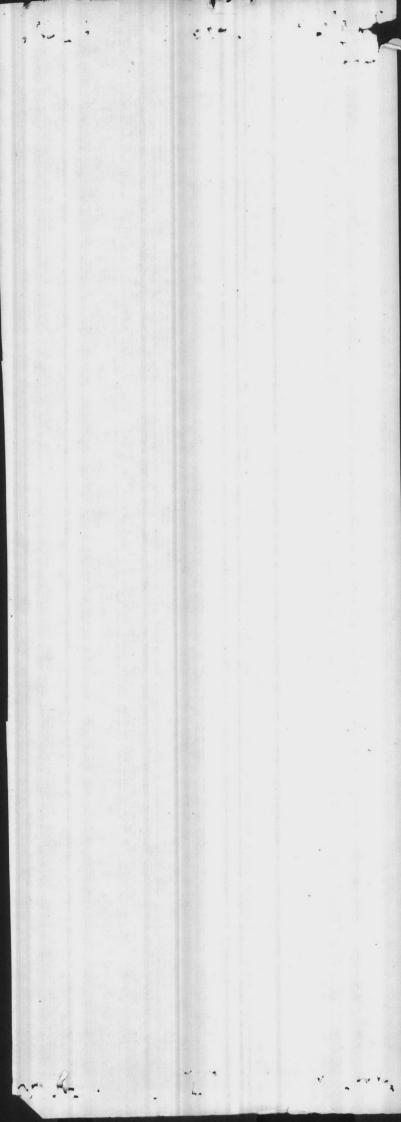
250 G.P.M. DUAL DRIVE 10 H, P. actual D.D.-39.7 230 Pump Fndn. 26.8 EL. 24.8 Yellow Sand 18" O.D. Casing Cemented 24-10" 18" Static +1.8 EL. ± 0.00 M. S.L. Rock Hard Soft Rock Sand Rock Very Hard Rock Sand With Max. D-44.0 Clay Mixed 255 G.P.M. 0 Screen Sand With Rock Shell Rock With Sand 20 In Layers Shell Rock Shell Rock With Salt & 0 Screen Pepper Sand Soft Shell Rock Salt & 20 Pepper Sand 0 Screen N Shell Rock With Salt & 20 Pepper Sand 0 Screen Shell Gray Clay 20 Hard Rock With Sand Pockets Hard Sand Conc. Plug D.T.A. WELL No.3



E 12/31/97



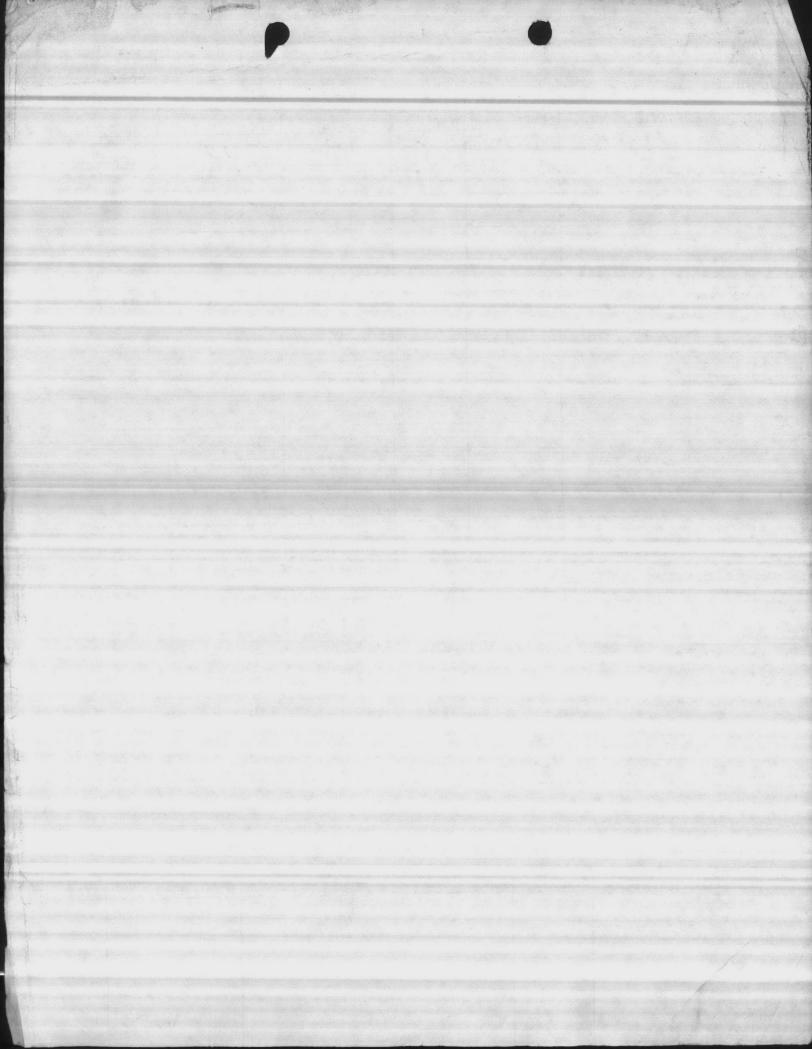
GROUND WATER  Date Form Completed  O / Z 4 9 5	
Owner Assigned Well Name (If purchase, name of system)  Code G=Ground  W=Purchase/G	
Source Code  Well Name (If purchase, name of system)  W=Purchase/G  W=Purchase/G  Y=G w/direct influence  Z=W w/direct influence	
If Purchase, seller ID# Source Begin Date Source exempt— Direct Influence Date Availability    P=Permanent   P=Per	
Location of well within the system (If purchase, location of master meter)	
Latitude (N)  Longitude (W)  How Determined GPS Data  No. of Sats. Locked or	n
3 44 01 0 0 0 2 2 0 3 2 G=GPS M=Map DOP #	
(If purchase, use seller's primary source lat/long)  Vulnerable (VOCs)  Y  Assessment Date	14
ENTRY POINT INFORMATION  Use Code  C C-Ground/Permanent D=Ground/non-permanent D=Ground/non	ır
Well Site: Owned or controlled? / (Y,N) Control Area (100' radius)? / (Y,N) If no, explain:  Sources of pollution/distance: Hwy @ 75' Px parking GT at 5'	
Surface water within 200? W Y If yes, actual distance feet If yes, bact. samples collected? (Y,N)  Adequate slope? Y (Y,N) Flooding? V (Y,N) Maintenance: O (Y,N)  Well House: Free of stored materials? Y (Y,N) Properly drained? Y (Y,N) Locked? Y (Y,N)	
Well: Diameter: 8" Type: GRAVET PACK Yield (gpm): Properly sealed? (Y Properly vented? (Y,N) Casing depth 70 ft. (If unknown, Well depth: 195 Meter available? (Y)	
Concrete slab adequate? (Y,N) If no, explain:  Size of blow-off: 3" (C)  Sample tap: Before treatment? (Y,N) After treatment? (Y,N)	۱,۱
Pumps: Capacity: GPM: 133 HP: 15 Pump intake depth: 90 Auxiliary Power? Y (Y)  Type pump: VERITAN TURBINE Height above floor (pump/casing): 15"  Storage at well site: Elev: Hydro: Hydro: Ground: William Storage at well site: Hydro: H	1,
If hydroautomatic, air volume control?(Y,N) Safety valves?(Y,N) Coded?(Y,N)  High service pumps: 1gpm hp 2gpm hp 3gpm hp Auxiliary Power?(Y,N)	N
Is the water treated at this well? W I If yes, complete back of form.	_
If other wells are treated here, which ones?  [If treated elsewhere, where? HP-30 PCANT]	
If other wells are treated here, which ones!  If purchase, retreat? Y If yes, complete back of form.  DEHNR 3803 (Revised 12/93)  Dehlis West Supply Section (Review 12/96)	
DEHNR 3803 (Revised 12/93) Public Water Supply Section (Review 12/96)	



WELL NUMBER	603	BY BROW.	n + Stc	veas	DATE 10 -	6-93
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
63"	18	4.3	25	78	100	1045
		53	35	65	/33	1100
<u> </u>						1000
grand to the second						
				1000		
	A second					
	*					
and the second	Nacional Park		1	1		

