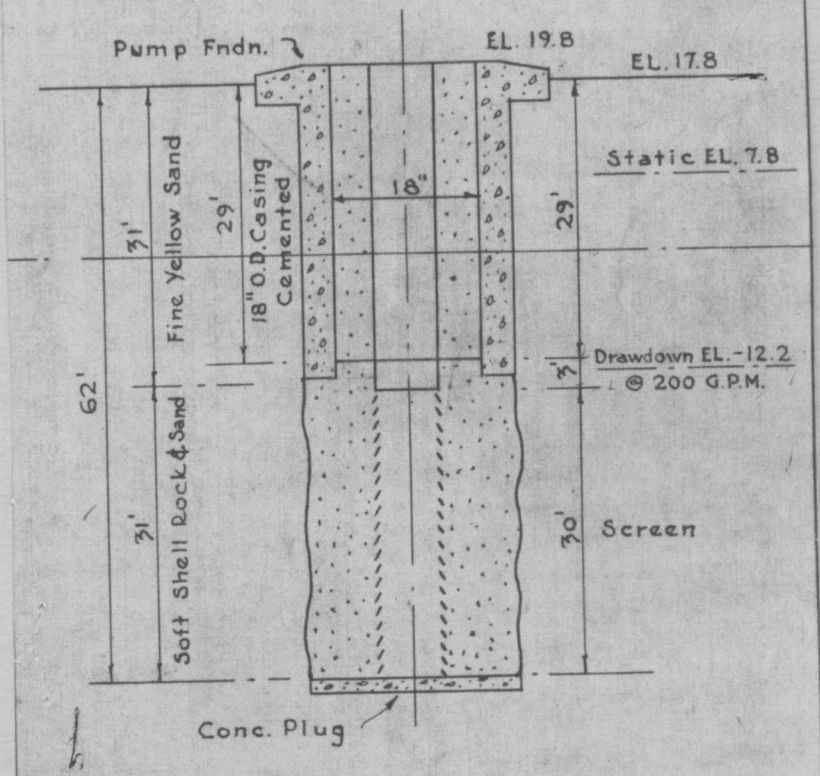
200 G.P.M. - DUAL DRIVE - 15 H.P.

need 6.5 ft on air lines to clean screens



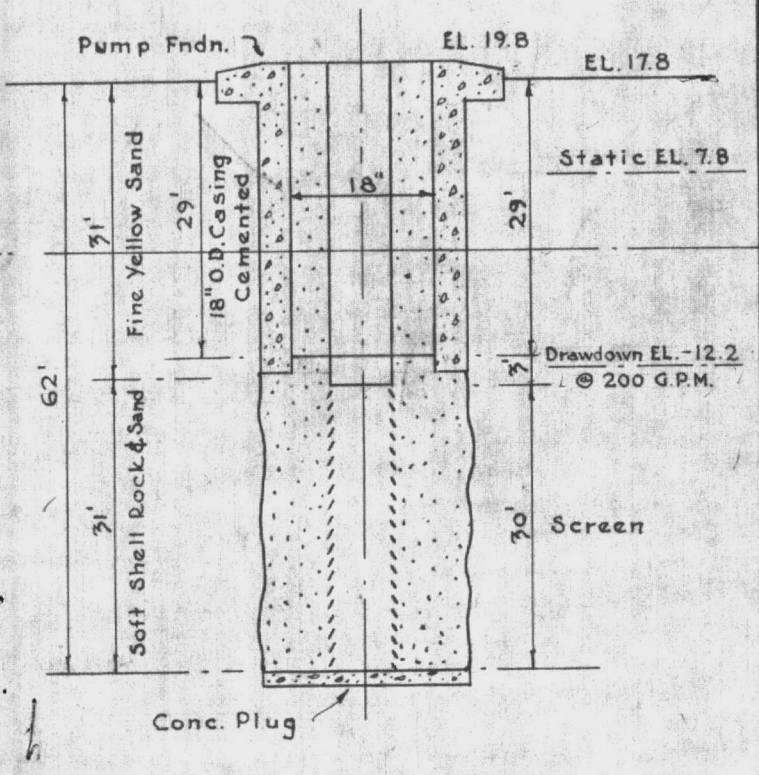
WELL #44

BALLOON BARRAGE WELL "V" 44

BB WELL # 44

200 G.P.M. - DUAL DRIVE - 15 H.P.

need 6.5 ft. on air line to clean screens



BALLOON BARRAGE WELL "V" 44

DATE 13 Apr 2000

PWSID 0467047

WELL # BB-44

WELL NAME Courthouse Bay 44

BLDG. BB44

CODE Ground

AVAILABILITY Permanent

LOCATION Horn Road CHB

LATITUDE 34° 35 min 04 sec. 166 N

LONGITUDE 077° 21 min 43 sec. 268 W

WELL DIAMETER 8"

WELL DEPTH 62'

SCREEN INTERVAL ~~0 to~~ 23' 8" ~~pipe~~

32' to 62' 8" screen

YIELD 200 gpm

STATIC LEVEL 17'

PUMPING LEVEL 27'

PUMP TYPE verticle turbine

MOTOR HP 5

INTAKE DEPTH 40'

DESIGN CAPACITY 140 gpm

ACTUAL GPM 115

SIZE OF CONCRETE SLAB 7 6X6

HEIGHT OF CASING 32 ft

83-451

BANKCARD REQUEST
PUBLIC UTILITIES DIVISION
CAMP LEJEUNE, NORTH CAROLINA 28542

SHOP 83	PHONE 451-7190 ext. 235/233	DATE 6-24-03
SHOP EMPLOYEE Doug Vopp	RDD 7-24-03	
JUSTIFICATION	TICKET 0343675	
	BUILDING BB-44	
	PRIORITY	
SUGGESTED SOURCE Charles R. Underwood, Inc.	VENDOR PC Pete Lowe	
	VENDOR PHONE 919-775-2463	

QTY	U/I	MFR & P/N	NOMENCLATURE/DESCRIPTION	UNIT PRICE	TOTAL PRICE
1	EA	7CLO	Goulds model 4Stage with LBowl Assem. w/4" Suction		
			& 4" discharge Connections		
1	EA		4" SS Cone Type Strainer		
3	EA		4" x 10' Schedul 40 w/2 Column Pipe		
2	EA		4" x 5' Schedule 40 w/2 Column Pipe		
3	EA		1.1875" x 10' 416 SS Line shaft		
1	EA		1.1875" x 5' 416 SS Line shaft		
1	EA		1.1875" x 64" 416 SS Top shaft		

SHOP SUPERVISOR'S SIGNATURE: _____

SUBMISSION OF REQUEST CONSTITUTES VERIFICATION OF STOCKAGE OF ITEM(S) ON EXCESS LISTINGS

SHOP WILL RECEIVE A COPY OF 2035 AFTER BUY IS MADE

AC	FA	WC	FC	OC/SOC	CAC	BRC	JON	RON	RBC
M67001	23	83	AD	2607			E021		

**********TO BE COMPLETED BY SUPPLY ONLY**********

CALL# JULIAN DATE DOCUMENT NUMBER(S) ASSIGNED EACH ITEM ABOVE

83-451

BANKCARD REQUEST
PUBLIC UTILITIES DIVISION
CAMP LEJEUNE, NORTH CAROLINA 28542

SHOP: 83	PHONE: 451-7190 ext. 235/233	DATE: 6-24-03
SHOP EMPLOYEE: Doug Yopp	RDD: 7-24-03	
JUSTIFICATION:	TICKET: 03-43675	
	BUILDING: BB-44	
	PRIORITY:	
SUGGESTED SOURCE: Charles R. Underwood, INC.	VENDOR PC: Pete Lowe	
	VENDOR PHONE: 919-775-2463	

QTY	U/I	MFR & P/N	NOMENCLATURE/DESCRIPTION	UNIT PRICE	TOTAL PRICE
4	EA		4" Bronze Bearing Retainers		
4	EA		1.1875" Rubber Bearings		
1	EA		1.1875" Packing Box Bearing		
1	EA		Set Packing		
			Total Cost		$ 3914.60
		Estimated	Freight		145.00
					4059.60

SHOP SUPERVISOR'S SIGNATURE: _____

SUBMISSION OF REQUEST CONSTITUTES VERIFICATION OF STOCKAGE OF ITEM(S) ON EXCESS LISTINGS

SHOP WILL RECEIVE A COPY OF 2035 AFTER BUY IS MADE

AC	FA	WC	FC	OC/SOC	CAC	BRC	JON	RON	RBC
M67001	23	83	AD	2607			E021		

**********TO BE COMPLETED BY SUPPLY ONLY**********

CALL# JULIAN DATE DOCUMENT NUMBER(S) ASSIGNED EACH ITEM ABOVE

Phone: 919-775-2463
Fax: 919-708-7232 THE SOURCE FOR PUMP SOLUTIONS

Charles Underwood, Inc.

