
		PL	PL	PL	PL
		PL	PL	PL	PL
		PL	PL	PL	PL

RECOVERY		
10 Sec.		41
20	PL	38
30	PL	38
40	PL	32
50	PL	36
60	PL	34
2 Min.	PL	30
4	PL	23
8	PL	18
16	PL	18
32	PL	17

Reduced pump speed to 100 G.P.M. to clear of sand P.L. 44.5

(s) Sand

Well # K-TC

Date	Line Ft.	G.P.M.	D.D. Ft.	Static	Shut off Head	D.D. Ft.

DIRECT READING GAGE.

10-25-54. 30 FT 25

Air Line

Marine Barracks
New River, N. C.
April 6, 1942

Wells: Permanent Water Supply, Tent Camp Area

By Layne Atlantic Company

Report on Well No. K

Location: 60' South East of the center line of Highway 17, and 1,188' North East of the intersection of Access Road to Landing Field and Highway 17 at Station 38 ~~+~~ 93, as shown on M.B. Drawing No. T.C. 223.

Date Drilled: January, 1942

Drilling Equipment: Rotary rig, bits and other equipment

Status: Ground Elevation 28.90

A 23" hole reamed to a depth of 73 feet. 73 feet of 18" I.D. steel casing set on rock and the anular space filled with cement grout from top to bottom. A 17½" open hole was drilled to a depth of 138 feet.

Log of Formation:

0 to 3'	Black top soil
3' to 64'	White sand
64' to 73'	Blue clay
73' to 138'	Coquina Rock
138'	Blue Clay

Remarks: Since there was not much sand in the coquina rock, and the top strata of sand was sealed of it, it was not necessary to construct a gravel wall well.

Static Level: 6'2" below surface

Pumping: Well pumped 150 gallons per minute with a 34' draw down from static level, and 250 gallons per minute with a 51 foot drawdown from static level.

A report will be made later of pump instilation.

See separate reports for chemical analysis.

N. H. Kellam
Asst. Chem. Engineer

Sheet 2.

Wells:

Location:

Drilling:

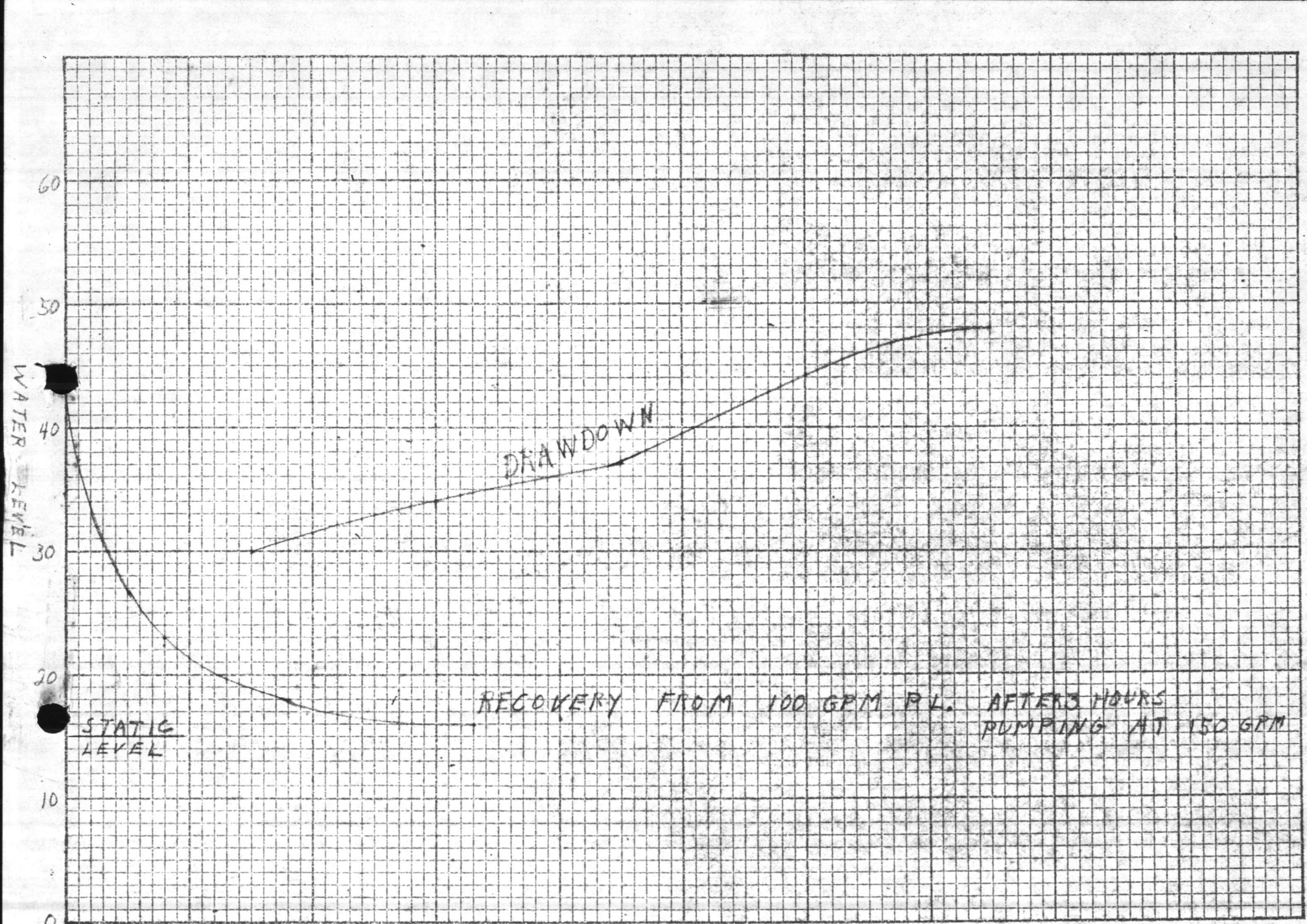
Casing:

Log of

Formations:

Remarks:

Production:



FEB. 2, 1954

CAMP LEJEUNE
SPEC # 3886

WELL K
CAMP GEIGER

WATER ANALYSIS

By _____

Date May 14-43

Sample from well K

Total Solids _____ PPM Dissolved Solids _____ PPM

Suspended Solids _____ PPM Volatile Solids _____ PPM

Phenol. Alk. as $CaCo_3$	0 PPM	Silica as Sio_2	PPM
Total Alk. " "	163 "	Ferrous Iron as Fe	"
Carbonates " "	"	Total Iron as Fe	.9 "
Bicarbonates " "	"	Aluminum as Al.	"
Chlorides as Cl.	9 "	Calcium as Ca.	56 "
Sulphates as SO_4	"	Magnesium as Mg.	"
Nitrites as No_2	"	Sodium as Na.	"
Carbon Dioxide as CO_2	"		

pH 7.3 Soap Hardness as $CaCO_3$ 143 PPM

Odor _____ Turbidity 8

REMARKS _____