FILE FOLDER

DESCRIPTION ON TAB:

Wellhouse 2660

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

☑ **Outside/inside of actual folder did contain hand written information**
***Scanned as next image**

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

WELLHOUSE 661 660

660

660
26 East

WELLHOUSE ~~601~~ 660

660

North [redacted]rolina 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): 0 1 2 4 9 5

PWSID: 0460140

Owner Assigned Source Code: ____

Well Name (If purchase, name of system): HADNOT POINT 660

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: O
P=Permanent
E=Emergency
S=Seasonal
I=Interim
O=Other

T/B ABANDONED

Location of well within the system (If purchase, location of master meter): HOLCOMB BLVD

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

Longitude (W) Deg. Min. Sec.: 0

How Determined: ____
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
E=Emergency
S=Seasonal
I=Interim
O=Other

Owner Assigned Entry Point Code: 100

Entry Point Name: HP660

Location: ____

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

Sources of pollution/distance: ____

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

Adequate slope? ____ (Y,N) Flooding? ____ (Y,N) Maintenance: ____

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

Condition of house: ____ Type of freeze protection: ____

Well: Diameter: ____ Type: ____ Yield (gpm): 150 Properly sealed? ____ (Y,N)

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

Size: ____

Concrete slab adequate? ____ (Y,N) If no, explain: ____

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

Pumps: Capacity: GPM: 150 HP: 10 Pump intake depth: ____ Auxiliary Power? Y (Y,N)

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 8" / ____

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? HP-20 PLANT

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

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

*

- CONTAMINATED -

full

CONTRACTOR'S SUBMITTAL TRANSMITTAL

SND LANTDIV 4-4355/3 (Rev. 8/76)

CONTRACT NO	TRANSMITTAL NO	DATE
N62470-82-C-4551	15	9-08-83

FROM CONTRACTOR: East Coast Construction Co., Inc.

TO: ROICC

PROJECT TITLE AND LOCATION: Replacing Three (3) Water Wells, MCB Camp Lejeune, N. C. Well No. 601.

CONTRACTOR USE ONLY

601

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

☐ Contractor Approved ☒ OICC Approval ☐ Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES
A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged
C-Comments
R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	15201-6	Driller's Log	3	A	JAE 60
2	15201-6	Electric Log and Gamma Log	3		
3	15201-6	Water Analysis	3		9-8-3
4	15201-6	Sieve Analysis	3		
5	15201-6	Recommendation and Data Submittal	3	A	JAE 60

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature) Ronald L. Ellen

DATE RECEIVED BY REVIEWER	FROM (Reviewer)	TO

☐ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

Copy - Filed - Contract 9-8-83

COPIES TO: ROICC (2) LANTDIV (1) A-E (1)	DATE 9-8-3	SIGNATURE JA Elliott

ROICC

...CIATES, INC.

ROUTING ORDER	INT
1	60 CAL
2	
3	
4	
5	
6	
7	
8	
RETURN TO	02

August 15, 1983

Officer in Charge of Construction
Jacksonville North Carolina Area
Marine Corps Base
Camp LeJeune, North Carolina 28542

Subject: Replace Water Wells
Buildings 601, M-168, & BB-43
Construction Contract No. N62470-82-B-4551
Enwright Job No. 82005-00-2-01

Gentlemen:

We have reviewed the attached submittal and offer the following comments (Please refer to second paragraph of the three letters dated July 5, 1983 from East Coast Construction Company):

- The .30 inch slot for the stainless steel screens appears to be too large.
- All wells shall be packed with gravel having a uniformity coefficient of not more than 2.5. The contractor recommends course sand.
- Electric log for well number M-601 was not submitted.
- Well numbers M-168 and BB-43 do not meet specified yield.

We are requesting a resubmittal of the attached which should address the items mentioned above. Please advise as to acceptance or rejection of estimated yield for wells M-168 and BB-43.

Yours very truly,

ENWRIGHT ASSOCIATES, INC.

Thomas E. Sharpe. Jr.
Project Manager

Sent 2 copies to East Coast

TES;jr/pdk

Attachment

cc: Mr. Fook-Kay Lee
File

18 AUG 1983
RECEIVED

Bankers Trust Plaza ■ P.O. Box 5287, Station B ■ Greenville, S.C. 29606 ■ (803) 232-8140

229 CENTER STREET

EAST COAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

Post Office Box 5004

JACKSONVILLE, NORTH CAROLINA 28540

August 25, 1983

Officer in Charge of Construction
Building 1005
Camp Lejeune, N. C. 28542

Re: N62470-82-C-4551
Replace Three (3) Water Wells

Gentlemen:

As per our telephone discussion and attached letter from Enwright and Associates, we submit the following:

We are still recommending a .30 slot stainless steel screen and a course sand gravel pack. Sample attached. We base our recommendation on the attached sieve analysis from Johnson Company and our past experience in the development of water wells in this area.

We feel this method will offer the most efficient and productive well. As for the quantity of available water we base our recommendation on the attached gamma and electric logs and pumping test.

Should you have any questions please do not hesitate to contact us.

Yours very truly,

EAST COAST CONSTRUCTION CO., INC.

Ron Ellen

Ron Ellen

RRE/lm
Enclosures

July 05, 1983

Officer in Charge of Construction
Building 1005
Camp Lejeune, N. C. 28542

Re: N62470-82-C-4551
Replacing Three (3) Water Wells
Camp Lejeune, N. C.
Well No. 601

Gentlemen:

We are enclosing six (6) copies of the Driller's Log, Electric Log, Gamma Log, Water Analysis and Sieve Analysis.for your review. The test well was drilled 225 feet deep. Water samples were taken at the 92' to 97'; 132' to 137'; and 175' to 180' levels.

We recommend a line of .30-slot stainless steel screens set at the 94' to 99'; 108' to 140'; and 175' to 187' levels for a total of 49 VF of screens. The gravel pack recommended is a course sand. It is our best estimate that this well may yield 250 to 300 GPM.

Please review the data and advise if we are to proceed with developing a permanent well at this site.

Yours very truly,

EAST COAST CONSTRUCTION CO., INC.

W. H. Myers

WHM/lm
Enclosures

229 CENTER STREET

...OAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

Post Office Box 5004

JACKSONVILLE, NORTH CAROLINA 28540

CAMP LEJEUNE
601-
May 6, 1983

60	-	70	rock pieces and fine sand
70	-	80	fine sand with rock and shell
80	-	90	fine sand with rock and shell
90	-	100	fine to medium sand, shell and shale
100	-	110	fine to medium sand, shell, shale, some rock
110	-	120	fine to medium sand with rock pieces
120	-	130	fine to medium sand, shale fragments
130	-	140	fine to medium sand, shale and shells
140	-	150	fine sand, some shell
150	-	160	fine to medium sand
160	-	170	fine sand
170	-	180	fine sand
180	-	190	fine sand
190	-	200	very fine sand

SAND ANALYSIS

(FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

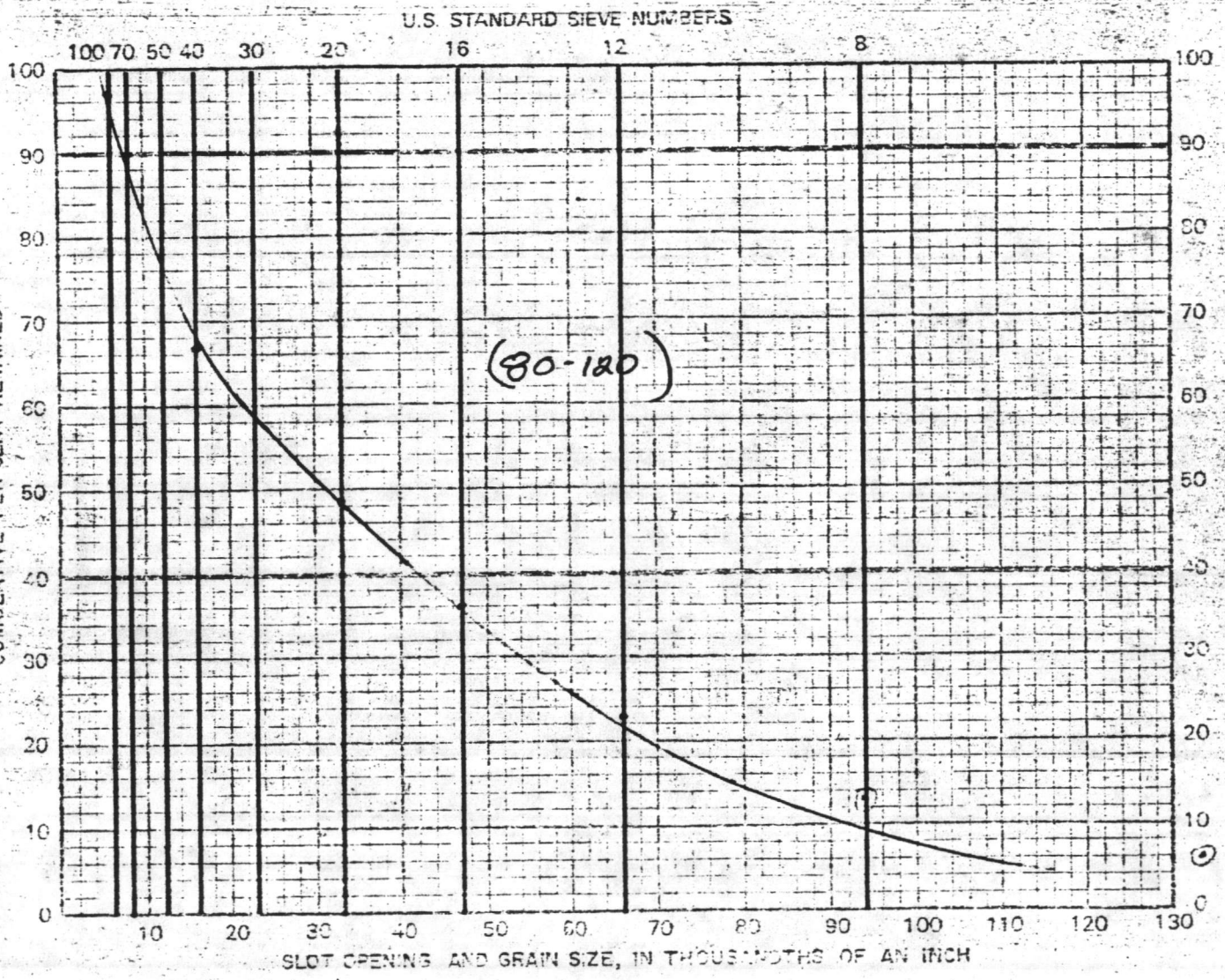
Contract N62470-82-C-4551

...arolina Well & Pump

State _____ Zip _____ Date 6-22-83

...m well of _____

Remarks: Well #601 Camp Lejeune, N.C.
For Gravel Pack Selection



U.S. SIEVE NO.	SIEVE OPENING INCHES	SIEVE OPENING MM	CUMULATIVE PERCENTAGE	
6	.132	3.36		
8	.094	2.39		
12	.066	1.68		
16	.047	1.19		
20	.033	0.84		
30	.023	0.60		
40	.016	0.42		
50	.012	0.30		
70	.008	0.21		
100	.006	0.15		

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: BPV

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

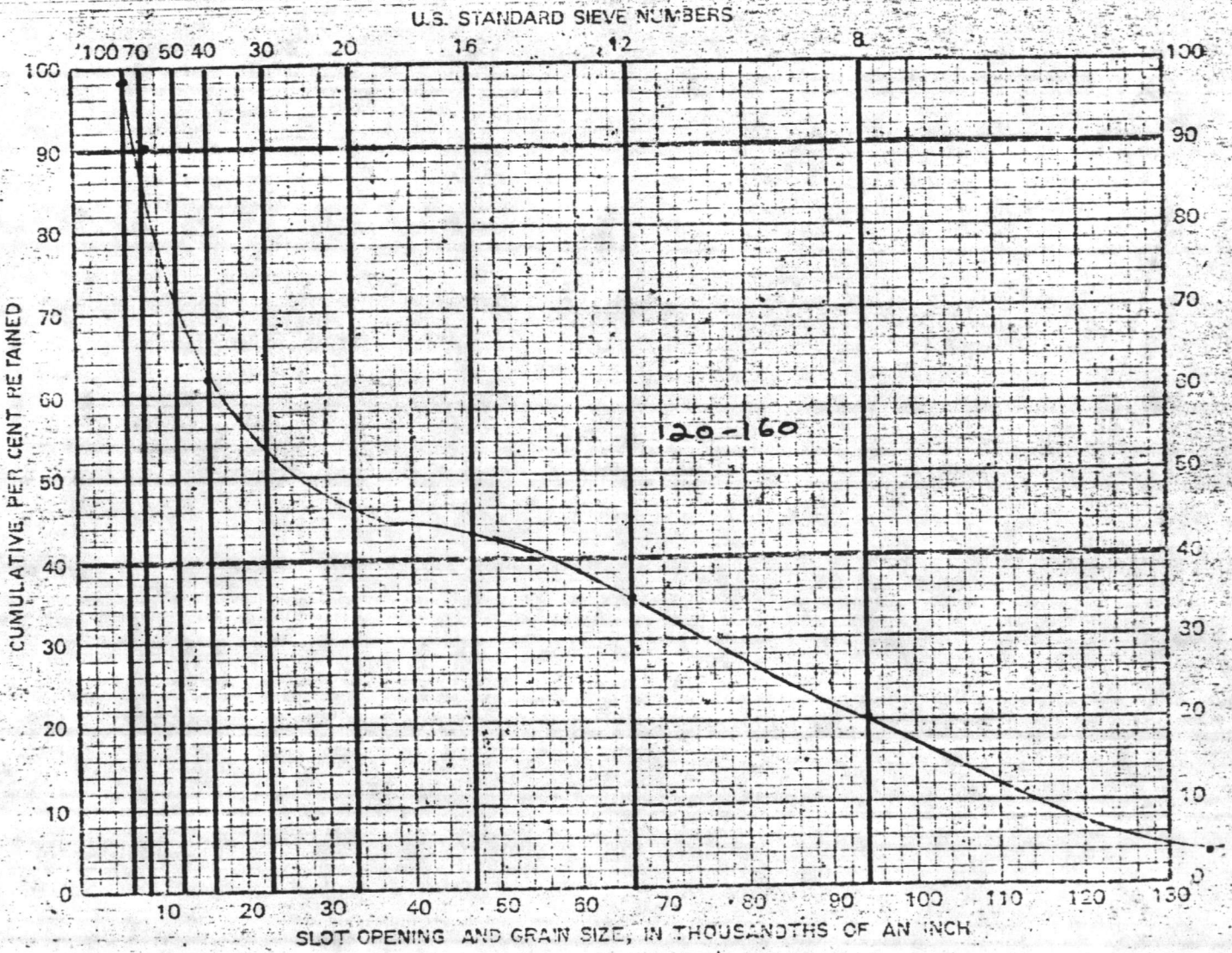
SAND ANALYSIS
(FINE)

55164
ex 29-7451
MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA ▪ 55164

State _____ Zip _____ Date _____

From well of _____

Remarks: Well #601



U.S. SIEVE NO.	SIEVE OPENING INCHES	SIEVE OPENING MM	CUMULATIVE % RETAINED		
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By. _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT, WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

SAND ANALYSIS

(FINE)

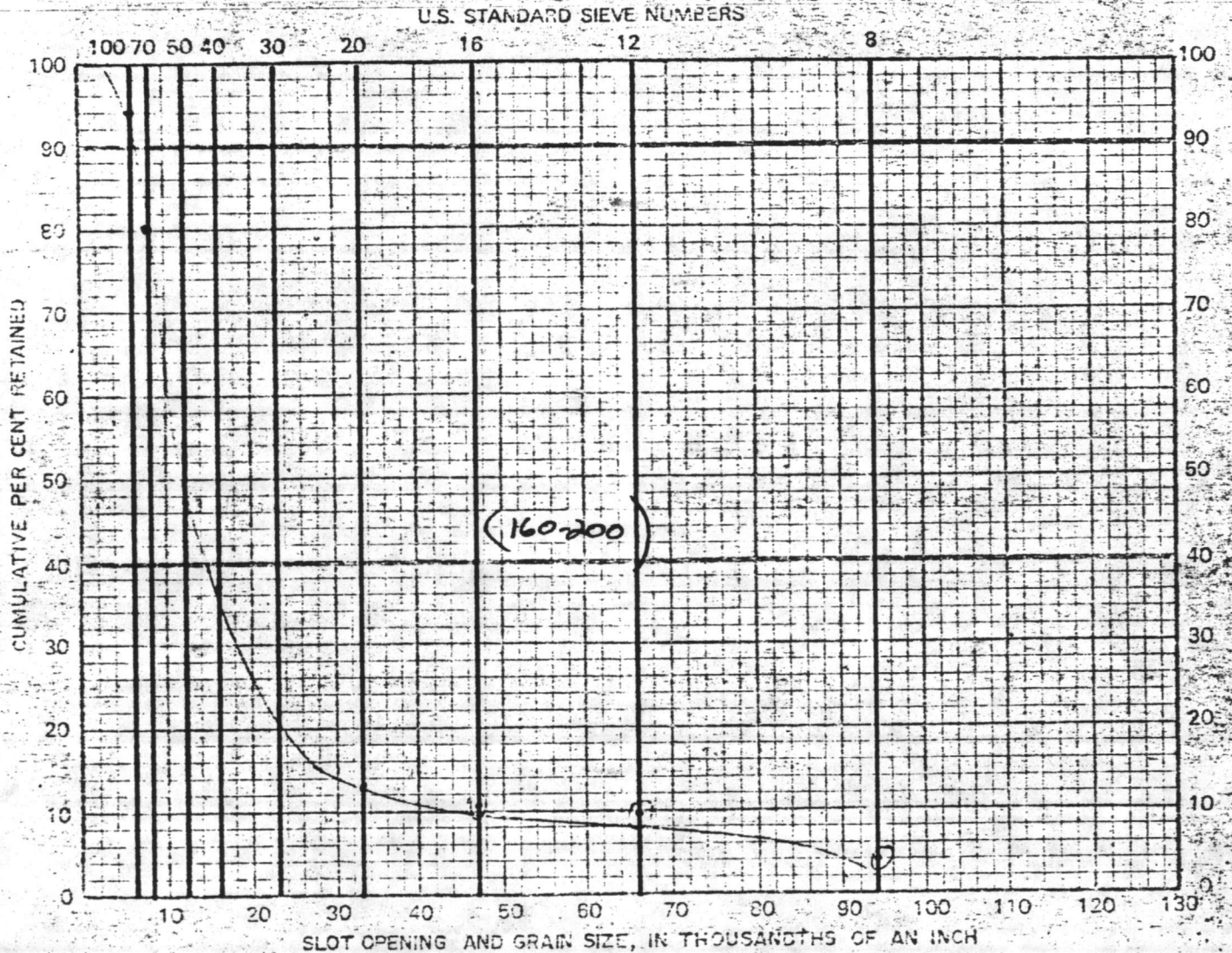
55164
ox 29-7451

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA • 55164

State _____ Zip _____ Date _____

From well of _____

Remarks: E-601



U.S. SIEVE NO.	SLOT OPENING INCHES	SLOT OPENING MM	CUMULATIVE % RETAINED		
6	.132	3.36			
8	.094	2.38			
12	.066	1.68			
16	.047	1.19			
20	.033	0.84			
30	.023	0.60			
40	.016	0.42			
50	.012	0.30			
70	.008	0.21			
100	.006	0.15			

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

WATER ANALYSIS LABORATORY
802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29512

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

DATE: June 15, 1983

Contract N62470-82-C-4551

Report To: Carolina Well & Pump Co.
Sanford, N. C.

Date Analyzed: 6/15/83

Sample Number: Job 601-92'-97'

Analysis Results--Parts Per Million

Determination		Determination	
pH	6.9	Carbon Dioxide (CO_2)	5
Iron (Fe)	0.1	Total Acidity ($CaCO_3$)	6
Nitrate (NO_3)	Trace	Calcium Hardness ($CaCO_3$)	208
Fluoride (F)	0.4	Magnesium Hardness ($CaCO_3$))	34
Manganese (Mn)	Trace	Carbonate Hardness ($CaCO_3$)	220
Total Hardness ($CaCO_3$)	242	Noncarbonate Hardness ($CaCO_3$)	22
Chlorides (Cl)	16	Alkalinity (Phenolphthalein) ($CaCO_3$)	0
Sulfate (SO_4)	32.6	Carbonate Alkalinity ($CaCO_3$)	0
Phosphate (PO_4)	0	Bicarbonate Alkalinity ($CaCO_3$)	220
Magnesium (Mg)	8.4	Total Alkalinity ($CaCO_3$)	220
Calcium (Ca)	83.2	Total Dissolved Solids	392
Carbonate (CO_3)	0	Specific Conductance (micromhos at 25°)	560
Bicarbonate (HCO_3)	268	Appearance When Analyzed	Clear
Hydroxide (OH)	0	Odor When Analyzed	Not Objectionable

Water Analysis Laboratory
802 Hamlet Highway
Bennettsville, South Carolina 29512

SIGNED: _____
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE-WATER,' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES,' WATER SUPPLY PAPER 1454 (1960), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.

WATER ANALYSIS LABORATORY
802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29512

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

DATE: June 15, 1983

Report To: Carolina Well & Pump Co.
Sanford, North Carolina

Date Analyzed: 6/15/83

Sample Number: Job 601-132'-137'

Analysis Results--Parts Per Million

Determination		Determination	
pH	7.0	Carbon Dioxide (CO_2)	2
Iron (Fe)	0.1	Total Acidity ($CaCO_3$)	3
Nitrate (NO_3)	Trace	Calcium Hardness ($CaCO_3$)	152
Fluoride (F)	0.5	Magnesium Hardness ($CaCO_3$))	23
Manganese (Mn)	Trace	Carbonate Hardness ($CaCO_3$)	175
Total Hardness ($CaCO_3$)	175	Noncarbonate Hardness ($CaCO_3$)	0
Chlorides (Cl)	14	Alkalinity (Phenolphthalein) ($CaCO_3$)	0
Sulfate (SO_4)	6.2	Carbonate Alkalinity ($CaCO_3$)	0
Phosphate (PO_4)	0	Bicarbonate Alkalinity ($CaCO_3$)	180
Magnesium (Mg)	5.6	Total Alkalinity ($CaCO_3$)	180
Calcium (Ca)	60.8	Total Dissolved Solids	266
Carbonate (CO_3)	0	Specific Conductance (micromhos at 25°)	380
Bicarbonate (HCO_3)	220	Appearance When Analyzed	Clear
Hydroxide (OH)	0	Odor When Analyzed	Not Objectionable

Date Analysis Performed

802 Hamlet Highway
Bennettsville, South Carolina 29512

SIGNED _____
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER,' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES,' WATER SUPPLY PAPER 1454 (1960), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.

WATER ANALYSIS LABORATORY
802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29512

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

DATE: June 15, 1983

Report To: Carolina Well & Pump Co.
Sanford, North Carolina

Date Analyzed: 6/15/83
Sample Number: Job 601-175'-180'

Analysis Results--Parts Per Million

Determination		Determination	
pH	7.2	Carbon Dioxide (CO_2)	2
Iron (Fe)	.05	Total Acidity ($CaCO_3$)	2
Nitrate (NO_3)	Trace	Calcium Hardness ($CaCO_3$)	146
Fluoride (F)	0.4	Magnesium Hardness ($CaCO_3$))	16
Manganese (Mn)	Trace	Carbonate Hardness ($CaCO_3$)	160
Total Hardness ($CaCO_3$)	162	Noncarbonate Hardness ($CaCO_3$)	2
Chlorides (Cl)	18	Alkalinity (Phenolphthalein) ($CaCO_3$)	0
Sulfate (SO_4)	7.1	Carbonate Alkalinity ($CaCO_3$)	0
Phosphate (PO_4)	0	Bicarbonate Alkalinity ($CaCO_3$)	160
Magnesium (Mg)	3.8	Total Alkalinity ($CaCO_3$)	160
Calcium (Ca)	58.4	Total Dissolved Solids	238
Carbonate (CO_3)	0	Specific Conductance (micromhos at 25°)	340
Bicarbonate (HCO_3)	178	Appearance When Analyzed	Clear
Hydroxide (OH)	0	Odor When Analyzed	Not Objectionable

Water Analysis Laboratory
802 Hamlet Highway
Bennettsville, South Carolina 29512

SIGNED: _____
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER.' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES.' WATER SUPPLY PAPER 1454 (1960). U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.

CONTRACTOR'S SUBMITTAL TRANSMITTAL

END LANTDIV 4-4355/3 (Rev. 6/76)

CONTRACT NO.	TRANSMITTAL NO.	DATE
82-C-4551		12-6-83

FROM CONTRACTOR: EAST COAST CONSTRUCTION CO INC

TO: ROICC -

PROJECT TITLE AND LOCATION: Replacing three (3) WATER Well Camp Lejeune NC Well Nº BB-43 / Well Nº 601

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

☐ Contractor Approved ☐ OICC Approval ☐ Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES
A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged.
C-Comments
R-Resubmit

ITEM NO	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
	15201-7.3	24 hour Pumping Test	6	A	FKL.

RECEIVED
DEC 19 1983
ENWRIGHT ASSOCIATES

CONTRACTOR'S COMMENTS

Well Nº BB-43
Pump Test DATA
Should be Well Nº 601

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature) RON ELLEN

DATE RECEIVED BY REVIEWER | FROM (Reviewer) | TO

☐ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS

DEC 31 PM 1983

COPIES TO: ROICC (2) LANTDIV (1) A-E (1)	DATE	SIGNATURE

PUMPING TEST DATA

Carolina Well & Pump Co. Roger Thomas

Camp Lejeune Address:

Well No.: BB 43 Location: across blvd. from Steak House County: Onslow

Observation Well Locations: Should be 601

Airline Lengths: Pumped Well Observation Wells

Remarks:

Pumping rate measured with: 3 x 4 orfice Water levels measured with: electric tape

Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks
11/21/83							
12:50 PM						15' 5"	
1:00		13	151			15' 5"	
1:05	5 min.	"	"			62' 4"	
1:10	10	"	"			63' 0"	
1:15	15	"	"			68' 5"	
1:20	20	"	"			72' 8"	
1:25	25	"	"			75' 0"	
1:30	30	"	"			76' 0"	
1:35	35	"	"			77' 8"	
1:40	40	"	"			77' 8"	
1:45	45	"	"			78' 3"	
1:50	50	"	"			79' 3"	
1:55	55	"	"			79' 3"	
2:00	60	"	"			79' 5"	
2:05	65	"	"			80' 0"	
2:10	70	"	"			80' 0"	
2:15	75	"	"			80' 3"	
2:20	80	"	"			80' 9"	
2:25	85	"	"			80' 9"	
2:30	90	"	"			80' 9"	
2:35	95	"	"			80' 9"	
2:40	100	"	"			80' 9"	
2:45	105	"	"			80' 9"	
2:50	110	"	"			80' 9"	
2:55	115	"	"			80' 9"	
3:00	120	"	"			80' 9"	
3:10	130(10 min.)	"	"			80' 9"	
3:20	140	"	"			80' 9"	
3:30	150	"	"			80' 9"	
3:40	160	"	"			80' 9"	
3:50	170	"	"			80' 9"	
4:00	180	"	"			81' 0"	
4:15	195(15 min.)	"	"			81' 0"	
4:30	210	"	"			81' 0"	
5:00	240(30 min.)	"	"			81' 0"	
6:00	300(60 min.)	"	"			81' 0"	
7:00	360	"	"			81' 0"	
8:00	420	"	"			81' 0"	
9:00	480	"	"			81' 0"	
10:00	540	"	"			81' 0"	
11:00	600	"	"			81' 0"	
12:00	660	"	"			81' 0"	
1:00	720	"	"			81' 0"	
2:00	780	"	"			81' 0"	

229 CENTER STREET

EAST COAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

Post Office Box 5004

JACKSONVILLE, NORTH CAROLINA 28540

60/Jd/02

January 11, 1984

Officer in Charge of Construction
Building 1005
Camp Lejeune, N. C. 28540

Re: N62470-82-C-4551
Replacing Three (3) Water Wells
MCB, Camp Lejeune, N. C.
Well No. 601

Gentlemen:

Please note that the attached 24-hour Pumping Test should be for Well No. 601. It is incorrectly marked as BB-43.

Yours very truly,

EAST COAST CONSTRUCTION CO., INC.