Fax

To: Ms. Robin **From:** N. F. "Pete" Lowe

Fax-- 1-910-451-7195 **Date:** June 19, 2003

Phone: **Pages:** Three

Pump Proposal **CC:**

☐ Urgent ☐ For Review ☐ Please Comment X Please Reply ☐ Please Recycle

Comments: Following find proposal for the pump equipment you requested.

Hard copy to follow via mail.

Thanks !!!!!!!!!!!!!!!! "Pete"

Charles R. Underwood, Inc.
Municipal Pump Sales & Service

2189 Everett Dowdy Road
Sanford, North Carolina 27330

Phone (919) 775-2463
Fax (919) 708-7232

June 19, 2003 Quote # 03132

Commanding General
Public Utilities Div. Bin 1
Water & Waste Water Sec. FC 440
MCB PSC Box 20004
Camp LeJeune, NC 28542-0004

Att: Mr. Doug Yopp

Ref: Well BB-44

Dear Mr. Yopp

We are pleased to offer the following proposal for the replacement pump you requested. This will be as follows.

Conditions: 130 GPM @ 95' TDH, 1770 RPM

- 1 ea. New Goulds Model 7CLO, 4 Stage W/L Bowl Assembly with 4" Suction and 4" Discharge Connections.
- 1 ea. 4" Stainless Steel Cone Type Strainer
- 3 ea. 4" X 10' Schedule 40 W/L Column Pipe
- 2 ea. 4" X 5' Schedule 40 W/L Column Pipe
- 3 ea. 1.1875" X 10' 416 Stainless Steel Line Shaft
- 1 ea. 1.1875" X 5' 416 Stainless Steel Line Shaft
- 1 ea. 1.1875" X 64" 416 Stainless Steel Top Shaft
- 4 ea. 4" Bronze Bearing Retainers
- 4 ea. 1.1875" Rubber Bearings
- 1 ea. 1.1875" Packing Box Bearing
- 1 ea. Set packing

Your cost	$3,914.60
Estimated freight	145.00
Total	$4,059.60

Delivery would be 10-14 days after receipt of your order. Price does not include any taxes, anchor bolts, gauges or other accessories not listed above

After disassembly and inspection of the bowl removed from this well, it appears the bowl shaft was bent. It is difficult to determine if this occurred in shipping and handling or in the installation of this unit. The bowl shaft had .065" run out at the top of the shaft. This tolerance on a new pump is .002"-.004".

When you place the order for this material, please have your service crew send the packing box to us via UPS so we may install the new packing box bearing and packing.

Trust this meets with your approval If you have any questions please give us a call.

Best regards,

N. F. "Pete" Lowe
General Manager

84-227

BANKCARD REQUEST
BASE MAINTENANCE DIVISION
CAMP LEJEUNE, NORTH CAROLINA 28542

SHOP ( ) PHONE 451-7190 EXT DATE 2-26-01

SHOP EMPLOYEE Hill RDD

JUSTIFICATION To Replace well Pump TICKET

BUILDING BB 44

PRIORITY

SUGGESTED SOURCE Charles Underwood Inc Sanford N.C. VENDOR POC Pete Lowe

VENDOR PHONE (919) 775-2463

Quote # 01138

QTY	U/I	MFR & P/N	NOMENCLATURE/DESCRIPTION	UNIT PRICE	TOTAL PRICE
1	EA	7WAHC	Gould 4 stage bowl Assem.		
1	EA		4" Galvanized cone strainer		
1	EA		4" x 10' Suction Pipe		
2	EA		4" x 5' Top/Bottom column Pipe		
3	EA		4" x 10' Intermediate column Pipe		
2	EA		1.1875" x 5' 416 Stainless Line shaft		
3	EA		1.1875 x 10' 416 SS Intermediate shaft		
4	EA		4" Bronze Bearing Retainers		
4	EA		1.1875" Rubber Bearing		
1	EA		Gould 4X10 Type "A" Discharge head		
1	EA		1.1875" 416 SS motor shaft		
1	EA		1.1875" head shaft.		4,549.70
			"Sole Source only"		

SHOP SUPERVISOR'S SIGNATURE D. HILL D. E. Hill

SUBMISSION OF REQUEST CONSTITUTES VERIFICATION OF STOCKAGE OF ITEM(S) ON EXCESS LISTINGS

SHOP WILL RECEIVE A COPY OF 2035 AFTER BUY IS MADE

AC	FA	WC	FC	OC/SOC	CAC	BRC	JON	RON	REC
57001	23	83	RP	2607	EAEO		EAEO		

********** TO BE COMPLETED BY SUPPLY ONLY **********

JULIAN DATE DOCUMENT NUMBER(S) ASSIGNED EACH ITEM ABOVE

Charles R. Underwood, Inc.
Municipal Pump Sales & Service

2189 Everett Dowdy Road
Sanford, North Carolina 27330

Phone (919) 775-2463
Fax (919) 708-7232

February 15, 2001 Quote # 01138

Commanding General
Att: Base Maintenance Division
Bin 1-83 Marine Corps Base
PSC Box 20004
Camp LeJeune, NC 28542-0004

Att: Danny Hill/Stanley Miller

Ref: Well BB-44

Dear Mr. Hill/Miller

We are pleased to offer our proposal for the replacement pump in the above referenced well. This would be as follows.

Conditions: 120 GPM @ 110' TDH

- 1 ea. Goulds Model 7WAHC, 4 Stage, Water Lubricated bowl Assembly
- 1 ea. 4" Galvanized Cone Strainer
- 1 ea. 4" X 10' Suction Pipe
- 2 ea. 4" X 5' Top/Bottom Column Pipe
- 3 ea. 4" X 10' Intermediate Column Pipe
- 2 ea. 1.1875" X 5' 416 Stainless Steel Top/Bottom Line Shaft
- 3 ea. 1.1875" X 10' 416 Stainless Steel Intermediate Line Shaft
- 4 ea. 4" Bronze Bearing Retainers
- 4 ea. 1.1875" Rubber Bearings
- 1 ea. Goulds 4 X 10 Type "A" Discharge Head
- 1 ea. 1.1875" 416 Stainless Steel Motor Shaft
- 1 ea. 1.1875" Head Shaft Nut

Your cost $4,549.70

We suggest you use the existing motor on the new pump. The new discharge head will require a 1" shim to make the discharge flange match with the existing piping. Price includes freight to your location. Delivery could be made in approximately 10 days to two weeks.

Phone: 919-775-2463
Fax: 919-708-7232

THE SOURCE FOR PUMP SOLUTIONS

Charles Underwood, Inc.

Fax

To:	Mr. Stanley Miller/Danny Hill	**From:**	N. F. "Pete" Lowe
Fax	1-910-451-7195	**Date:**	February 15, 2001
Phone:		**Pages**	Eleven
Q	Well Pump - BB 44	**CC:**	

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** X**Please Reply** ☐ **Please Recycle**

•**Comments** Following quotation for the above pump equipment.