REMARKS

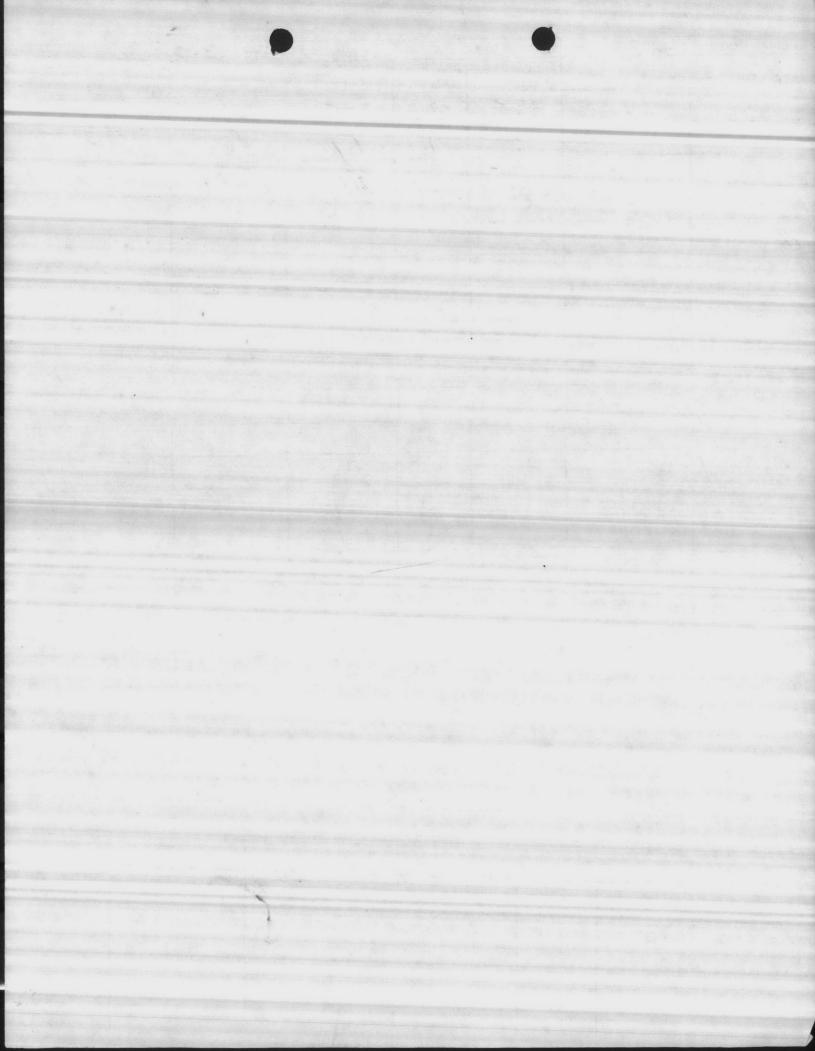
ANUFACTURER	STAGE	S.N.	Ima	max	A
		- Come	10	TAL HEAD	SIZE
			Tage -		
		AND RESIDENCE OF THE PROPERTY	CALL STATE OF THE		
			T photo control of the		
			1 September State		
	No.	The second secon			a state of



WELL NUMBER 603		B. Thom	45- (13	DATE 3-26-90		
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
63	25	48	23	75	104.	05
		55	30	65	128	15
e de la companya de l						N- y
	and the second s					
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		a production of the	4 AND 8 - AND			
		The state of the s				
			10 P A B			

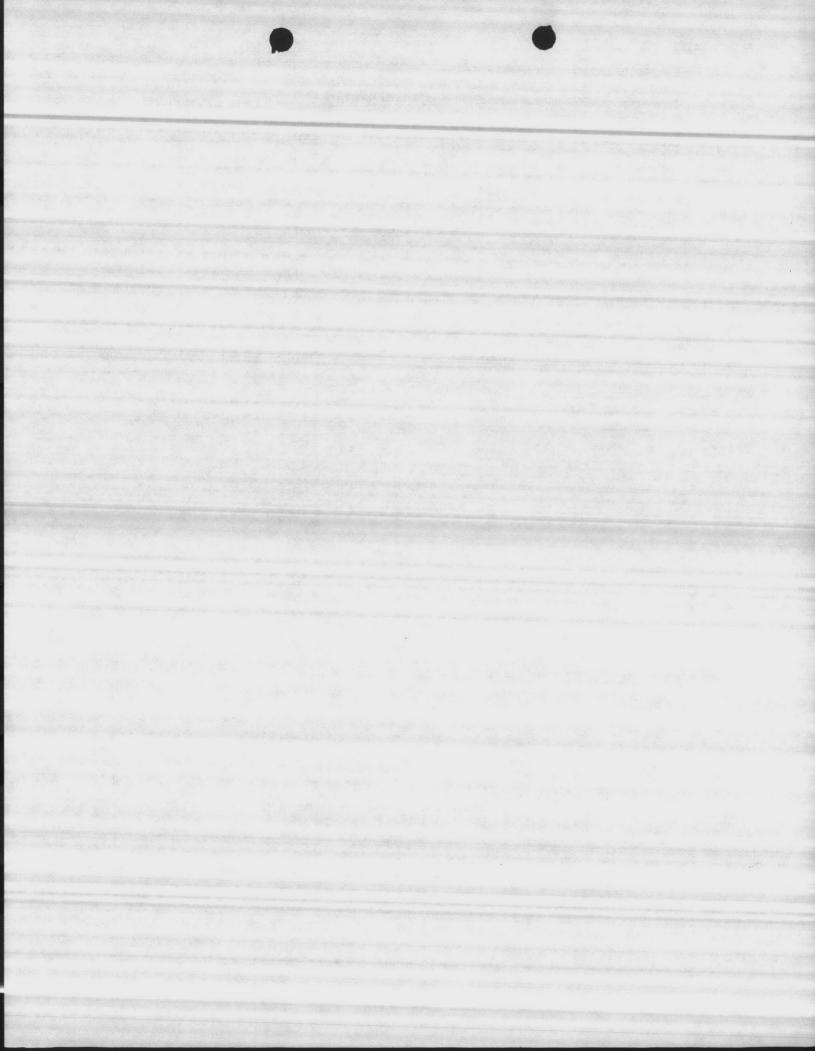
Dead head @ 100 PSI: set @ 65 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE
1				



WELL NUMBER 603		BY THOMAS/ SARDINAS			DATE 7-16-89		
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START	
63	18	44	76	18	104	40	
		48	30	73	122.	30	
		51	33	68	130	00	
		55	37	63	143	10	
		58	40	60	149	20	
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ANUFACTURER	STAGE	S.N.	TOTA	L HEAD	SIZE
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	100		and the		e de la companya del companya de la companya del companya de la co
	and the second second				
	The second second				
					management of the state of



WELL NUMBER 603		BY THON	MS/BRON	N.	DATE 12 31-87		
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME	
63	19	41	22	65	146	08,50	
		58	39	60	157		
			900 A 10 A				
		and the second second second		enter en Kale en en en			
	100 cm			7000000			
					138-101 K   1		

REMARKS dead head at 100 pri

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE
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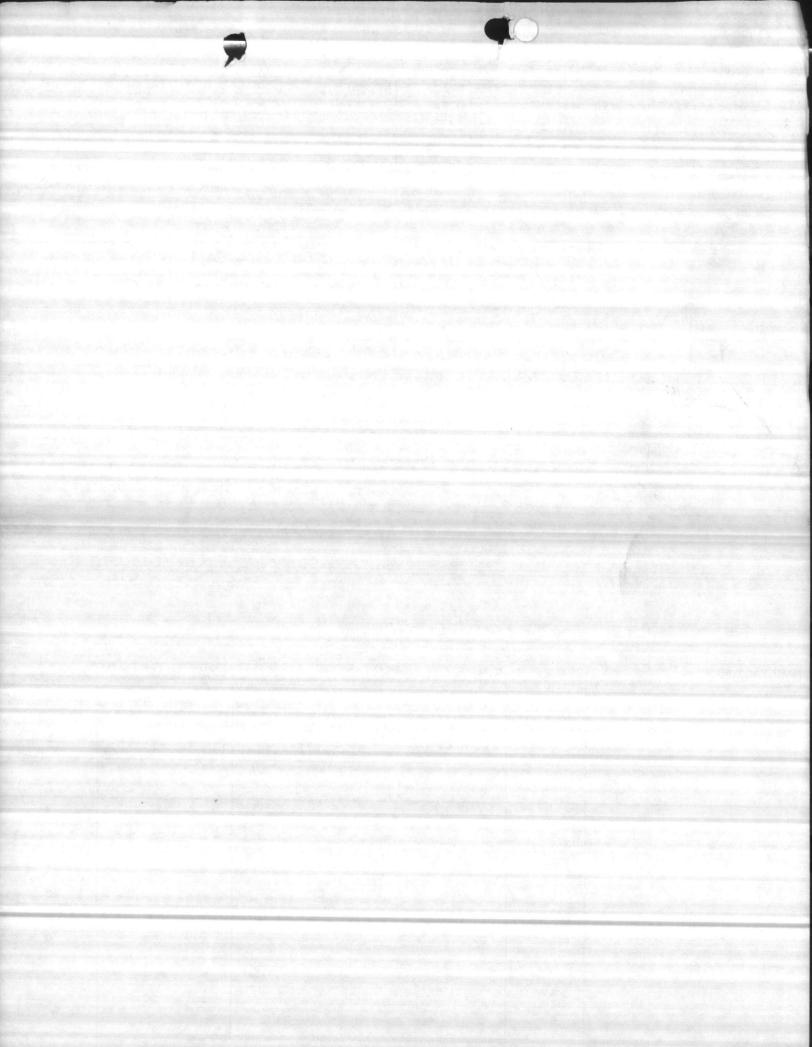