Ron Ellen

Ron Ellen

RRE/lm

Attachment

FILE FOLDER

DESCRIPTION ON TAB:

New Well Replacement 6601

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

☐ **Outside/inside of actual folder did contain hand written information**
***Scanned as next image**

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

WELL NUMBER 661		BY SALAS / THOMAS			DATE 3-28-02	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
70	20	38	18	80	100	55
		40	20	70	167	05
		45	25	60	192	15
		50	30	50	214	25
		55	35	40	232	35
	SET AT ⇒	60	40	35	242	45

REMARKS D/H - 88 NOTE: ADJUSTED PACKING GLAND

ANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER 661		BY Stevenson & Salas			DATE 4-23-91	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
70	20	30	10	85	100	
		35	15	75	167	
		45	25	65	201	
		50	30	55	226	
		53	33	50	235	
		55	35	45	246	
		58	38	40	257	
		60	40	35	266	

REMARKS D/H 88

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

DATE 7-25-00

PWSID 04-67-041

WELL # HP 661

WELL NAME HADNOT POINT HP-20

BLDG. HP 661

CODE G

AVAILABILITY P

LOCATION SWEADS FERRY ROAD

LATITUDE 34.64391

LONGITUDE 77.30544

WELL DIAMETER 8"

WELL DEPTH ~~125~~ 140'

SCREEN INTERVAL ---

YIELD 151

STATIC LEVEL 23'

PUMPING LEVEL 44'

PUMP TYPE VERTICAL TURBINE

MOTOR HP ---

INTAKE DEPTH 70

DESIGN CAPACITY 175

ACTUAL GPM 175

SIZE OF CONCRETE SLAB ---

HEIGHT OF CASING 12"

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

SOURCE INFORMATION GROUND WATER

Date Form Completed (MMDDYY): 012595

PWSID: 0467040

Owner Assigned Source Code: 661

Well Name (If purchase, name of system): HADNOT POINT 661

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

If Purchase, seller ID#:

Source Begin Date (MMYY):

Source exempt—SWTR? Y / N:

Direct Influence Date (MMDDYY):

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

Location of well within the system (If purchase, location of master meter): SNEADS FERRY ROAD

Latitude (N) Deg. Min. Sec.: 34 38 41.1

Longitude (W) Deg. Min. Sec.: 077 18 20.9

How Determined: G
G=GPS
M=Map
S=Surveyed

GPS Data Q# or DOP #: Q3

No. of Sats. Locked on: 4

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

Vulnerable (VOCs) Y / N:

Assessment Date (MMDDYY):

ENTRY POINT INFORMATION

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

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

Owner Assigned Entry Point Code: 100

Entry Point Name: ~~HP661~~ MCB HADNOT PT WTP

Location:

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

Sources of pollution/distance: Road @100'

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: Elec heat

Well: Diameter: 8" Type: SCREENED Yield (gpm): ~~122~~ 175 Properly sealed? Y (Y,N)

Properly vented? Y (Y,N) Casing depth 50 ft. (If unknown, put 'UNK') Well depth: 135' Meter available? Y (Y,N)

Size: 12X12

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

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

Pumps: Capacity: GPM: ~~175~~ 122 HP: 15 Pump intake depth: 70 Auxiliary Power? Y (Y,N)

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 12" /

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? HP-20 PLANT

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

(1) Seal pump pedestal
(2) well not in center of slab

*

WELL NUMBER 661 BY DATE 7-14-97

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
70	23	33	10	60	100	45
		37	14	50	115	55
		40	17	40	125	05
		42	19	30	140	15
		43	20	25	146	25
		44	21	20	151	35

REMARKS

D/H 87 PST

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER 66.1 BY Steven Peterson DATE 12 APRIL 95

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
70	20	32	12	65	100	50
		34	14	60	115	00
		40	20	50	149	10
		42	22	45	164	20
		48	28	35	214	30
		53	33	25	244	40
		55	35	20	259	50
		58	38	15	269	00

REMARKS D/H 85 PSI

remove & clean pump & install

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER 661		BY THOMAS STEVENSON			DATE 3-11-93	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
20	25	33	8	53	100	00
		34	9	48	104	10
		35	10	40	108	20
		35	10	35	111	30
		36	11	30	115	40
		36	11	25	115	50
		36	11	20	119	60
left on		37	12	14	122	00

REMARKS Dead head @ 95 PSI
need to pull & clean

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

NUMBER 661	BY THOMAS/SARDINAS			DATE 7-9-89	

LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
70	23	33	10	70	108	35
		37	14	65	140	45
		43	20	60	162	55
		45	22	55	180	05
		48	25	50	221	10
		50	27	45	239	15
		55	32	40	259	25
left set →		60	37	35	275	33

RKS

pulled pump cleaned, blew & jetted well
cleaned pump & installed no new parts used

Pump dead @ 84 PSI

left set @ 35 PSI 275 GPM

FACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER CC1 | BY Thomas/Sandines | DATE 10-24-88

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
90	32	43	11	5	100	4.5

REMARKS Dead lead 93

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

NEW

WELL NUMBER 627		BY THOMAS / BROWN			DATE 10-26-84	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 0800
90	29	38	9	81	104	0810
		42	13	76	122	0820
		44	15	72	130	0830
		46	17	68	149	0840
		50	21	64	167	0850
		52	23	60	185	0900
		57	28	54	212	0910
		60	31	49	232	0920
GPM RIG		65	36	40	259	0930
WATER METER		69	40	35	265	0940
		75	44	30	275	0950
REMARKS – left set at →		78	47	27	280	1000

27 PSI
280 GPM By meter

used GPM rig to 40" - 266 GPM - went to in line water meter

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

661 10-26-84 | 12-4-85

WELL DEPTH			
PUMP SET			
AIR LINE	90	AL	90
STATIC LEVEL	29	S-L	32
PUMPING LEVEL	78	P-L	63
DRAW DOWN	47	D-D	31
PSI	27	PSI	18
GPM	280	GPM	234
By meter			

NEW

WELL NUMBER 627		BY THOMAS / BROWN				DATE 10-26-84
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 0800
90	29	38	9	81	104	0810
		42	13	76	127	0820
		44	15	72	130	0830
		46	17	68	149	0840
		50	21	64	167	0850
		52	23	60	185	0900
		57	28	54	212	0910
		60	31	49	232	0920
GPM RIG		65	36	40	259	0930
WATER METER		69	40	35	266	0940
		75	44	30	275	0950
REMARKS – light not at →		78	47	27	280	1000

27 PSI
280 GPM By meter

used GPM rig to 40" - 266 GPM - went to in line water meter

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

8 WATER WELLS - MARINE CORP BASE - CAMP LEJEUNE NC

No	LOCATION	PUMP DATA Model	Stages	Motor HP	Gear Dr Model	6" Column	4" Screens	1st Screen Setting	2nd Screen Setting	3rd Screen Setting	4th Screen Setting	5th Screen Setting	Air Line	Ft. to Water LEVELS Static	Draw Down	Pump Rate GPM
11	Berkley Manor	8MS	8	20	20	70	45	65-75	115-135	182-197	—	—		35	49	300
4	Stone Street	8MS	8	20	20	80	44	106-100	150-170	217-227	—	—		15	80	300
H4006	MIDWAY PARK	8HL	8	30	40	80	42	90-119	116-139	—	—	—	[illegible]	25	70	450
21	Piney Green Rd	8MS	6	15	20	70	40	60-70	125-135	160-170	220-230			18'-2"	51'-9"	200
627	Sneeds Ferry Rd	8MS	6	15	20	70	40	50-65	87-102	125-135	—	—		14	44	175
R227	Rifle Range	8HL	8	25	40	80	35	190-210	223-233	242-247			[illegible]	23	58	300
638	TARAWA TERRACE	8MS	6	15	20	85	35	70-95	132-142	—	—	—		27	63	160
39	Sneeds Ferry Rd	8MS	6	15	20	70	42	121-131	134-146	185-195	215-220	225-230		4	96	200

Notes
Two
Wells — 10-10-84

CONSOLIDATED PUMP & EQUIPMENT, INC.

DISTRIBUTORS AND MANUFACTURER REPRESENTATIVES • WATER & WASTE WATER TREATMENT
POST OFFICE BOX 3188 • ROCK HILL, SOUTH CAROLINA 29730 • 803/328-1891

March 28, 1983

SUBMITTAL DATA

JOB: Replace Water Wells
Camp Lejeune, N. C.

Engineer: Peirson & Whitman, Inc.

Contractor: East Coast Construction Co.

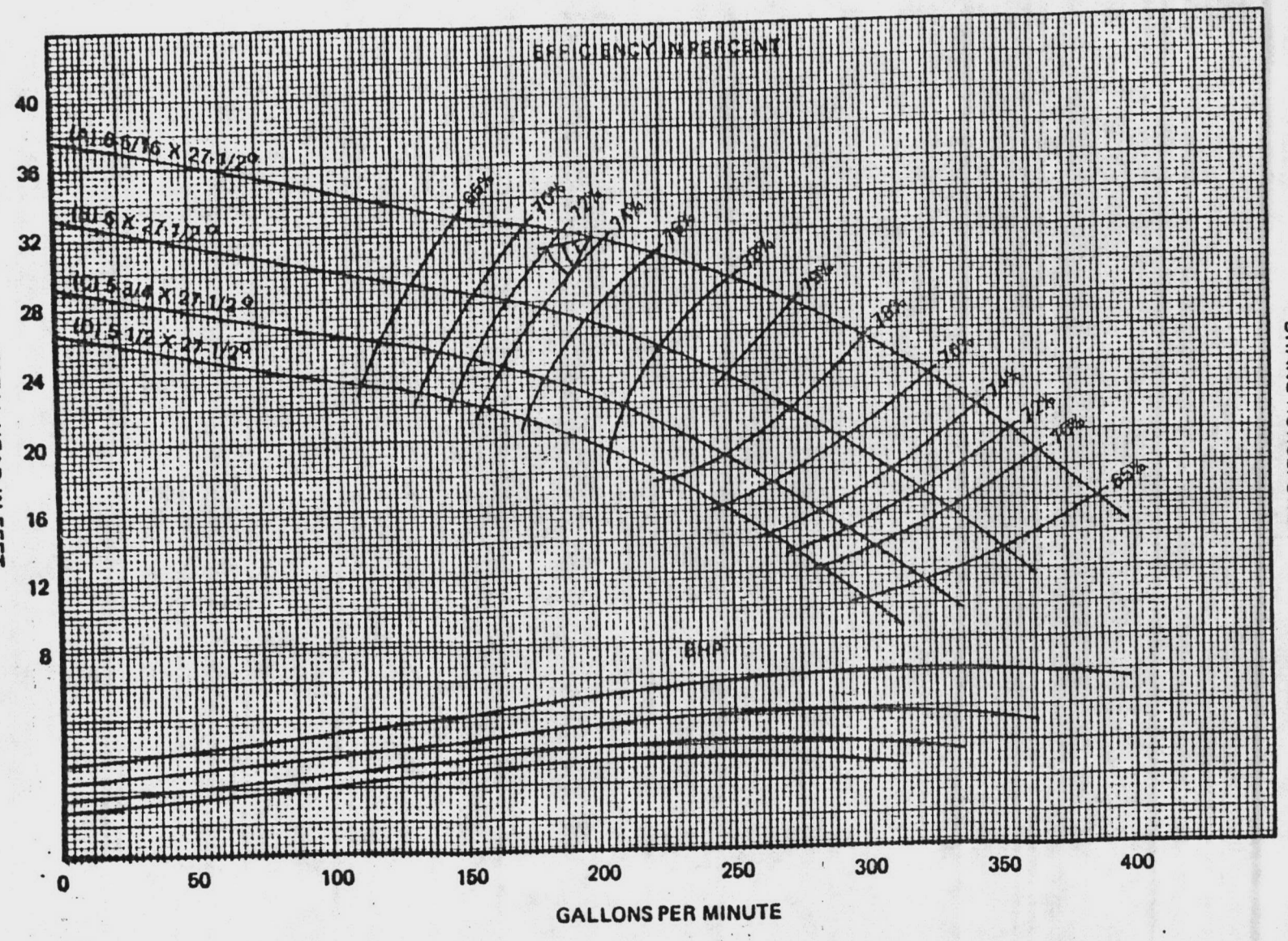
Material Submitted:

8 - Jacuzzi Model 15-8MSA6 Verticle Turbine Pump consisting of 6 stage 8MS pump head, 10' - 6" suction pipe with cone strainer, 100' - 6" discharge column, 1" drive shaft, model L6A discharge head, model S-20 Combination Right Angle Gear Drive, 1 : 1 Ratio, and 15 HP V. H. S. motor.

Conditions of service 200 GPM @ 190.5' TDH

TURBINE PUMP CURVE

8MS
SECTION 2120
MAY 15, 1970



NUMBER OF BOWLS	CHANGE EFFICIENCY AS FOLLOWS
1	−4
2	−3
3	−2
4	−1

Change in efficiency may affect both head and horsepower

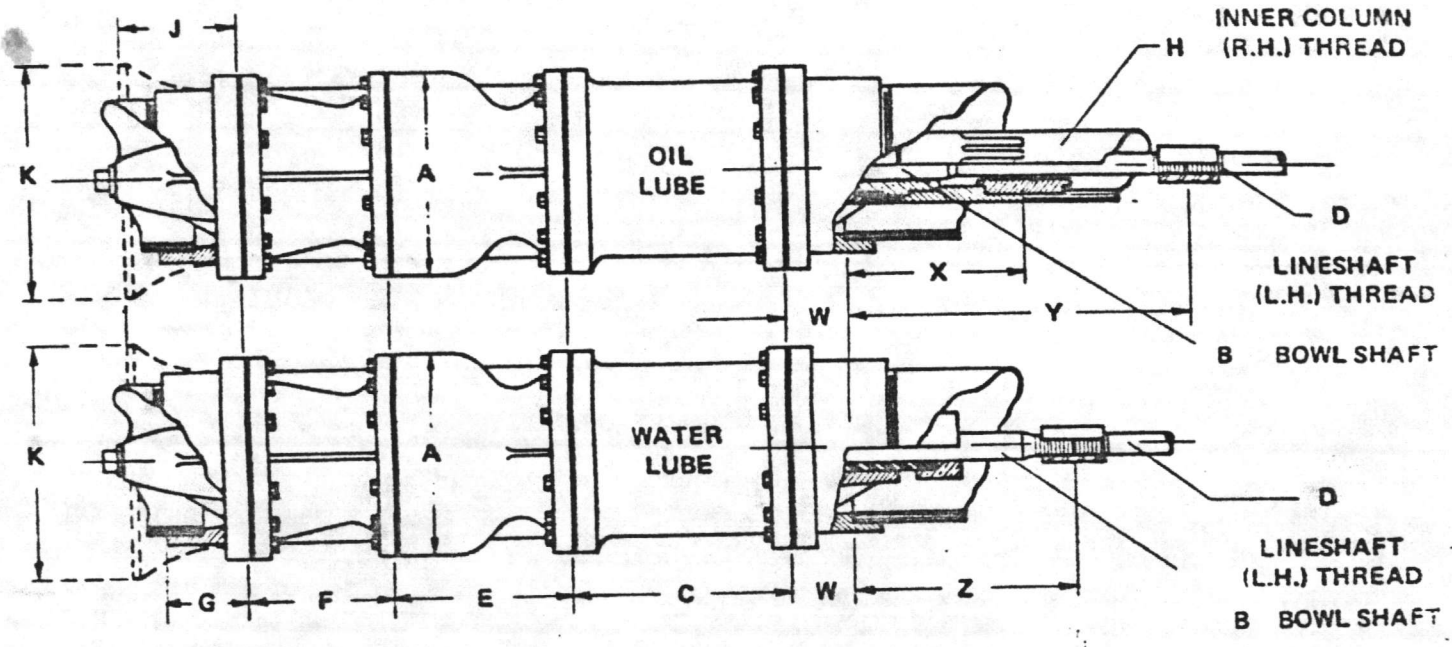
Bowl Dia.	7-1/2 In.
Bowl No.	3591-S, C.I., ENAM.
Impeller No.	3590, BRONZE
Eye Area	6.6 Sq. In.
Imp. Type	SEMI-OPEN K = 4.28

STAGE PERFORMANCE

Curve No.	8M-172
R. P. M.	1760
Bowl	8MS

Performance based on pumping clear, fresh water at a temperature not over 85°F., and free of gas, air or abrasives, and with bowls properly adjusted and submerged.

Turbine Bowl

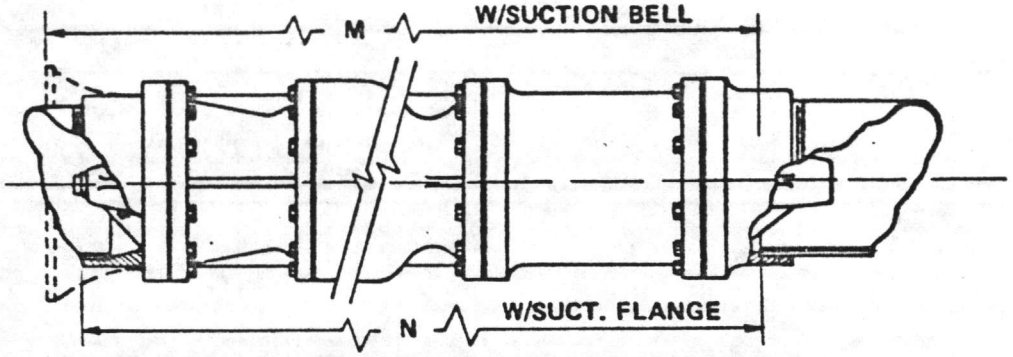


Nom. Bowl Size	Bowl Figure Number	ALL DIMENSIONS IN INCHES													
		Bowl Dia. Max. O.D. STD. A	Bowl Dia. Turned ALT. A	B	C	E	F	Max. G	Suction Bell J	Suction Bell K	W	O.L. X	O.L. Y	W.L. Z	Available Outer Column and Suction
6	6J,6L 6M,6H,6X,6W,6Y	5 9/16		3/8 1	4 3/8	3 1/2 4 3/4	3 1/4	5	4	7 1/4	3	9 1/2	22	7 1/2	3, 4, 5
8	8J,8L,8K,8M,8H 8Y	7 1/8 7 1 3/16	7 1/2	1 1 3/16	6	5 5/8 7 1/2	4	5	4 1/2	9 1/4	3	9 1/2	22	7 1/2	4, 5, 6 4, 5, 6
10	10L,10M,10H	9 1/2	9 1/4	1 1/2	8	7	6	4 1 3/16	5 1/4	11 1/4	3	9 1/2	22	7 1/2	4,5,6,8
10	10W,10Y,10Z	9 1/8	9 1/2	1 1 1/16	8 1/8	8 1/2	6 3/4	5 15/16	7	14 1/4	3	9 1/2	22	7 1/2	6,8,10
12	12L, 12M, 12H, 12X	11 5/16	11 1/4	1 1 1/16	9	10 1/2	5 1/4	3 3/8	6	13 1/4	3	9 1/2	22	7 1/2	6, 8, 10
12	12W	12 3/16	12	1 1 1/16	9	11 1/4	5 1/4	3 3/4	6	13 1/4	3	9 1/2	22	7 1/2	6, 8, 10
14	14L,14M 14H,14X	13 1/2	13 1/4	1 15/16	9 15/16	12 1/2	7 1/16	5 13/16	8	15 1/4	3	9 1/2	22	7 1/2	8, 10, 12
14	14W	14 1/16	13 3/4	1 15/16	9 15/16	13 1/4	7 1/16	5 13/16	8	15 1/4	3	9 1/2	22	7 1/2	8, 10, 12
16	ALL	15 1/2	15 1/4	1 15/16	9 15/16	15	8	6 1/16	10	22	3	9 1/2	22	7 1/2	10, 12, 14
20	ALL	19 1/4	19 1/4	1 15/16	14	18	12	6 1/16	12 1/2	27	3	9 1/2	22	7 1/2	12, 14
24	ALL	23 1/2	23 1/2	2 1/16	20	21	14	3 1/16	14	32	1	16 1/2	29	14 1/2	12, 14, 16
28	ALL	27	27	2 1 5/16	24	24	15	3 1/16	16	38	1	16 1/2	29	14 1/2	14, 16, 18

* Note: Maximum Diameter for 24" Bowl is Discharge Column Flange at 25" and for 28" is 27 1/2".

D	Lineshaft Dia. & Pitch (L.H.)	5/8 16P.	1 12P.	1 3/16 12P.	1 1/2 12P.	1 1/16 12P.	1 15/16 12P.	2 3/16 12P.	2 7/16 8P.	2 11/16 8P.	2 15/16 8P.
H	O.L. Inner Col. & Thread (R.H.)	1 1/4 1 1/8-12P.	1 1/2 1 3/8-12P.	2 2 1/16-12P.	2 1/2 2 1/2-12P.	3 3 1/16-12P.	3 3 1/16-12P.	3 1/2 3 1/2-12P.	4 4-8P.	5 5-8P.	5 5-8P

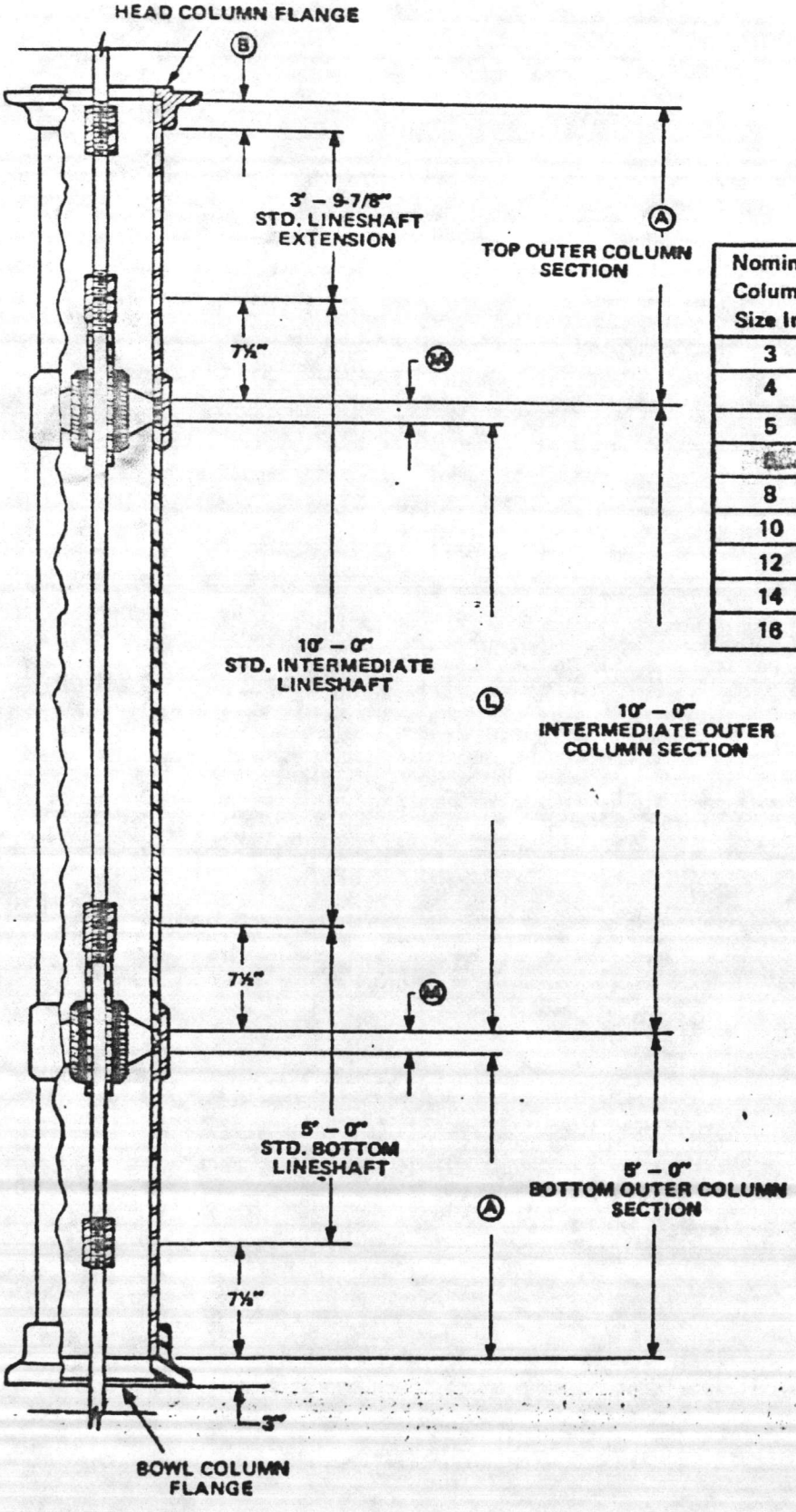
Turbine Bowl



Nom. Bowl Size	Bowl Figure Number	(M) = BOWL ASSEMBLY LENGTH W/SUCTION BELL – INCHES NUMBER OF BOWLS													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	6L	18½	22	25½	29	32½	36	39½	43	46½	50	53½	57	60½	64
	6M,H,X,W,Y	19¾	24½	29¼	34	38¾	43½	48¼	53	57¾	62½	67¼	72	76¾	81½
	8J,8L,8K,8M,8H	23⅛	28¾	34⅜	40	45⅝	51¼	56⅞	62½	68⅛	73¾	79⅜	85	90⅝	96¼
8	8Y	25	32½	40	47½	55	62½	70	77½	85	92½	100	107½	115	122½
10	10L,M,H	29¼	36¼	43¼	50¼	57¼	64¼	71¼	78¼	85¼	92¼	99¼	106¼	113¼	120¼
10	10W,Y,Z	34⅛	42⅝	51⅛	59⅝	68⅛	76⅝	85⅛	93⅝	102⅛	110⅝	119⅛	127⅝	136⅛	144⅝
12	12L, M, H, X	33¾	44¼	54⅜	65¼	75¾	86¼	96⅜	107¼	117⅜	128¼	138⅜	149¼	159⅜	170¼
12	12W	34½	45⅝	57	68¼	79½	90⅝	102	113¾	124½	135⅝	147	158¼	169½	180⅝
14	14L,M,H,X	40¾	53¼	65¾	78¼	90¾	103¼	115¾	128¼	140¾	153¼	165¾	178¼	190¾	203¼
14	14W	41½	54¾	68	81¼	94½	107¾	121	134¼	157½	160¾	174	187¼	200½	213¾
16	ALL	46	61	76	91	106	121	136	151	166	181	196	211	226	241
20	ALL	59½	77½	95½	113½	131½	149½	167½	185½	203½	221½	239½			
24	ALL	70	91	112	133	154	175	196	217	238	259				
28	ALL	80	104	128	152	176	200	224	248	272					

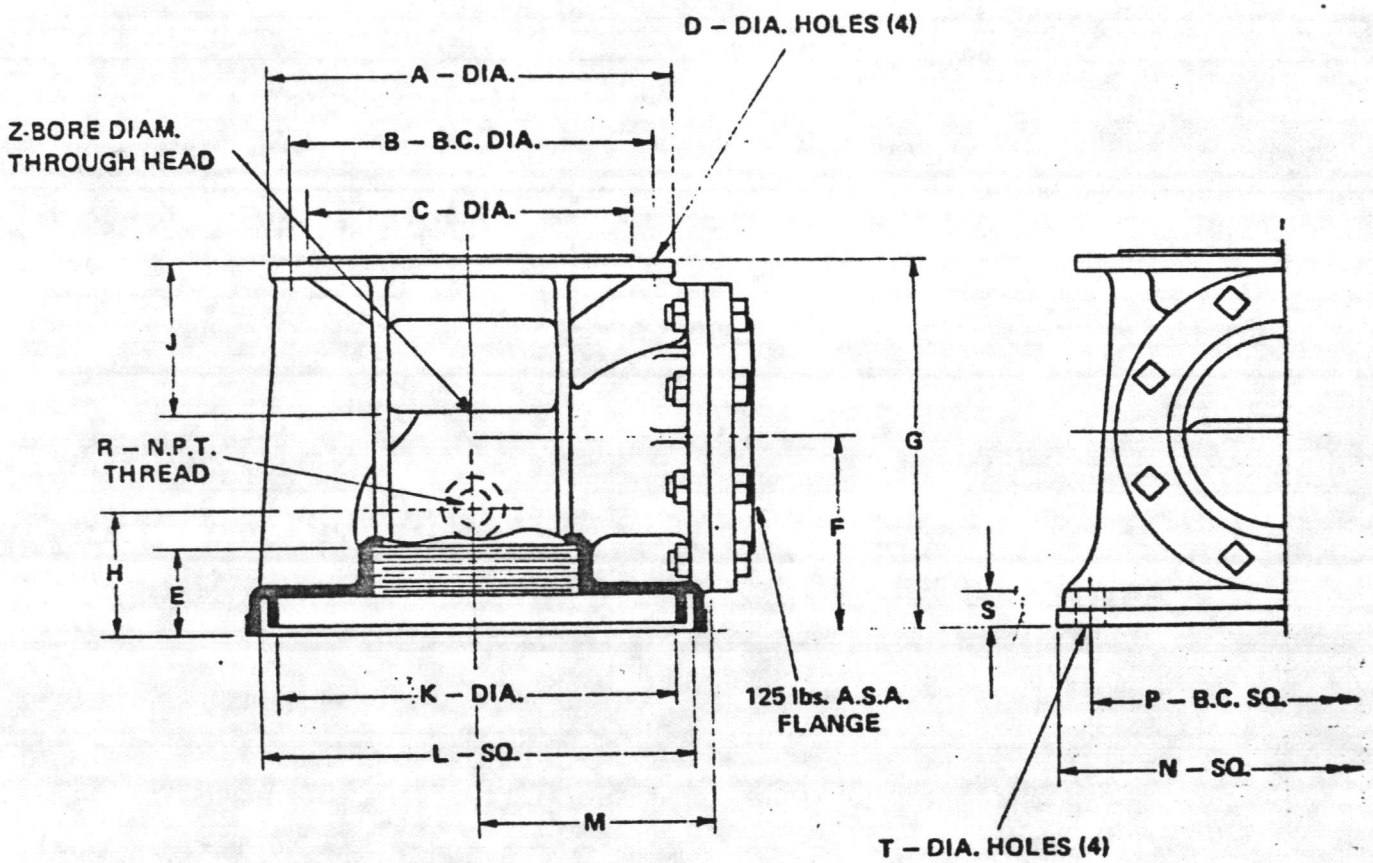
Nom. Bowl Size	Bowl Figure Number	(N) = BOWL ASSEMBLY LENGTH W/SUCTION FLANGE – INCHES NUMBER OF BOWLS													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	6L	19½	23	26½	30	33½	37	40½	44	47½	51	54½	58	61½	65
	6M,H,X,W	20¾	25½	30¼	35	39¾	44½	49¼	54	58¾	63½	68¼	73	77¾	82½
8	8J,8L,8K,8M,8H	23⅝	29¼	34⅞	40½	46⅛	51¾	57⅜	63	68⅝	74¼	79⅞	85½	91⅛	96¾
8	8Y	25½	33	40½	48	55½	63	70½	78	85½	93	100½	108	115½	123
10	10L,M,H	28⅞	35⅞	42⅞	49⅞	56⅞	63⅞	70⅞	77⅞	84⅞	91⅞	98⅞	105⅞	112⅞	119⅞
10	10W,Y,Z	33⅛	41⅝	50⅛	58⅝	67⅛	75⅝	84⅛	92⅝	101⅛	109⅝	118⅛	126⅝	135⅛	143⅝
12	12L, M, H, X	31½	42	52½	63	73½	84	94½	105	115½	126	136½	147	157½	168
12	12W	32¾	44½	55¾	67	78¼	89½	100¾	112	123¼	134½	145¾	157	168¼	179¼
14	14L,M,H,X	38⅛	51⅛	63⅛	76⅛	88⅛	101⅛	113⅛	126⅛	138⅛	151⅛	163⅛	176⅛	188⅛	201⅛
14	14W	39⅛	52⅝	65⅛	79⅛	92⅛	105⅝	118⅛	132⅛	145⅛	158⅝	171⅛	185⅛	198⅝	211⅝
16	ALL	42⅛	57⅛	72⅛	87⅛	102⅛	117⅛	132⅛	147⅛	162⅛	177⅛	192⅛	207⅛	222⅝	237⅛
20	ALL	53¼	71¼	89¼	107¼	125¼	143¼	161¼	179¼	197¼	215¼	233¼			
24	ALL	59¼	80¼	101¼	122¼	143¼	164¼	185¼	206¼	227¼	248¼				
28	ALL	67¼	91¼	115¼	139¼	163¼	187¼	211¼	235¼	259¼					