Hard copy to follow via mail.

Thanks !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! "Pete"

Trust this meets with your approval. If you have any questions please give us a call.

Best regards,

N. F. "Pete" Lowe
General Manager

Charles Underwood, Inc.
N.F. "Pete" Lowe
Camp LeJeune, Well BB-44

Goulds Turbine Pump Selection ver: 6.042
02/14/01

PUMP DATA SHEET

Selection file: (untitled)

Curve: E6407WAPCO

Goulds Turbine 60 Hz

Catalog: TURB60.MPC v 1.6.1

Design Point: Flow: 120 US gpm
Head: 110 ft

Fluid: Water Temperature: 60 °F
SG: 1
Viscosity: 1.122 cP
Vapor pressure: 0.2568 psi_a
Atm pressure: 14.7 psi_a

Pump: TURBINE - 1800 **Size: 7WAHC; (4 stages)**
Speed: 1770 rpm Dia: 5.1875 in

Limits: Temperature: --- °F Sphere size: 0.29 in
Pressure: 365 psi_g Power: --- bhp

NPSHa: --- ft

Specific Speed: Ns: 1684 Nss: ---

Piping: System: ---
Suction: --- in
Discharge: --- in

Vertical Turbine: Bowl Size: 7.13 in Max Lateral: 0.5 in
Thrust K Factor: 2.63

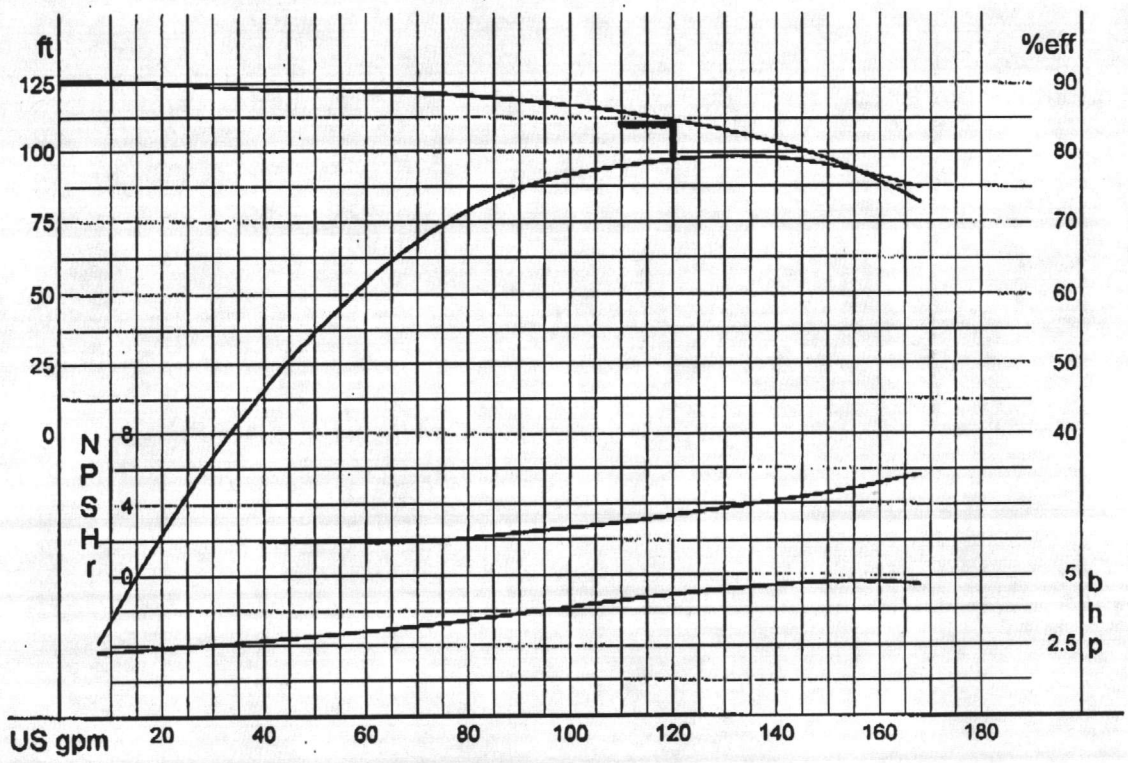
Motor: 5 hp Speed: 1800 Frame: 184T
NEMA Standard ODP Enclosure
sized for Max Power on Design Curve

Suction Size-4" Discharge Sizes-4",5",6"

--- Data Point ---
Flow: 120 US gpm
Head: 111 ft
Eff: 78.7%
Power: 4.29 bhp
NPSHr: 3.38 ft

-- Design Curve --
Shutoff Head: 126 ft
Shutoff dP: 54.5 psi
Min Flow: - US gpm
BEP: 79.3% eff
@ 135 US gpm
NOL Pwr: 4.72 bhp
@ 150 US gpm

-- Max Curve --
Max Pwr: 5.46 bhp
@ 159 US gpm



--- PERFORMANCE EVALUATION ---

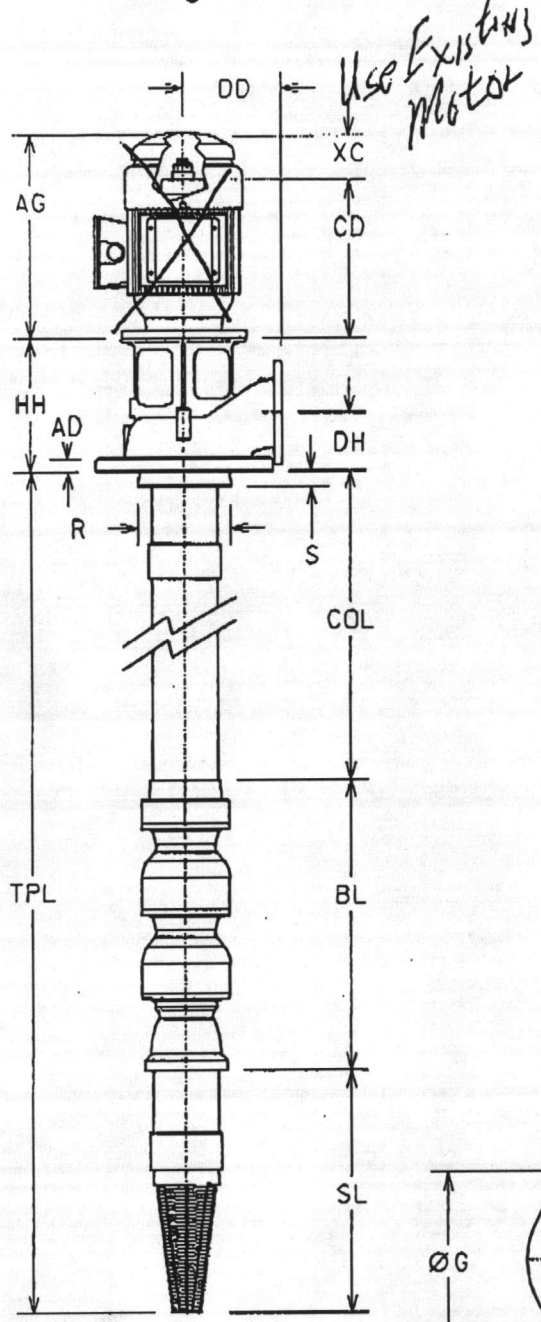
Flow US gpm	Speed rpm	Head ft	Pump %eff	Power bhp	NPSHr ft	Motor %eff	Motor kW	Hrs/yr	Cost /kWh
120	1770	111	78.7	4.29	3.38	86.2	3.71	1500	0.08
96	1770	118	75.7	3.76	2.59	86.2	3.25	3000	0.08
72	1770	121	67.6	3.25	2	86.3	2.81	1000	0.06