ELL NUMBER	603	BY THON	145/6	ROWN	DATE 10-	18-84
IR LINE	STATIC LEVEL	PUMPING LEVEL	DRAÍN DOWN	DISCHARGE PRESSURE	GPM	START TIME 0800
63'	35	44	9	77	100	0810
		47	12	75	104	0820
		47	16	70	108	0830
*		49	18	66	128	0843
		53	22	60	140	0900
· ·		******				
	a new Ada		//			
					7.35	

REMARKS 0820 changed gauge

Lest set at 60 PSI - 140 GPM

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE
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	and the second	the state of the s		
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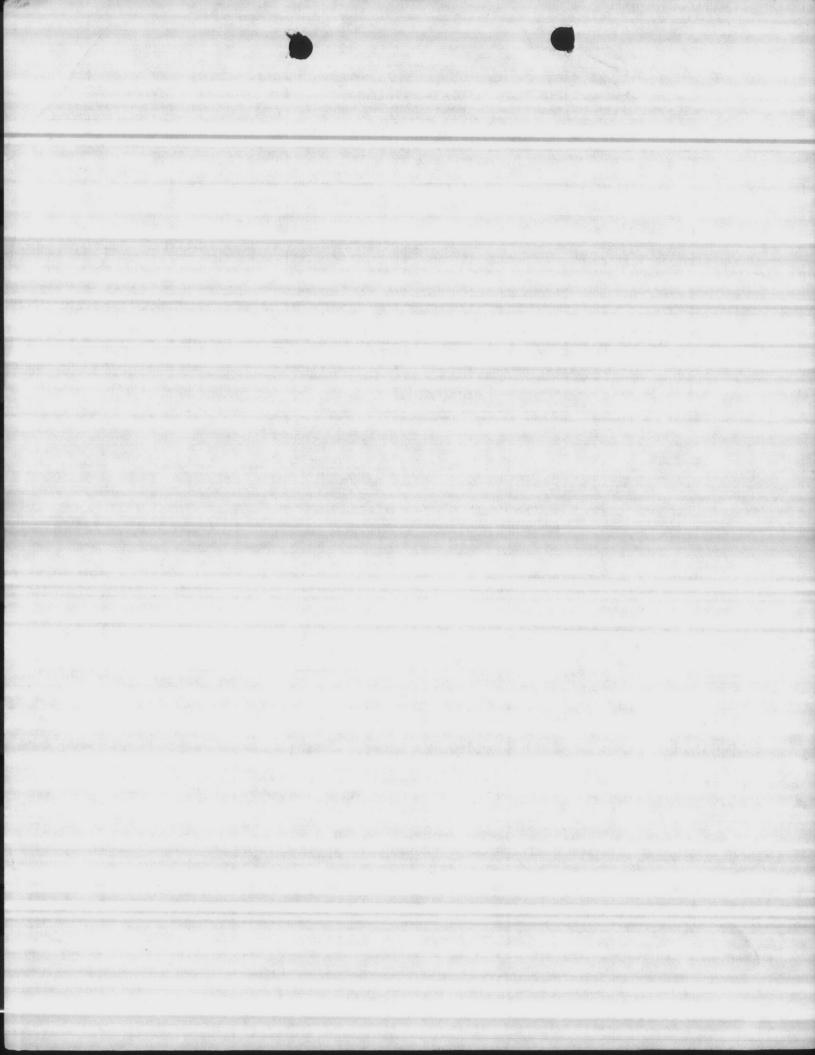


WELL NUMBER 603		BY THOMAS /KAYNOR			DATE 9-29-83		
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 0830	
63	31	50	19	72	100	0840	
		54	93	69	104	0900	
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	en e						
						and a second	

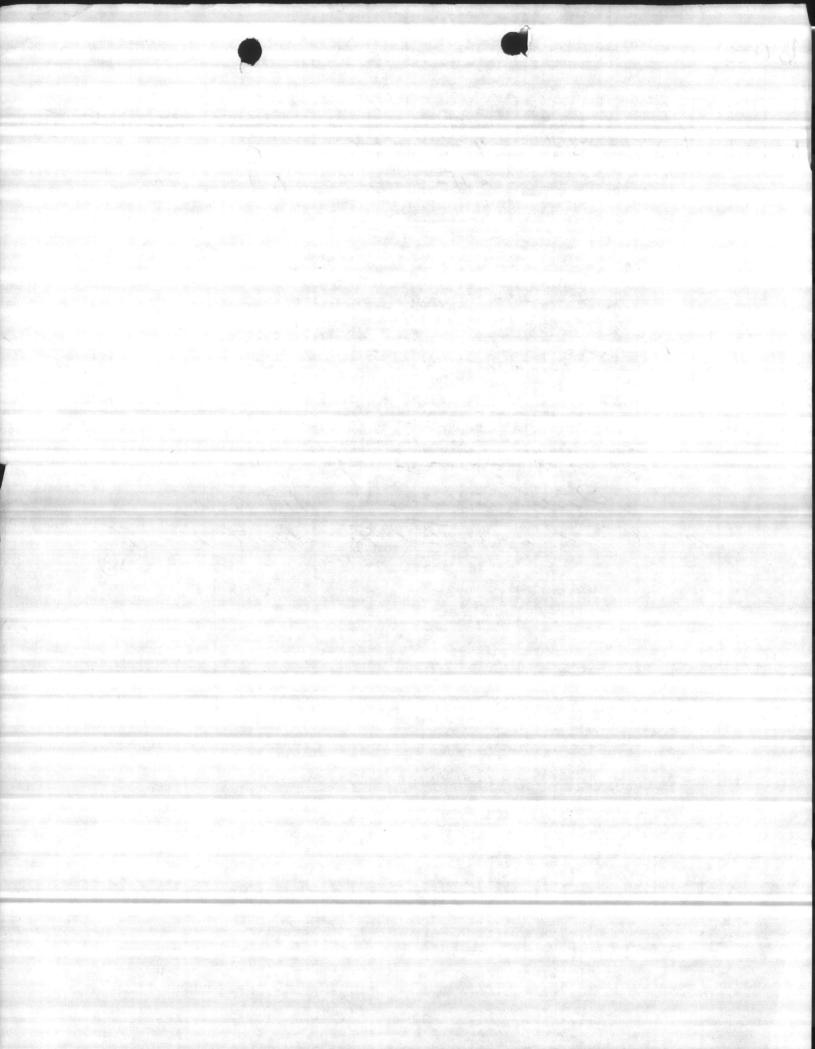
REMARKS

Pump set at 70'

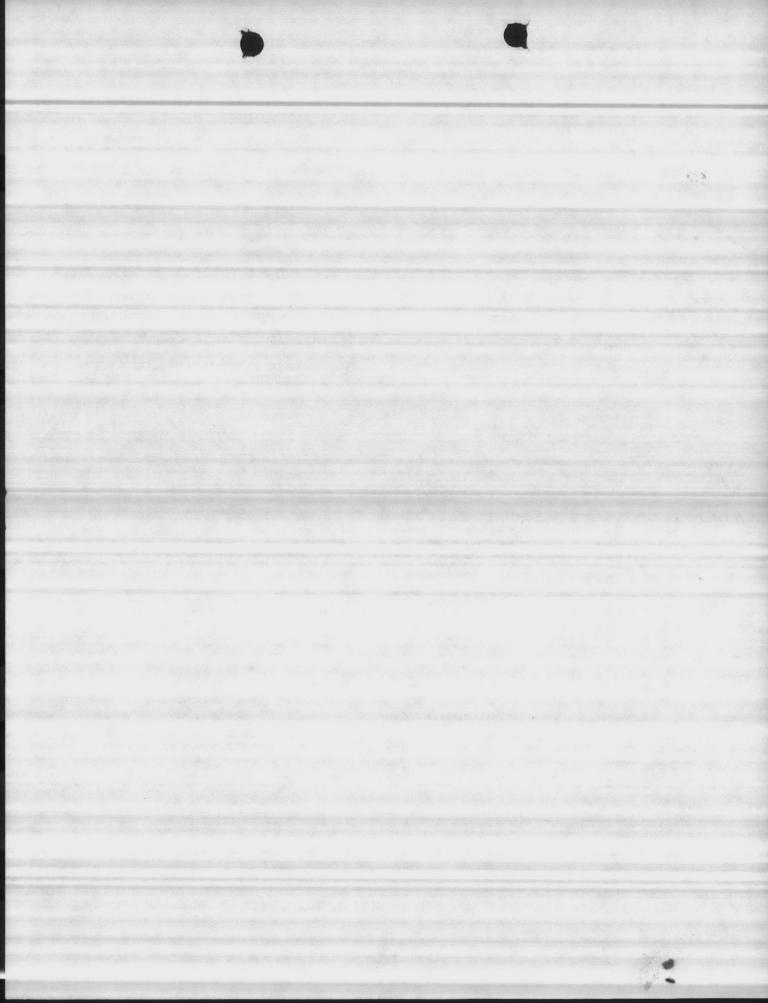
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	And the second			