Turbine Column — Water-Lube, Butt Joint



Nominal Column Size In.	A	B	L	M
3	4'11½"	6⅛"	9'11½"	½"
4				
5	4'11¼"	5⅛"	9'11¼"	¾"
6				
8				
10				
12				
14				
16				

Cast, Standard Discharge Heads



Head Fig. No.	Max. Size (In.) Disch.	Max. Size (In.) Inner Col.	Outer Col. (In.)	DIMENSIONS INCHES A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	Z
L5A L5AB	6	1½	5	10	9⅛	8¼	7/16	3⅛	8 7/16	15⅜	4⅛	6¼	14¾	14¾	8 1/16	15½	13⅛	1	1½	⅝	2⅝ 3⅛
L6A L6AB	6	1½	6	10	9⅛	8¼	7/16	3⅛	8 7/16	15⅜	4⅛	6¼	14¾	14¾	8 1/16	15½	13⅛	1	1½	⅝	2⅝ 3⅛
L8C L8CD	8	2	8	16½	14⅜	13½	¾	3¼	7⅛	15½	4⅛	6⅛	16½	17⅜	9⅜	18⅛	15½	1½	1½	1½	3⅛ 3⅜
L10C	10	2½	10	16½	14⅜	13½	¾	4 1/16	9⅛	18 3/16	5 3/16	6½	16½	18½	10⅛	19½	16½	1½	1⅛	1½	3⅜

Water Lubricated Turbine Pump

MATERIAL SPECIFICATIONS OF STANDARD CONSTRUCTION

KEY NO.	DESCRIPTION	MATERIAL	SPECIFICATION IF APPLICABLE	PART ORDER NUMBER
1	Discharge Head	Cast Iron	ASTM A48 CL.30	
2	Head Column Flange	Cast Iron	ASTM A48 CL.30	
3	Head Column Flange Gasket	Asbestos		
4	Studs (Hd. Column Flange Assy)	Steel	C1137	
5	Nuts (Used W/Key No. 4 Head Column Flange Assy)	Low Carbon Steel	ASTM A-307	
6	Head Discharge Flange	Cast Iron	ASTM A-126	
7	Head Discharge Flange Gasket	Asbestos		
8	Discharge Flg. Assy. Cap Scrs.	Steel	ASTM A-301	
9	Discharge Flg. Assy. Nuts (Used with Key No. 8)	Low Carbon Steel	ASTM A-307	
10	Head Dsch. Flg. Assy. Studs	Steel	C1137	
11	Head Dsch. Flg. Assy. Nuts (Used With Key No. 10)	Low Carbon Steel	ASTM A-307	
14	Head Packing Housing W/Brg. Includes Key No. 32	Cast Iron (Pkg. Hsg.)	ASTM A48 CL.30	
15	"O" Ring	Buna-N		
16	Head Packing Housing Cap Scrs.	S. Steel	300 Series	
18	W/L Headshaft	S. Steel	AISI 316	
19	Headshaft Flinger	Neoprene		
20	Headshaft Adj. Nut	Steel	C-1213	
21	Hd. Pkg. Hsg. Sand Shield	Bronze	SAE 660	
22	Packing (Set)	Asbestos		
23	Packing Follower	Bronze	SAE 40	
25	Hd. Pkg. Housing Grease Fittings	Steel		
26	Packing Follower Studs	S. Steel	AISI 416	
27	Packing Follower Retn. Nuts	S. Steel	300 Series	
28	Adapter Flange	Cast Iron	ASTM A48 CL45	
29	Adapter Flange O-Ring	Buna-N		
30	Adapter Flg. Assy. Cap Screws	S. Steel	300 Series	
32	W/L Headshaft Bearing	Bronze	SAE 660	
33	Headshaft Gib Key	Steel		
34	Adj. Nut Machine Screw	S. Plated		
67	Shaft Coupling (Hd. Shaft, Line Shaft, Bowl Shaf.)	Steel	C1137	
68	Shaft Adapter Coupling Hd/Sht, L/Sht., Bowl/Sht	Steel	C1137	
69	O/C Coupling	Blk. Steel	ASTM A-120-57T Grade B	
76	W/L O/C Section	Black Steel	ASTM A-120-57T Grade B	
77	W/L O/C Section	Black Steel	ASTM A-120-57T Grade B	
78	W/L L/S Bearing Spider	Brass		
79	W/L L/S Bearing	Rubber		

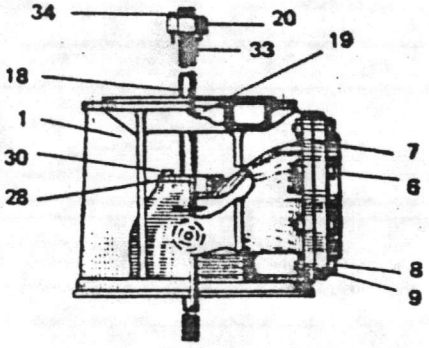
(CONTINUED ON PAGE 22)

Water Lubricated Turbine Pump

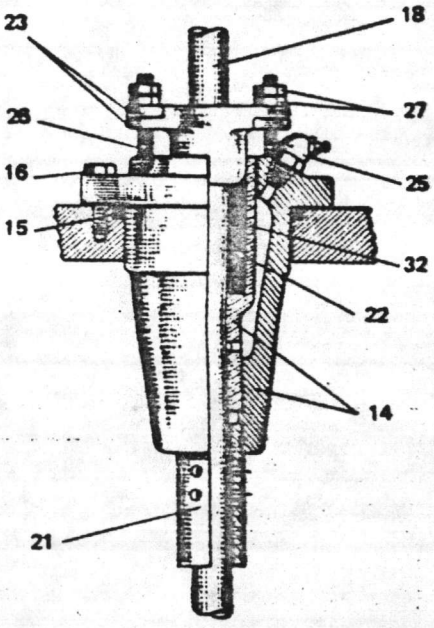
MATERIAL SPECIFICATIONS OF STANDARD CONSTRUCTION

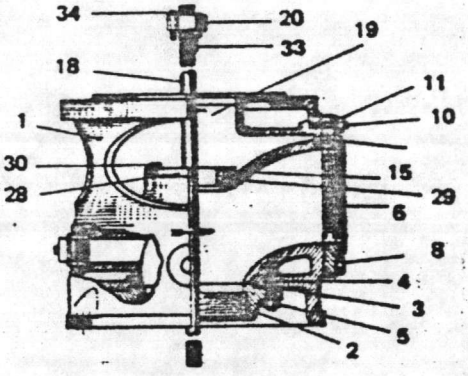
KEY NO.	DESCRIPTION	MATERIAL	SPECIFICATION IF APPLICABLE	PART ORDER NUMBER	
80	W/L S/S Sleeve	S. Steel	304		
81	W/L L/S Extension 3' - 9 7/8" Lg.	Steel	C-1045		
82	W/S L/S Section (5' - 0" Lg.)	Steel	C-1045		
83	W/L L/S Section 10' - 0" Lg.	Steel	C-1045		
84	W/L Bowl Shaft	S. Steel	AISI 416		
90	W/L Discharge Housing Assy (Includes Key No. 91 & No. 92)	Cast Iron	ASTM A48 CL30		
91	W/L Upper Disch. Hsg. Brg.	Neoprene			
92	W/L Lower Disch. Hsg. Brg.	Neoprene			
93	W/L Disch. Hsg. Brg. Sand Cap	Bronze	SAE 40		
94	Sand Cap Set Screws (For K. No. 93)	S. Steel	300 Series		
103	Bowl Assy. (Closed Type) Includes Key No. 104	Cast Iron	ASTM A48 CL 30		
104	Bowl Bearing	Bronze	SAE 794		
105	Bowl Assy. (Semi-Open Type) Includes Key No. 104	Cast Iron	ASTM A48 CL30		
106	Impeller (Closed Type)	Bronze	SAE 40		
107	Impeller (Semi-Open Type	Bronze	SAE 40		
108	Taper Lock	S. Steel	416 SS		
109	Brg. Stage Assy. (Closed Type) Includes Key No. 110	Cast Iron	ASTM A48 CL30		
110	Bearing Stg. Bearing	Bronze	SAE 660		
111	Brg. Stg. Assy. (Semi-Open) Includes Key No. 110	Cast Iron	ASTM A48 CL30		
112	Pipe Plug (For Key No. 109 & No. 111	Galv. Steel			
113	Bearing Stage End Plug	Galv. Steel			
114	Bearing Stage Sand Cap	Bronze	SAE 40		
115	Sand Cap Set Screws (For K. No. 114)	S. Steel	300 Series		
116	Bowl Suction Flange	Cast Iron	ASTM A48 CL30		
117	Bowl Assy. Cap Screws	S. Steel	300 Series		
119	Suction Bell (Optional; Delete Key No. 116 if Suct. Bell is Used	Cast Iron	ASTM A48 CL30		
152	W/L O/C Assy. T & C (Nom. 5' Lg.) (Assy of Key No. 69 & No. 76)	Black Steel	ASTM A-120-57T Grade B		
153	W/L O/C Assy T & C (Nom. 10' Lg.) (Assy of Key No. 69 & No. 77)	Black Steel	ASTM A-120-57T Grade B		

WATER LUBRICATED TURBINE PUMP PARTS DIAGRAM

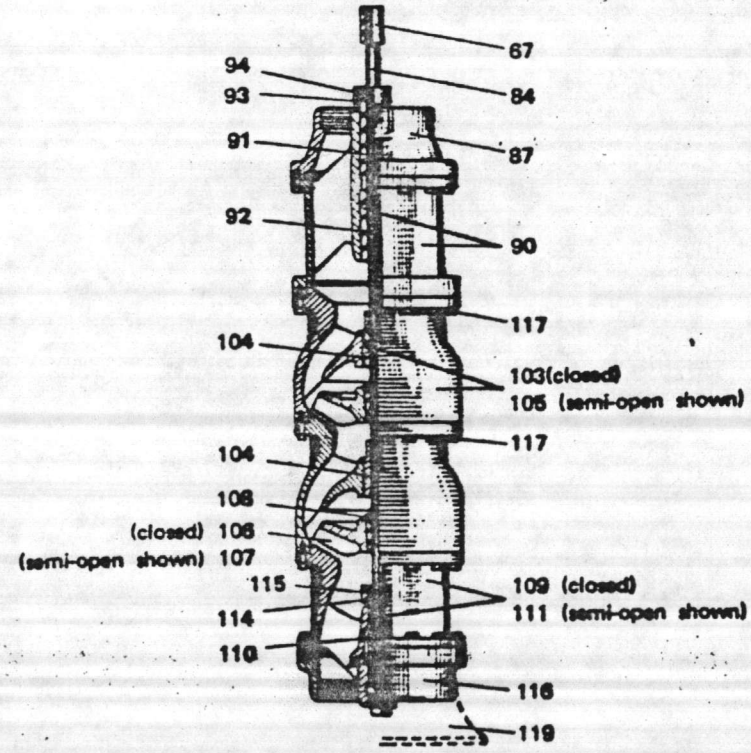


TYPICAL STANDARD HEAD

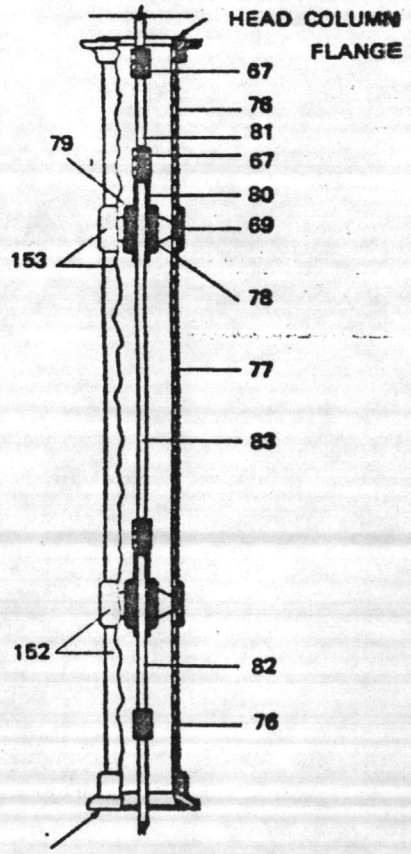




TYPICAL HEAVY DUTY HEAD



BOWL ASSEMBLY



BOWL COLUMN FLANGE

TABLE 3

NOTE: Drives that are rated at 1760 RPM vertical speed **ARE NOT LIMITED** to 1760 RPM. See Table 1.

MODEL	Vertical Shaft RPM	H.P. Rating	DOWNTHRUST CAPACITY IN POUNDS												
			HOLLOW SHAFT						SOLID SHAFT						COMB.
			Type SL		Type S		Type SH		Type SSL		Type SS		Type SSH		Type C
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min. Max.
20	1160	15	0	978	797	2358	797	3680	0	978	0	2358			0 2358
	1460	18	0	901	760	2173	760	3392	0	901	0	2173			0 2173
	1760	20	0	850	700	2050	700	3200	0	850	0	2050			0 2050
	3460	30	0	680	534	1640	534	2560	0	680	0	1640			0 1640
40	1160	30	0	1495	1138	3565	1138	5520	0	1495	0	3565			0 3565
	1460	35	0	1378	1055	3286	1055	5088	0	1378	0	3286			0 3286
	1760	40	0	1300	1000	3100	1000	4800	0	1300	0	3100			0 3100
60	960	39	0	2074	1490	5002	1490	7320	0	2074	0	5002			0 5002
	1160	45	0	1955	1422	4715	1422	6900	0	1955	0	4715			0 4715
	1460	53	0	1802	1331	4346	1331	6360	0	1802	0	4346			0 4346
	1760	60	0	1700	1250	4100	1250	6000	0	1700	0	4100			0 4100
80	960	52	0	3904	2085	6954	2085	11224	0	3904	0	6954			0 6954
	1160	60	0	3680	1991	6555	1991	10580	0	3680	0	6555			0 6555
	1460	70	0	3392	1846	6042	1846	9752	0	3392	0	6042			0 6042
	1760	80	0	3200	1750	5700	1750	9200	0	3200	0	5700			0 5700
100	960	66	0	3904	2101	7198	2101	11224	0	3904	0	7198			0 7198
	1160	75	0	3680	1991	6785	1991	10580	0	3680	0	6785			0 6785
	1460	88	0	3392	1856	6254	1856	9752	0	3392	0	6254			0 6254
	1760	100	0	3200	1750	5900	1750	9200	0	3200	0	5900			0 5900
125	720	68	0	5535	3135	7965	3135	12420	0	5535	0	7965			0 7965
	960	83	0	5002	2722	7198	2722	11224	0	5002	0	7198			0 7198
	1160	94	0	4715	2560	6781	2560	10580	0	4715	0	6781			0 6781
	1460	110	0	4346	2387	6254	2387	9752	0	4346	0	6254			0 6254
	1760	125	0	4100	2250	5900	2250	9200	0	4100	0	5900			0 5900
150	720	80	0	6750	3520	9180	3520	14243	0	6750	0	9180	0	14243	0 9180
	960	98	0	6100	3234	8296	3234	12871	0	6100	0	8296	0	12871	0 8296
	1160	112	0	5750	3059	7820	3059	12133	0	5750	0	7820	0	12133	0 7820
	1460	132	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0 7208
	1760	150	0	5000	2700	6800	2700	10550	0	5000	0	6800	0	10550	0 6800
200	720	107	0	6750	3531	9180	3531	14243	0	6750	0	9180	0	14243	0 9180
	960	131	0	6100	3242	8296	3242	12871	0	6100	0	8296	0	12871	0 8296
	1160	150	0	5750	3072	7820	3072	12133	0	5750	0	7820	0	12133	0 7820
	1460	176	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0 7208
	1760	200	0	5000	2700	6800	2700	10550	0	5000	0	6800	0	10550	0 6800
275	720	147	0	8100	3920	17213	3920	25650	0	8100	0	13973	3920	25650	
	960	180	0	7320	3600	15555	3600	23180	0	7320	0	12627	3600	23180	
	1160	206	0	6900	3410	14663	3410	21850	0	6900	0	11903	3410	21850	CONSULT
	1460	241	0	6360	3169	13515	3169	20140	0	6360	0	10971	3169	20140	FACTORY
	1760	275	0	6000	3000	12750	3000	19000	0	6000	0	10350	3000	19000	
375	580	172	0	8700	4871	27550	4871	36250	0	8700	0	15008	4871	27550	
	720	201	0	8100	4586	25650	4586	33750	0	8100	0	13973	4586	25650	
	960	246	0	7320	4209	23180	4209	30500	0	7320	0	12627	4209	23180	CONSULT
	1160	281	0	6900	3979	21850	3979	28750	0	6900	0	11903	3979	21850	FACTORY
	1460	329	0	6360	3702	20140	3702	26500	0	6360	0	10971	3702	20140	
	1760	375	0	6000	3500	19000	3500	25000	0	6000	0	10350	3500	19000	
450	580	207	0	8700	5583	27550	5583	36250	0	8700	0	15008	5583	27550	
	720	241	0	8100	5236	25650	5236	33750	0	8100	0	13973	5236	25650	
	960	295	0	7320	4807	23180	4807	30500	0	7320	0	12627	4807	23180	CONSULT
	1160	337	0	6900	4545	21850	4545	28750	0	6900	0	11903	4545	21850	FACTORY
	1460	395	0	6360	4232	20140	4232	26500	0	6360	0	10971	4232	20140	
	1760	450	0	6000	4000	19000	4000	25000	0	6000	0	10350	4000	19000	
600	580	275	0	11600	6259	36250			0	11600	0	15008	6259	36250	
	720	321	0	10800	5885	33750			0	10800	0	13973	5885	33750	
	870	367	0	10080	5568	31500			0	10080	0	13041	5568	31500	CONSULT
	960	393	0	9760	5404	30500	CONSULT		0	9760	0	12627	5404	30500	FACTORY
	1160	449	0	9200	5109	28750	FACTORY		0	9200	0	11903	5109	28750	
	1460	527	0	8480	4765	26500			0	8480	0	10971	4765	26500	
	1760	600	0	8000	4500	25000			0	8000	0	10350	4500	25000	
750	580	344	0	11310	6959	36250			0	11310	0	15008	6259	36250	
	720	401	0	10530	6535	33750			0	10530	0	13973	5885	33750	
	870	458	0	9828	6177	31500			0	9828	0	13041	5568	31500	
	960	491	0	9516	6001	30500	CONSULT		0	9516	0	12627	5404	30500	CONSULT
	1160	561	0	8970	5674	28750	FACTORY		0	8920	0	11903	5109	28750	FACTORY
	1460	659	0	8268	5296	26500			0	8268	0	10971	4765	26500	
	1760	750	0	7800	5000	25000			0	7800	0	10350	4500	25000	

Please see pages 13 and 14 for all information on Model 1200 Drives.

TABLE 4

NOTE: Drives that are rated at 1760 RPM vertical speed **ARE NOT LIMITED** to 1760 RPM. See Table 1.

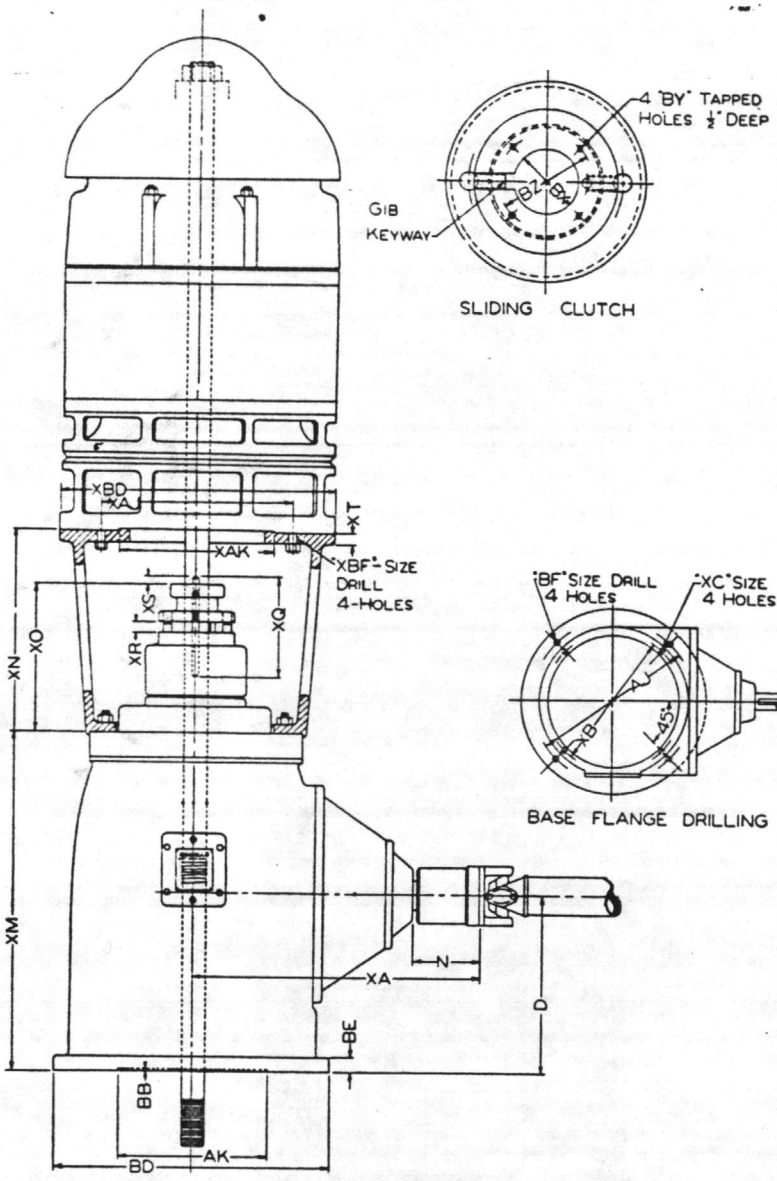
MODEL	VERTICAL SHAFT RPM	ENGINE RPM											
		1:1	10:11	5:6	4:5	3:4	2:3	5:8	4:7	1:2	4:9	2:5	1:3*
20	1160	1160		967		870	773			580			387
	1460	1460		1217		1095	973			730			487
	1760	1760		1467		1320	1173			880			587
	3460	3460		2883		2595	2307			1730			1153
40	1160	1160		967		870	773		667	580			387
	1460	1460		1217		1095	973		840	730			487
	1760	1760		1467		1320	1173		1012	880			587
60	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
80	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
100	960	960	864	800	768	720	640	597	545	480		398	
	1160	1160	1044	967	928	870	773	721	659	580		481	
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	
125	720	720	650	600	576	540	480						
	960	960	867	800	768	720	640						
	1160	1160	1048	967	928	870	773						
	1460	1460	1319	1217	1168	1095	973						
	1760	1760	1590	1467	1408	1320	1173						
150	720	720	650	597	576	540	480		409	360	320	293	240
	960	960	867	796	768	720	640		545	480	426	391	320
	1160	1160	1048	960	928	870	773		659	580	516	473	387
	1460	1460	1319	1210	1168	1095	973		830	730	649	595	487
	1760	1760	1590	1458	1408	1320	1173		1000	880	782	717	587
200	720	720	650	597	576	540	480		409	360	320	293	
	960	960	867	796	768	720	640		545	480	426	391	
	1160	1160	1048	960	928	870	773		659	580	516	473	
	1460	1460	1319	1210	1168	1095	973		830	730	649	595	
	1760	1760	1590	1458	1408	1320	1173		1000	880	782	717	
275	720	720	656	623	576	540	480	450	409	352	318	291	
	960	960	875	830	768	720	640	600	546	470	425	388	CONSULT
	1160	1160	1058	1003	928	870	773	725	660	568	513	468	FACTORY
	1460	1460	1331	1263	1168	1095	973	913	830	715	646	590	
	1760	1760	1605	1522	1408	1320	1173	1100	1000	862	778	711	
375	580	580	529	502	464	439	392	363	330	284			
	720	720	656	623	576	545	486	450	409	352			
	960	960	875	830	768	726	648	600	546	470			CONSULT
	1160	1160	1058	1003	928	875	783	725	660	568			FACTORY
	1460	1460	1331	1263	1168	1105	985	913	830	715			
	1760	1760	1605	1522	1408	1332	1188	1100	1000	862			
450	580	580	529	502	461	439	392	363	330	284			
	720	720	656	623	573	545	486	450	409	352			
	960	960	875	830	764	726	648	600	546	470			CONSULT
	1160	1160	1058	1003	923	878	783	725	660	568			FACTORY
	1460	1460	1331	1263	1161	1105	985	913	830	715			
	1760	1760	1605	1522	1400	1392	1188	1100	1000	862			
600	580	580			461	432	383	360	327	285			
	720	720			573	536	475	447	406	353			
	870	870			692	648	574	539	490	427			CONSULT
	960	960			764	715	634	595	541	471			FACTORY
	1160	1160			923	864	766	719	654	569			
	1460	1460			1161	1087	964	905	823	717			
	1760	1760			1400	1311	1162	1091	992	864			
750	580	565		486		429	383		327	276			
	720	700		603		533	475		406	342			
	870	846		729		643	574		490	414			CONSULT
	960	933		804		710	634		541	456			FACTORY
	1160	1128		972		858	766		654	551			
	1460	1421		1223		1080	963		823	694			
	1760	1712		1475		1302	1162		992	837			

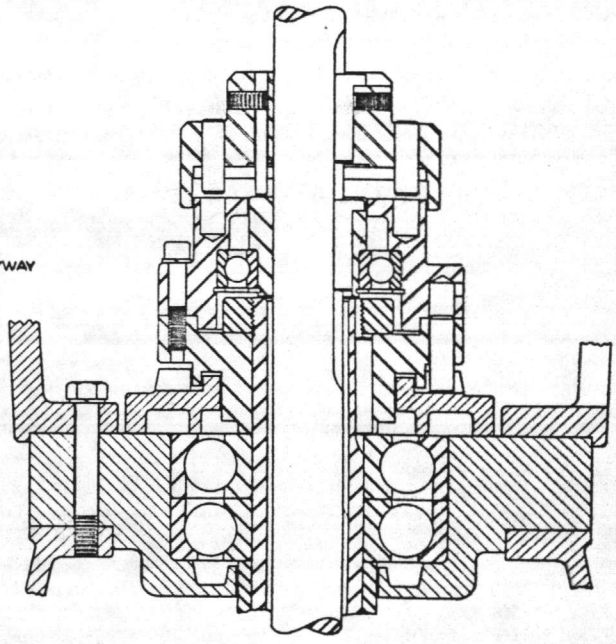
*Model 20 1:3 ratio not available with Figure 2 or Figure 3 rotation.