Total Annual Power Consumption: 18,131 kWh
Annual Operating Cost: $1,394

Prepared for Stanley Miller/Danny Hill

GOULDS TURBINE HYDRAULIC ANALYSIS of DWT-CATM PUMP

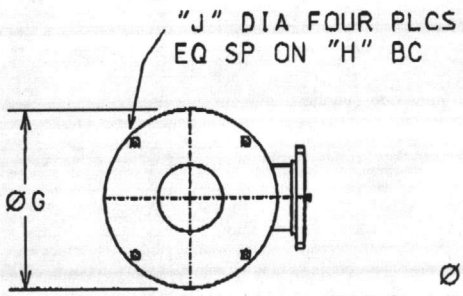
Date: 02-14-2001
4 Stage 4x7WAHC



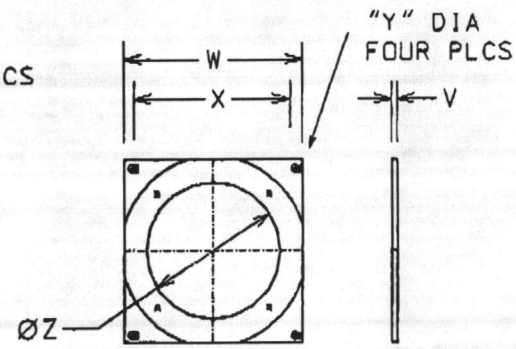
AD:	0.75
AG:	21.25
BD:	10.00
BL:	30.50
CAN:	0
CD:	17.56
CL:	0
COL:	480.00
DD:	9.00
DH:	5.00
G:	16.50
H:	14.00
HH:	13.50
J:	0.63
R:	7.50
S:	1.81
SL:	12.00
TPL:	522.50
UG:	0
V:	0.75
W:	18.00
X:	16.00
XC:	3.34
Y:	0.63
Z:	12.00

Pump Data

Size:	7WAHC
Stages:	4
Impellers:	Bronze
Bowl:	Cast Iron
Bearing:	Rubber
Basket:	No
LineShaft Type:	Open
Column:	Steel
Column:	4" Threaded
Bearing Spacing:	10 feet
Section Length:	
Head:	A:Cast
Flange (Disch.):	4" 125#
Inlet:	
Coupling:	416SS
Seal:	Packing
LineShaft:	416SS 1.19"
SubBase:	Other



DISC HEAD



SOLE PLATE

Hydraulic Data

Flow (gpm):	120
Pump Head (ft):	80.9
TDH (ft):	111.0
Speed (rpm):	1770
Fluid:	Water
Temperature (F):	60
Viscosity:	1.122
Spec.Grav:	1

Miscellaneous

Thrust At Design:	449
Thrust At Shutoff:	489
Min Water Level(in):	348

Weight

Pump:	1020
Motor:	120
Total:	1140

Motor Data

Model Number:	6968
Make:	USEM
HP:	5
RPM:	1800
Type:	TU
Efficiency:	82.5
Frame:	184TP
Ratchet:	NRR

GOULDS TURBINE HYDRAULIC ANALYSIS of DWT-CATM PUMP

Date: 02-14-2001
4 Stage 4x7WAHC

Overall Pump Parameters

Size and Model:	7WAHC	Pump Operating Speed, RPM:	1770
Capacity, GPM:	120	Total Dynamic Head, Ft.:	111
Total Pump Length, In.:	522.5	Impeller Trim, In.:	5.1875
Pump Type:	OpenSump	Head Type:	A:Cast
Pump K-Factor:	2.63	Number of Stages:	4
		Pumping Level, In.:	348.0

LineShaft-Related Data

Shaft Diameter, In.:	1.19	Shaft Limit, HP:	126
Shaft Material:	416SS	Matl Correction Fact:	1.18
LineShaft Length, In.:	480.00	Shaft Elongation, w/o Adder:	0.00
		LineShaft Type:	Open

Bowl Data

Total Bowl Length, In.:	30.50	Bowl Diameter, In.:	7.125
		Bowl Shaft Limit, HP:	125

Column Data

Column Diameter, In.:	4	Column Load, Lb.:	104.5
Wall Thickness, In:	Standard	Column Elongation, In.:	0.00

HorsePower Data

Shaft Friction Loss, Hp.:	0.29	Thrust Load Loss, Hp.:	0.06
Bowl HP At Design, Hp.:	4.29	Motor HorsePower, Hp.:	5

Head Data

Column Loss, Ft.:	0.95	Discharge Head Loss, Ft.:	0.11
		Total Loss, Ft.:	1.06

Other Data

Hydraulic Thrust, Lb.:	291.9	Thrust at Design, Lb.:	449.0
Thrust at Shutoff, Lb.:	488.5	Design NPSH, Ft.:	3.38
Max Lateral, In.:	0.5	Min. Lateral Required, In.:	0.13
		Actual Head above Grade, Ft.:	80.94

Efficiency Data

Bowl Efficiency:	78.70	Pump Efficiency:	72.77
Motor Efficiency:	82.50	Overall Efficiency:	60.04
		KWH/1000 gallons:	0.58

Component Weights

Bowl Weight, Lbs.:	150	Column Weight,Lbs.:	720
Head Weight, Lbs.:	150	Can Weight,Lbs.:	0
Motor Weight, Lbs.:	120	Total Pump Weight,Lbs.:	1140

HP Hadnot Point

NWW holes

Lithology

Resistivity Logs

Gamma Logs

Sneads Ferry South

HP 637 no lithology

642 x 652 (611) (612)

606

609

combined 628 x 638 no GR

661 no DATA

662 no DATA

moore Rdy 640

632

595

Firetower Rd 596

South Rd

BB - Courthouse Bay

BB 220 BB221 BB218 NWW + NWW

BB 44

BB 47

Onslow Beach

BA 145

BA 164

BA 190

WELL NUMBER	BB 44	BY	SALAS			DATE	4-17-02
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE		GPM	START TIME
40	15	20	05	25		100	05
		22	07	20		108	15
		25	10	15		115	25
		25	10	10		128	35
		25	06	05		130	45

REMARKS D/H - 35

Note: pressure will not set @ less than 40 PSI.

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER	BB-44	BY	SALAS			DATE	9-22-03
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE		GPM	START TIME
40	15	25	8	22		100	10
		28	12	18		115	20
		30	15	15		128	30
	SET AT ⇒	30	10	10		146	

REMARKS D/H-38

TOOK BAC-T SAMPLE 11:45 9/22/03
by JOE S.

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

3 1/2 1
12
29

WELL NUMBER	BB44	BY	SALAS / KING			DATE	10-24-01
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE		GPM	START TIME
40	13	20	7	40		100	1830
		20	7	35		130	
		20	7	30		149	
				25		157	
				20		172	

REMARKS D/H-48 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER BB44 BY Stevenson & King DATE 6-27-01

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
40	13	19	6	45	100	
		20	7	40	122	
		22	9	35	140	
	S/H @	24	11	30	154	
				25	170	

D/H 49

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER BB-44 | BY STEVENSON & KING | DATE 2-8-99

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
44	14	25	9	23	100	25
		29	15	20	119	45

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER BB-44 | BY Stevenson & Peterson | DATE 3-5-96

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
42'	17	24	7	25	100	
		27	10	22	115	

REMARKS Dead Head 34 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER BB 44 | BY THOMAS | DATE 12-9-91

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
42	17	24	7	25	100	
		27	10	20	130	
		30	13	15	149	

REMARKS Last set @ 22 PSI Valve wide open
Dead head @ 35 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER BB 44 BY THOMAS - COX DATE 8-28-90

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
42	19	26	7	22	104	35
left eat at →		30	11	18	125	45

REMARKS

deadhead 33

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

BB 44
10-23-85

A/L	S/L	R/L	D/D	PSI	GPM	Time
42	16	27	11	23	104	15
		32	16	18	128	15

WELL NUMBER BB 44		BY Thomas - Brown				DATE 12-28-84
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 1300
42	15	27	12	22	104	1320