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DATE.	AIR LINE	LEVET.	LEVEL	DOWN	PRESSURE	DISTRIBUTE.	TOYAL	/
10-1-82	1.3	33'	49	76	stars	Timo	0845	-
10-1-00	02	92	54	1	70	104	0835	
			1 7 7	31	64	119	0920	
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1					<i>i</i>			
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WELL #			· ·		4		
DATE	LENGTH OF AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAW DOWN	DISCHARGE PRESSURE	CAP. PER FOOT OF DRAW DOWN	TOTAL CAP.
MARCH 17	7 70					A STATE OF THE PROPERTY OF THE	Age of the state o
8-6-80	63'			C 7		COMMANDE SECTION DE COMMANDE MESTA POLICIO DA	
		gar to Consider the State of Considering against the Considering the Consideri		Property and the second		CONTRACTOR AND	The service resources and the service and the
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REMARKS:		ATTER TO SOUTH PROPERTY AND ADDRESS.				overteeld the commence of the	
AIBLIN	EB	LOCK				THE RELEASE OF THE PROPERTY OF	CONTRACTOR OF THE PROPERTY OF
INSTALLY	Aire 1	ive 8	6-80 -	7' SH	J J	true of -	Antaghar Antagas (Applicate Color State Color Co
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Maria and the second second		X.,		R.	· · · · · · · · · · · · · · · · · · ·	1	Martin er er sager alle er



DUVCICAL AV	HEMICAL ANALY	CIC OF WATER	SA	MPLE NO.
PHISICAL AND	SHEMITTAL ANALI	313 OF WATER	Application of the latest and the la	WW9-2
FROM: (Station or unit)			DA	TE NAME OF STREET
U.S. Marine Corps Air Faci	lity. New River	. Jacksonville, N. C		9-17-58
TO: (Name and location of laboratory)		,		
	CND Nama B	ass Norfalk Virgin	in	
Sanitation Laboratory, DPW SAMPLE FROM (Location of sampling point)		ase, Nortoth, Virgin	14	
	/			
Well #3				
COLLECTED BY	DATE	HOUR SOURCE (Des	signate ground,	surface, raw, treated)
Activity Personnel	9-8-58	65	Ground	
REASON FOR EXAMINATION		EXAMINATION REQUESTED BY		
To test for chloride conter	nt	Mr. R. L. Cox		
NOTE: All results reported in par	to nee million unles	a otherwise noted except f	or pH. temper	ature, and anecific
conductance. One liter of potable	water is assumed to	weigh one kilogram.		
I. Laboratory KMCOXANALYSIS		III. ROUTINE	LABORATORY AN	MIYSIS.
1. pH	TEMPERATURE		(CHECK ONE)	(ALIOTO)
0 F		1		OT REQUESTED
	°c 22	X REQUESTED	1.	NE QUESTED
ITEM	PPM	·· COLOR		
2. CARBON DIOXIDE (CO2)		12 71001017		
3. DISSOLVED OXYGEN (02)		2. TURBIDITY		
4. HYDROGEN SULFIDE (H2S)				
5. CHLORINE DEMAND (CI2)	Same Facilities of Pales of State of St	3. ALK	ALINITY (Caco3)	)
FIELD ANALYSIS BY		P	MO	
		40	34	40
		4. TOTAL HARDNESS (CaCQ3)		
DATE OF ANALYSIS		5. NON-CARBONATE HARDNESS	(CaCOa) (By C	Computation)
II. SPECIAL LABORATORY	MALVSES	6. CARBONATE HARDNESS (CA	eco ) (By Como	utation)
TI. STEUTHE ENDORMIONT	MALIOLO	CARBOTTAL TRADICOS (OS	3) (2) 0020	atation)
Check (X) individual items to be incl		7, TOTAL DISSOLVED SOLIDS		
Analyses. Request determination only suspected of being present in signifi		7, 10142 013302420 302103		
		e impositio computation (A	(i====h==)	
(X) ITEM	PPM	8. SPECIFIC CONDUCTANCE (M	icromnos)	
1. As	A DAME OF THE PARTY OF THE PART			
2. Se		ITEM		PPM
3. Pb		9. CALCIUM (Ca)	TO WAY TO THE	
4. B		10. MAGNESIUM (Mg)		
5. Cu		11. SODIUM (Na) AND POTA	SSIUM (K)	
6. Zn		12. HYDROX IDE (OH)*		
7. Cr (Hexavalent)		13. BICARBONATE (HCO 3)*		
s. PO		14. CARBONATE (CO3)*	A CONTRACTOR	
9. Cd		15. SULFATE (SO4)	12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
10, CN		16. CHLORIDE (C1)		83.
11. Phenolic Compounds (PPE	1)	17. NITRATE (NO 3)		U) o
12. Others (Specify)				
		18. IRON (Fe) TOTAL		
13.	The second secon	19. MAGANESE (Mn)		
14.		20. SILICA (\$10 <sub>2</sub> )		
15.		21. FLUORIDE (F)		
16.		*State whether determined	or computed fro	om P and MO alkalinity.
REMARKS (Such as unusual appearance, ta	ste, ador, etc.)			
Note: Very faint odor of 1	ovdrogen sulfide	in sample.		
Pump in service for 3 hours			d	
			40	
Three (3) wells in service	ar rime sample	COLTECCEGO.		
	Material Control of the Control of t		(Annual Republic Control of the Section of the Sect	mannin manya maninya manya
LABORATORY ANALYSIS BY			0.8	TE OF ANALYSIS

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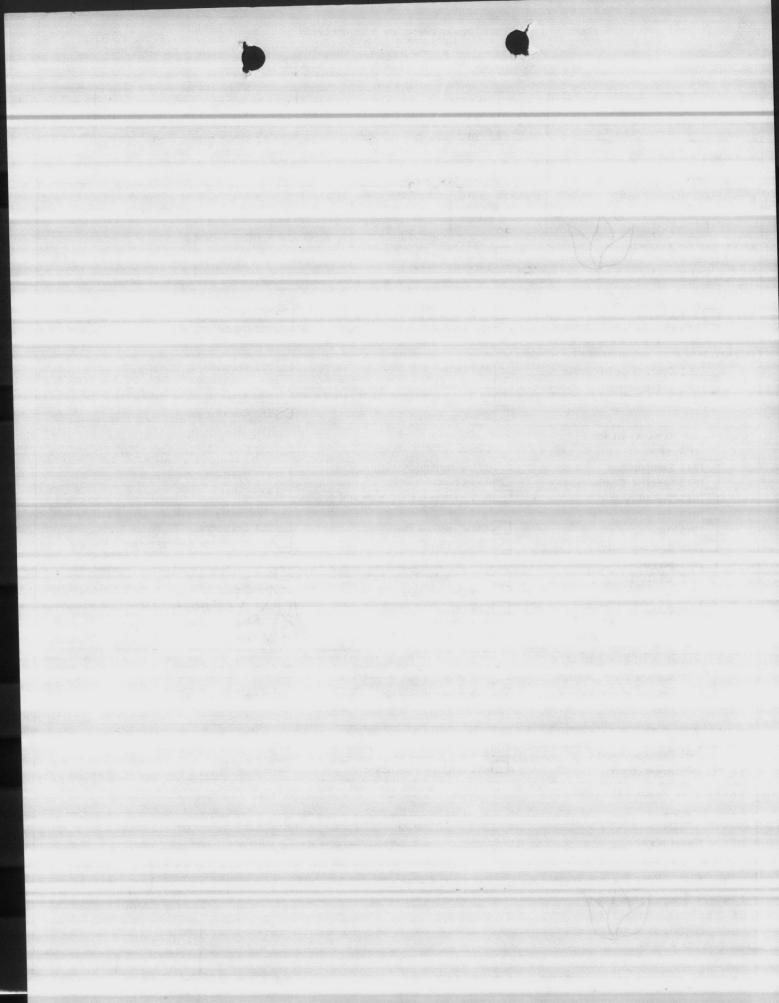
George I. Earnest, Jr.