Please see pages 13 and 14 for all information on Model 1200 Drives.

COMBINATION DRIVE

In response to the need for utmost reliability, a combination drive may be specified. This drive is normally installed with an electric motor top-mounted for constant service. In the event of power failure or motor failure the drive is simply converted for engine or turbine operation by lowering the integral sliding clutch into drive position. No additional pins or bolts are required for this conversion. These combination drives may be furnished with either solid or hollow shafts. Consult combination drive operation manual for installation instructions.





Combination Clutch — Sub-Assembly
Clutch Shown Disengaged

TABLE OF DIMENSIONS — COMBINATION DRIVE

TABLE 7

MODEL	D	N	HORIZONTAL SHAFT U			AJ	AK	BB	BD	BE	BF	XA	XB	XC	XL	XM	XN	XO	XQ	XR	XS	XT	XAJ	XAK	XBD	XBF	BX BORE
			NOMINAL	ACTUAL	KEYWAY																						MAXIMUM
C20	6 3/4	2 5/8	1 1/4	1.249	5/16 X 5/32	9 1/8	8.250	3/16	10	5/8	7/16	10 7/8			9/32	12 1/4	12 1/2	5 1/2	5 1/4	1/2	1 1/2	7/16					1 *
C40A	8 1/2	4 3/8	1 1/2	1.499	3/8 X 3/16	9 1/8	8.250	1/4	12	13/16	7/16	15 5/8			9/32	16 3/16	16	6 1/2	7	5/8	2	5/8					1 1/4
C40B	8 1/2	4 3/8	1 1/2	1.499	3/8 X 3/16	14 3/4	13.500	1/4	16 1/2	13/16	11/16	15 5/8			9/32	16 3/16	16	6 1/2	7	5/8	2	5/8					1 1/4
C60	11 1/2	4 1/4	1 1/2	1.499	3/8 X 3/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	16 3/4			9/32	20 1/4	18	7 13/16	7 3/4	3/4	2 1/4	3/4					1 1/2
C80	11 1/2	4 1/4	1 7/8	1.874	3/8 X 3/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	16 3/4			9/32	20 3/8	18	7 13/16	7 3/4	3/4	2 1/4	3/4					1 1/2
C100	11 1/2	4 1/4	1 7/8	1.874	3/8 X 3/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	16 3/4			9/32	20 3/8	18	7 13/16	7 3/4	3/4	2 1/4	3/4					1 1/2
C125	11 1/2	4 1/2	2 7/16	2.436	5/8 X 5/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	18 3/4			9/32	21 1/8	18	7 1/2	9	3/4	2 1/4	3/4					1 11/16
C150	13 3/4	5 1/4	2 7/16	2.436	5/8 X 5/16	18 1/4	13.500	1/4	20	1 1/8	11/16	20 3/4	14 3/4	5/8-11-NC	9/32	25 5/8	20	9	10	7/8	2 3/4	7/8					2 *
C200	13 3/4	5 1/4	2 7/16	2.436	5/8 X 5/16	18 1/4	13.500	1/4	20	1 1/8	11/16	20 3/4	14 3/4	5/8-11-NC	9/32	25 5/8	20	9	10	7/8	2 3/4	7/8					2
C275	16	6	2 15/16	2.936	3/4 X 3/8	23	13.500	1/4	24 1/2	1 1/8	13/16	† 25 1/2	14 3/4	5/8-11-NC	9/32		27	12 1/2	11 1/2	1 1/8	3 1/2	1					2 7/16
C375	16	6	2 15/16	2.936	3/4 X 3/8	23	13.500	1/4	24 1/2	1 1/8	13/16	† 25 1/2	14 3/4	5/8-11-NC	9/32		27	12 3/8	11 1/2	1 1/8	3 1/2	1					2 7/16
** C450	16	6	3 3/4	3.749	7/8 X 7/16	23	13.500	1/4	24 1/2	1 1/8	13/16	† 25 1/2	14 3/4	5/8-11-NC	9/32		27	12 3/8	11 1/2	1 1/8	3 1/2	1					2 7/16
C600	18	6	3 3/4	3.749	7/8 X 7/16	23	13.500	1/4	24 1/2	1 1/8	13/16	† 26 3/4	14 3/4	5/8-11-NC	9/32												2 7/16
C750	21	8	4	3.998	1 X 1/2	28 3/4	22.000	1/4	30 1/2	1/4	13/16	36 7/8	26	3/4-10-NC	7/16		30	16 1/4	15	1 3/16	4	1 1/4					2 15/16

* Model C20, ratio 1:3, maximum clutch bore 7/8"; Model C150, ratio 1:3, maximum 1-11/16". Consult factory for maximum clutch bore for Fig. 2 and Fig. 3 rotation. Model C20, 1:3 ratio, not available with Fig. 2 or Fig. 3 rotation.

** Horizontal shaft dimensions shown for Model 450 apply to ratios in Table 4 only. Consult factory for dimensions of all others.

† "XA" dimensions shown apply to ratios in Table 4 and reducing ratios 11:10, 6:5 and 4:3 only. Consult factory for dimensions of all others.

FILE FOLDER

DESCRIPTION ON TAB:

New Well Replacement 6627

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

☐ **Outside/inside of actual folder did contain hand written information**
***Scanned as next image**

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

DATE 7-25-08

PWSID 04-67-041

WELL # HP 662

WELL NAME HAD NOT BEEN HP20

BLDG. HP 662

CODE G

AVAILABILITY P

LOCATION SNEADS FERRY ROAD

LATITUDE 34.63758

LONGITUDE 77.30139

WELL DIAMETER 8"

WELL DEPTH 230'

SCREEN INTERVAL ---

YIELD 149

STATIC LEVEL 12'

PUMPING LEVEL 74'

PUMP TYPE VERTICAL PUMP

MOTOR HP 15

INTAKE DEPTH 80'

DESIGN CAPACITY 200

ACTUAL GPM 200

SIZE OF CONCRETE SLAB 12X12

HEIGHT OF CASING 12"

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): 012595

PWSID: 0460410

Owner Assigned Source Code: 662

Well Name (If purchase, name of system): HADNOT POINT 662

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): SNEADS FERRY ROAD

Latitude (N) (Deg. Min. Sec.): 34 38 13.9

Longitude (W) (Deg. Min. Sec.): 077 18 04.2

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

GPS Data: Q3 (Q# or DOP #)

No. of Sats. Locked on: 4

(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: 100

Entry Point Name: ~~HP 662~~ MCB HADNOT PT WTP

Location:

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

Sources of pollution/distance: 80' to Road

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: Elec Heat

Well: Diameter: 8" Type: SCREENED Yield (gpm): ~~200~~ 200 Properly sealed? Y (Y,N)

Properly vented? Y (Y,N) Casing depth: 50 ft. (If unknown, put 'UNK') Well depth: 230 Meter available? Y (Y,N)

Concrete slab adequate? Y (Y,N) If no, explain: well not in center of slab Size: 12x12

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

Pumps: Capacity: GPM: ~~200~~ 146 HP: 15 Pump intake depth: 80 Auxiliary Power? Y (Y,N)

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 12" /

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? HP-20 PLANT

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

(1) Seal pump pedestal
(2)

WELL NUMBER 662 BY Stevenson + Peterson DATE 6-9-97

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
81	12	59	47	70	100	
		63	51	60	135	
		74	62	50	149	

REMARKS D/H - 95

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER 662		BY THOMAS / STEVENSON			DATE 2-15-94	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
81	16	51	35	75	111	55
		64	48	60	128	05
Reset →		71	55	55	146	

REMARKS Dead head @ 83 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER 662 BY Thomas/Sartines DATE 10-24-88

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
81	6	36	30	62	104	50
		47	41	55	125	60
		52	46	50	130	10
		59	53	45	146	20
		65	59	40	159	30
		66	60	35	172	40
lost suction ✓		67	61	30	192	50
25 psi°				25	203	00

REMARKS Dead head 84.

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

639 (NEW) 8-26-85

AL	SL	PP	DO	PSI	GPM	Time
81	10	43	33	68	108	1350
		54	44	60	128	1400
		62	52	55	144	1410
		67	57	50	158	1420
		73	63	45	168	1430

8 WATER WELLS - MARINE CORP BASE - CAMP [illegible]

NO	LOCATION	PUMP DATA Model	Stages	Motor HP	Gear Dr Model	6" Column	4" Screens	1st Screen Setting	2nd Screen Setting	3rd Screen Setting	4th Screen Setting	5th Screen Setting	Air Line	Ft. to Water LEVELS Static	Draw Down	Pump Rate GPM
11	Berkley Manor	8MS	8	20	20	70	45	65-75	115-135	182-197	—	—		35	49	300
4	Stone Street	8MS	8	20	20	80	44	106-120	150-170	217-227	—	—		15	80	300
H4006	MIDWAY PARK	8HL	8	30	40	80	42	90-114	116-139	—	—	—		25	70	450
21	Piney Green Rd	8MS	6	15	20	70	40	60-70	125-135	160-170	220-230			18	54	200
127	Sneeds Ferry Rd	8MS	6	15	20	70	40	50-65	87-102	125-135	—	—		14	44	175
R227	Rifle Range	8HL	8	25	40	80	35	190-210	223-233	242-247				13	58	300
638	TARAWA TERRACE	8MS	6	15	20	85	35	70-95	132-142	—	—	—		27	63	160
639	Sneeds Ferry Rd	8MS	6	15	20	70	42	121-131	134-146	185-195	215-220	225-230		4	96	200

662

[illegible]
[illegible]
[illegible] — 10-10-84

CONSOLIDATED PUMP & EQUIPMENT, INC.

DISTRIBUTORS AND MANUFACTURER REPRESENTATIVES • WATER & WASTE WATER TREATMENT
POST OFFICE BOX 3188 • ROCK HILL, SOUTH CAROLINA 29730 • 803/328-1891

March 28, 1983

SUBMITTAL DATA

JOB: Replace Water Wells
Camp Lejeune, N. C.

Engineer: Peirson & Whitman, Inc.

Contractor: East Coast Construction Co.

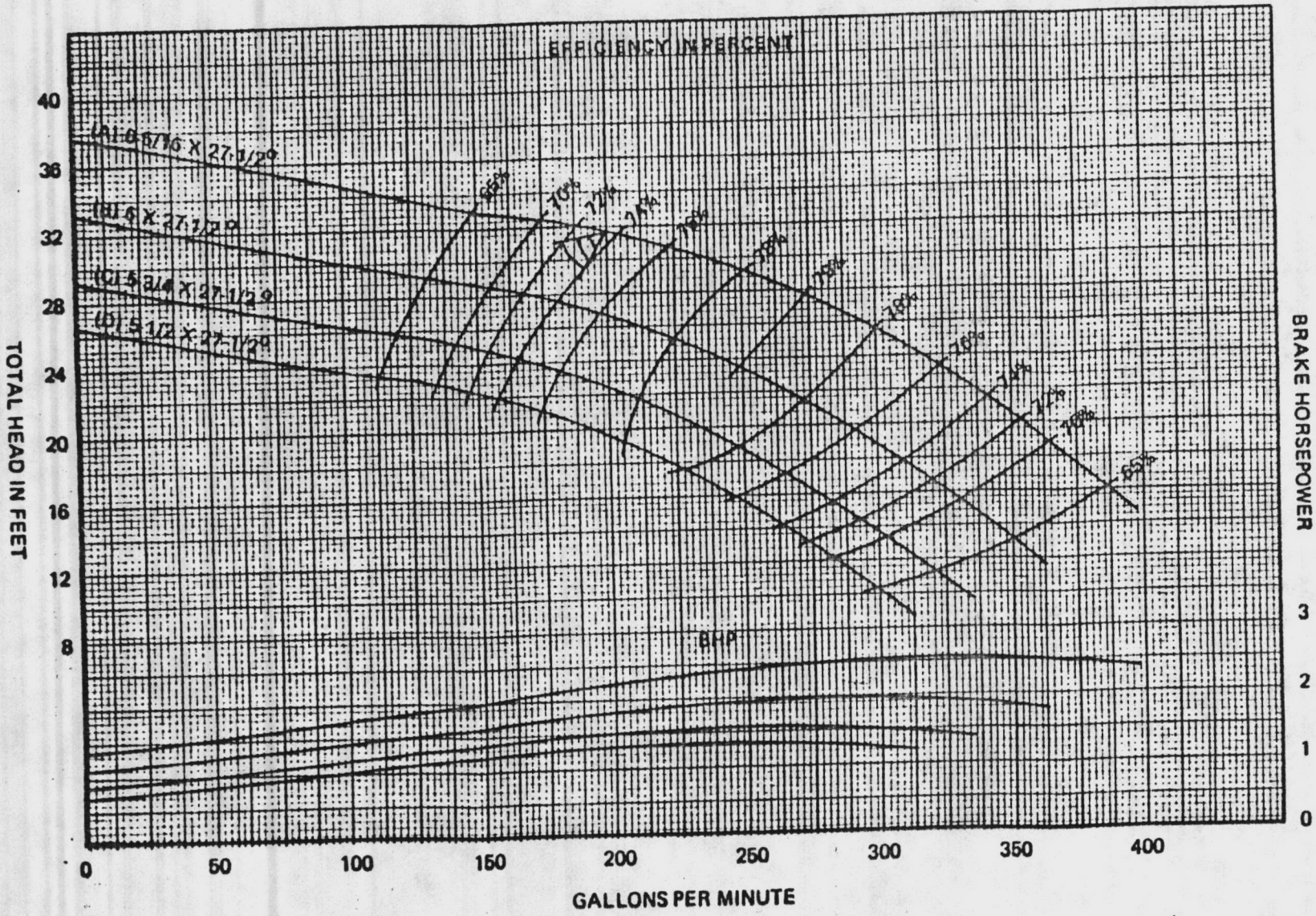
Material Submitted:

8 - Jacuzzi Model 15-8MSA6 Verticle Turbine Pump consisting of 6 stage 8MS pump head, 10' - 6" suction pipe with cone strainer, 100' - 6" discharge column, 1" drive shaft, model L6A discharge head, model S-20 Combination Right Angle Gear Drive, 1 : 1 Ratio, and 15 HP V. H. S. motor.

Conditions of service 200 GPM @ 190.5' TDH

TURBINE PUMP CURVE

8MS
SECTION 2120
MAY 15, 1970



NUMBER OF BOWLS	CHANGE EFFICIENCY AS FOLLOWS
1	−4
2	−3
3	−2
4	−1

Change in efficiency may affect both head and horsepower

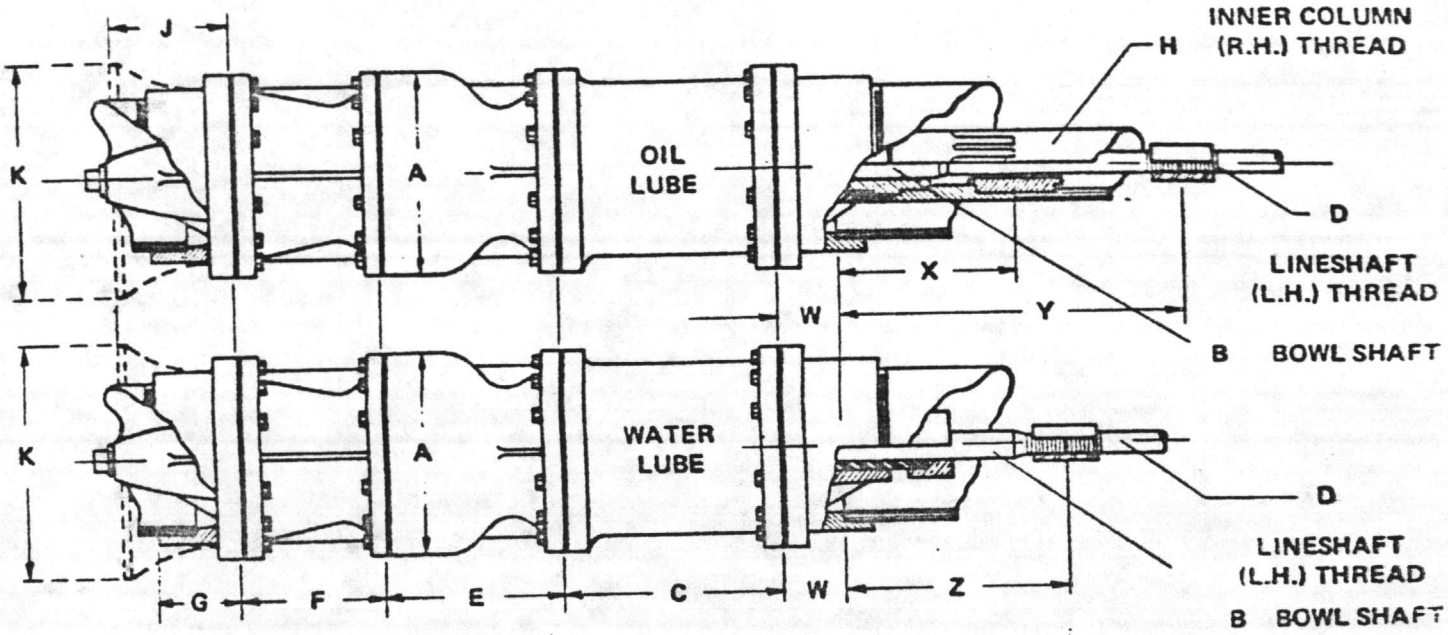
Bowl Dia.	7-1/2 In.
Bowl No.	3591-S, C.I., ENAM.
Impeller No.	3590, BRONZE
Eye Area	6.6 Sq. In.
Imp. Type	SEMI-OPEN K = 4.28

STAGE PERFORMANCE

Curve No.	8M-172
R. P. M.	1760
Bowl	8MS

Performance based on pumping clear, fresh water at a temperature not over 85°F., and free of gas, air or abrasives, and with bowls properly adjusted and submerged.

Turbine Bowl

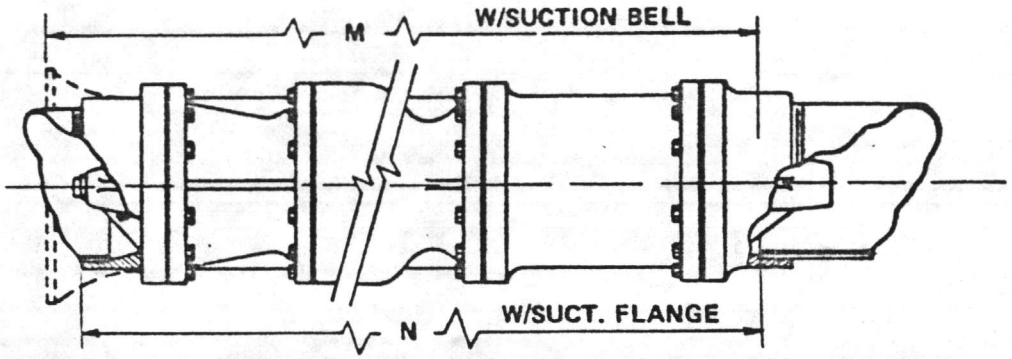


Nom. Bowl Size	Bowl Figure Number	ALL DIMENSIONS IN INCHES													
		Bowl Dia. Max. O.D. STD. A	Bowl Dia. Turned ALT. A	B	C	E	F	Max. G	Suction Bell J	Suction Bell K	W	O.L. X	O.L. Y	W.L. Z	Available Outer Column and Suction Pipe
6	6J,6L 6M,6H,6X,6W,6Y	5 5/16		3/8 1	4 3/16	3 1/2 4 3/4	3 1/4	5	4	7 1/4	3	9 1/2	22	7 1/2	3, 4, 5
8	8J,8L,8K,8M,8H 8Y	7 1/8 7 13/16	7 1/2	1 1 3/16	6	5 5/8 7 1/2	4	5	4 1/2	9 1/8	3	9 1/2	22	7 1/2	4, 5, 6 4, 5
10	10L,10M,10H	9 1/2	9 1/4	1 1/2	8	7	6	4 13/16	5 1/4	11 1/4	3	9 1/2	22	7 1/2	4,5,6,8
10	10W,10Y,10Z	9 1/8	9 1/2	1 1/16	8 1/8	8 1/2	6 3/4	5 15/16	7	14 1/4	3	9 1/2	22	7 1/2	6,8,10
12	12L, 12M, 12H, 12X	11 5/16	11 1/4	1 1/16	9	10 1/2	5 1/4	3 3/8	6	13 1/4	3	9 1/2	22	7 1/2	6, 8, 10
12	12W	12 3/16	12	1 1/16	9	11 1/4	5 1/2	3 3/4	6	13 1/4	3	9 1/2	22	7 1/2	6, 8, 10
14	14L,14M 14H,14X	13 1/2	13 1/4	1 15/16	9 15/16	12 1/2	7 3/16	5 13/16	8	15 1/4	3	9 1/2	22	7 1/2	8, 10, 12
14	14W	14 1/16	13 3/4	1 15/16	9 15/16	13 1/4	7 3/16	5 13/16	8	15 1/4	3	9 1/2	22	7 1/2	8, 10, 12
16	ALL	15 1/2	15 1/4	1 15/16	9 15/16	15	8	6 3/16	10	22	3	9 1/2	22	7 1/2	10, 12, 14
20	ALL	19 1/4	19 1/4	1 15/16	14	18	12	6 3/16	12 1/2	27	3	9 1/2	22	7 1/2	12, 14
24	ALL	23 1/2	23 1/2	2 3/16	20	21	14	3 3/16	14	32	1	16 1/2	29	14 1/2	12, 14, 16
28	ALL	27	27	2 15/16	24	24	15	3 3/16	16	38	1	16 1/2	29	14 1/2	14, 16, 18

* Note: Maximum Diameter for 24" Bowl is Discharge Column Flange at 25" and for 28" is 27 1/2".

D	Lineshaft Dia. & Pitch (L.H.)	3/4 16P.	1 12P.	1 3/16 12P.	1 1/2 12P.	1 11/16 12P.	1 15/16 12P.	2 3/16 12P.	2 7/16 8P.	2 11/16 8P.	2 15/16 8P.
H	O.L. Inner Col. & Thread (R.H.)	1 1/4 1 1/4-12P.	1 1/2 1 1/2-12P.	2 2 1/16-12P.	2 1/2 2 1/2-12P.	3 3 1/16-12P.	3 3 1/16-12P.	3 1/2 3 1/2-12P.	4 4-8P.	5 5-8P.	5 5-8P.

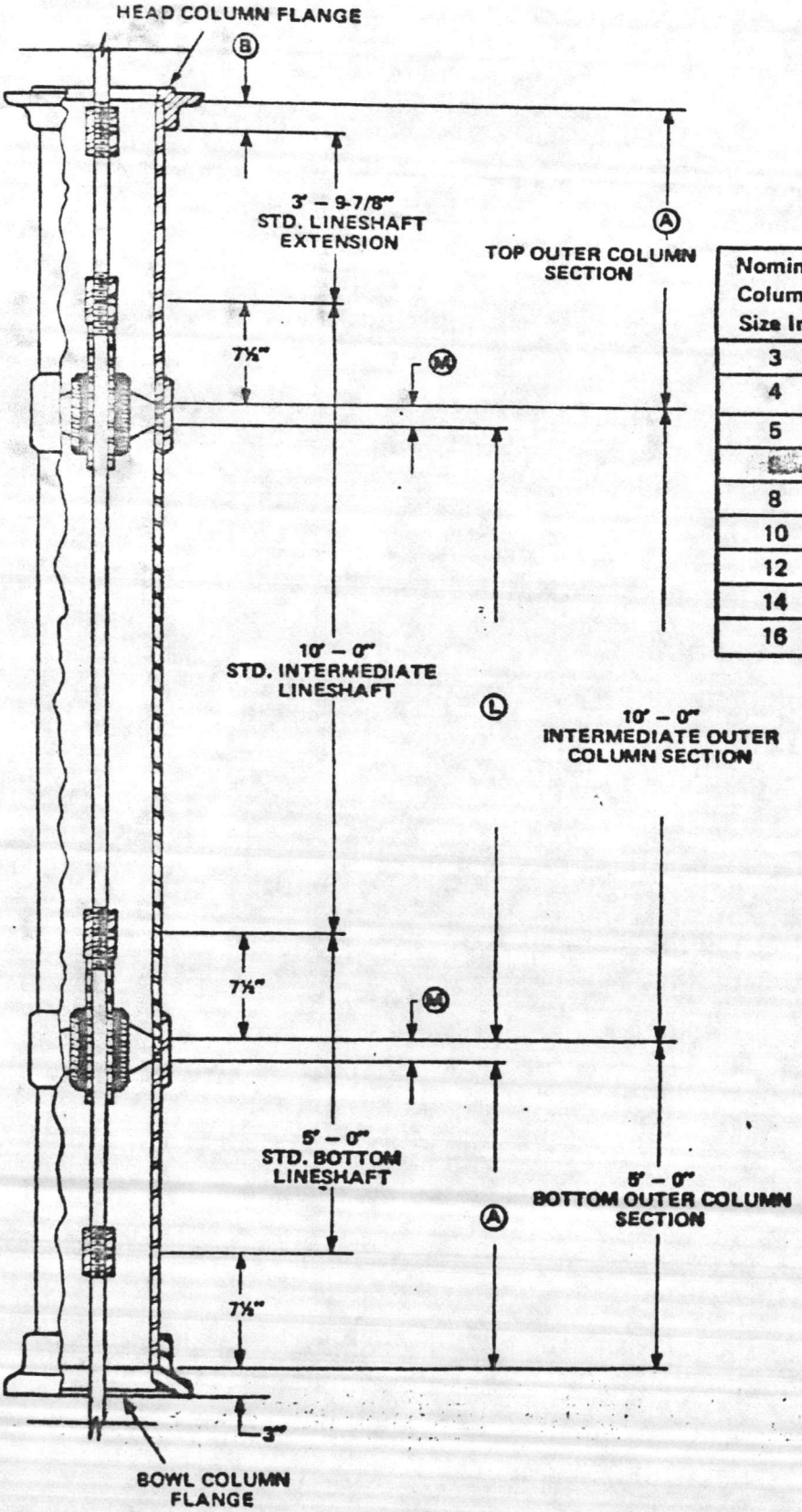
Turbine Bowl



Nom. Bowl Size	Bowl Figure Number	(M) = BOWL ASSEMBLY LENGTH W/SUCTION BELL – INCHES													
		NUMBER OF BOWLS													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	6L	18½	22	25½	29	32½	36	39½	43	46½	50	53½	57	60½	64
	6M,H,X,W,Y	19¾	24½	29¼	34	38¾	43½	48¼	53	57¾	62½	67¼	72	76¾	81½
	8J,8L,8K,8M,8H	23⅛	28¾	34⅜	40	45⅝	51¼	56⅞	62½	68⅛	73¾	79⅜	85	90⅝	96¼
8	8Y	25	32½	40	47½	55	62½	70	77½	85	92½	100	107½	115	122½
10	10L,M,H	29¼	36¼	43¼	50¼	57¼	64¼	71¼	78¼	85¼	92¼	99¼	106¼	113¼	120¼
10	10W,Y,Z	34⅛	42⅝	51⅛	59⅝	68⅛	76⅝	85⅛	93⅝	102⅛	110⅝	119⅛	127⅝	136⅛	144⅝
12	12L, M, H, X	33¾	44¼	54¾	65¼	75¾	86¼	96¾	107¼	117¾	128¼	138¾	149¼	159¾	170¼
12	12W	34½	45¾	57	68¼	79½	90¾	102	113¼	124½	135¾	147	158¼	169½	180¾
14	14L,M,H,X	40¾	53¼	65¾	78¼	90¾	103¼	115¾	128¼	140¾	153¼	165¾	178¼	190¾	203¼
14	14W	41½	54¾	68	81¼	94½	107¾	121	134¼	157½	160¾	174	187¼	200½	213¾
16	ALL	46	61	76	91	106	121	136	151	166	181	196	211	226	241
20	ALL	59½	77½	95½	113½	131½	149½	167½	185½	203½	221½	239½			
24	ALL	70	91	112	133	154	175	196	217	238	259				
28	ALL	80	104	128	152	176	200	224	248	272					