REMARKS lift set @ 22 psi 104-Gpm P/L 27 D/D 12

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

North Carolina Department of Environment, Health, and Natural Resources
Division of Environmental Health, Public Water Supply Section

SOURCE INFORMATION
GROUND WATER

Date Form Completed: M M D D Y Y = 01 25 95

PWSID: 0 6 6 7 0 4 7

Owner Assigned Source Code: 44

Well Name (If purchase, name of system): COURTHOUSE BAY ~~##~~ BB 44

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): HORN ROAD CHB

Latitude (N): Deg. Min. Sec. = 34 35 04

Longitude (W): Deg. Min. Sec. = 077 21 43

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: 600

Entry Point Name: ~~BB #1~~ MCB COURTHOUSE BAY IWTP

Location:

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

Sources of pollution/distance: Road @ 60'

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: OK

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: NONE

Well: Diameter: 8" Type: GRAVEL PACKED Yield (gpm): 200+40 Properly sealed? Y (Y,N

Properly vented? N (Y,N) Casing depth 32 ft. (If unknown, put 'UNK') Well depth: 62 Meter available? N (Y,N

Concrete slab adequate? ___ (Y,N) If no, explain: Size: 7&X6

Size of blow-off: 4" Sample tap: Before treatment? Y (Y,N) After treatment? ___ (Y,N

Pumps: Capacity: GPM: 200 140 HP: 5 Pump intake depth: 40 Auxiliary Power? N (Y,N

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 14 1/2"

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? ___ (Y,N

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? CHB PLANT

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

① NO vent
② no meter
③ leaking valve

Well depth	62'10"	out.	in
pump depth	4"	10-1-73	10-3-73
air line	42"		
W level	16'		

well bloved. 10-2-73 sand.

BB 44 JOHNSTON 4" 4 stage

DATE	WELL ~~#~~	DISCHARGE PRESSURE	GAGE READING STATIC	PUMPING LEVEL FT GAGE READING	FT DRAW DOWN	G.P.M.
4-15-63	BB-44	60	16 FT.			159
"	"	5-5				170
"	"	5-2				175
"	"	5-0				183
"	"	48				185
"	"	45				192

Air Line Broken

DATE	WELL #	DISCHARGE PRESS	GAGE READING STATIC	PUMPING LEVEL GAGE READING	DD-FT.	GPM
4-15-63	W BB-43	60	32 FT	[illegible] FT	7 FT	130
"	"	55	—	24 "	8 FT	151
"	"	52	—	23 "	9 "	159
"	"	50	—	22 "	10 "	167
"	"	48	—	21 "	11 "	172
"	"	45	—	20 "	12 "	180

Water level

16 ft from pump base

42# air line

GPM 200

Depth 62' 10"

Gray sand

4 stage.

new imp shaft

out 10/1/73

in 10/3/73

1 BB 44 10/4/73
GA 4207

7 C C

5 1/4

4 stage

8/22/68

Johnston

4"

40 setting

10 tact.

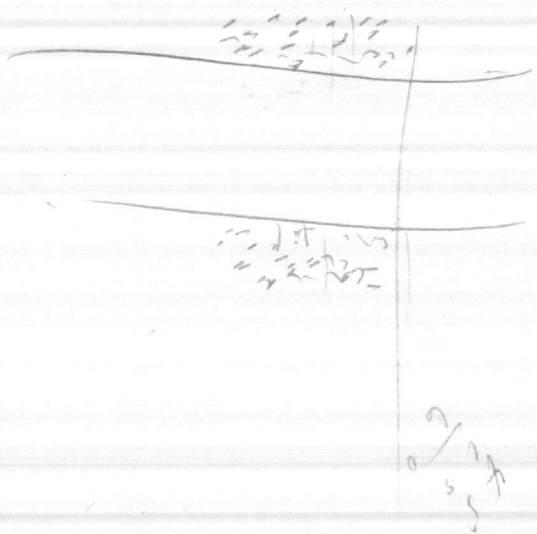
4 stamp unit

Tank full at 48# (6-6-67) pumping at 49# 200 GPM @ -18.2

AIR LINE

BB-44	STATIC	PUMP. LEVEL	R.P.	LINE PRES.	HEAD SHUT OFF	G.P.M.	S.L. ELEV.
	?	?	?	53	91#	172	
				45		195	
				40		205	
				43		201	
				48		192	
				51		178	
				55		170	
				58		159	
634	air line +32.6 67.9 -35.3			60		154	
	48	17	31	12	27#	104	-18.3
		15	33	10		111	-20.3
		14	34	8		115	-21.3
		13	35	6		119	-22.3
		12	36	4		122	-23.3
		10	38	0		133	-25.3

$$
\begin{array}{r}
2.31 \\
\times \quad 48 \\
\hline
1848 \\
924 \\
\hline
110.88
\end{array}
$$



April - 15. 1963

CHB WELL 44 LINE PRESSURE 57 lb.

DD	SPM.	Gauge Pre	in.
	159	60	14½
	170	55	16½
	175	52	17½
	183	50	19
	185	48	19½
	192	45	21

CHB WELL 43 LINE PRESSURE 51

DD	SPM	Gauge Pre	IN.	ST LEVEL
25	130	60	9½	32 ft
24	151	55	13	
23	159	52	14½	
22	167	50	16	
21	172	48	17	
20	180	45	18½	

TO MORRIS 3-24-67

~~WELL CAP.~~ ~~BB-#43 744~~

A-5

BB.43 WELL W

150. GPM.

BB.44 WELL V.

~~#50~~ 200 GPM.

A-5 WELL U.

250 GPM

Well #43 near Plant

10-15-71 cleaned

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	° ' " N: 34 35 04	° ' " W: 77 21 43	

6. AGENCY STATION NO.	7. STATION NAME
BB44	BB44-W

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

12. PERIOD OF RECORD Began	Discontinued	Y ☐ Continuous Interruption Exceeds 1 Year	13.	14.
1942				

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, UTILITIES DIVISION

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

E. E. TEW, JR.

23. DATE Month 04 Year 1966

WATER ANALYSIS

By N. H Kellam

Date 3-19-42

Sample from Well No. 1 Ballon Barrage

62' Deep 40 hrs Pumping

Total Solids	180 PPM	Dissolved Solids	150 PPM
Suspended Solids	30 PPM	Volatile Solids	PPM

Phenol. Alk. as $CaCo_3$	0 PPM	Silica as Sio_2	35 PPM
Total Alk. " "	124 "	Ferrous Iron as Fe	0 "
Carbonates " "	0 "	Total Iron as Fe	0.4 "
Bicarbonates " "	124 "	Aluminum as Al.	2.4 "
Chlorides as Cl.	18 "	Calcium as Ca.	51.8 "
Sulphates as SO_4	7 "	Magnesium as Mg.	3.6 "
Nitrites as No_2	0 "	Sodium as Na.	Trace "
Carbon Dioxide as CO_2	0 "		

pH 7.8 Soap Hardness as $CaCO_3$ 140 PPM

Odor Very Slight Turbidity 20

REMARKS

43-60/DRB/arc
N62470-68-B-0020/
NBy-88313
11 March 1970

Resident Officer in Charge of Construction,
Jacksonville, North Carolina Area

Base Maintenance Officer (Att: Dir of Utilities, Mr. Herndon)

Contract N62470-68-B-0020/NBy-88313, Water Treatment Plant, Courthouse Bay, MCB, Camp Lejeune, N. C.

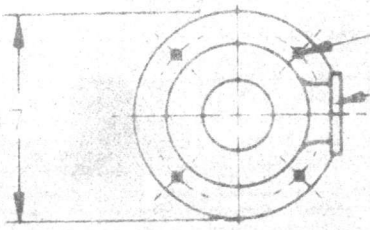
Ref: (a) Memo from Mr. W. R. PRICE dtd 9 Feb 1970

1. Reference (a) requested the length of air lines on wells #43 and #44. This length is 40 feet.

2. Reference (a) also noted several deficiencies on the subject contract. As of this date items 2 through 6 have been repaired and action is being taken to repair items 1 and 7.