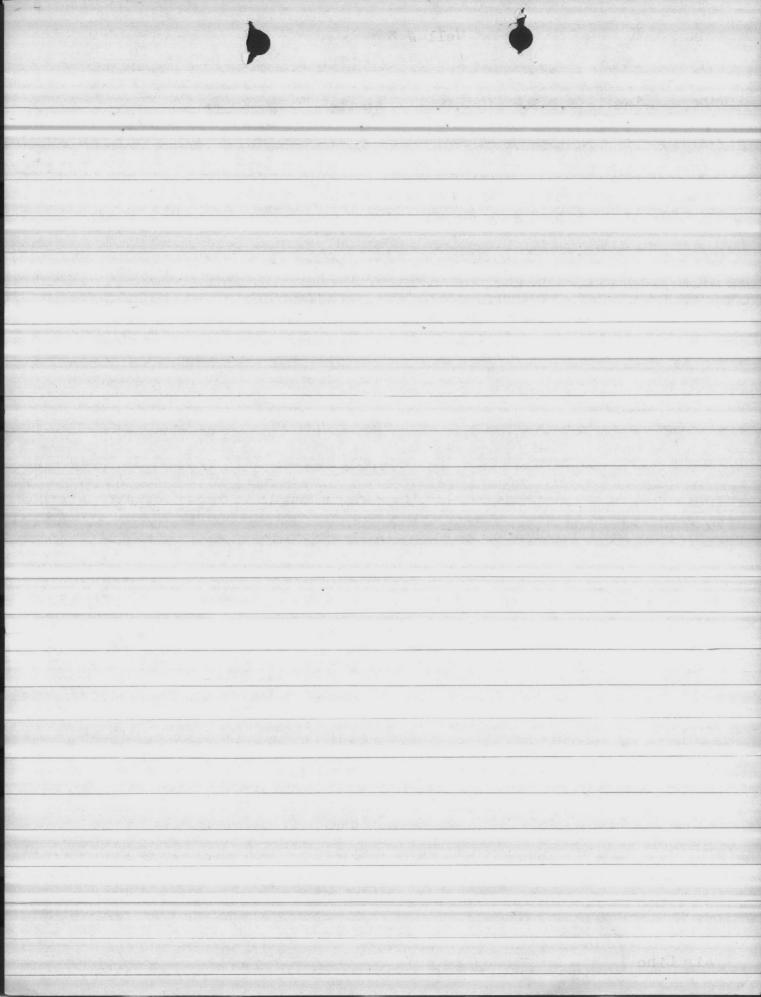
FFICE OF WATER DATA COORDINATION INVENTORY OF HYDROLOGIC DATA STATIONS

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

GENCY CODE 2. TYI		1 N 4. LONGITU		W		
MC	ATION NAME	. 17	20 32			
AGENCY STATION NO. 7. ST	ATION NAME					
603	TATE CODE 10. COUNTY COL	DE 11. COUNTY NAME				
DRAINAGE BASIN CODE No. Letter	ALE CODE					
1 06   N	32 133	ONSLOW	14.			
Began Discontinued	Continuous Interruption Exceeds 1 Year	13.				
1942 .	103 Lake	□ 106 Sp				
□ 101 Stream	104 Reservoir	□ 107 W				
101 Stream	105 Estuary	110 Ot	her			
FREQUENCY OF MEASUREMENT  201 Continuous Recorder  202 Telemetered	203 Daily 204 Weekly 205 Monthly 206 Quarterly	210 0	nnual ther Periodic ecasional			
7. TYPES OF DATA AVAILABLE	GI I	Organ	nc esticides (insectici	des,		
Physical	Chemical 331 Dissolved solids		herbicides, etc.)			
311 Temperature 312 Specific Conductance	332 Chlorides Only		352 Synthetic detergents 353 Other			
312 Specific Conductance	333 Nutrients (Nitrogo phosphorus cor	en and	Biologic			
314 Color			361 Coliforms			
315 Odor	334 Common ions 335 Hardness		362 Other Micro-organisms			
316 Radioactivity	336 Radiochemical		□363 BOD			
☐ 317 pH (field) ☐ 318 pH (lab)	337 Dissolved oxyger		364 Other Sediment			
319 Eh	338 Other Gases		371 Concentration			
320 Other	339 Other		372 Particle size			
		373	Other			
18. SUPPLEMENTARY DATA FOR SITE		П495	Time of Travel			
421 Surface Water Station 422 Ground Water Station	☐ 423 Water Stage or I		Orainage Area			
19, STORAGE OF DATA  501 Periodic Report  502 Areal Report	503 Not Published 504 Data on Punche	П	Data on Magnetic Other	Tape		
20. OFFICE AT WHICH DATA AVAILABLE						
	TNANCE DEPARTMENT, U	TILITIES DIVISION	И			
Street No. MARINE COR	S. BASE			City Code		
City, State, Zip CAMP LEGE	TUNE, N. C. 28542			0735		
21. OFFICE COMPLETING FORM						
BASE MAINTENANCE DEPA	TOTAL T		23. DATI			
22. COMPILER'S NAME		THE RESERVE OF THE PARTY OF THE	Mon			



			"OLL			108-	150
Date	Line Ft.	G.P.N.	n.ń.	Static	Shut Off Head	9.9. Pt.	
			gaze H	Stage F7	13	the time	
7-22-54	146 -	175	60	12-		36	
11	50	164	59	- yer	y noisy	34	1.9.1.1
//	39	183	6.5	25	< $T$	70	Here )
	39	183 -	65	2.5		40	
7-27.5	4-40	-	64	27		3 7	
10-14-5			_				
Pump				for -	26-1955		12.5
Pump	Λ	pustion		9-55.1	ery nois	4 -	1 7
7-19-55		(Sign	43	- 32 /		31.	At.
NEW	1	RING		3-20	-56 -	THO	M 1) S S S S S S S S S S S S S S S S S S
3-26-56				20 ft.	-		
3-27-50	-	-	60	20		4.0	
la-13-56	natu	Level	Pump	stare ?	natu-	16-1	18"
6-13-56	Pamp	Pull	DIRECT RE	OING GAGE			
5-26.57	~		48 17,	16 97.		32	
4-23-58	Walu A	wel - pr	my Base	e to hal	20-9"	*	
11-19-65	, ,	11	1, ,,	11 11	23'-6"	,	7
					+0		100
Rattlin	ng no		pump	when San	led. 5-28.	57. OF A	J. + Value
digran	line and		and per	, 4,		5-20-	
Air Li	ne	21/11	ME W	AIR LIN	[ - 3 · 20 - 56	7-5-5	EL'4-37.2



#### WELLDATA

#### Well No. 3

16, X

#### SPECIFICATIONS

Pump Base Elevation	26.8
Ground Elevation	24.8
Static Elevation	11.8
Maximum allowed Drawdown	-33
Total Discharge	250 G.P.M.
Total Head	186 Feet

#### TEST

290 G.P.M.	15# Pr	essure	Drawdown	-16.2	- 25.7
265 G.P.M.	20# Pr	essure	Drawdown	-14.2	-22-2
250 G.P.M.	21# Pr	essure	Drawdown	-12.2	-21. 20
240 G.P.M.	25# Pr	essure	Drawdown	- 8.2	1712
215 G.P.M.	30/ Pr	essure	Drawdown	- 4.2	13.2
170 G.P.M.	35/ Pr	essure	Drawdown	- 0.2	- 900
130 G.P.M.	40% Pr	essure	Drawdown	\$ 4.8	- 7 - A

Recovers to Elevation 16.8 in three (3) minutes.