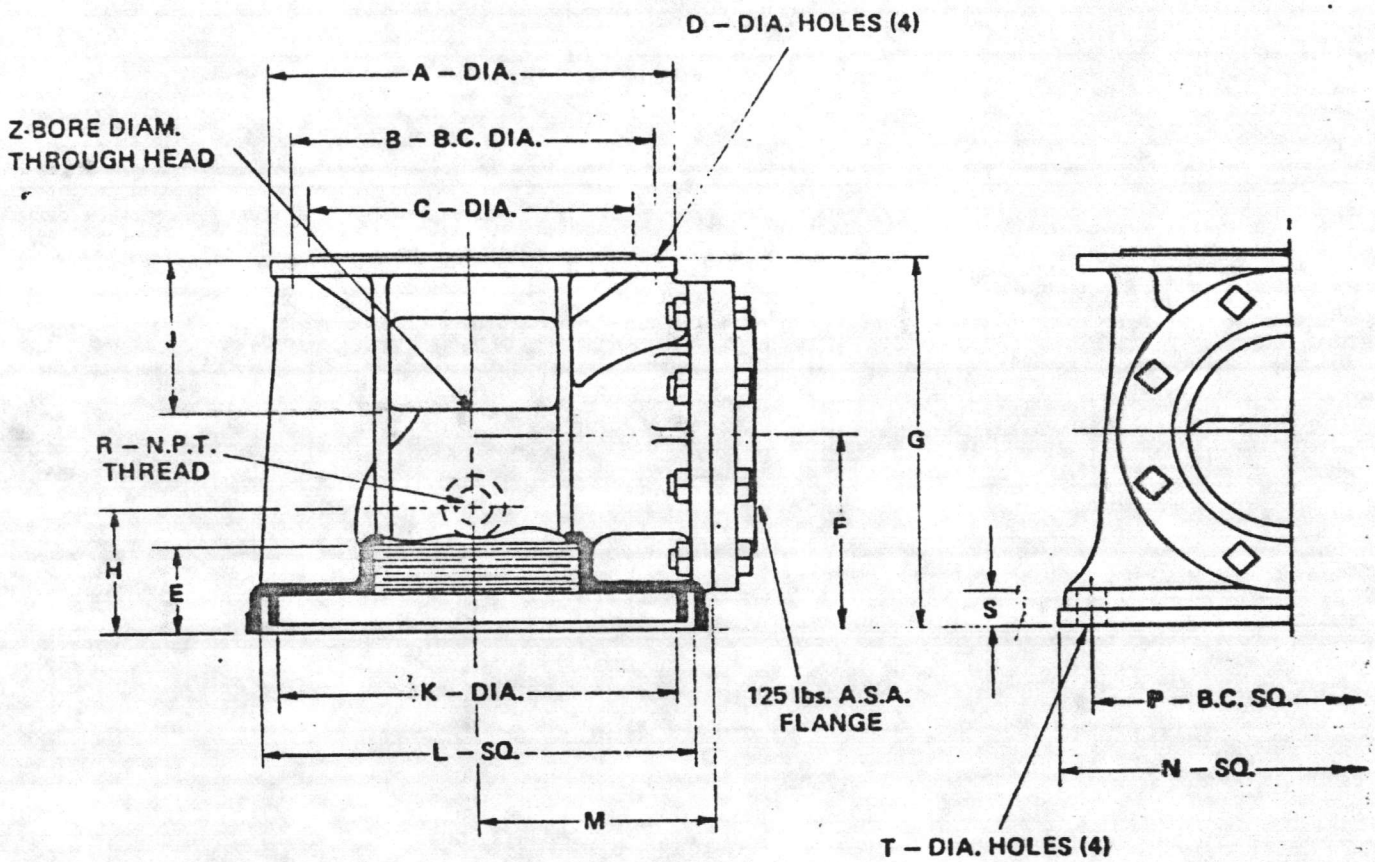
Nom. Bowl Size	Bowl Figure Number	(N) = BOWL ASSEMBLY LENGTH W/SUCTION FLANGE – INCHES													
		NUMBER OF BOWLS													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	6L	19½	23	26½	30	33½	37	40½	44	47½	51	54½	58	61½	65
	6M,H,X,W	20¾	25½	30¼	35	39¾	44½	49¼	54	58¾	63½	68¼	73	77¾	82½
8	8J,8L,8K,8M,8H	23⅛	29¼	34⅞	40½	46⅛	51¾	57⅜	63	68⅝	74¼	79⅞	85½	91⅛	96¾
8	8Y	25½	33	40½	48	55½	63	70½	78	85½	93	100½	108	115½	123
10	10L,M,H	28⅛	35⅛	42⅛	49⅛	56⅛	63⅛	70⅛	77⅛	84⅛	91⅛	98⅛	105⅛	112⅛	119⅛
10	10W,Y,Z	33⅛	41⅝	50⅛	58⅝	67⅛	75⅝	84⅛	92⅝	101⅛	109⅝	118⅛	126⅝	135⅛	143⅝
12	12L, M, H, X	31½	42	52½	63	73½	84	94½	105	115½	126	136½	147	157½	168
12	12W	32¼	44½	55¾	67	78¼	89½	100¾	112	123¼	134½	145¾	157	168¼	179¼
14	14L,M,H,X	38⅝	51⅛	63⅝	76⅛	88⅝	101⅛	113⅝	126⅛	138⅝	151⅛	163⅝	176⅛	188⅝	201⅛
14	14W	39¾	52⅝	65⅞	79⅛	92⅜	105⅝	118⅞	132⅛	145⅜	158⅝	171⅞	185⅛	198⅜	211⅝
16	ALL	42⅛	57⅛	72⅛	87⅛	102⅛	117⅛	132⅛	147⅛	162⅛	177⅛	192⅛	207⅛	222⅛	237⅛
20	ALL	53¼	71¼	89¼	107¼	125¼	143¼	161¼	179¼	197¼	215¼	233¼			
24	ALL	59¼	80¼	101¼	122¼	143¼	164¼	185¼	206¼	227¼	248¼				
28	ALL	67¼	91¼	115¼	139¼	163¼	187¼	211¼	235¼	259¼					

Turbine Column — Water-Lube, Butt Joint



Nominal Column Size In.	A	B	L	M
3	4'11½"	6⅛"	9'11½"	½"
4				
5	4'11¼"	5⅞"	9'11¼"	¾"
6				
8				
10				
12				
14				
16				

Cast, Standard Discharge Heads



Head Fig. No.	Max. Size (In.) Disch.	Max. Size (In.) Inner Col.	Outer Col. (In.)	DIMENSIONS INCHES A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	Z
L5A L5AB	6	1½	5	10	9⅛	8¼	7/16	3⅛	8 7/16	15⅜	4⅛	6¼	14¾	14¾	8 1/16	15½	13⅜	1	1½	⅞	2⅝ 3¼
L6A L6AB	6	1½	6	10	9⅛	8¼	7/16	3⅛	8 7/16	15⅜	4⅛	6¼	14¾	14¾	8 1/16	15½	13⅜	1	1½	⅞	2⅝ 3¼
L8C L8CD	8	2	8	16½	14¾	13½	¾	3¼	7⅛	15½	4⅛	6½	16½	17⅝	9⅝	18½	15½	1½	1½	1⅛	3⅛ 3¾
L10C	10	2½	10	16½	14¾	13½	¾	4 1/16	9⅛	18 1/16	5 1/16	6½	16½	18½	10⅛	19½	16½	1½	1½	1⅛	3¾

Water Lubricated Turbine Pump

MATERIAL SPECIFICATIONS OF STANDARD CONSTRUCTION

KEY NO.	DESCRIPTION	MATERIAL	SPECIFICATION IF APPLICABLE	PART ORDER NUMBER
1	Discharge Head	Cast Iron	ASTM A48 CL.30	
2	Head Column Flange	Cast Iron	ASTM A48 CL.30	
3	Head Column Flange Gasket	Asbestos		
4	Studs (Hd. Column Flange Assy)	Steel	C1137	
5	Nuts (Used W/Key No. 4 Head Column Flange Assy)	Low Carbon Steel	ASTM A-307	
6	Head Discharge Flange	Cast Iron	ASTM A-126	
7	Head Discharge Flange Gasket	Asbestos		
8	Discharge Flg. Assy. Cap Scrs.	Steel	ASTM A-301	
9	Discharge Flg. Assy. Nuts (Used with Key No. 8)	Low Carbon Steel	ASTM A-307	
10	Head Dsch. Flg. Assy. Studs	Steel	C1137	
11	Head Dsch. Flg. Assy. Nuts (Used With Key No. 10)	Low Carbon Steel	ASTM A-307	
14	Head Packing Housing W/Brg. Includes Key No. 32	Cast Iron (Pkg. Hsg.)	ASTM A48 CL.30	
15	"O" Ring	Buna-N		
16	Head Packing Housing Cap Scrs.	S. Steel	300 Series	
18	W/L Headshaft	S. Steel	AISI 316	
19	Headshaft Flinger	Neoprene		
20	Headshaft Adj. Nut	Steel	C-1213	
21	Hd. Pkg. Hsg. Sand Shield	Bronze	SAE 660	
22	Packing (Set)	Asbestos		
23	Packing Follower	Bronze	SAE 40	
25	Hd. Pkg. Housing Grease Fittings	Steel		
26	Packing Follower Studs	S. Steel	AISI 416	
27	Packing Follower Retn. Nuts	S. Steel	300 Series	
28	Adapter Flange	Cast Iron	ASTM A48 CL45	
29	Adapter Flange O-Ring	Buna-N		
30	Adapter Flg. Assy. Cap Screws	S. Steel	300 Series	
32	W/L Headshaft Bearing	Bronze	SAE 660	
33	Headshaft Gib Key	Steel		
34	Adj. Nut Machine Screw	S. Plated		
67	Shaft Coupling (Hd. Shaft, Line Shaft, Bowl Shaf.)	Steel	C1137	
68	Shaft Adapter Coupling Hd/Sht, L/Sht., Bowl/Sht	Steel	C1137	
69	O/C Coupling	Blk. Steel	ASTM A-120-57T Grade B	
76	W/L O/C Section	Black Steel	ASTM A-120-57T Grade B	
77	W/L O/C Section	Black Steel	ASTM A-120-57T Grade B	
78	W/L L/S Bearing Spider	Brass		
79	W/L L/S Bearing	Rubber		

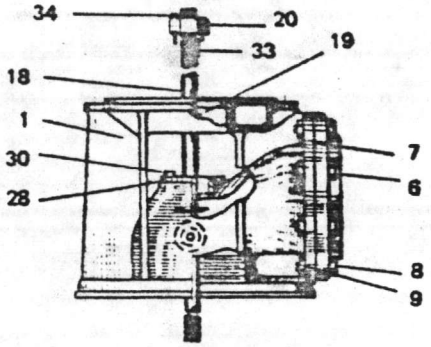
(CONTINUED ON PAGE 22)

Water Lubricated Turbine Pump

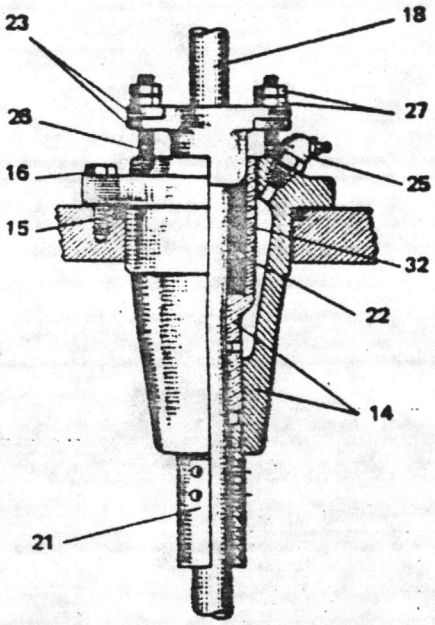
MATERIAL SPECIFICATIONS OF STANDARD CONSTRUCTION

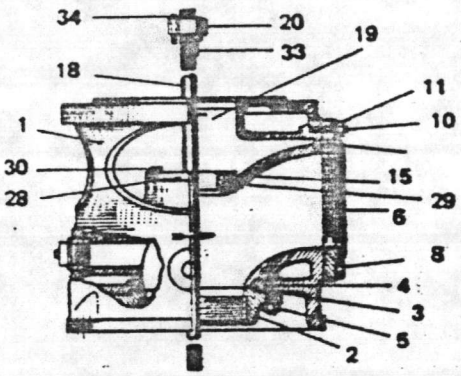
KEY NO.	DESCRIPTION	MATERIAL	SPECIFICATION IF APPLICABLE	PART ORDER NUMBER	
80	W/L S/S Sleeve	S. Steel	304		
81	W/L L/S Extension 3' - 9 7/8" Lg.	Steel	C-1045		
82	W/S L/S Section (5' - 0" Lg.)	Steel	C-1045		
83	W/L L/S Section 10' - 0" Lg.	Steel	C-1045		
84	W/L Bowl Shaft	S. Steel	AISI 416		
90	W/L Discharge Housing Assy (Includes Key No. 91 & No. 92)	Cast Iron	ASTM A48 CL30		
91	W/L Upper Disch. Hsg. Brg.	Neoprene			
92	W/L Lower Disch. Hsg. Brg.	Neoprene			
93	W/L Disch. Hsg. Brg. Sand Cap	Bronze	SAE 40		
94	Sand Cap Set Screws (For K. No. 93)	S. Steel	300 Series		
103	Bowl Assy. (Closed Type) Includes Key No. 104	Cast Iron	ASTM A48 CL 30		
104	Bowl Bearing	Bronze	SAE 794		
105	Bowl Assy. (Semi-Open Type) Includes Key No. 104	Cast Iron	ASTM A48 CL30		
106	Impeller (Closed Type)	Bronze	SAE 40		
107	Impeller (Semi-Open Type	Bronze	SAE 40		
108	Taper Lock	S. Steel	416 SS		
109	Brg. Stage Assy. (Closed Type) Includes Key No. 110	Cast Iron	ASTM A48 CL30		
110	Bearing Stg. Bearing	Bronze	SAE 660		
111	Brg. Stg. Assy. (Semi-Open) Includes Key No. 110	Cast Iron	ASTM A48 CL30		
112	Pipe Plug (For Key No. 109 & No. 111	Galv. Steel			
113	Bearing Stage End Plug	Galv. Steel			
114	Bearing Stage Sand Cap	Bronze	SAE 40		
115	Sand Cap Set Screws (For K. No. 114)	S. Steel	300 Series		
116	Bowl Suction Flange	Cast Iron	ASTM A48 CL30		
117	Bowl Assy. Cap Screws	S. Steel	300 Series		
119	Suction Bell (Optional; Delete Key No. 116 if Suct. Bell is Used	Cast Iron	ASTM A48 CL30		
152	W/L O/C Assy. T & C (Nom. 5' Lg.) (Assy of Key No. 69 & No. 76)	Black Steel	ASTM A-120-57T Grade B		
153	W/L O/C Assy T & C (Nom. 10' Lg.) (Assy of Key No. 69 & No. 77)	Black Steel	ASTM A-120-57T Grade B		

WATER LUBRICATED TURBINE PUMP PARTS DIAGRAM

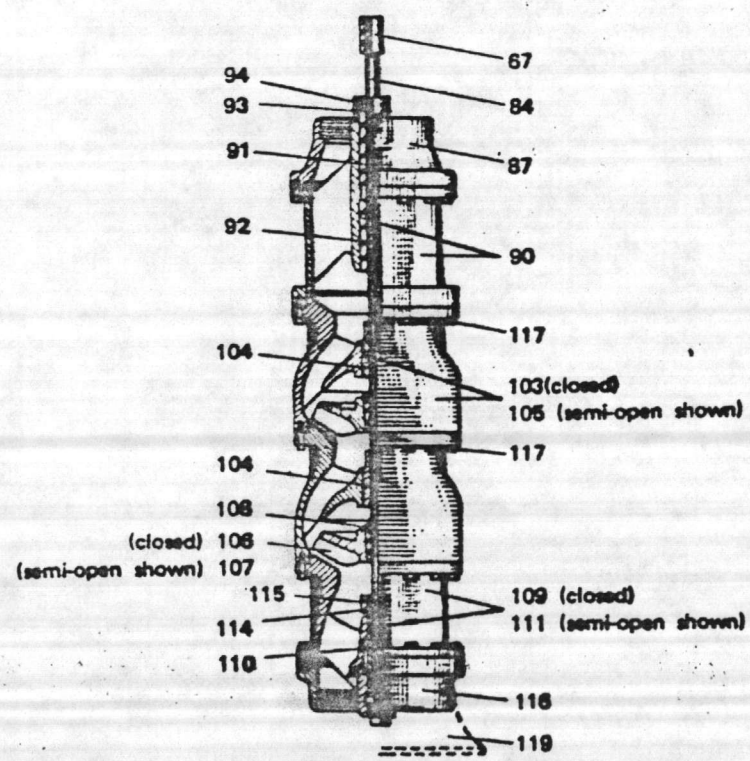


TYPICAL STANDARD HEAD

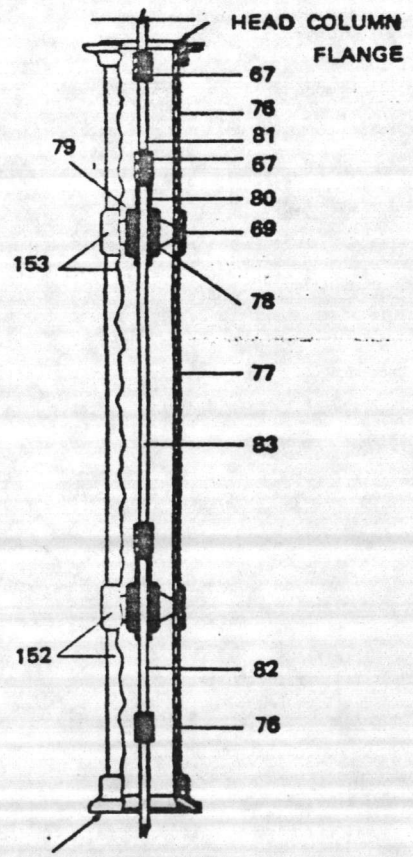




TYPICAL HEAVY DUTY HEAD



BOWL ASSEMBLY



BOWL COLUMN FLANGE

TABLE 3

NOTE: Drives that are rated at 1760 RPM vertical speed **ARE NOT LIMITED** to 1760 RPM. See Table 1.

MODEL	Vertical Shaft RPM	H.P. Rating	DOWNTHRUST CAPACITY IN POUNDS													
			HOLLOW SHAFT						SOLID SHAFT						COMB.	
			Type SL		Type S		Type SH		Type SSL		Type SS		Type SSH		Type C	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
20	1160	15	0	978	797	2358	797	3680	0	978	0	2358			0	2358
	1460	18	0	901	760	2173	760	3392	0	901	0	2173			0	2173
	1760	20	0	850	700	2050	700	3200	0	850	0	2050			0	2050
	3460	30	0	680	534	1640	534	2560	0	680	0	1640			0	1640
40	1160	30	0	1495	1138	3565	1138	5520	0	1495	0	3565			0	3565
	1460	35	0	1378	1055	3286	1055	5088	0	1378	0	3286			0	3286
	1760	40	0	1300	1000	3100	1000	4800	0	1300	0	3100			0	3100
60	960	39	0	2074	1490	5002	1490	7320	0	2074	0	5002			0	5002
	1160	45	0	1955	1422	4715	1422	6900	0	1955	0	4715			0	4715
	1460	53	0	1802	1331	4346	1331	6360	0	1802	0	4346			0	4346
	1760	60	0	1700	1250	4100	1250	6000	0	1700	0	4100			0	4100
80	960	52	0	3904	2085	6954	2085	11224	0	3904	0	6954			0	6954
	1160	60	0	3680	1991	6555	1991	10580	0	3680	0	6555			0	6555
	1460	70	0	3392	1846	6042	1846	9752	0	3392	0	6042			0	6042
	1760	80	0	3200	1750	5700	1750	9200	0	3200	0	5700			0	5700
100	960	66	0	3904	2101	7198	2101	11224	0	3904	0	7198			0	7198
	1160	75	0	3680	1991	6785	1991	10580	0	3680	0	6785			0	6785
	1460	88	0	3392	1856	6254	1856	9752	0	3392	0	6254			0	6254
	1760	100	0	3200	1750	5900	1750	9200	0	3200	0	5900			0	5900
125	720	68	0	5535	3135	7965	3135	12420	0	5535	0	7965			0	7965
	960	83	0	5002	2722	7198	2722	11224	0	5002	0	7198			0	7198
	1160	94	0	4715	2560	6781	2560	10580	0	4715	0	6781			0	6781
	1460	110	0	4346	2387	6254	2387	9752	0	4346	0	6254			0	6254
	1760	125	0	4100	2250	5900	2250	9200	0	4100	0	5900			0	5900
150	720	80	0	6750	3520	9180	3520	14243	0	6750	0	9180	0	14243	0	9180
	960	98	0	6100	3234	8296	3234	12871	0	6100	0	8296	0	12871	0	8296
	1160	112	0	5750	3059	7820	3059	12133	0	5750	0	7820	0	12133	0	7820
	1460	132	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0	7208
	1760	150	0	5000	2700	6800	2700	10550	0	5000	0	6800	0	10550	0	6800
200	720	107	0	6750	3531	9180	3531	14243	0	6750	0	9180	0	14243	0	9180
	960	131	0	6100	3242	8296	3242	12871	0	6100	0	8296	0	12871	0	8296
	1160	150	0	5750	3072	7820	3072	12133	0	5750	0	7820	0	12133	0	7820
	1460	176	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0	7208
	1760	200	0	5000	2700	6800	2700	10550	0	5000	0	6800	0	10550	0	6800
275	720	147	0	8100	3920	17213	3920	25650	0	8100	0	13973	3920	25650		
	960	180	0	7320	3600	15555	3600	23180	0	7320	0	12627	3600	23180		
	1160	206	0	6900	3410	14663	3410	21850	0	6900	0	11903	3410	21850	CONSULT	
	1460	241	0	6360	3169	13515	3169	20140	0	6360	0	10971	3169	20140	FACTORY	
	1760	275	0	6000	3000	12750	3000	19000	0	6000	0	10350	3000	19000		
375	580	172	0	8700	4871	27550	4871	36250	0	8700	0	15008	4871	27550		
	720	201	0	8100	4586	25650	4586	33750	0	8100	0	13973	4586	25650		
	960	246	0	7320	4209	23180	4209	30500	0	7320	0	12627	4209	23180	CONSULT	
	1160	281	0	6900	3979	21850	3979	28750	0	6900	0	11903	3979	21850	FACTORY	
	1460	329	0	6360	3702	20140	3702	26500	0	6360	0	10971	3702	20140		
	1760	375	0	6000	3500	19000	3500	25000	0	6000	0	10350	3500	19000		
450	580	207	0	8700	5583	27550	5583	36250	0	8700	0	15008	5583	27550		
	720	241	0	8100	5236	25650	5236	33750	0	8100	0	13973	5236	25650		
	960	295	0	7320	4807	23180	4807	30500	0	7320	0	12627	4807	23180	CONSULT	
	1160	337	0	6900	4545	21850	4545	28750	0	6900	0	11903	4545	21850	FACTORY	
	1460	395	0	6360	4232	20140	4232	26500	0	6360	0	10971	4232	20140		
	1760	450	0	6000	4000	19000	4000	25000	0	6000	0	10350	4000	19000		
600	580	275	0	11600	6259	36250			0	11600	0	15008	6259	36250		
	720	321	0	10800	5885	33750			0	10800	0	13973	5885	33750		
	870	367	0	10080	5568	31500			0	10080	0	13041	5568	31500	CONSULT	
	960	393	0	9760	5404	30500	CONSULT		0	9760	0	12627	5404	30500	FACTORY	
	1160	449	0	9200	5109	28750	FACTORY		0	9200	0	11903	5109	28750		
	1460	527	0	8480	4765	26500			0	8480	0	10971	4765	26500		
	1760	600	0	8000	4500	25000			0	8000	0	10350	4500	25000		
750	580	344	0	11310	6959	36250			0	11310	0	15008	6259	36250		
	720	401	0	10530	6535	33750			0	10530	0	13973	5885	33750		
	870	458	0	9828	6177	31500			0	9828	0	13041	5568	31500	CONSULT	
	960	491	0	9516	6001	30500	CONSULT		0	9516	0	12627	5404	30500	FACTORY	
	1160	561	0	8970	5674	28750	FACTORY		0	8920	0	11903	5109	28750		
	1460	659	0	8268	5296	26500			0	8268	0	10971	4765	26500		
	1760	750	0	7800	5000	25000			0	7800	0	10350	4500	25000		

Please see pages 13 and 14 for all information on Model 1200 Drives.

TABLE 4

NOTE: Drives that are rated at 1760 RPM vertical speed **ARE NOT LIMITED** to 1760 RPM. See Table 1.

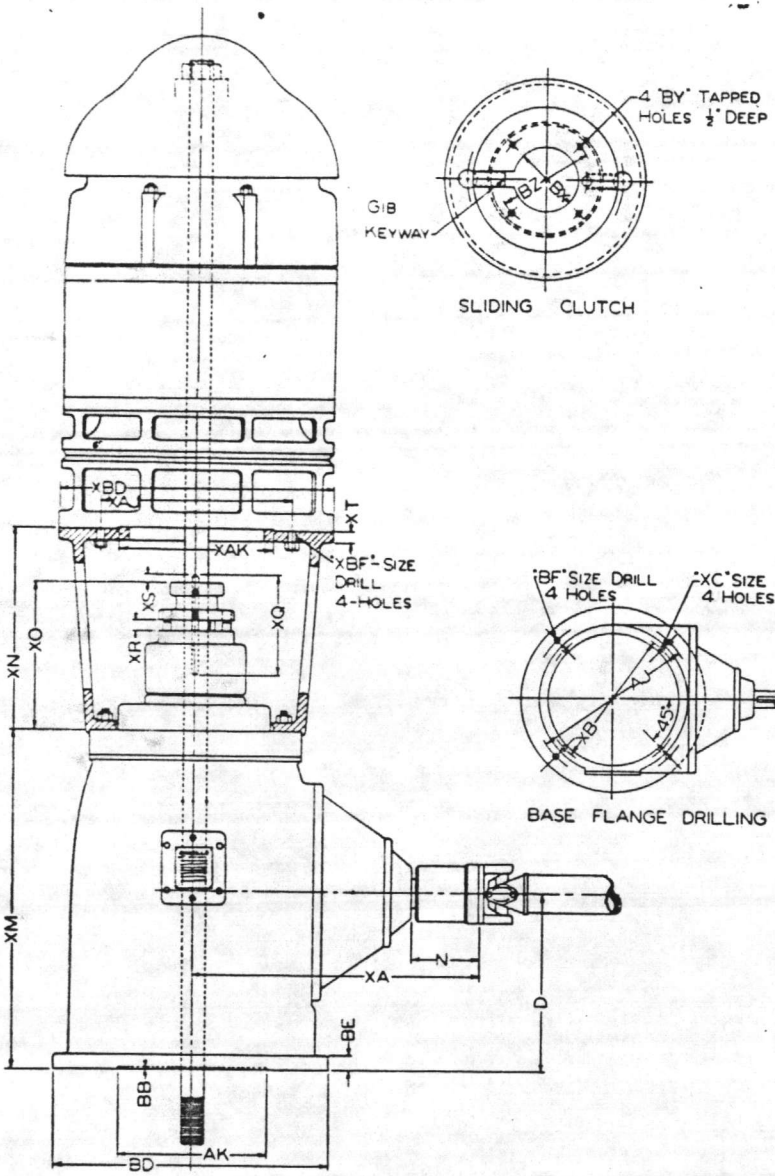
MODEL	VERTICAL SHAFT RPM	ENGINE RPM											
		1:1	10:11	5:6	4:5	3:4	2:3	5:8	4:7	1:2	4:9	2:5	1:3*
20	1160	1160		967		870	773			580			387
	1460	1460		1217		1095	973			730			487
	1760	1760		1467		1320	1173			880			587
	3460	3460		2883		2595	2307			1730			1153
40	1160	1160		967		870	773		667	580			387
	1460	1460		1217		1095	973		840	730			487
	1760	1760		1467		1320	1173		1012	880			587
60	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
80	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
100	960	960	864	800	768	720	640	597	545	480		398	
	1160	1160	1044	967	928	870	773	721	659	580		481	
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	
125	720	720	650	600	576	540	480						
	960	960	867	800	768	720	640						
	1160	1160	1048	967	928	870	773						
	1460	1460	1319	1217	1168	1095	973						
	1760	1760	1590	1467	1408	1320	1173						
150	720	720	650	597	576	540	480		409	360	320	293	240
	960	960	867	796	768	720	640		545	480	426	391	320
	1160	1160	1048	960	928	870	773		659	580	516	473	387
	1460	1460	1319	1210	1168	1095	973		830	730	649	595	487
	1760	1760	1590	1458	1408	1320	1173		1000	880	782	717	587
200	720	720	650	597	576	540	480		409	360	320	293	
	960	960	867	796	768	720	640		545	480	426	391	
	1160	1160	1048	960	928	870	773		659	580	516	473	
	1460	1460	1319	1210	1168	1095	973		830	730	649	595	
	1760	1760	1590	1458	1408	1320	1173		1000	880	782	717	
275	720	720	656	623	576	540	480	450	409	352	318	291	
	960	960	875	830	768	720	640	600	546	470	425	388	CONSULT
	1160	1160	1058	1003	928	870	773	725	660	568	513	468	FACTORY
	1460	1460	1331	1263	1168	1095	973	913	830	715	646	590	
	1760	1760	1605	1522	1408	1320	1173	1100	1000	862	778	711	
375	580	580	529	502	464	439	392	363	330	284			
	720	720	656	623	576	545	486	450	409	352			CONSULT
	960	960	875	830	768	726	648	600	546	470			FACTORY
	1160	1160	1058	1003	928	875	783	725	660	568			
	1460	1460	1331	1263	1168	1105	985	913	830	715			
	1760	1760	1605	1522	1408	1332	1188	1100	1000	862			
450	580	580	529	502	461	439	392	363	330	284			
	720	720	656	623	573	545	486	450	409	352			CONSULT
	960	960	875	830	764	726	648	600	546	470			FACTORY
	1160	1160	1058	1003	923	878	783	725	660	568			
	1460	1460	1331	1263	1161	1105	985	913	830	715			
	1760	1760	1605	1522	1400	1392	1188	1100	1000	862			
600	580	580			461	432	383	360	327	285			
	720	720			573	536	475	447	406	353			CONSULT
	870	870			692	648	574	539	490	427			FACTORY
	960	960			764	715	634	595	541	471			
	1160	1160			923	864	766	719	654	569			
	1460	1460			1161	1087	964	905	823	717			
	1760	1760			1400	1311	1162	1091	992	864			
750	580	565		486		429	383		327	276			
	720	700		603		533	475		406	342			
	870	846		729		643	574		490	414			CONSULT
	960	933		804		710	634		541	456			FACTORY
	1160	1128		972		858	766		654	551			
	1460	1421		1223		1080	963		823	694			
	1760	1712		1475		1302	1162		992	837			

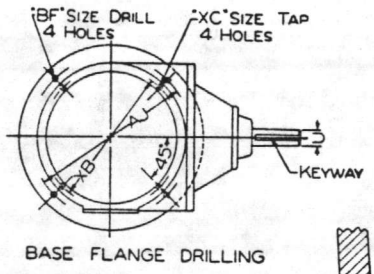
*Model 20 1:3 ratio not available with Figure 2 or Figure 3 rotation.