D. R. BROSMAN
By direction

JOHNSTON VERTICAL TURBINE PUMP

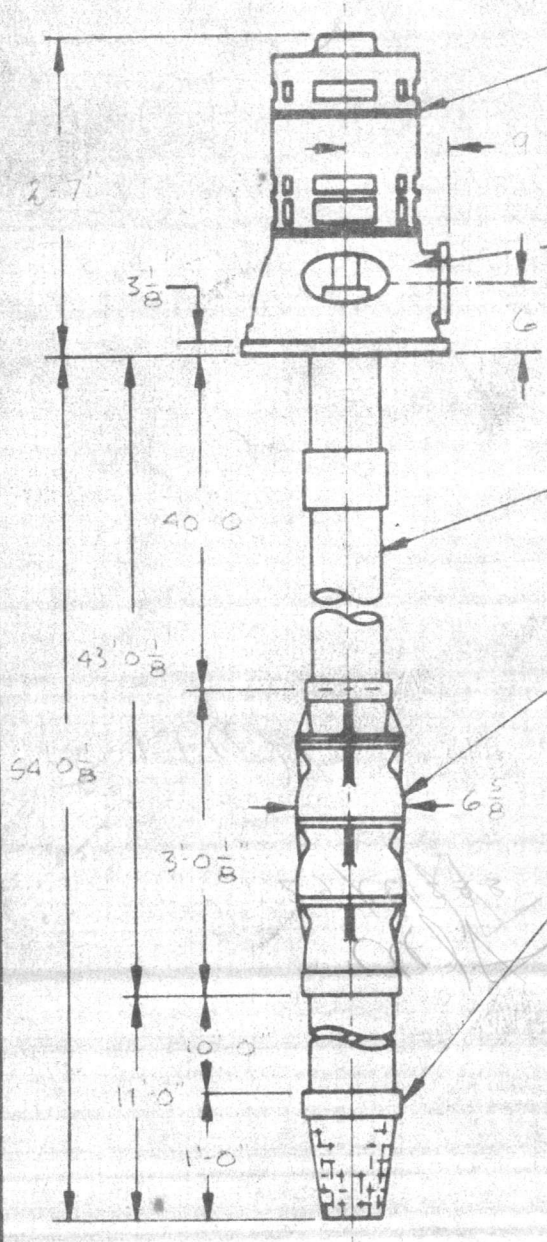


← 5/8 " DIA. HOLES ON 5 7/8 " B.C.

4 " x 125# ASA DISCHARGE FLANGE

CONDITIONS
U.S. GALLONS PER MINUTE— 190
TOTAL DYNAMIC HEAD IN FT.— 60
LIQUID— WATER
SPEC. GRAV. 1.0 @ °F. TEMP.

G. E. OR EQUAL
VERTICAL HOLLOW SHAFT MOTOR
HP— 5 PHASE— 3 CYCLE— 60
VOLTAGE— 208 RPM— 1760
ENCLOSURE— DRIPPROOF



TYPE "A" DISCHARGE HEAD— 10 x 4

COLUMN ASSEMBLY— 4 x 2 x 3/16

BOWL ASSEMBLY— 4 STAGE 7CC

SUCTION PIPE & CONE STRAINER— 4"

CUSTOMER
PO#
DEALER HADLEY WATER, Co
PO#
JOHNSTON SERIAL NO.
JOHNSTON QUOTATION NO. A 417

NOTE: DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

WELL NO. 44

JOHNSTON PUMP CO.
GLENDORA, CALIFORNIA

H-1253-A

1108311

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

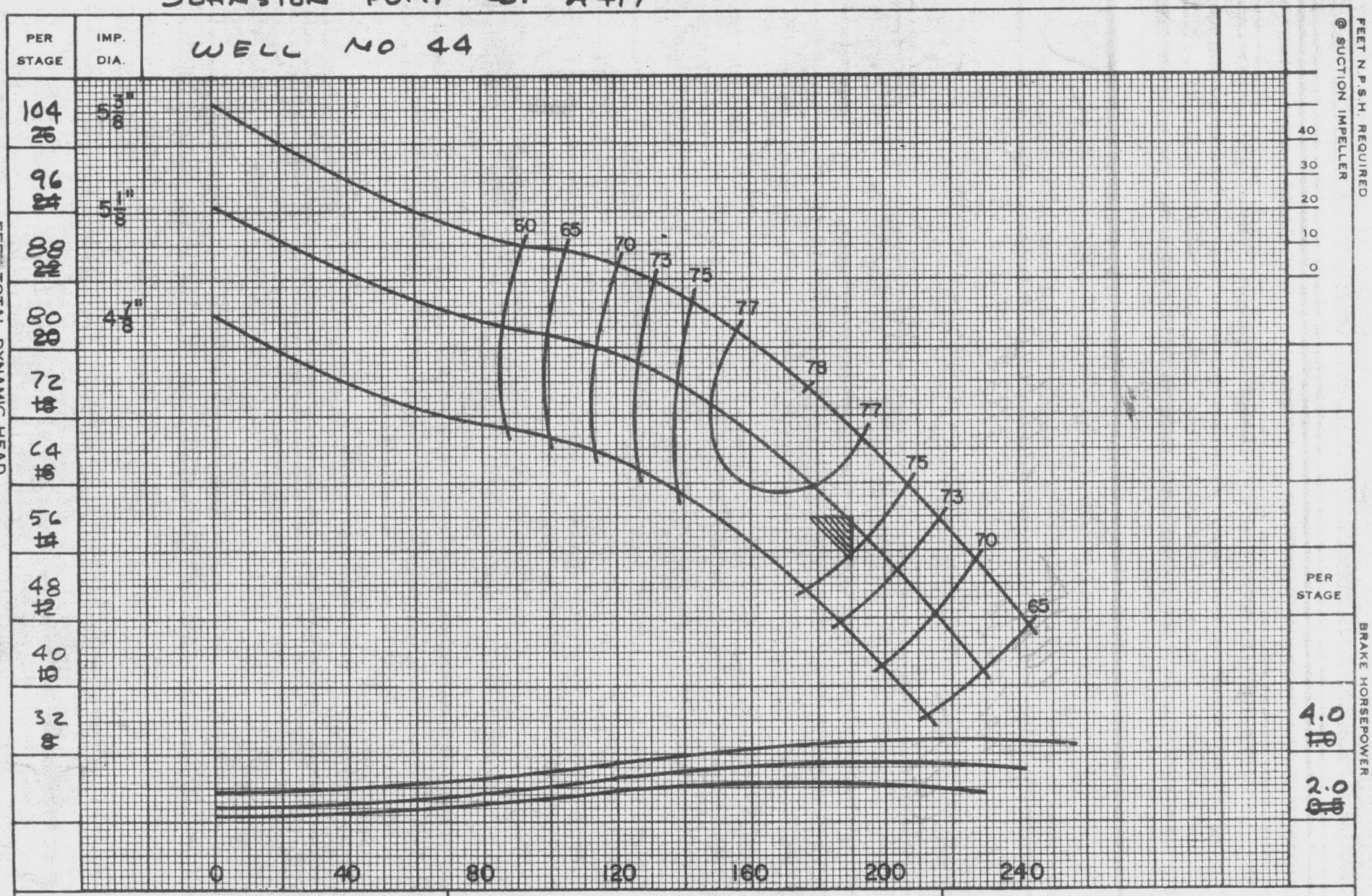
SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT NBy 88313 SPEC. NO. 88313/67

DATE: 3 July 1968

J. W. UPDEGROVE
CAPT. CEC, USN
Officer in Charge
of Construction

JOHNSTON PUMP Co. A417



PERFORMANCE BASED ON MULTISTAGE TESTS
PUMPING CLEAR COLD WATER SP. GR. 1.0
FOR 1 STAGE MULTIPLY HEAD & EFF. BY 0.95
FOR 2 STAGES MULTIPLY HD. & EFF. BY 0.98
DATE 1-2-64