Air live figured 60' Actual 69'

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#### WATER ANALYSIS

By N. H /SPIJOM Date Oct 30 - 41 Sample from Well No 3 Reg Area Per Area 195 St DEEP 65 Hrs Prmping at 300 YPM BY Jarne Atlantic Co Volatile Soilds 60 PPM Total Solids 340 PPM Suspended Solids 38" Disolved Soilds 30 2 Phenophthalein Alkalinity O " Ferrous Iron Total Alkalinity /20 " Total Iron 3.0 Chlorides /8 " Sulphates 9. Aluminum 2,4 Carbonates Calcium Bicarbonates /70 " Magnesium Sodium pH 2.5 Soap Hardness as CaCo3 /80 Mineral Hardness as CaCo3 5/18ht Odor Turbidity REMARKS

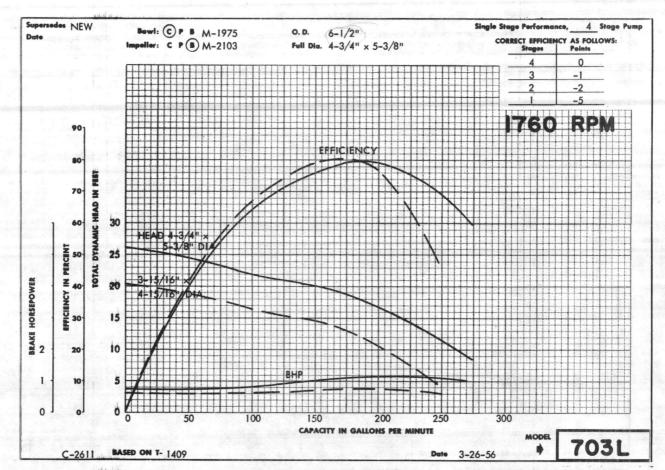
Date 12 · 14 · 56

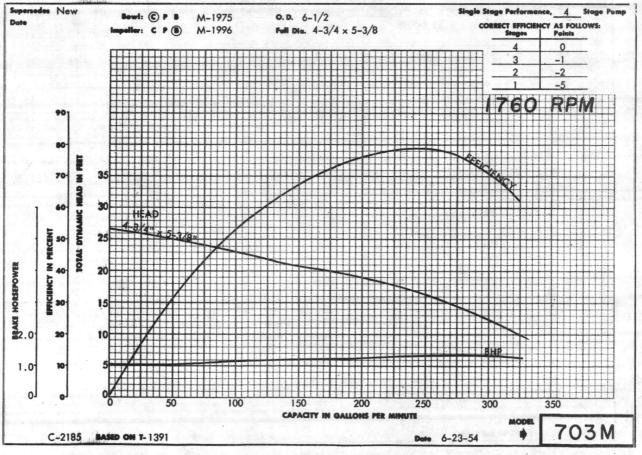
Page No. 1.01

### BERKELEY Deepwell Turbine Rating Curves

Section 5055 1.20.59 No. 7.01 **Enclosed Impeller** 1760 R.P.M.

Tidewater Machinery & Machine Tool Co. P. O. Box 3411 Wilmington, North Carolina 28401





Supersedes:

Date 12 · 14 · 56
Page No. 1.02

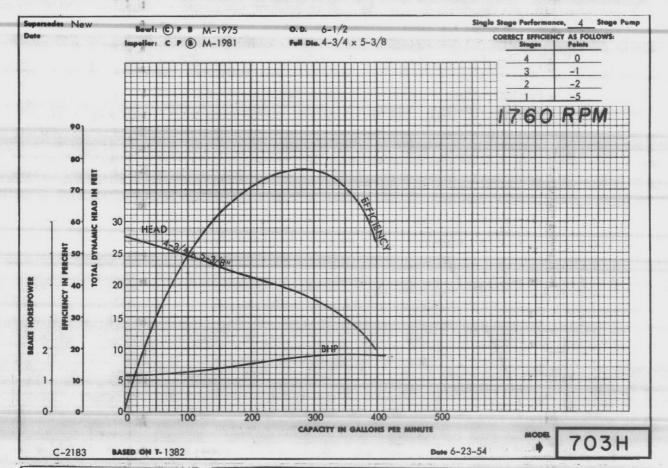
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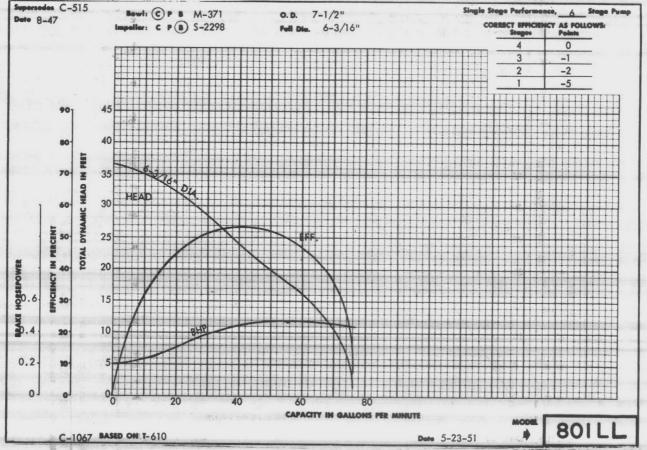
## BERKELEY

Deepwell Turbine Rating Curves

Section 5055 1·20·59 No. 7.02 Enclosed Impeller

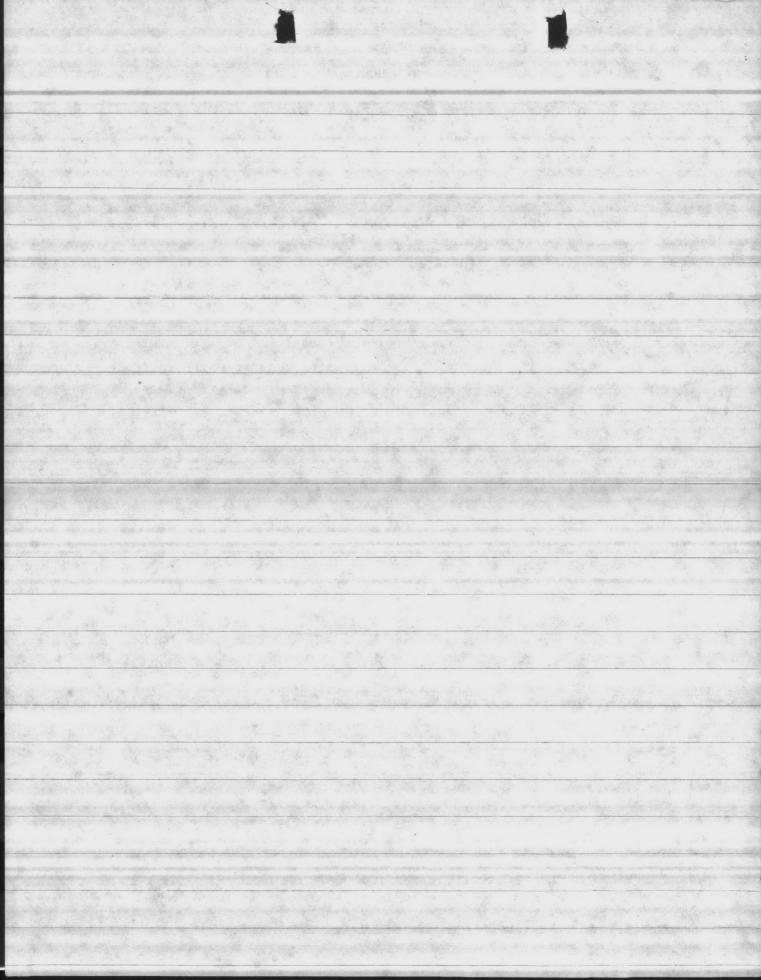
nclosed Impelle 1760 R.P.M.





# # 3 WEIL

PATE	AIRLINE	STATIC	D. D.	GPNI	PUMPLEN		SHUT OF F HEAD
1965	PUL	LED	4 C	EANE	00 4	24	SHUT OF F HEAD
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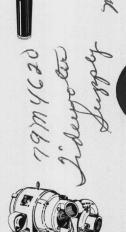




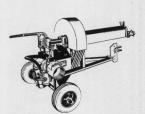
TIDEWATER MACHINERY
&
MACHINE TOOL COMPANY
P. O. Box 3411
Wilmington, NC 28401

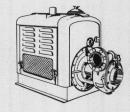
(919) 763-8461

BERKELEY









# PUMPS AND WATER SYSTEMS

The most complete line of fine

PUMPING EQUIPMENT in the World

**BERKELEY PUMP COMPANY** 



# DEPENDABLE PUMPS INDUSTRIAL AND

#### **WATER SYSTEMS**

A pioneer in the development and manufacture of jet pump water systems (many units are still performing faithfully in the field after more than a quarter century), Berkeley offers a complete line of vertical and horizontal jet pumps to meet modern domestic water needs.