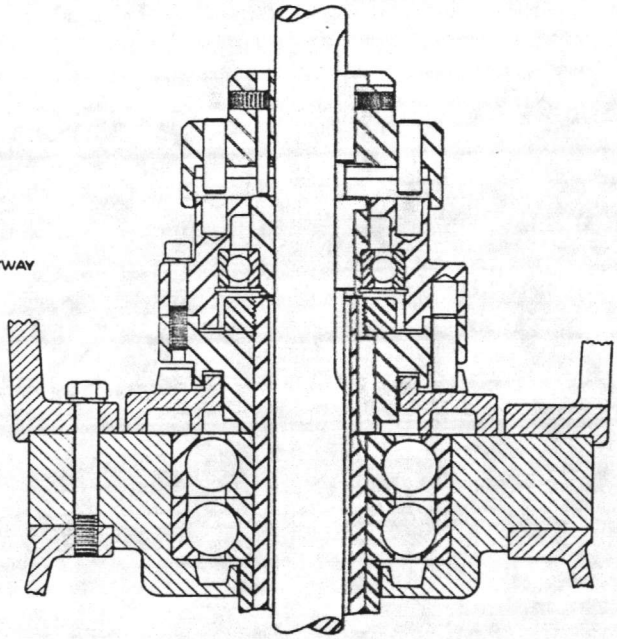
Please see pages 13 and 14 for all information on Model 1200 Drives.

COMBINATION DRIVE

In response to the need for utmost reliability, a combination drive may be specified. This drive is normally installed with an electric motor top-mounted for constant service. In the event of power failure or motor failure the drive is simply converted for engine or turbine operation by lowering the integral sliding clutch into drive position. No additional pins or bolts are required for this conversion. These combination drives may be furnished with either solid or hollow shafts. Consult combination drive operation manual for installation instructions.







Combination Clutch — Sub-Assembly
Clutch Shown Disengaged

TABLE OF DIMENSIONS — COMBINATION DRIVE

TABLE 7

MODEL	D	N	HORIZONTAL SHAFT U NOMINAL	HORIZONTAL SHAFT U ACTUAL	HORIZONTAL SHAFT U KEYWAY	AJ	AK	BB	BD	BE	BF	XA	XB	XC	XL	XM	XN	XO	XQ	XR	XS	XT	XAJ	XAK	XBD	XBF	BX BORE MAXIMUM
C20	6 3/4	2 5/8	1 1/4	1.249	5/16 X 5/32	9 1/8	8.250	3/16	10	5/8	7/16	10 7/8			9/32	12 1/4	12 1/2	5 1/2	5 1/4	1/2	1 1/2	7/16					1 *
C40A	8 1/2	4 3/8	1 1/2	1.499	3/8 X 3/16	9 1/8	8.250	1/4	12	13/16	7/16	15 5/8			9/32	16 3/16	16	6 1/2	7	5/8	2	5/8					1 1/4
C40B	8 1/2	4 3/8	1 1/2	1.499	3/8 X 3/16	14 3/4	13.500	1/4	16 1/2	13/16	11/16	15 5/8			9/32	16 3/16	16	6 1/2	7	5/8	2	5/8					1 1/4
C60	11 1/2	4 1/4	1 1/2	1.499	3/8 X 3/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	16 3/4			9/32	20 1/4	18	7 13/16	7 3/4	3/4	2 1/4	3/4					1 1/2
C80	11 1/2	4 1/4	1 7/8	1.874	3/8 X 3/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	16 3/4			9/32	20 3/8	18	7 13/16	7 3/4	3/4	2 1/4	3/4					1 1/2
C100	11 1/2	4 1/4	1 7/8	1.874	3/8 X 3/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	16 3/4			9/32	20 3/8	18	7 13/16	7 3/4	3/4	2 1/4	3/4					1 1/2
C125	11 1/2	4 1/2	2 7/16	2.436	5/8 X 5/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	18 3/4			9/32	21 1/8	18	7 1/2	9	3/4	2 1/4	3/4					1 11/16
C150	13 3/4	5 1/4	2 7/16	2.436	5/8 X 5/16	18 1/4	13.500	1/4	20	1/8	11/16	20 3/4	14 3/4	5/8-11-NC	9/32	25 5/8	20	9	10	7/8	2 3/4	7/8					2 *
C200	13 3/4	5 1/4	2 7/16	2.436	5/8 X 5/16	18 1/4	13.500	1/4	20	1/8	11/16	20 3/4	14 3/4	5/8-11-NC	9/32	25 5/8	20	9	10	7/8	2 3/4	7/8					2
C275	16	6	2 15/16	2.936	3/4 X 3/8	23	13.500	1/4	24 1/2	1/8	13/16	† 25 1/2	14 3/4	5/8-11-NC	9/32		27	12 1/2	11 1/2	1/8	3 1/2	1					2 7/16
C375	16	6	2 15/16	2.936	3/4 X 3/8	23	13.500	1/4	24 1/2	1/8	13/16	† 25 1/2	14 3/4	5/8-11-NC	9/32		27	12 3/8	11 1/2	1/8	3 1/2	1					2 7/16
** C450	16	6	3 3/4	3.749	7/8 X 7/16	23	13.500	1/4	24 1/2	1/8	13/16	† 25 1/2	14 3/4	5/8-11-NC	9/32		27	12 3/8	11 1/2	1/8	3 1/2	1					2 7/16
C600	18	6	3 3/4	3.749	7/8 X 7/16	23	13.500	1/4	24 1/2	1/8	13/16	† 26 3/4	14 3/4	5/8-11-NC	9/32												2 7/16
C750	21	8	4	3.998	1 X 1/2	28 3/4	22.000	1/4	30 1/2	1/4	13/16	36 7/8	26	3/4-10-NC	7/16		30	16 1/4	15	1 3/16	4	1 1/4					2 15/16

* Model C20, ratio 1:3, maximum clutch bore 7/8"; Model C150, ratio 1:3, maximum 1-11/16". Consult factory for maximum clutch bore for Fig. 2 and Fig. 3 rotation. Model C20, 1:3 ratio, not available with Fig. 2 or Fig. 3 rotation.

** Horizontal shaft dimensions shown for Model 450 apply to ratios in Table 4 only. Consult factory for dimensions of all others.

† "XA" dimensions shown apply to ratios in Table 4 and reducing ratios 11:10, 6:5 and 4:3 only. Consult factory for dimensions of all others.

amarillo

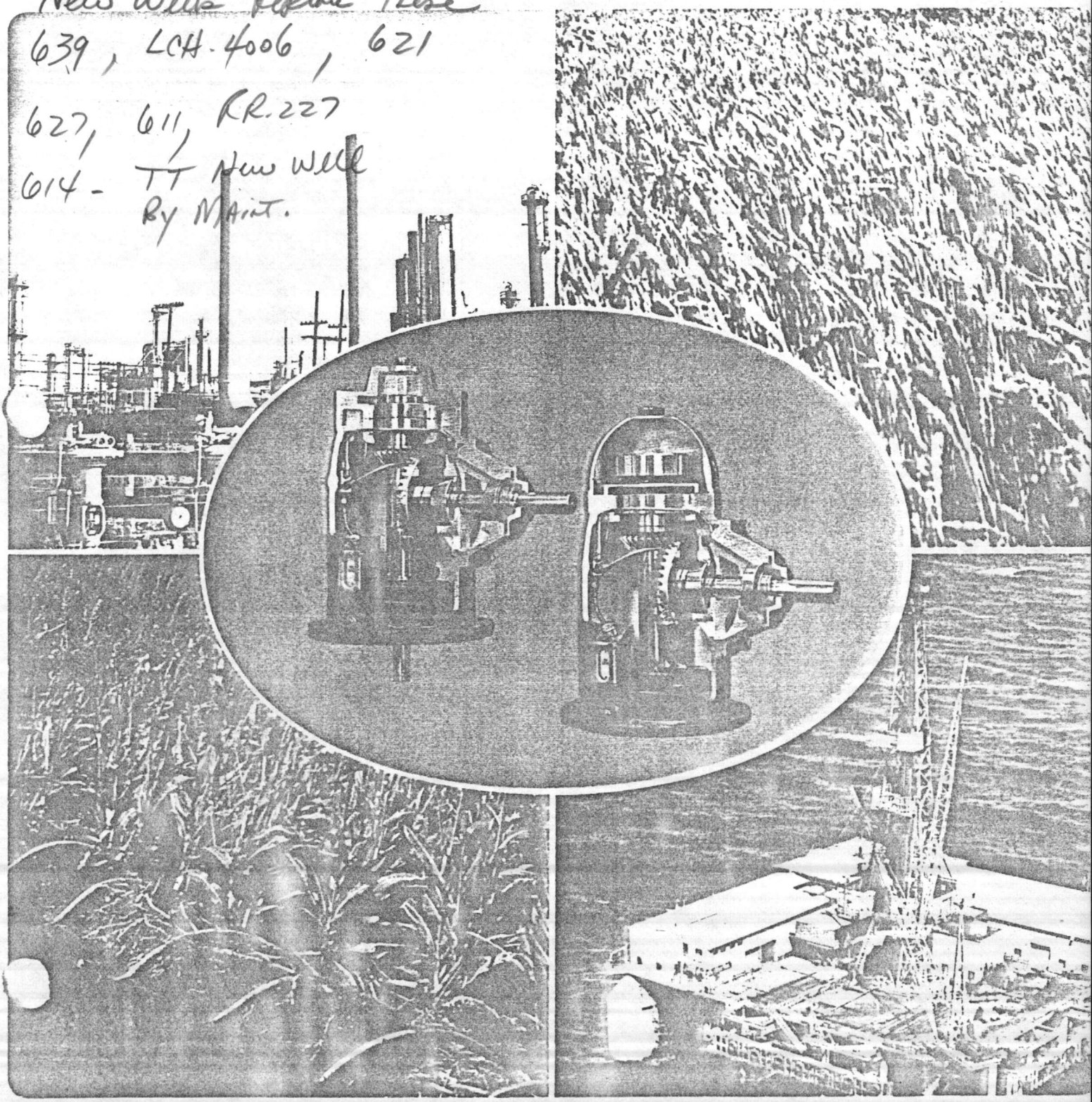
MARMON

RIGHT ANGLE GEAR DRIVES

MEMBER OF AGMA

CATALOG NUMBER 30 • MARCH 1981

New Wells Replace These
639, LCH-4006, 621
627, 611, RR-227
614 - TT New Wells By Maint.



AMARILLO GEAR COMPANY - P.O. BOX 1789 - 2401 SUNDOWN LANE - A/C 806 622-1273, TWX 910-898-4128 - AMARILLO, TEXAS 7910

TABLE 3

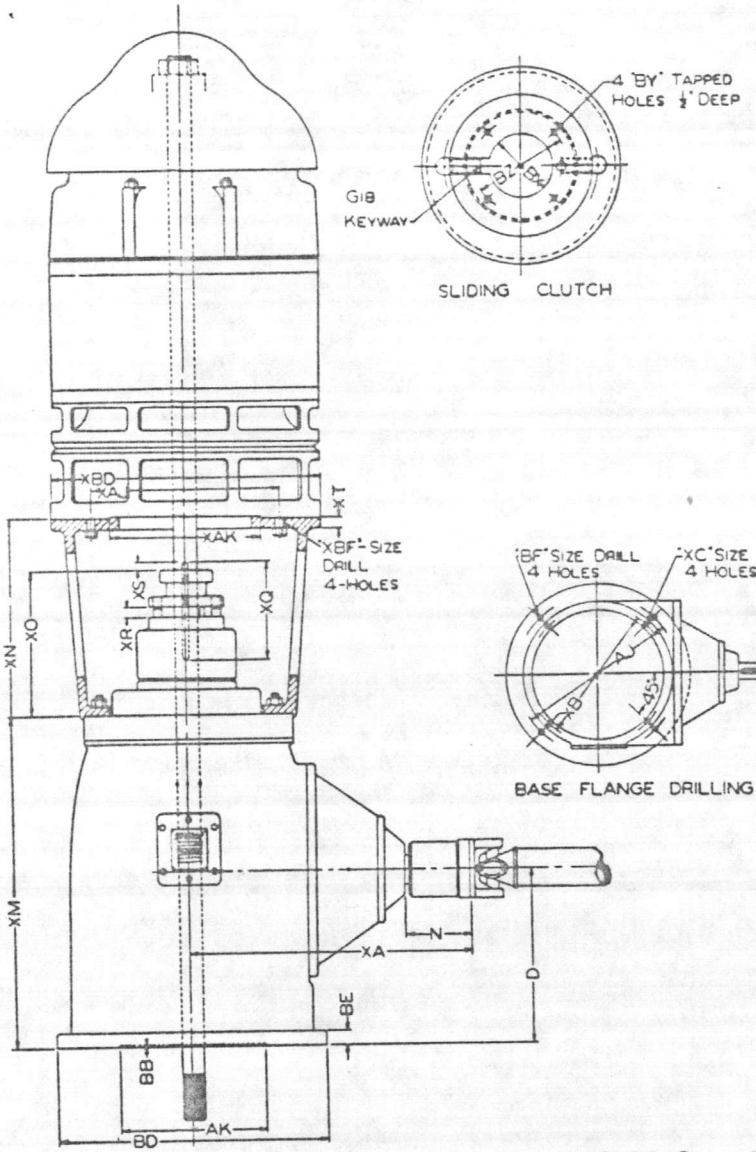
NOTE: Drives that are rated at 1760 RPM vertical speed **ARE NOT LIMITED** to 1760 RPM. See Table 1.

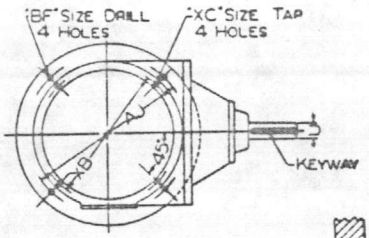
MODEL	Vertical Shaft RPM	H.P. Rating	DOWNTHRUST CAPACITY IN POUNDS													
			HOLLOW SHAFT						SOLID SHAFT						COMB.	
			Type SL		Type S		Type SH		Type SSL		Type SS		Type SSH		Type C	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
20	1160	15	0	978	797	2358	797	3680	0	978	0	2358			0	2358
	1460	18	0	901	760	2173	760	3392	0	901	0	2173			0	2173
	1760	20	0	850	700	2050	700	3200	0	850	0	2050			0	2050
	3460	30	0	680	534	1640	534	2560	0	680	0	1640			0	1640
40	1160	30	0	1495	1138	3565	1138	5520	0	1495	0	3565			0	3565
	1460	35	0	1378	1055	3286	1055	5088	0	1378	0	3286			0	3286
	1760	40	0	1300	1000	3100	1000	4800	0	1300	0	3100			0	3100
60	960	39	0	2074	1490	5002	1490	7320	0	2074	0	5002			0	5002
	1160	45	0	1955	1422	4715	1422	6900	0	1955	0	4715			0	4715
	1460	53	0	1802	1331	4346	1331	6360	0	1802	0	4346			0	4346
	1760	60	0	1700	1250	4100	1250	6000	0	1700	0	4100			0	4100
80	960	52	0	3904	2085	6954	2085	11224	0	3904	0	6954			0	6954
	1160	60	0	3680	1991	6555	1991	10580	0	3680	0	6555			0	6555
	1460	70	0	3392	1846	6042	1846	9752	0	3392	0	6042			0	6042
	1760	80	0	3200	1750	5700	1750	9200	0	3200	0	5700			0	5700
100	960	66	0	3904	2101	7198	2101	11224	0	3904	0	7198			0	7198
	1160	75	0	3680	1991	6785	1991	10580	0	3680	0	6785			0	6785
	1460	88	0	3392	1856	6254	1856	9752	0	3392	0	6254			0	6254
	1760	100	0	3200	1750	5900	1750	9200	0	3200	0	5900			0	5900
125	720	68	0	5535	3135	7965	3135	12420	0	5535	0	7965			0	7965
	960	83	0	5002	2722	7198	2722	11224	0	5002	0	7198			0	7198
	1160	94	0	4715	2560	6781	2560	10580	0	4715	0	6781			0	6781
	1460	110	0	4346	2387	6254	2387	9752	0	4346	0	6254			0	6254
	1760	125	0	4100	2250	5900	2250	9200	0	4100	0	5900			0	5900
150	720	80	0	6750	3520	9180	3520	14243	0	6750	0	9180	0	14243	0	9180
	960	98	0	6100	3234	8296	3234	12871	0	6100	0	8296	0	12871	0	8296
	1160	112	0	5750	3059	7820	3059	12133	0	5750	0	7820	0	12133	0	7820
	1460	132	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0	7208
	1760	150	0	5000	2700	6800	2700	10550	0	5000	0	6800	0	10550	0	6800
200	720	107	0	6750	3531	9180	3531	14243	0	6750	0	9180	0	14243	0	9180
	960	131	0	6100	3242	8296	3242	12871	0	6100	0	8296	0	12871	0	8296
	1160	150	0	5750	3072	7820	3072	12133	0	5750	0	7820	0	12133	0	7820
	1460	176	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0	7208
	1760	200	0	5000	2700	6800	2700	10550	0	5000	0	6800	0	10550	0	6800
275	720	147	0	8100	3920	13973	3920	25650	0	8100	0	13973	3920	25650	CONSULT FACTORY	
	960	180	0	7320	3600	12627	3600	23180	0	7320	0	12627	3600	23180		
	1160	206	0	6900	3410	11903	3410	21850	0	6900	0	11903	3410	21850		
	1460	241	0	6360	3169	10971	3169	20140	0	6360	0	10971	3169	20140		
	1760	275	0	6000	3000	10350	3000	19000	0	6000	0	10350	3000	19000		
375	580	172	0	8700	4871	27550	4871	36250	0	8700	0	15008	4871	27550	CONSULT FACTORY	
	720	201	0	8100	4586	25650	4586	33750	0	8100	0	13973	4586	25650		
	960	246	0	7320	4209	23180	4209	30500	0	7320	0	12627	4209	23180		
	1160	281	0	6900	3979	21850	3979	28750	0	6900	0	11903	3979	21850		
	1460	329	0	6360	3702	20140	3702	26500	0	6360	0	10971	3702	20140		
	1760	375	0	6000	3500	19000	3500	25000	0	6000	0	10350	3500	19000		
450	580	207	0	8700	5583	27550	5583	36250	0	8700	0	15008	5583	27550	CONSULT FACTORY	
	720	241	0	8100	5236	25650	5236	33750	0	8100	0	13973	5236	25650		
	960	295	0	7320	4807	23180	4807	30500	0	7320	0	12627	4807	23180		
	1160	337	0	6900	4545	21850	4545	28750	0	6900	0	11903	4545	21850		
	1460	395	0	6360	4232	20140	4232	26500	0	6360	0	10971	4232	20140		
	1760	450	0	6000	4000	19000	4000	25000	0	6000	0	10350	4000	19000		
600	580	275	0	11600	6259	36250	6259	44645	0	11600	0	15008	6259	36250	CONSULT FACTORY	
	720	321	0	10800	5885	33750	5885	41841	0	10800	0	13973	5885	33750		
	870	367	0	10080	5568	31500	5568	39532	0	10080	0	13041	5568	31500		
	960	393	0	9760	5404	30500	5404	38382	0	9760	0	12627	5404	30500		
	1160	449	0	9200	5109	28750	5109	36263	0	9200	0	11903	5109	28750		
	1460	527	0	8480	4765	26500	4765	33845	0	8480	0	10971	4765	26500		
	1760	600	0	8000	4500	25000	4500	32000	0	8000	0	10350	4500	25000		
750	580	344	0	11310	6959	36250	6959	44645	0	11310	0	15008	6259	36250	CONSULT FACTORY	
	720	401	0	10530	6535	33750	6535	41841	0	10530	0	13973	5885	33750		
	870	458	0	9828	6177	31500	6177	39532	0	9828	0	13041	5568	31500		
	960	491	0	9516	6001	30500	6001	38382	0	9516	0	12627	5404	30500		
	1160	561	0	8970	5674	28750	5674	36263	0	8920	0	11903	5109	28750		
	1460	659	0	8268	5296	26500	5296	33845	0	8268	0	10971	4765	26500		
	1760	750	0	7800	5000	25000	5000	32000	0	7800	0	10350	4500	25000		
1000G	580	460	0	11310	9306	36250	9306	46738	0	11310						
	720	535	0	10530	8719	33750	8719	43802	0	10530						
	870	611	0	9828	8241	31500	8241	41385	0	9828	CONSULT FACTORY		CONSULT FACTORY		CONSULT FACTORY	
	960	654	0	9516	7994	30500	7994	40181	0	9516						
	1160	747	0	8970	7556	28750	7556	37963	0	8920						
	1460	877	0	8268	7048	26500	7048	35432	0	8268						
	1760	1000	0	7800	6667	25000	6667	33500	0	7800						

Please see pages 12, 13 and 14 for all information on Models 1000A, 1200, 1500 and 1800.

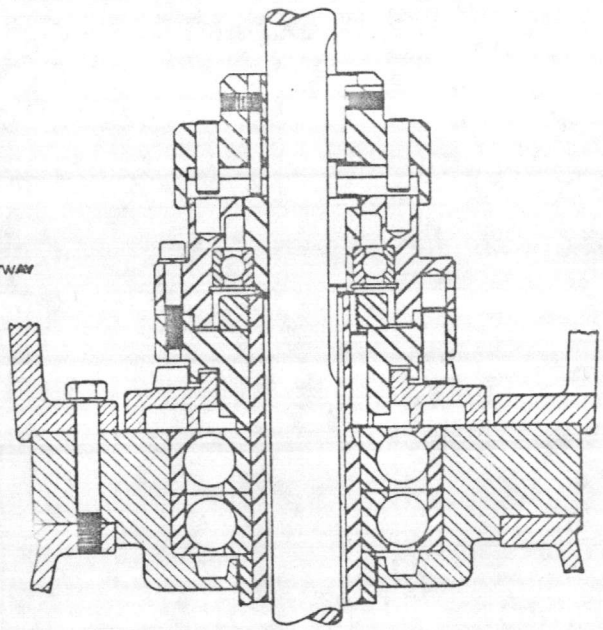
COMBINATION DRIVE

In response to the need for utmost reliability, a combination drive may be specified. This drive is normally installed with an electric motor top-mounted for constant service. In the event of power failure or motor failure the drive is simply converted for engine or turbine operation by lowering the integral sliding clutch into drive position. No additional pins or bolts are required for this conversion. These combination drives may be furnished with either solid or hollow shafts. Consult combination drive operation manual for installation instructions.





BASE FLANGE DRILLING



Combination Clutch — Sub-Assembly
Clutch Shown Disengaged

TABLE OF DIMENSIONS — COMBINATION DRIVE

TABLE 7

Model	D	N	Horizontal Shaft U			AJ	AK	BB	BD	BE	BF	XA	XB	XC	XL	XM	XN	XO	XQ	XR	XS	XT	XAJ	XAK	XBD	XBF	BX Bore Maximum
			Nominal	Actual	Keyway																						
C20	6¾	2⅝	1¼	1.249	¼ x 3/32	9⅛	8.250	3/16	10	⅜	7/16	10⅞			9/32	12¼	12½	5½	5¼	⅛	1½	7/16					1*
C40A	8½	4⅜	1½	1.499	⅜ x 3/16	9⅛	8.250	¼	12	7/16	7/16	15⅝			9/32	16 7/16	16	6½	7	⅛	2	⅜					1¼
C40B	8½	4⅜	1½	1.499	⅜ x 3/16	14¾	13.500	¼	16½	7/16	7/16	15⅝			9/32	16 7/16	16	6½	7	⅛	2	⅜					1¼
C60	11⅛	4¼	1½	1.499	⅜ x 3/16	14¾	13.500	¼	16½	⅜	7/16	16⅝			9/32	20¼	18	7 13/16	7¼	¼	2¼	¼					1½
C80	11⅛	4¼	1⅝	1.874	⅜ x 3/16	14¾	13.500	¼	16½	⅜	7/16	16⅝			9/32	20⅜	18	7 13/16	7¼	¼	2¼	¼					1½
C100	11⅛	4¼	1⅝	1.874	⅜ x 3/16	14¾	13.500	¼	16½	⅜	7/16	16⅝			9/32	20⅜	18	7 13/16	7¾	¼	2¼	¼					1½
C125	11⅛	4½	2 7/16	2.436	⅜ x 3/16	14¾	13.500	¼	16½	⅜	7/16	18⅝			9/32	21⅛	18	7½	9	⅛	2¼	¼					1 15/16
C150	13¾	5¼	2 7/16	2.436	⅜ x 3/16	18¼	13.500	¼	20	1⅛	7/16	20⅝	14¾	⅜-11-NC	9/32	25⅜	20	9	10	⅛	2¾	⅜					2*
C200	13¾	5¼	2 7/16	2.436	⅜ x 3/16	18¼	13.500	¼	20	1⅛	7/16	20⅝	14¾	⅜-11-NC	9/32	25⅜	20	9	10	⅛	2¾	⅜					2
C275	16	6	2 7/16	2.936	⅜ x ⅜	23	13.500	¼	24½	1⅛	7/16	†25½	14¾	⅜-11-NC	9/32	32⅜	27	12	11½	1⅛	3½	1					2 7/16
C375	16	6	2 7/16	2.936	⅜ x ⅜	23	13.500	¼	24½	1⅛	7/16	†25½	14¾	⅜-11-NC	9/32	32⅜	27	12	11½	1⅛	3½	1					2 7/16
C450	16	6	3⅛	3.749	⅞ x 7/16	23	13.500	¼	24½	1⅛	7/16	†25½	14¾	⅜-11-NC	9/32	32⅜	27	12	11½	1⅛	3½	1					2 7/16
C600	18	6	3⅛	3.749	⅞ x 7/16	23	13.500	¼	24½	1⅛	7/16	†26⅝	14¾	⅜-11-NC	9/32	34¼	27	12¾	11½	1⅛	3½	1⅛					2 7/16
C750	21	8	4	3.998	1 x ½	28¾	22.000	¼	30½	1¼	7/16	36⅞	26	½-10-NC	7/16	42	30	16¼	15	1 3/16	4	1¼					2 15/16
C1000G	21	8	4	3.998	1 x ½	28¾	22.000	¼	30½	1¼	7/16	36⅞	26	½-10-NC	7/16	42	30	16¼	15	1 3/16	4	1¼					2 15/16

* Model C20, ratio 1:3, maximum clutch bore ⅞"; Model C150, ratio 1:3, maximum 1 1/16". Consult factory for maximum clutch bore for Fig. 2 and Fig. 3 rotation. Model C20, 1:3 ratio, not available with Fig. 2 or Fig. 3 rotation.

** Horizontal shaft dimensions shown for Model 450 apply to ratios in Table 4 only. Consult factory for dimensions of all others.

† "XA" dimensions shown apply to ratios in Table 4 only. Consult factory for dimensions of all others.

Please see pages 12, 13 and 14 for all information on Models 1000A, 1200, 1500 and 1800.