JOHNSTON PUMP COMPANY
Pasadena, California
ESTABLISHED 1909

7 CC TURBINE PUMP
IMPELLER — BRONZE
1760 R.P.M.
BOWL — CAST IRON
4 STAGE
CURVE SHEET NO. 9682

PAGE 55 APRIL 6, 1964

7

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

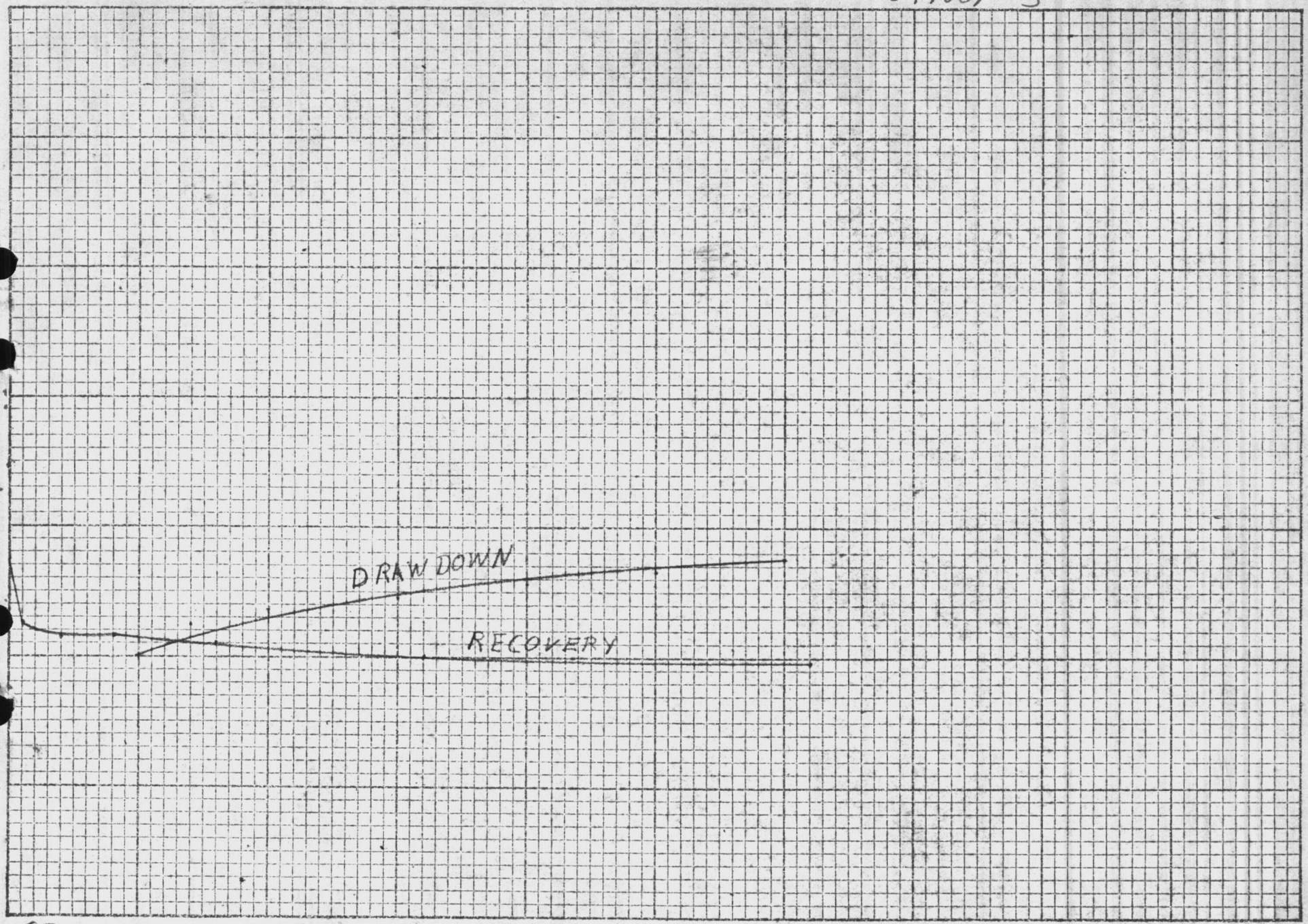
SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT NBy 88313 SPEC. NO. 88313/67

DATE: 3 July 1968

J. W. UPDEGROVE
CAPT. CEC, USN
Officer in Charge
of Construction

647081-3



FEB. 26, 1957

CAMP LEJEUNE

SPEC # 3885

WELL V

Courthouse Bay

HYDRAULIC PERFORMANCE IS CONTINGENT ON WELL BEING FURNISHING WATER 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

P.O.#

JOHNSTON SERIAL: _____

Pump # V

CHANGE EFFICIENCY AS FOLLOWS	NUMBER OF POINTS	FOR NUMBER OF STAGES

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

69901-4

TOTAL HEAD IN FEET

220
200
180
160
140
120
100

Head/Capacity

Operating Conditions:
160' TDH at 200 GPM
Pumping water Sp Gr 1.0

80
70
60
% EFFICIENCY

Bowl Efficiency

11.5
9.5
HORSE POWER

Brake H.P. Req'd.

120 160 200 240

U. S. GALLONS PER MINUTE

IMPELLER Bez.
5 3/32" DIA.

DATE: 3-21 BY: TDM

JOHNSTON PUMP CO.

JOHNSTON

VERTICAL PUMPS

PASADENA · CALIFORNIA · USA

PERFORMANCE 10 STAGE

7CC DEEP WELL TURBINE PUMP

1800 R. P. M.

CURVE SHEET No.