Shallow well, and single and two stage deepwell models are available for installations to 320 foot depths and with capacities to 4200 gallons per hour. Whether you want moderate or large quantities of water — at standard, or high pressures—whatever your requirements, there is a dependable Berkeley water system engineered to fit your need. More than 100 models are available to suit widely varying demands.

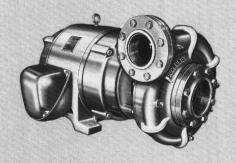


#### MODELS S-D

Economical Model "S" units provide up to 1700 GPH from shallow wells, and Model "D" units in excess of 1500 GPH from deep wells, using 1/3, 1/2, 3/4 and 1 HP motors. A convertible shallow well pump is also available in the "D" series.

#### **CENTRIFUGAL PUMPS**

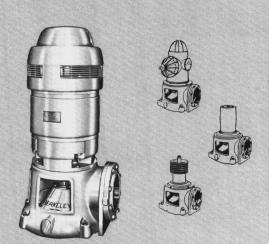
Berkeley provides a complete line of motor driven centrifugal pumps, water-cooled and air-cooled engine driven pumps, belt and coupling drives, and Tracto-Rain pumps for use with tractor power take-offs. Capacities up to 3700 GPM. These centrifugal pumps are also available in modified designs with special materials, or can be custom designed and manufactured to meet specific application requirements. The reliability of Berkeley centrifugals has been proved in thousands of installations.



MOTOR DRIVE PUMPS
Capacities to Heads to Sizes
3500 GPM 150 PSI (347') 1" to 8"

### VERTICAL AND SUBMERSIBLE TURBINES

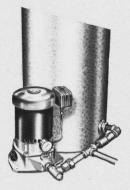
The Berkeley deepwell turbine line includes the 3450 RPM Cavalier, vertical turbine fire pumps listed by Underwriters Laboratories (with 500 to 2500 GPM capacities) and enclosed line oillubricated, or open line waterlubricated shaft types. Submersible Turbines for 6 inch and larger wells are also available. Dependable Berkeley turbines meet the most rigid requirements for agricultural, commercial, industrial and municipal applications.



#### DEEPWELL TURBINES

For 4 to 24 Inch Wells Capacities from 25 to 12,000 gallons per minute, at pumping levels to 1000 feet deep. Waterlubricated open line and oil-lubricated enclosed line shafts. Motor, pulley and gear drives, and combination drives also available.

# FOR...DOMESTIC...AGRICULTURAL... COMMERCIAL INSTALLATIONS



VERTICAL SINGLE STAGE 100 SERIES Delivers 370 GPH from 150' level – up to 2800 GPH at 30 pounds. <sup>1</sup>/<sub>3</sub> through 2 HP, for one or two pipe installations.



VERTICAL TWO STAGE SERIES 200 Capacities up to 700 GPH. Provides extremely high pressure from wells as deep as 320 feet. Four

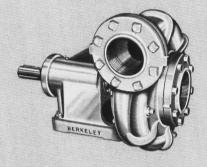
models from 3/4 to 2 HP.



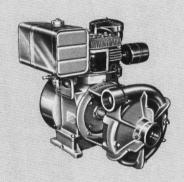
#### SUBMERSIBLE TURBINES

For 4" and larger well diameters. Capacities to 4000 GPH. Capacitor type motors from 1/3 to 5 HP. Also available with economical split-phase motors through 1/2 H.P. Ideal for water systems with wells to 1300 foot depths.

Quiet, dependable, underground operation. Entire pump and motor is protected from freezing in extreme climates.



BELT AND COUPLING
DRIVE PUMPS
Capacities to Heads to Sizes
3700 GPM 150 PSI (350') 1" to 8" '



ENGINE DRIVE (Air-Cooled)
Capacities to Heads to Sizes
1800 GPM 130 PSI (300') 1" to 6"



ENGINE DRIVE (Water-Cooled)
Capacities to Heads to Sizes
3700 GPM 180 PSI (416') 3" to 8"



#### SUBMERSIBLE TURBINES

**High Capacity Units** 

Unsurpassed for industrial, municipal and agricultural applications.

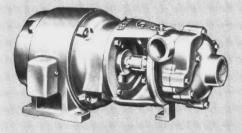
For 6, 7 and 8 inch wells. Capacities from 30 to 600 GPM, at well depths to 1000 feet. Single phase motors in 1½ through 7½ HP, three phase motors from 1½ through 40 HP.

Also available for 10 inch and larger wells. Capacities to 6000 GPM. Furnished with submersible motors from 20 through 250 HP; for 1760 RPM, 60 cycle, three phase operation.



BERKELEY ALSO MANUFACTURES THE JET-DRIVE, A MARINE PROPULSION UNIT THAT REPLACES THE CONVENTIONAL PROPELLER IN AN INBOARD INSTALLATION. IDEAL FOR HULLS FROM 14' TO 24'. SAFE—SMOOTH—EFFICIENT—ECONOMICAL TO INSTALL AND MAINTAIN. WRITE FOR FULL PARTICULARS.





#### 2-STAGE CENTRIFUGAL

Higher pressures for fire, industrial, farm and general application. Motor, belt, or engine drive. Capacities 30 to 400 GPM with heads up to 650 feet, 1 to 40 HP. Maximum case pressures from 250 to 350 psi.



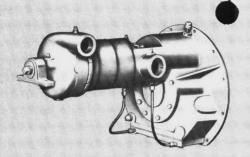
#### SUMP PUMPS

Conventional and submersible types. Fractional horsepower units to handle 10 GPM to 70 GPM at heads to 55 feet. Larger units with capacities to 1500 GPM and heads to 120 feet.



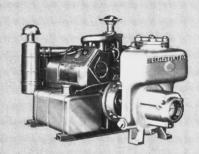
#### PTO PUMPS

Trailer mounted pumping units powered by tractor takeoff. Pump may be tailored to application by choice of 5 step-up drive sizes. Capacities 300 to 2200 GPM with pressures up to 100 psi. Designed specifically for sprinkler and flood irrigation applications. In 3" through 6" sizes.



#### **CUSTOM ENGINEERED PUMPS**

In addition to the broad line of standard pump types described in this bulletin, Berkeley's Engineering Department has designed countless "special" pumps to meet unusual conditions and specifications. Contact the Factory for assistance when pumps requiring special design or material are involved.



#### SELF-PRIMING CENTRIFUGAL

Available from 1/3 to 20 HP...up to 430 GPM. Also with engines up to 36 HP. Truly self-priming...after initial prime, will reprime automatically regardless of number of times suction is lost. Ideal for swimming pool circulation and cleaning use.



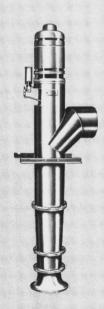
#### NON-CLOG PUMPS

Available for wet pit installation in conventional and submersible types. For dry pit applications available for motor, engine, belt or coupling drive. Suction and discharge from 21/2" to 6", Motors to 15 HP.



CLOSE COUPLED TURBINE PUMPS For high, or low pressures, in sump, or barrel types, for conventional, or reverse flow. Capacities to 10,000 GPM; pressures to 1,000 psi; tempera-

tures to 800° F.



AXIAL AND MIXED FLOW PUMPS High capacity, packaged length or custom built pumps for water transfer from streams, lakes, canals; for surface drainage, condensor circulation, agitating liquids in vats, and as main and trimming pumps for drydocks. A modified version of either the Axial or

Mixed Flow pumps is available for inclined installation.

SOLD BY:

#### Berkeley Pump Company

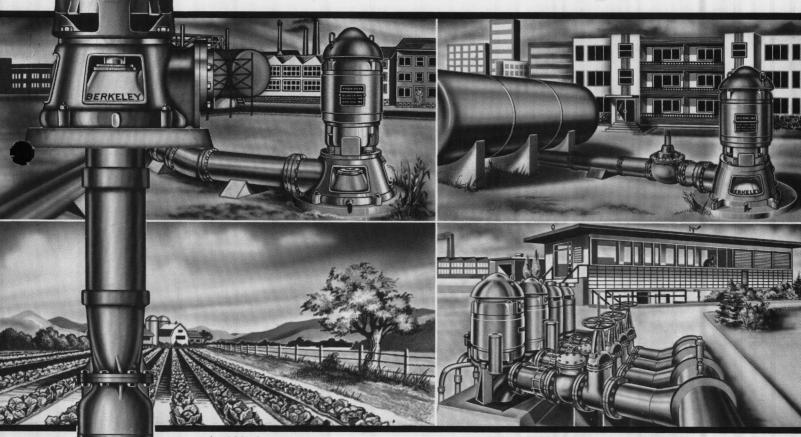
P.O. Box 7, Station A, Berkeley, California 94712

2740 Northwest 22nd Place, Portland, Oregon 556 Tift Avenue, S.W., Atlanta, Georgia P.O. Box 366, Grand Island, Nebraska P.O. Box 5146, Amarillo, Texas



# VERTICAL TURBINE PUMPS

OPEN LINE SHAFT TYPE (Water Lubricated)



Industrial Service

Agricultural Irrigation

Municipal Water Supply

Booster Service

**BERKELEY VERTICAL TURBINES** are available for all pumping conditions and are designed to meet American Standards Association and American Water Works Association specifications.