CUSTOMER NAME	East Coast Const Co.
CUST. ORD. NO.	1217
U.S. ORD. NO.	
MARK:	Camp Lejeune
QTY. 1 HP 30	FRAME 286 TP PHASE 3
HERTZ 60 R.P.M. 1800	VOLTS 208

Vertical Motors

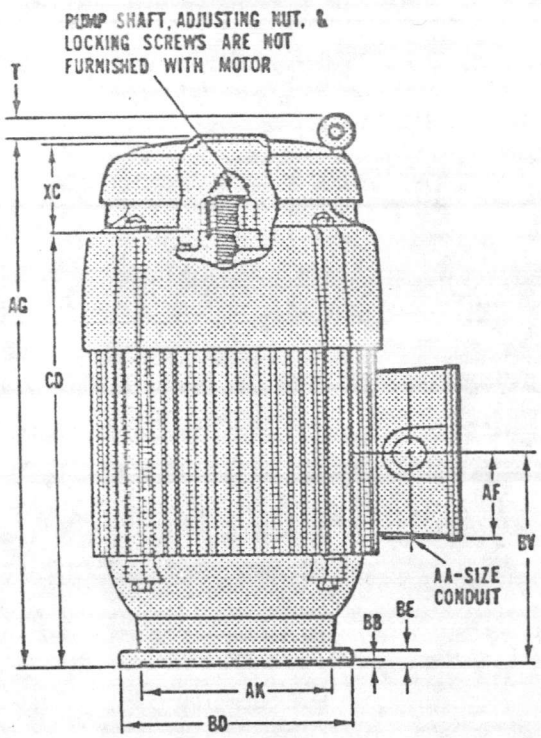
WPI-TYPE AU
FRAMES 182 THRU 256TPA

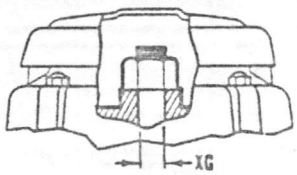
HIGH THRUST VERTICAL HOLLOSHAFT
NEMA P BASE

DIMENSIONS

FEATURES: 30 HP, 1800 rpm, frame 286 TP, 1.15 S.F. continuous duty

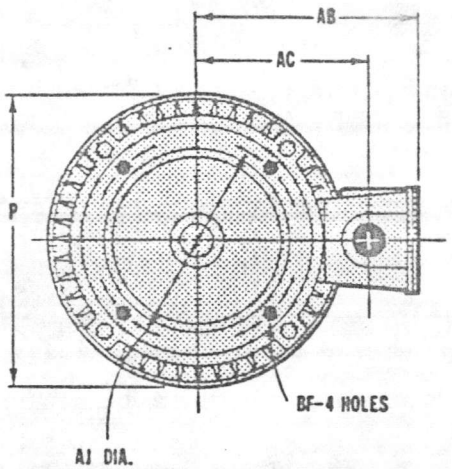
Building LCH4006





HOLLOW SHAFT BORE

Conduit opening may be located in steps of 90°. Standard as shown with conduit down.



ALL DIMENSIONS ARE IN INCHES

FRAME	P*	T	AA	AB	AC	AF	AG	AJ DIA.	AK −.003	BB	BD	BE	BF TAP SIZE	BV	CD	XC	XG	UNIMOUNT BRKT. P/N
182TP 184TP	12-7/8	1-1/2	1	6-5/16	5-3/8	2-5/8	21-1/4	9-1/8	8-1/4	3/16	10	3/4	7/16	8	17-9/16	3-11/32	1-1/16	682186
213TP 215TP	12-7/8	1-1/2	1	7-9/16	6-7/16	3-5/16	21-1/4	9-1/8	8-1/4	3/16	10	3/4	7/16	8	17-9/16	3-11/32	1-1/16	682186
254TP 256TP	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	9-1/8	8-1/4	1/4	10	15/16	7/16	11-7/16	23-7/16	3-3/8	1-1/4	347107
254TPH 256TPH	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	9-1/8	8-1/4	1/4	12	15/16	7/16	11-7/16	23-7/16	3-3/8	1-1/4	347109
254TPA 256TPA	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	14-3/4	13-1/2	1/4	16-1/2	15/16	11/16	11-7/16	23-7/16	3-3/8	1-1/4	347111
284TP 286TP	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	9-1/8	8-1/4	1/4	10	15/16	7/16	12-1/4	24-13/16	3-3/8	1-1/4	347107
284TPA 286TPA	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	9-1/8	8-1/4	1/4	12	15/16	7/16	12-1/4	24-13/16	3-3/8	1-1/4	347109
284TPH 286TPH	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	14-3/4	13-1/2	1/4	16-1/2	15/16	11/16	12-1/4	24-13/16	3-3/8	1-1/4	347111

All rough casting dimensions may vary by 1/4" due to casting variations.

* Largest Motor Diameter

TOLERANCES: "AK" Dimension: +.003, Face Runout: .004 F.I.R.
Permissible Eccentricity of Mounting Rabbet: .004 F.I.R.

All tapped holes are Unified National Course, right hand thread.

U. S. ELECTRICAL MOTORS DIVISION
EMERSON ELECTRIC CO.
EMERSON
PRINTED IN U.S.A.

Effective: MAY 18, 1980
Supersedes: FEBRUARY 3, 1980

If properly endorsed this print is correct for frame & assembly positions indicated.
By _____ Date _____

3 PHASE 60 CYCLES
230,460,575 VOLTS
40°C. AMBIENT-C.RISE WP-1

HOLLOSHAFT & SOLIDSHAFT MOTORS

OPERATING CHARACTERISTICS

ENGINEERING DATA

HP	RPM		% EFFICIENCY			% POWER FACTOR			CURRENT IN AMPHERES 460 VOLTS		TORQUE AT FULL VOLTAGE			NEMA CODE
	NO LOAD	FULL LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	LOCKED (STARTING	FULL LOAD TORQUE AT FULL LOAD SPEED (LB.FT.)	LOCKED (STARTING) PERCENT OF FULL LOAD	PULL OUT (BREAKDOWN) PERCENT OF FULL LOAD	
2	900	860	75.0	74.5	70.0	68.0	60.0	47.5	3.9	18.0	12.2	130	210	J
3	1800	1720	80.0	79.5	75.5	81.0	72.5	59.5	4.4	32.0	9.2	215	250	K
	1200	1155	78.5	78.0	75.0	69.0	61.0	49.0	5.4	23.0	13.6	155	230	G
	900	860	78.5	79.0	75.5	67.5	59.0	46.0	5.8	30.5	18.3	130	205	K
5	3600	3480	81.0	82.0	80.5	86.0	80.5	69.5	6.9	45.0	7.5	150	215	H
	1800	1725	81.5	82.0	79.5	84.0	76.5	63.5	7.0	47.0	15.2	185	225	J
	1200	1160	81.0	81.0	78.0	71.0	62.5	50.0	8.5	40.0	22.6	150	215	G
	900	875	80.5	80.0	77.0	72.0	64.0	51.0	8.2	44.0	30.0	130	205	H
7-1/2	3600	3460	84.0	85.0	84.0	88.0	84.0	75.5	9.8	63.0	11.4	140	200	H
	1800	1740	83.5	84.0	82.5	84.0	80.0	71.5	10.4	63.5	22.6	175	215	H
	1200	1170	83.0	83.5	81.0	80.5	74.0	61.5	10.5	63.0	33.7	150	205	H
	900	875	80.5	80.5	77.5	71.5	63.0	50.5	12.5	63.0	45.0	125	200	K
10	3600	3500	83.5	84.0	83.0	87.0	84.0	76.5	13.4	79.0	15.0	135	200	H
	1800	1740	86.5	87.0	85.5	81.0	75.0	64.0	13.3	82.0	30.2	165	200	H
	1200	1165	82.5	82.5	80.0	78.5	70.0	57.0	14.0	80.0	45.1	150	200	H
	900	875	86.0	86.5	84.5	72.0	65.0	53.0	15.5	81.0	60.0	125	200	H
15	3600	3485	85.0	86.5	86.0	88.5	87.0	82.0	19.5	112.0	22.6	130	200	G
	1800	1765	85.5	86.5	85.0	81.0	73.5	61.5	20.5	112.0	44.5	160	200	G
	1200	1160	87.5	89.0	89.0	85.0	82.0	74.5	19.4	115.0	68.0	140	200	G
	900	870	86.0	87.5	86.5	75.5	69.5	58.5	22.5	116.0	90.6	125	200	G
20	3600	3515	85.5	87.0	87.0	89.0	87.5	82.5	25.4	145.0	29.9	130	200	G
	1800	1765	88.0	89.0	89.0	85.0	82.5	75.0	26.0	143.0	59.5	150	200	G
	1200	1160	88.0	89.5	89.0	85.0	81.5	74.0	25.8	145.0	90.5	135	200	G
	900	880	85.0	86.5	86.0	74.5	69.0	57.0	30.5	140.0	120.0	125	200	G
25	3600	3510	89.0	90.0	89.0	88.5	87.0	81.0	30.4	172.0	37.4	130	200	F
	1800	1755	88.5	90.0	89.5	83.0	78.5	68.5	32.5	180.0	74.8	150	200	G
	1200	1180	85.5	87.0	86.5	84.0	79.0	68.0	33.5	193.0	111.5	135	200	G
	900	880	86.0	88.0	87.5	77.0	72.0	61.0	36.5	175.0	150.0	125	200	G
30	3600	3510	89.5	90.5	89.5	87.5	85.0	78.0	37.0	218.0	44.9	130	200	G
	1800	1755	89.0	90.0	89.5	80.5	75.0	63.5	40.0	217.0	89.8	150	200	G
	1200	1175	86.5	88.5	89.5	86.0	84.0	78.0	38.5	215.0	134.0	135	200	G
	900	880	88.0	89.5	89.5	75.0	70.0	59.5	43.5	205.0	179.0	125	200	G
40	3600	3515	90.0	91.0	90.0	86.5	83.0	75.0	48.5	310.0	59.8	125	200	G
	1800	1770	88.0	89.5	89.0	86.0	82.0	73.0	51.0	292.5	119.0	140	200	G
	1200	1175	87.5	89.5	90.0	84.5	81.0	72.0	52.0	292.0	179.0	135	200	G
	900	875	88.0	90.0	90.0	76.0	71.5	61.0	57.5	280.0	240.0	125	200	F
50	3600	3540	88.0	89.5	89.0	87.0	84.5	78.0	63.0	350.0	74.2	120	200	G
	1800	1765	89.0	90.5	90.5	84.5	81.0	72.0	64.0	339.5	150.0	140	200	G
	1200	1170	88.0	90.5	91.0	85.0	83.0	76.5	64.0	370.0	224.5	135	200	G
	900	875	88.5	90.0	90.0	80.0	76.0	67.0	68.0	325.0	300.0	125	200	G
60	3600	3540	89.5	91.0	91.0	89.0	89.0	86.0	72.5	410.0	89.0	120	200	G
	1800	1770	90.0	91.0	91.0	86.0	83.0	75.0	75.0	454.5	178.0	140	200	G
	1200	1175	88.5	90.0	89.5	85.5	82.0	72.5	76.0	460.0	268.0	135	200	G
	900	875	89.0	90.5	90.5	80.5	77.0	68.0	80.5	410.0	360.0	≠ 125	200	G

See Page 2 for higher horsepowers and notes.

CUSTOMER NAME	East Coast Const. Co.
CUST. ORD. NO.	1217
U.S. ORD. NO.	
MARK:	Camp Lejeune
QTY. 2 HP 20	FRAME 256 TP PHASE 3
HERTZ 60 R.P.M. 1800	VOLTS 208

US MOTORS

Vertical Motors

Section 505
Page 1

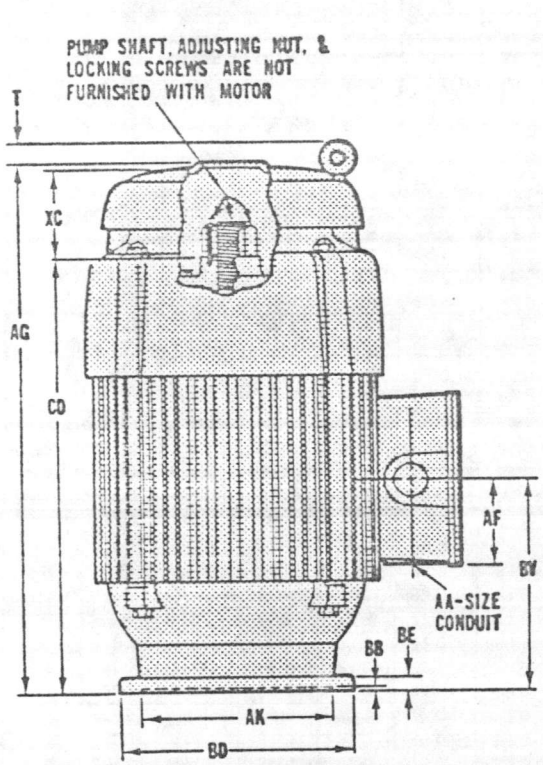
WPI-TYPE AU
FRAMES 182 THRU 256TPA

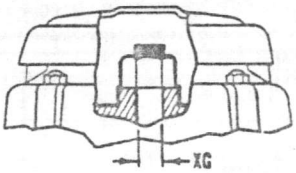
HIGH THRUST VERTICAL HOLLOSHAFT
NEMA P BASE

DIMENSIONS

FEATURES: 20 HP, 1800 rpm, frame 256 TP, 1.15 S.F. continuous duty

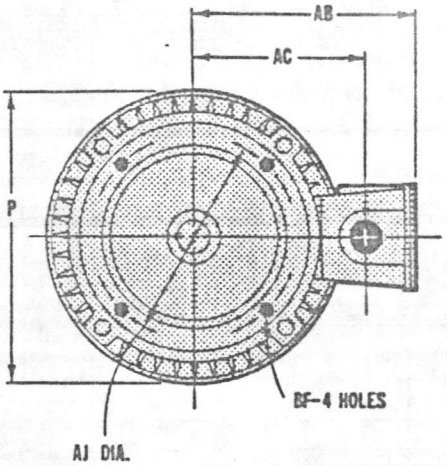
Building 611 and 614





HOLLOW SHAFT BORE

Conduit opening may be located in steps of 90°. Standard as shown with conduit down.



ALL DIMENSIONS ARE IN INCHES

FRAME	P*	T	AA	AB	AC	AF	AG	AJ DIA.	AK –.003	BB	BD	BE	BF TAP SIZE	BV	CD	XC	XG	UNIMOUNT BRKT. P/N
182TP 184TP	12-7/8	1-1/2	1	6-5/16	5-3/8	2-5/8	21-1/4	9-1/8	8-1/4	3/16	10	3/4	7/16	8	17-9/16	3-11/32	1-1/16	682186
213TP 215TP	12-7/8	1-1/2	1	7-9/16	6-7/16	3-5/16	21-1/4	9-1/8	8-1/4	3/16	10	3/4	7/16	8	17-9/16	3-11/32	1-1/16	682186
254TP 256TP	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	9-1/8	8-1/4	1/4	10	15/16	7/16	11-7/16	23-7/16	3-3/8	1-1/4	347107
254TPH 256TPH	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	9-1/8	8-1/4	1/4	12	15/16	7/16	11-7/16	23-7/16	3-3/8	1-1/4	347109
254TPA 256TPA	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	14-3/4	13-1/2	1/4	16-1/2	15/16	11/16	11-7/16	23-7/16	3-3/8	1-1/4	347111
284TP 286TP	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	9-1/8	8-1/4	1/4	10	15/16	7/16	12-1/4	24-13/16	3-3/8	1-1/4	347107
284TPA 286TPA	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	9-1/8	8-1/4	1/4	12	15/16	7/16	12-1/4	24-13/16	3-3/8	1-1/4	347109
284TPH 286TPH	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	14-3/4	13-1/2	1/4	16-1/2	15/16	11/16	12-1/4	24-13/16	3-3/8	1-1/4	347111

All rough casting dimensions may vary by 1/4" due to casting variations.

* Largest Motor Diameter

TOLERANCES: "AK" Dimension: +.003, Face Runout: .004 F.I.R.
Permissible Eccentricity of Mounting Rabbet: .004 F.I.R.

All tapped holes are Unified National Course, right hand thread.

U. S. ELECTRICAL MOTORS DIVISION
EMERSON ELECTRIC CO.
EMERSON

Effective: MAY 18, 1980
Supersedes: FEBRUARY 3, 1980

If properly endorsed this print is correct for frame & assembly positions indicated.
By _____ Date _____

3 PHASE 60 CYCLES
230,460,575 VOLTS
40°C. AMBIENT-C.RISE WP-1

HOLLOSHAFT & SOLIDSHAFT MOTORS

OPERATING CHARACTERISTICS

ENGINEERING DATA

HP	RPM		% EFFICIENCY			% POWER FACTOR			CURRENT IN AMPHERES 460 VOLTS		TORQUE AT FULL VOLTAGE			NEMA CODE
											FULL LOAD TORQUE AT FULL LOAD SPEED (LB.FT.)	LOCKED (STARTING)	PULL OUT (BREAKDOWN)	
	NO LOAD	FULL LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	LOCKED (STARTING		PERCENT OF FULL LOAD		
2	900	860	75.0	74.5	70.0	68.0	60.0	47.5	3.9	18.0	12.2	130	210	J
	1800	1720	80.0	79.5	75.5	81.0	72.5	59.5	4.4	32.0	9.2	215	250	K
3	1200	1155	78.5	78.0	75.0	69.0	61.0	49.0	5.4	23.0	13.6	155	230	G
	900	860	78.5	79.0	75.5	67.5	59.0	46.0	5.8	30.5	18.3	130	205	K
	3600	3480	81.0	82.0	80.5	86.0	80.5	69.5	6.9	45.0	7.5	150	215	H
5	1800	1725	81.5	82.0	79.5	84.0	76.5	63.5	7.0	47.0	15.2	185	225	J
	1200	1160	81.0	81.0	78.0	71.0	62.5	50.0	8.5	40.0	22.6	150	215	G
	900	875	80.5	80.0	77.0	72.0	64.0	51.0	8.2	44.0	30.0	130	205	H
	3600	3460	84.0	85.0	84.0	88.0	84.0	75.5	9.8	63.0	11.4	140	200	H
7-1/2	1800	1740	83.5	84.0	82.5	84.0	80.0	71.5	10.4	63.5	22.6	175	215	H
	1200	1170	83.0	83.5	81.0	80.5	74.0	61.5	10.5	63.0	33.7	150	205	H
	900	875	80.5	80.5	77.5	71.5	63.0	50.5	12.5	63.0	45.0	125	200	K
	3600	3500	83.5	84.0	83.0	87.0	84.0	76.5	13.4	79.0	15.0	135	200	H
10	1800	1740	86.5	87.0	85.5	81.0	75.0	64.0	13.3	82.0	30.2	165	200	H
	1200	1165	82.5	82.5	80.0	78.5	70.0	57.0	14.0	80.0	45.1	150	200	H
	900	875	86.0	86.5	84.5	72.0	65.0	53.0	15.5	81.0	60.0	125	200	H
	3600	3485	85.0	86.5	86.0	88.5	87.0	82.0	19.5	112.0	22.6	130	200	G
15	1800	1765	85.5	86.5	85.0	81.0	73.5	61.5	20.5	112.0	44.5	160	200	G
	1200	1160	87.5	89.0	89.0	85.0	82.0	74.5	19.4	115.0	68.0	140	200	G
	900	870	86.0	87.5	86.5	75.5	69.5	58.5	22.5	116.0	90.6	125	200	G
	3600	3515	85.5	87.0	87.0	89.0	87.5	82.5	25.4	145.0	29.9	130	200	G
20	1800	1765	88.0	89.0	89.0	85.0	82.5	75.0	26.0	143.0	59.5	150	200	G
	1200	1160	88.0	89.5	89.0	85.0	81.5	74.0	25.8	145.0	90.5	135	200	G
	900	880	85.0	86.5	86.0	74.5	69.0	57.0	30.5	140.0	120.0	125	200	G
	3600	3510	89.0	90.0	89.0	88.5	87.0	81.0	30.4	172.0	37.4	130	200	F
25	1800	1755	88.5	90.0	89.5	83.0	78.5	68.5	32.5	180.0	74.8	150	200	G
	1200	1180	85.5	87.0	86.5	84.0	79.0	68.0	33.5	193.0	111.5	135	200	G
	900	880	86.0	88.0	87.5	77.0	72.0	61.0	36.5	175.0	150.0	125	200	G
	3600	3510	89.5	90.5	89.5	87.5	85.0	78.0	37.0	218.0	44.9	130	200	G
30	1800	1755	89.0	90.0	89.5	80.5	75.0	63.5	40.0	217.0	89.8	150	200	G
	1200	1175	86.5	88.5	89.5	86.0	84.0	78.0	38.5	215.0	134.0	135	200	G
	900	880	88.0	89.5	89.5	75.0	70.0	59.5	43.5	205.0	179.0	125	200	G
	3600	3515	90.0	91.0	90.0	86.5	83.0	75.0	48.5	310.0	59.8	125	200	G
40	1800	1770	88.0	89.5	89.0	86.0	82.0	73.0	51.0	292.5	119.0	140	200	G
	1200	1175	87.5	89.5	90.0	84.5	81.0	72.0	52.0	292.0	179.0	135	200	G
	900	875	88.0	90.0	90.0	76.0	71.5	61.0	57.5	280.0	240.0	125	200	F
	3600	3540	88.0	89.5	89.0	87.0	84.5	78.0	63.0	350.0	74.2	120	200	G
50	1800	1765	89.0	90.5	90.5	84.5	81.0	72.0	64.0	339.5	150.0	140	200	G
	1200	1170	88.0	90.5	91.0	85.0	83.0	76.5	64.0	370.0	224.5	135	200	G
	900	875	88.5	90.0	90.0	80.0	76.0	67.0	68.0	325.0	300.0	125	200	G
	3600	3540	89.5	91.0	91.0	89.0	89.0	86.0	72.5	410.0	89.0	120	200	G
60	1800	1770	90.0	91.0	91.0	86.0	83.0	75.0	75.0	454.5	178.0	140	200	G
	1200	1175	88.5	90.0	89.5	85.5	82.0	72.5	76.0	460.0	268.0	135	200	G
	900	875	89.0	90.5	90.5	80.5	77.0	68.0	80.5	410.0	360.0	125	200	G

See Page 2 for higher horsepowers and notes.

CUSTOMER NAME	East Coast Const. Co.
CUST. ORD. NO.	1217
U.S. ORD. NO.	
MARK:	Camp Lejeune
QTY. 1 HP 25 FRAME 284 TP PHASE 3	
HERTZ 60 R.P.M. 1800 VOLTS 208	

Vertical Motors

Section 505
Page 1

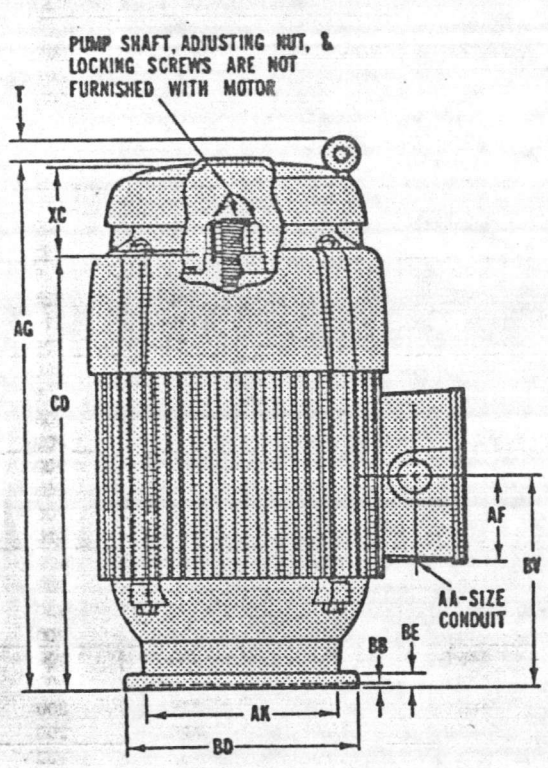
WPI-TYPE AU
FRAMES 182 THRU 256TPA

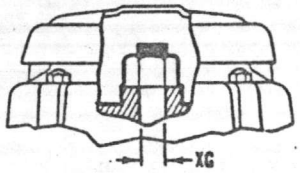
HIGH THRUST VERTICAL HOLLOSHAFT
NEMA P BASE

DIMENSIONS

FEATURES: 25 HP, 1800 rpm, frame 284 TP, 1.15 S.F. continuous duty

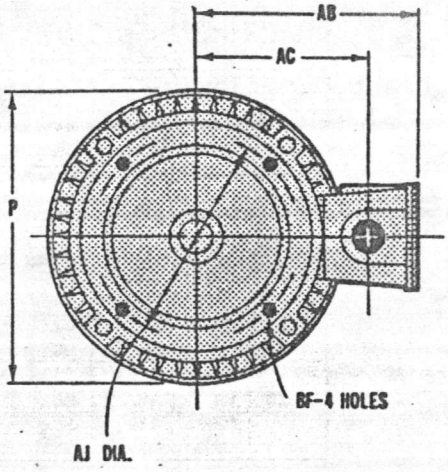
Building 227





HOLLOW SHAFT BORE

Conduit opening may be located in steps of 90°. Standard as shown with conduit down.



ALL DIMENSIONS ARE IN INCHES

FRAME	P*	T	AA	AB	AC	AF	AG	AJ DIA.	AK –.003	BB	BD	BE	BF TAP SIZE	BV	CD	XC	XG	UNIMOUNT BRKT. P/N
182TP 184TP	12-7/8	1-1/2	1	6-5/16	5-3/8	2-5/8	21-1/4	9-1/8	8-1/4	3/16	10	3/4	7/16	8	17-9/16	3-11/32	1-1/16	682186
213TP 215TP	12-7/8	1-1/2	1	7-9/16	6-7/16	3-5/16	21-1/4	9-1/8	8-1/4	3/16	10	3/4	7/16	8	17-9/16	3-11/32	1-1/16	682186
254TP 256TP	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	9-1/8	8-1/4	1/4	10	15/16	7/16	11-7/16	23-7/16	3-3/8	1-1/4	347107
254TPH 256TPH	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	9-1/8	8-1/4	1/4	12	15/16	7/16	11-7/16	23-7/16	3-3/8	1-1/4	347109
254TPA 256TPA	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	14-3/4	13-1/2	1/4	16-1/2	15/16	11/16	11-7/16	23-7/16	3-3/8	1-1/4	347111
284TP 286TP	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	9-1/8	8-1/4	1/4	10	15/16	7/16	12-1/4	24-13/16	3-3/8	1-1/4	347107
284TPA 286TPA	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	9-1/8	8-1/4	1/4	12	15/16	7/16	12-1/4	24-13/16	3-3/8	1-1/4	347109
284TPH 286TPH	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	14-3/4	13-1/2	1/4	16-1/2	15/16	11/16	12-1/4	24-13/16	3-3/8	1-1/4	347111

All rough casting dimensions may vary by 1/4" due to casting variations.

* Largest Motor Diameter

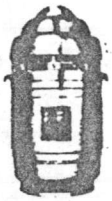
TOLERANCES: "AK" Dimension: +.003, Face Runout: .004 F.I.R.
Permissible Eccentricity of Mounting Rabbet: .004 F.I.R.

All tapped holes are Unified National Course, right hand thread.