PUBLIC WORKS DEPARTMENT
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

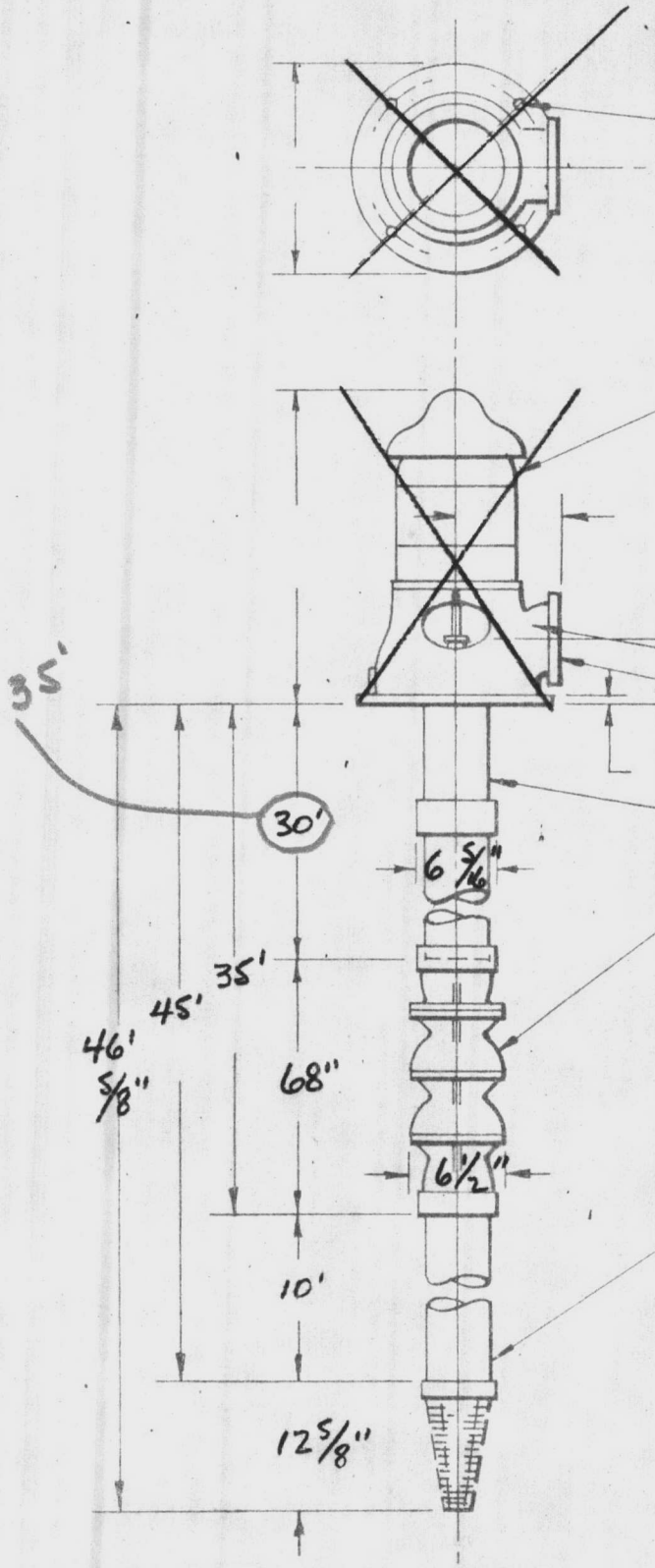
CONTRACT NO. 3885 SPEC. NO. 3385/56

TITLE Repairs to Well Pumps

DATE: 3-27-57 W. J. Evans, Jr.

BY DIRECTION OF OFFICER
IN CHARGE OF CONSTRUCTION

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

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

10 STAGE 7CC BOWL ASSEMBLY

CONDITIONS:
200 USGPM
160 FT. TOTAL HEAD
LIQUID Water
SPEC. GRAV 1.0 @ °F PUMPING TEMP.

5" SUCTION PIPE 5" CONE STRAINER

CUSTOMER
PO#
DEALER HEATER Well Co
PO#
JOHNSTON SERIAL #
JOHNSTON QUOTATION #

NOTE: DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

Pump # V

JOHNSTON PUMP COMPANY
PASADENA, CALIFORNIA

H-1253-A

PUBLIC WORKS DEPARTMENT
CAMP LEJEUNE, NORTH CAROLINA

APPROVED As Noted

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT NOy 3885 SPEC. NO 3885-52

TITLE Repairs to Well Pumps

DATE: 3-27-57 W. T. Edens, Jr.

BY DIRECTION OF OFFICER
IN CHARGE OF CONSTRUCTION

WELL # x

PLACE - Courthouse Bay DATE - 28 Feb 1957

ORIGINAL WELL CAPACITY G.P.M. 200

ORIGINAL WELL		TESTING	
Depth of Well	62	Depth after Cleaning	62.8
Pump Size		Test Pump Setting	40
Pump Setting	35	Measured Static Water Level	15.8
Static Water Level	7.8	Depth of Air Line	40

Static on gauge 17' 0"

CONDITION OF WELL - Cleaned 18" of sand out of well.

STATIC LEVEL ON GAUGE

Inches of water in dizometer tube	G.P.M.	30 Min.	45 Min.	60 Min.	1 Hour
	100	PL	PL	PL	PL 20
	120	PL	PL	PL	PL 23.5
	140	PL	PL	PL	PL 24.5
	160	PL	PL	PL	PL 25.5
	180	PL	PL	PL	PL 26.5
	200	PL	PL	PL	PL 27.5
	220	PL	PL	PL	PL 29
		PL	PL	PL	PL
		PL	PL	PL	PL
		PL	PL	PL	PL
		PL	PL	PL	PL

RECOVERY		
10 Sec.		23
20	PL	23
30	PL	22.5
40	PL	22.5
50	PL	22
60	PL	22
2 Min.	PL	21.5
4	PL	21.5
8	PL	21
16	PL	20
32	PL	19.5

44

Well # V-CHB

Date	Line Ft.	G.P.M.	D.D. Ft.	Static Ft.	Shut off Head Ft.	D.D. Ft.
6-1-53	150	150	AIR LINE	STOPPED MP.	188	
"	125	200				
"	117	245'				
	68	285'				
NEW JOHNSTON PUMP. BY HEATER.						
PUT IN OPERATION.						
7-20-62	~~55~~ 55 LB.	180	7' GAGE READING.			
"	50 LB	197	6" " "			
"	45 LB	205'	5' ½ " "			

Air Line ~~new - 3-21-57 - 60'-0"~~ 40'

Test run on No. 44 Well
at Courthouse Bay.

Date. 8/21/47.

Head P. 50, G.P.M. 229

Date. 1/6/50

Head P. 50, G.P.M. 133

Sheet 1

47

Marine Barracks
New River, N. C.
March 25, 1942

Well: Permanent Water Supply at Balloon Barrage

By Layne Atlantic Company

Report on Well No. 1 or Well V at Balloon Barrage

Location: 65 feet east of center line of new Access Road to Balloon Barrage at Station 2350.

Date Drilled: March 1942

Status: Ground elevation 17.79
A 17½" hole drilled to a depth of 32 feet. This was reamed to 23 inches in diameter to a depth of 30 feet. 29 feet of 18 inch I.D. Steel caseing set and the anular space around pipe filled with cement grout to ground level. A 17 inch hole was then drilled to a depth of 69 feet.

Log of Formation:

0 to 1'6"	Black top soil
1'6" to 31'	Very fine yellow sand, (Funs bad)
31' to 69'	Soft shell rock and sand in layers

Due to the sand mixed with the coguina rock, it was necessary to construct a well of gravel wall construction.

Gravel Wall Construction: 32 feet of 8 inch pipe and 30 feet of silician bronze shutter screen with cement plug was lowered into the well. The anular space around this was filled with a special ¼ inch gravel.

Log of Screen setting:

0 to 32'	8" Pipe
32' to 62'	8" Screen

Static Water Level: 10 feet from surface

Pumping: Well pumps 460 G.P.M. with a 45 foot draw down below static level, after 40 hours pumping. This is approximately 10.2 gallons per foot of draw down. Pumps 350 gallons per minute with a 35 foot draw down from static level. This is approximately 10 gallons per foot of draw down.

Further pumping test will be made after the deep well turbin pumps are set.

See separate report for chemical analysis.

N. H. Kellam
Asst. Chem. Eng.

WATER ANALYSIS

By N. H. Kellam

Date 3-11-42

Sample from Test Well No. 1 Ballon Barrage
60' Deep 18 hrs Pumping

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. " " 180	"	Ferrous Iron as Fe	"
Carbonates " " 0	"	Total Iron as Fe	"
Bicarbonates " " 100	"	Aluminum as Al.	"
Chlorides as Cl. 20	"	Calcium as Ca.	"
Sulphates as SO_4	"	Magnesium as Mg.	"
Nitrites as No_2	"	Sodium as Na.	"
Carbon Dioxide as CO_2 0	"		

pH 7.7 Soap Hardness as $CaCO_3$ 130 PPM

Odor Slight Turbidity 15

REMARKS

WATER ANALYSIS

By _____

Date _____

Sample from _____

Total Solids _____ PPM Dissolved Solids _____ PPM

Suspended Solids _____ PPM Volatile Solids _____ PPM

Phenol. Alk. as CaCO3 _____ PPM Silica as SiO2 _____ PPM

Total Alk. " " _____ " Ferrous Iron as Fe _____ "

Carbonates " " _____ " Total Iron as Fe _____ "

Bicarbonates " " _____ " Aluminum as Al. _____ "

Chlorides as Cl. _____ " Calcium as Ca. _____ "

Sulphates as SO_4 _____ " Magnesium as Mg. _____ "

Nitrites as NO_2 _____ " Sodium as Na. _____ "

Carbon Dioxide as CO_2 _____ "

pH _____ Soap Hardness as $CaCO_3$ _____ PPM

Odor _____ Turbidity _____

REMARKS

B.B. WELL 44