BERKELEY PUMP COMPANY

# BERKELEY ertical Turbine Consuction Details

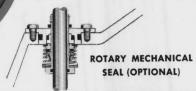
#### Surface Discharge Head

- Top Shaft Adjusting Nut
- Vertical Hollow-Shaft Motor (for other drivers see back page)
- Stuffing Box Assembly (or Rotary Seal-see insets)
- Surface Discharge Head
- ASA Flat-Faced Flange
- Head Shaft Bearing
- Water Level Detector Port

#### Discharge Head Shaft Seals

#### **Stuffing Box Assembly**

This is the standard gland-type stuffing box. Note the use of a grease-lubricated head shaft bearing and lead-asbestos packing rings. Cartridge type design simplifies assembly and size adaptation.



# Column Pipe and Open Line Shaft Details

Top Column Pipe



Shaft Sleeve Coupling (Bearing Surface)

Shaft Bearing (Free-Floating Elastomer)

Column Pipe Coupling

Column Pipe

**Shaft Bearing Retainer** 



Husky, cast-bronze bearing retainer spiders are used to carry resilient elastomer bearings in open line shaft construction. These retainers are butted between column pipe sections within the coupling. Retainers are precisely machined and end-faced to assure water-tight fit and perfect alignment.

#### **Shaft Sleeve** Coupling

Stainless steel sleeves are precision ground. They are threaded with lefthand threads to prevent uncoupling. These sleeves rotate in specially-designed elastomer bearings. Sleeves are designed for long life, but if wear should occur at this bearing

point, replacement is readily made in the field without special equipment being required.

### Pump Bowl Assembly

- Discharge Case
- Discharge Case Bearing
- \_ Intermediate Bowl
- Pump Shaft
- Impeller Lock Collet
- Impeller
- Suction Case Sand Collar
  - Suction Case
- Suction Case Bearing



#### **Discharge Case Bearing**

Long, fluted elastomer discharge case bearing provides extra support area for oversize pump shaft. Simple in concept, this design has proved exceptionally durable.

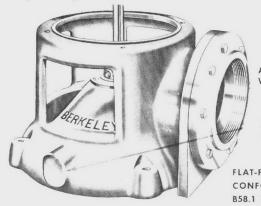
#### **Pump Shaft**



Pump shafts used in Berkeley Turbines are oversize. This rugged construction assures a longer life for the pumping elements, reducing maintenance and service calls.

#### Discharge Head Details

This heavy-duty surface discharge head carries the weight of pump, shafting, column pipe, and supports the driver unit. Heavy-duty lifting lugs are designed to support entire weight of pump assembly during installation.



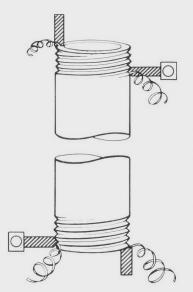
TAP FOR PRE-LUBE FITTING AND RAW ACCESS HOLE FOR COOLANT WATER WATER LEVEL DETECTOR

HEAVY DUTY LIFTING LUGS

CONFORMS TO USSA **B58.1 SPECIFICATIONS** 

#### Sanitary Code Construction Details

Recess in discharge head above mounting surface permits well easing to extend above mounting pad, thus FLAT-FACED FLANGE eliminating seepage of surface water into well.



#### Accurately Machined Column Pipe

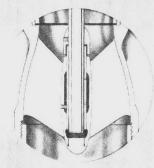
Column threads and end facings are cut simultaneously at both ends of column pipe sections, assuring perfect alignment.



#### **Precision Alignment**

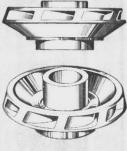
Accuracy of alignment in Berkeley Turbine Pumps is maintained both by the carefully machined components and the use of the performance-proved bearing retainer. There is no field cutting necessary; precision manufacture holds shaft alignment to comparative tolerances closer than those used by most watchmakers.

#### **Suction Case Bearing**



This extra-long bronze bearing is contained in a housing sealed at the lower end. Reservoir holds liberal supply of special heavy-duty, non-soluble hydraulic grease good for the life of the pump. A sand collar at the top of the bearing acts as a centrifugal separator, protecting the bearing against damage.

#### **Choice of Impellers**









ENCLOSED IMPELLERS

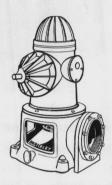
SEMI-OPEN IMPELLERS

All Berkeley impellers are individually balanced to assure smooth-running characteristics. Impellers are locked on shaft by means of special tapered lock collets. Enclosed impellers available in cast bronze for all sizes. Cast iron, or porcelainized cast iron available in larger sizes only. Semi-open impellers are of cast bronze.

## BERKELEY Vertical Turbines - Standard Heads



MOTOR DRIVE



RIGHT ANGLE GEAR DRIVE



FLAT-BELT PULLEY DRIVE



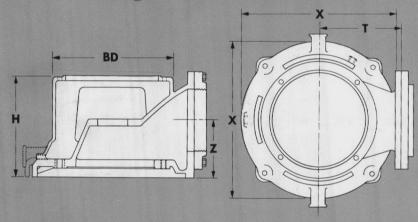
V-BELT PULLEY DRIVE



COMBINATION MOTOR-GEAR DRIVE

BERKELEY VERTICAL TURBINE PUMPS ARE ALSO AVAILABLE UNDER UL REEXAMINATION SERVICE LISTING.

# Discharge Head Dimensions



Dimensions (Inches)					
MODEL	BD	Н	T	Х	Z
3A	10	7 %	61/8	14	21/4
4A	111/2	71/4	6 %	14	3¾
5A	111/2	11%	81/2	16	63/4
6-16	16	13%	11%	213/4	8
8-16	16	13%	11%	213/4	8
8-20	20	17	14	26	91/2
10-20	20	17	14	26	91/2
10D	23	151/2	15	28	93/4
12D	241/2	221/2	13	27	121/4
12E	301/2	221/2	13	27	121/4

Performance Range

Well-Sizes: — 4" to 24"

Capacities: ———25 to 12,000 Gallons per minute

Pumping Levels to: \_\_\_\_\_1000 feet



#### BERKELEY PUMP COMPANY

829 Bancroft Way, Berkeley, California 94710 556 Tift Street, S.W., Atlanta, Georgia 30310

Factory Branches Located In . . . Amarillo, Texas; Grand Island, Nebraska; Dallas, Texas; Phoénix, Arizona; Portland, Oregon; Denver, Colorado; Cherry Hill, New Jersey; Tampa, Florida; Minneapolis, Minnesota; Ajax, Ontario, Canada.

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TIDEWATER MACHINERY

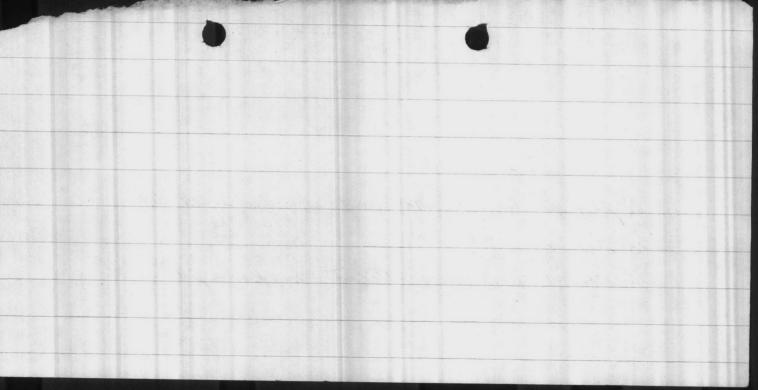
&
MACHINE TOOL COMPANY
P. O. Box 3411
Wilmington, NC 28401
(919) 763-8461

Litho in U.S.A.

603 10/4/73 layne pemp Juzi 3 Depth 201 Setting 70' Static 19" airline 70 APM 100 Back in 4/29/73



5-3-73 Wellpump 603 discharge pressure 23 lbs Permping 190 G.P.M. Backprissure value Pelot needs repair



20 ft. AND 9 inches from BASE of pump To water Level.

Checked By Raymor