U. S. ELECTRICAL MOTORS DIVISION
EMERSON ELECTRIC CO.
EMERSON
PRINTED IN U.S.A.

Effective: MAY 18, 1980
Supersedes: FEBRUARY 3, 1980

If properly endorsed this print is correct for frame & assembly positions indicated.
By _____ Date _____



3 PHASE 60 CYCLES
230,460,575 VOLTS
40°C. AMBIENT-C.RISE WP-1

HOLLOSHAFT & SOLIDSHAFT MOTORS

OPERATING CHARACTERISTICS

ENGINEERING DATA

HP	RPM		% EFFICIENCY			% POWER FACTOR			CURRENT IN AMPHERES 460 VOLTS		TORQUE AT FULL VOLTAGE			NEMA CODE
	NO LOAD	FULL LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	LOCKED (STARTING	FULL LOAD TORQUE AT FULL LOAD SPEED (LB.FT.)	LOCKED (STARTING) PERCENT OF FULL LOAD	PULL OUT (BREAKDOWN) PERCENT OF FULL LOAD	
2	900	860	75.0	74.5	70.0	68.0	60.0	47.5	3.9	18.0	12.2	130	210	J
3	1800	1720	80.0	79.5	75.5	81.0	72.5	59.5	4.4	32.0	9.2	215	250	K
	1200	1155	78.5	78.0	75.0	69.0	61.0	49.0	5.4	23.0	13.6	155	230	G
	900	860	78.5	79.0	75.5	67.5	59.0	46.0	5.8	30.5	18.3	130	205	K
5	3600	3480	81.0	82.0	80.5	86.0	80.5	69.5	6.9	45.0	7.5	150	215	H
	1800	1725	81.5	82.0	79.5	84.0	76.5	63.5	7.0	47.0	15.2	185	225	J
	1200	1160	81.0	81.0	78.0	71.0	62.5	50.0	8.5	40.0	22.6	150	215	G
	900	875	80.5	80.0	77.0	72.0	64.0	51.0	8.2	44.0	30.0	130	205	H
7-1/2	3600	3460	84.0	85.0	84.0	88.0	84.0	75.5	9.8	63.0	11.4	140	200	H
	1800	1740	83.5	84.0	82.5	84.0	80.0	71.5	10.4	63.5	22.6	175	215	H
	1200	1170	83.0	83.5	81.0	80.5	74.0	61.5	10.5	63.0	33.7	150	205	H
	900	875	80.5	80.5	77.5	71.5	63.0	50.5	12.5	63.0	45.0	125	200	K
10	3600	3500	83.5	84.0	83.0	87.0	84.0	76.5	13.4	79.0	15.0	135	200	H
	1800	1740	86.5	87.0	85.5	81.0	75.0	64.0	13.3	82.0	30.2	165	200	H
	1200	1165	82.5	82.5	80.0	78.5	70.0	57.0	14.0	80.0	45.1	150	200	H
	900	875	86.0	86.5	84.5	72.0	65.0	53.0	15.5	81.0	60.0	125	200	H
15	3600	3485	85.0	86.5	86.0	88.5	87.0	82.0	19.5	112.0	22.6	130	200	G
	1800	1765	85.5	86.5	85.0	81.0	73.5	61.5	20.5	112.0	44.5	160	200	G
	1200	1160	87.5	89.0	89.0	85.0	82.0	74.5	19.4	115.0	68.0	140	200	G
	900	870	86.0	87.5	86.5	75.5	69.5	58.5	22.5	116.0	90.6	125	200	G
20	3600	3515	85.5	87.0	87.0	89.0	87.5	82.5	25.4	145.0	29.9	130	200	G
	1800	1765	88.0	89.0	89.0	85.0	82.5	75.0	26.0	143.0	59.5	150	200	G
	1200	1160	88.0	89.5	89.0	85.0	81.5	74.0	25.8	145.0	90.5	135	200	G
	900	880	85.0	86.5	86.0	74.5	69.0	57.0	30.5	140.0	120.0	125	200	G
25	3600	3510	89.0	90.0	89.0	88.5	87.0	81.0	30.4	172.0	37.4	130	200	F
	1800	1755	88.5	90.0	89.5	83.0	78.5	68.5	32.5	180.0	74.8	150	200	G
	1200	1180	85.5	87.0	86.5	84.0	79.0	68.0	33.5	193.0	111.5	135	200	G
	900	880	86.0	88.0	87.5	77.0	72.0	61.0	36.5	175.0	150.0	125	200	G
30	3600	3510	89.5	90.5	89.5	87.5	85.0	78.0	37.0	218.0	44.9	130	200	G
	1800	1755	89.0	90.0	89.5	80.5	75.0	63.5	40.0	217.0	89.8	150	200	G
	1200	1175	86.5	88.5	89.5	86.0	84.0	78.0	38.5	215.0	134.0	135	200	G
	900	880	88.0	89.5	89.5	75.0	70.0	59.5	43.5	205.0	179.0	125	200	G
40	3600	3515	90.0	91.0	90.0	86.5	83.0	75.0	48.5	310.0	59.8	125	200	G
	1800	1770	88.0	89.5	89.0	86.0	82.0	73.0	51.0	292.5	119.0	140	200	G
	1200	1175	87.5	89.5	90.0	84.5	81.0	72.0	52.0	292.0	179.0	135	200	G
	900	875	88.0	90.0	90.0	76.0	71.5	61.0	57.5	280.0	240.0	125	200	F
50	3600	3540	88.0	89.5	89.0	87.0	84.5	78.0	63.0	350.0	74.2	120	200	G
	1800	1765	89.0	90.5	90.5	84.5	81.0	72.0	64.0	339.5	150.0	140	200	G
	1200	1170	88.0	90.5	91.0	85.0	83.0	76.5	64.0	370.0	224.5	135	200	G
	900	875	88.5	90.0	90.0	80.0	76.0	67.0	68.0	325.0	300.0	125	200	G
60	3600	3540	89.5	91.0	91.0	89.0	89.0	86.0	72.5	410.0	89.0	120	200	G
	1800	1770	90.0	91.0	91.0	86.0	83.0	75.0	75.0	454.5	178.0	140	200	G
	1200	1175	88.5	90.0	89.5	85.5	82.0	72.5	76.0	460.0	268.0	135	200	G
	900	875	89.0	90.5	90.5	80.5	77.0	68.0	80.5	410.0	360.0	125	200	G

See Page 2 for higher horsepowers and notes.

CUSTOMER NAME	EAST COAST CONST. CO.
CUST. ORD. NO.	1217
U.S. ORD. NO.	
MARK:	CAMP LEJUENE
QTY. 8 HP 15	FRAME 254 TCV PHASE 3
HERTZ 60 R.P.M. 1800	VOLTS 208

Vertical Motors

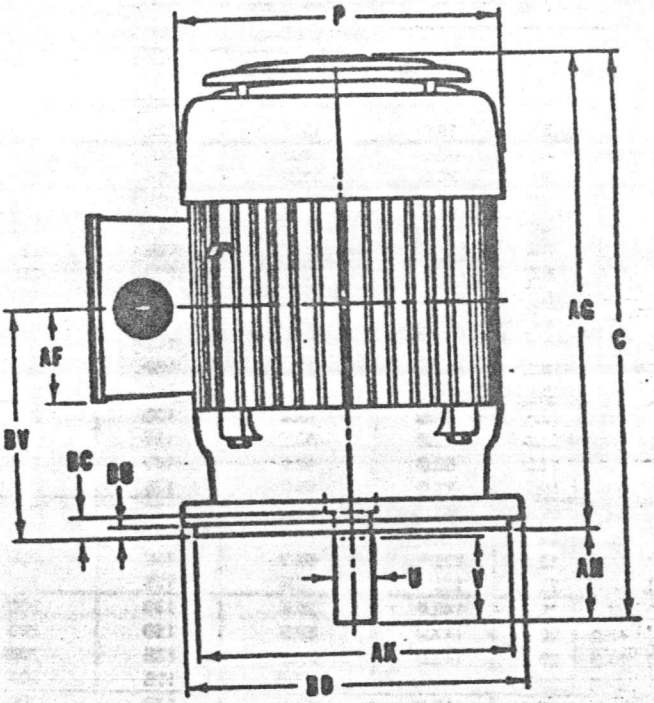
Section 505
Page 51

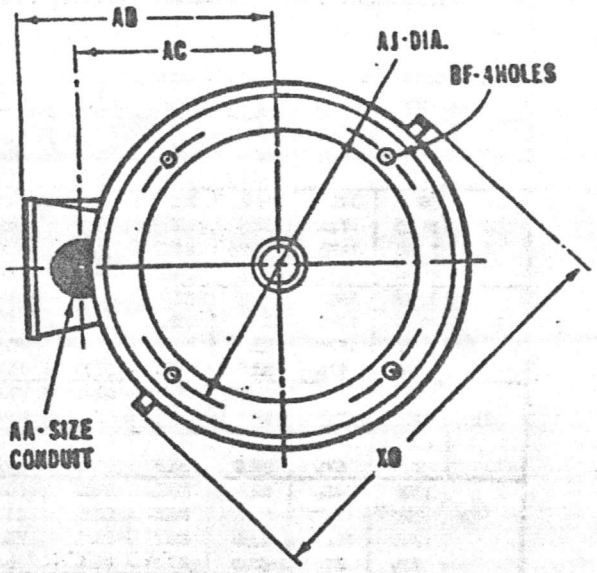
OPEN DRIPPROOF TYPE AV
FRAMES 182TC THRU 286TCV

NORMAL THRUST
VERTICAL SOLID-SHAFT
NEMA C BASE

DIMENSIONS

FEATURES: 15 HP, 1800 RPM, Frame 254TCV 1.15 SF
Continuous Duty





Conduit opening may be located in steps of 90 deg.
Standard as shown with conduit down.

ALL DIMENSIONS ARE IN INCHES

FRAME	C	P*	U	V MIN.	AA	AB	AC	AF	AG	AH	AJ DIA.
182,184 TC	17-3/4	9-1/2	1-1/8	2-1/2	3/4	6-5/16	5-3/8	2-5/8	15-1/8	2-5/8	7-1/4
213,215 TCV	22-7/32	11-1/8	1-3/8	3-1/8	1	7-1/2	6-7/16	3-5/16	19-3/32	3-1/8	7-1/4
254,256 TCV	24-1/16	14	1-5/8	3-3/4	1-1/4	8-15/16	7-3/4	3-5/8	20-5/16	3-3/4	7-1/4
284,286 TCV	26-3/16	14	1-7/8	4-3/8	1-1/2	9-1/8	7-9/16	4-7/16	21-11/16	4-1/2	9
284,286 TCV	26-3/16	14	1-7/8	4-3/8	1-1/2	9-1/8	7-9/16	4-7/16	21-11/16	4-1/2	9

FRAME	AK	BB MIN.	BC	BD	BF – TAP	BV	XO	SQ. KEY	BASIC BRACKET PART NUMBER
182,184 TC	8-1/2	1/4	1/8	9	1/2–13 X 3/4	6-3/8	11-3/16	1/4 X 1-3/4	168101
213,215 TCV	8-1/2	1/4	1/4	9	1/2–13 X 3/4	8	12-3/4	5/16 X 2-3/8	168702
254,256 TCV	8-1/2	1/4	1/4	8-1/2	1/2–13 X 3/4	11-7/16	16-7/8	3/8 X 2-15/16	347101
284,286 TCV	10-1/2	1/4	1/8	10-1/2	1/2–13 X 3/4	12-1/4	16-7/8	1/2 X 3-5/16	347103
284,286 TCV	10-1/2	1/4	1/8	12-1/2	1/2–13 X 3/4	12-1/4	16-7/8	1/2 X 3-5/16	347103

All rough casting dimensions may vary by 1/4" due to casting variations.

All tapped holes are Unified National Course, right hand thread.

*Largest Motor Diameter

TOLERANCES:
Face runout: .004 F.I.R.
Shaft Extension Diameter: 1-1/8" thru 1-1/2" "U" Dia.; +.0000", -.0008"
1-5/8" "U" Dia.; +.000", -.001"
Permissible Eccentricity of Mounting Rabbet: .004" F.I.R.
Permissible Shaft Runout: .002" F.I.R.
"AK" Dimension +.000"; -.003"

U. S. ELECTRICAL MOTORS DIVISION
EMERSON ELECTRIC CO.
EMERSON.

Effective: JUNE 15, 1980
Supersedes: MAY 22, 1979

If properly endorsed this print is correct for frame & assembly position indicated.
By [illegible] Date 11/2/82

3 PHASE 60 CYCLES
208 VOLTS
40°C. AMBIENT-C.RISE WP-1

HOLLOSHAFT & SOLIDSHAFT MOTORS

OPERATING CHARACTERISTICS

ENGINEERING DATA

HP	RPM		% EFFICIENCY			% POWER FACTOR			CURRENT IN AMPHERES 460 VOLTS		TORQUE AT FULL VOLTAGE			NEMA CODE
											FULL LOAD TORQUE AT FULL LOAD SPEED (LB.FT.)	LOCKED (STARTING)	PULL OUT (BREAKDOWN)	
	NO LOAD	FULL LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	LOCKED (STARTING		PERCENT OF FULL LOAD		
2	900	860	75.0	74.5	70.0	68.0	60.0	47.5	3.9	18.0	12.2	130	210	J
3	1800	1720	80.0	79.5	75.5	81.0	72.5	59.5	4.4	32.0	9.2	215	250	K
	1200	1155	78.5	78.0	75.0	69.0	61.0	49.0	5.4	23.0	13.6	155	230	G
	900	860	78.5	78.0	75.5	67.5	58.0	46.0	5.8	30.5	18.3	130	200	K
5	3600	3480	81.0	82.0	80.5	88.0	80.5	69.5	6.9	45.0	7.5	150	215	H
	1800	1725	81.5	82.0	79.5	84.0	76.5	63.5	7.0	47.0	15.2	185	225	J
	1200	1160	81.0	81.0	78.0	71.0	62.5	50.0	8.5	40.0	22.6	190	215	G
	900	875	80.5	80.0	77.0	72.0	64.0	51.0	8.2	44.0	30.0	130	205	H
7-1/2	3600	3460	84.0	85.0	84.0	88.0	84.0	75.5	9.8	63.0	11.4	140	200	H
	1800	1740	83.5	84.0	82.5	84.0	80.0	71.5	10.4	63.5	22.6	175	215	H
	1200	1170	83.0	83.5	81.0	80.5	74.0	61.5	10.5	63.0	33.7	150	205	H
	900	875	80.5	80.5	77.5	71.5	63.0	50.5	12.5	63.0	45.0	125	200	K
10	3600	3500	83.5	84.0	83.0	87.0	84.0	76.5	13.4	79.0	15.0	135	200	H
	1800	1740	86.5	87.0	85.5	81.0	78.0	64.0	13.3	82.0	30.2	165	200	H
	1200	1165	82.5	82.5	80.0	78.5	70.0	57.0	14.0	80.0	45.1	150	200	H
	900	875	86.0	86.5	84.5	72.0	66.0	53.0	15.5	81.0	60.0	125	200	H
15	3600	3485	85.0	86.5	86.0	88.5	87.0	82.0	19.5	112.0	22.6	130	200	G
	1800	1765	89.5	89.5	88.5	81.0	73.5	61.5	20.5	112.0	44.5	160	200	G
	1200	1180	87.5	89.0	89.0	85.0	82.0	74.5	19.4	115.0	68.0	140	200	G
	900	870	86.0	87.5	88.5	75.5	69.5	58.5	22.5	118.0	90.5	125	200	G
20	3600	3515	85.5	87.0	87.0	89.0	87.5	82.5	25.4	145.0	29.9	130	200	G
	1800	1765	88.0	89.0	89.0	85.0	82.5	75.0	26.0	143.0	59.5	150	200	G
	1200	1180	88.0	89.5	89.0	85.0	81.5	74.0	25.8	145.0	90.5	135	200	G
	900	880	85.0	86.5	86.0	74.5	69.0	57.0	30.5	140.0	120.0	125	200	G
25	3600	3510	89.0	90.0	89.0	88.5	87.0	81.0	30.4	172.0	37.4	130	200	F
	1800	1755	88.5	90.0	89.5	83.0	78.5	68.5	32.5	180.0	74.8	150	200	G
	1200	1180	85.5	87.0	86.5	84.0	79.0	68.0	33.5	193.0	111.5	135	200	G
	900	880	86.0	88.0	87.5	77.0	72.0	61.0	36.5	175.0	150.0	125	200	G
30	3600	3510	89.5	90.5	89.5	87.5	86.0	78.0	37.0	218.0	44.9	130	200	G
	1800	1755	89.0	90.0	89.5	80.5	75.0	63.5	40.0	217.0	89.8	150	200	G
	1200	1175	88.5	89.5	89.5	86.0	84.0	78.0	38.5	218.0	134.0	135	200	G
	900	880	88.0	89.5	89.5	75.0	70.0	58.5	43.5	205.0	179.0	125	200	G
40	3600	3515	90.0	91.0	90.0	86.5	83.0	75.0	48.5	310.0	59.8	125	200	G
	1800	1770	88.0	89.5	89.0	86.0	82.0	73.0	51.0	292.5	119.0	140	200	G
	1200	1175	87.5	88.5	90.0	84.5	81.0	72.0	52.0	292.0	178.9	135	200	G
	900	875	88.0	90.0	90.0	76.0	71.5	61.0	57.5	280.0	240.0	125	200	F
50	3600	3540	88.0	88.5	89.0	87.0	84.5	78.0	63.0	350.0	74.2	120	200	G
	1800	1765	88.0	90.5	90.5	84.5	81.0	72.0	64.0	338.5	150.0	140	200	G
	1200	1170	88.0	90.5	91.0	86.0	83.0	76.5	64.0	370.0	224.5	135	200	G
	900	875	88.5	90.0	90.0	80.0	76.0	67.0	68.0	325.0	300.0	125	200	G
60	3600	3540	88.5	91.0	91.0	88.0	86.0	80.0	72.5	410.0	89.0	120	200	G
	1800	1770	90.0	91.0	91.0	86.0	83.0	75.0	75.0	454.5	178.0	140	200	G
	1200	1175	88.5	90.0	90.5	86.5	82.0	72.5	76.0	460.0	268.0	135	200	G
	900	875	89.0	90.5	90.5	80.5	77.0	68.0	80.5	410.0	360.0	125	200	G

See Page 2 for higher horsepowers and notes.

FILE FOLDER

DESCRIPTION ON TAB:

Well #L6L3

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

☑ **Outside/inside of actual folder did contain hand written information**
***Scanned as next image**

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

663

16.5

WELL NUMBER 663 BY Stevenson & Salas & King DATE 5-8-01

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
95	15	40	25	60	100	
		50	35	50	~~137~~	
		55	40	45	170	
		57	42	40	125	
		65	50	35	143	
		~~168~~	53	~~30~~	149	
		72	67	25	164	

D/H-76

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

DATE 7-25-00

PWSID 04-67-041

WELL # HP663

WELL NAME HADNOT POINT HP-20

BLDG. HP663

CODE G

AVAILABILITY P.

LOCATION D-LINE ROAD

LATITUDE 34.7071

LONGITUDE 77.30004

WELL DIAMETER 10"

WELL DEPTH 300

SCREEN INTERVAL

YIELD 210

STATIC LEVEL 18'

PUMPING LEVEL 80'

PUMP TYPE VERTICAL TURBINE

MOTOR HP 20

INTAKE DEPTH 95

DESIGN CAPACITY 300

ACTUAL GPM 300

SIZE OF CONCRETE SLAB 10X10

HEIGHT OF CASING 18"

North [redacted]olina Department of Environment, Health, and [redacted]
Division of Environmental Health, Public Water Supply Se[redacted]

SOURCE INFORMATION
GROUND WATER

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

PWSID: 1 1 0 4 9 9 0

Owner Assigned Source Code: 6 6 3

Well Name (If purchase, name of system): HADNOT POINT 663

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): D-LINE ROAD

Latitude (N): Deg. Min. Sec. = 3 4 4 2 2 5 9

Longitude (W): Deg. Min. Sec. = 0 7 7 1 8 0 0.2

How Determined: 6 — G=GPS, M=Map, S=Surveyed

GPS Data: 4 2 — Q # or DOP #

No. of Sats. Locked on: 5

(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: 1 0 0

Entry Point Name: ~~HP663~~ MCB HADNOT PT WTP

Location:

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

Sources of pollution/distance: none - woods

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: Elec Heat

Well: Diameter: 10" Type: SCREENED Yield (gpm): 210 Properly sealed? Y (Y,N

Properly vented? Y (Y,N) Casing depth 5 0 ft. (If unknown, put 'UNK') Well depth: ~~280~~ 1300 Meter available? Y (Y,N

Concrete slab adequate? ___ (Y,N) If no, explain: Size: 10X10

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

Pumps: Capacity: GPM: ~~300~~ 180 HP: 20 Pump intake depth: 95 Auxiliary Power? Y (Y,N

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 18" / ___

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? HP-20 PLANT

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

① Repair Vent
② Seal Pump Pedestal

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

*

WELL NUMBER 663 | BY Stevenson & Peterson | DATE 2-21-97

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
95	17'	42	25	50	100	40
		49	32	40	115	50
		51	34	35	122	60
	Left At	54	37	30	130	10
		56	39	25	137	

REMARKS D/H 75 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL NUMBER 663 BY THOMAS / STEVENSON DATE 12-2-92

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
95	18	43	25'	58	108	26
		53	35'	53	188	36
		67	49	44	175	46
kept std @ →		80	52	35	210	56
		86	58	31	230	06

REMARKS Dead Head 74 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

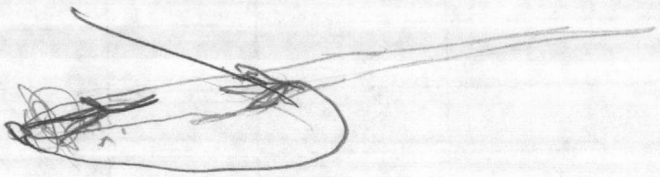
WELL NUMBER 663 — Thomas-Brown — DATE 3-19-90

AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
85'	50	73	23	45	100.	05

REMARKS dead heads @ 45 PSI

Set @ 45 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE



NUMBER 663		BY Thomas/Sardiña			DATE 10-26-88	
LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
85	50	75	25	58	100	40

RKS

Dead head 76

meter dead.

FACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

CAMP LEJEUNE No. 14 WELL

DEMING PUMP CO.

SALEM , OHIO , U.S.A.

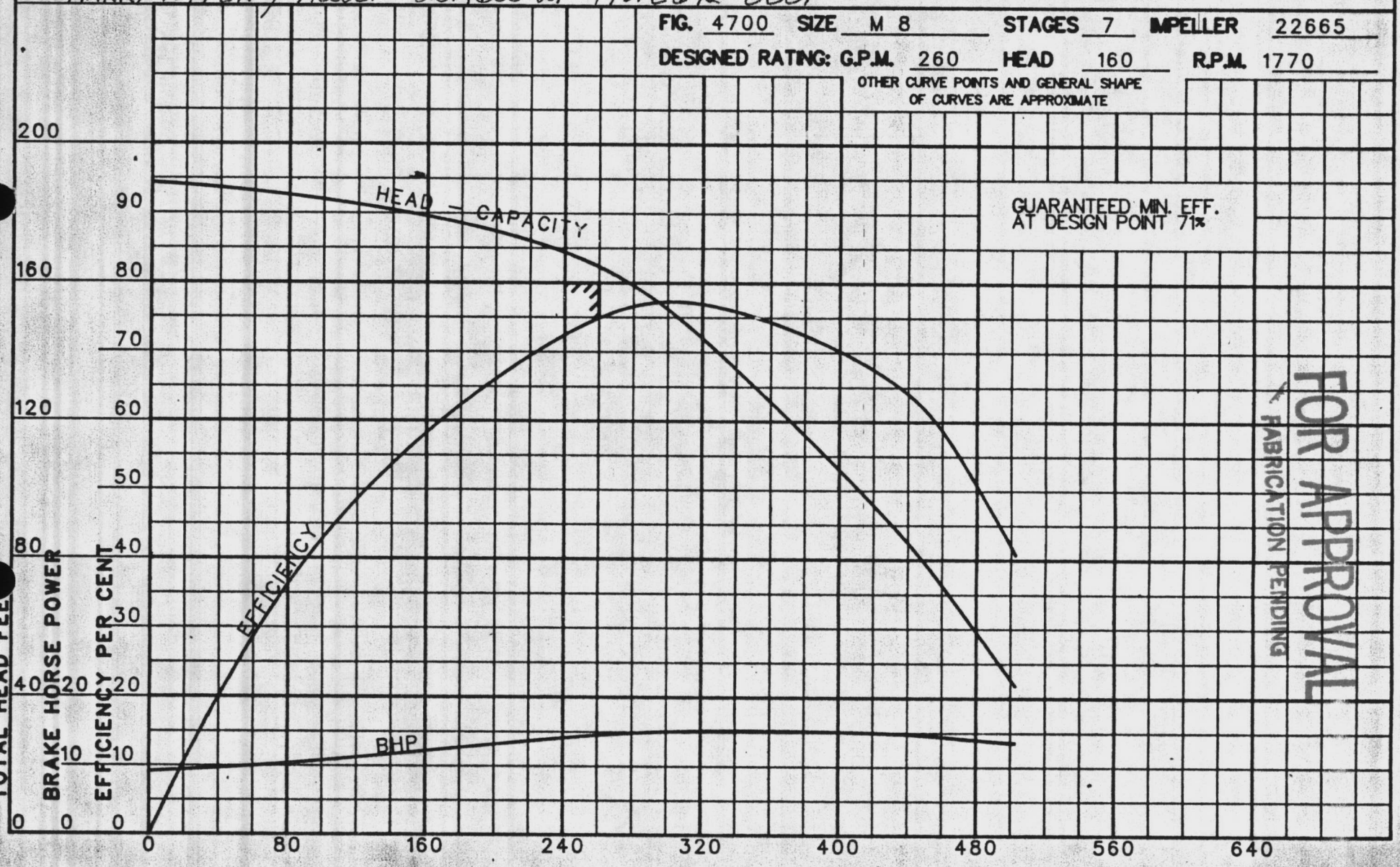
240 HARRY PEPPER & ASSOC. S.O. 1635-21 P.O. C642-0001

CHARACTERISTIC CURVES

FIG. 4700 SIZE M 8 STAGES 7 IMPELLER 22665

DESIGNED RATING: G.P.M. 260 HEAD 160 R.P.M. 1770

OTHER CURVE POINTS AND GENERAL SHAPE OF CURVES ARE APPROXIMATE



FOR APPROVAL

* FABRICATION PENDING

SERIAL NO. **** U. S. GALLONS PER MINUTE DATE 2-25-85

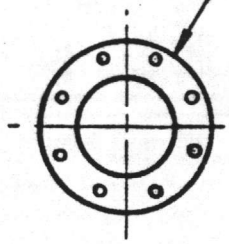
IMP. DIA. 5 1/2" NO. Q23631

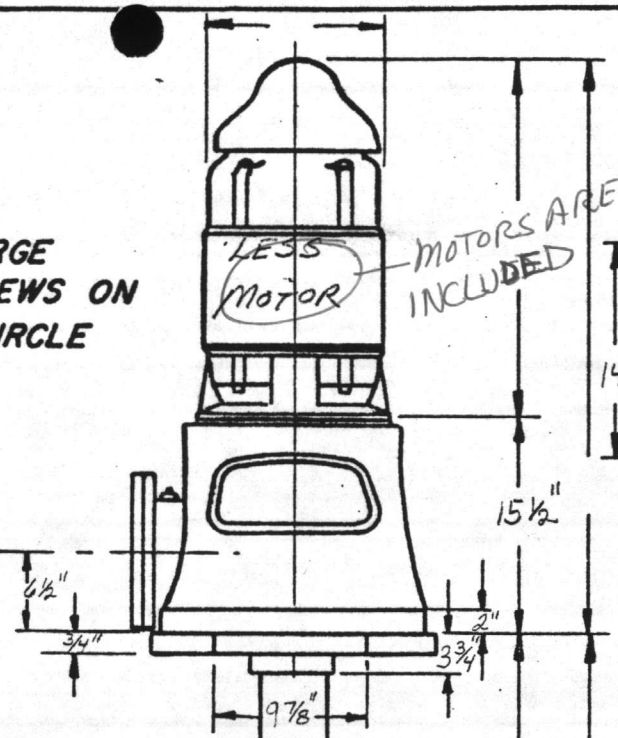
FOR APPROVAL

FABRICATION DRAWING

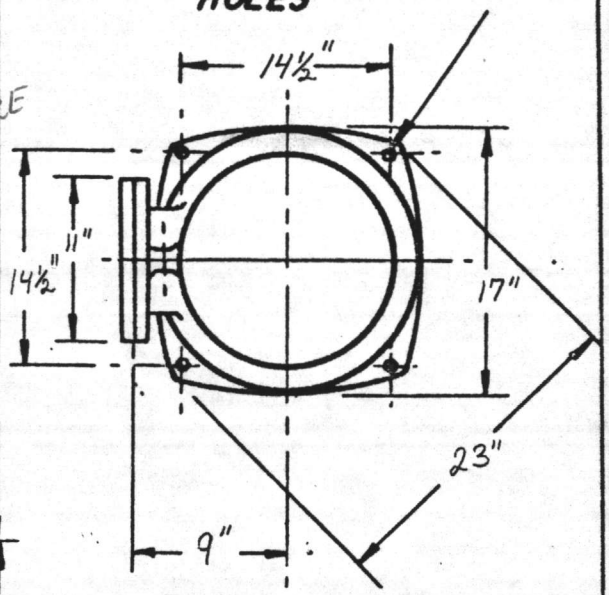
_____ H.P.
_____ R.P.M.
_____ MOTOR
_____ FRAME

6" DISCHARGE
8 - 3/4" CAPSCREWS ON
9½" BOLT CIRCLE





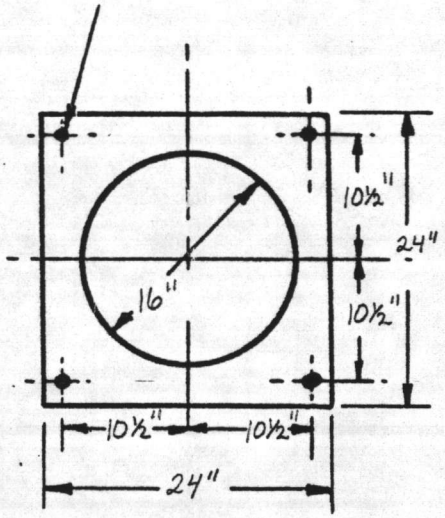
4 - 7/8" DRILLED HOLES



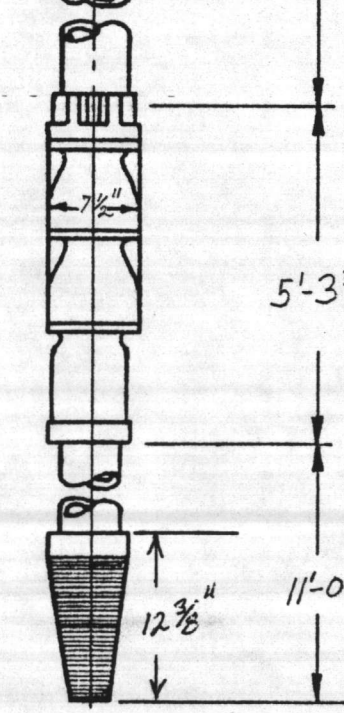
PLAN VIEW

FOR APPROVAL
FABRICATION PENDING

4 7/8" FOUNDATION HOLES



PLAN VIEW FOR SUPPORT PLATE



7 STAGES

5 SUCTION PIPE
5 STRAINER

CAMP LEJEUNE
NO. 14 WELL

T-82526

HARRY PEPPER & ASSOC. INC. S.O. 1635-21 P.O. C642-0001

THE DEMING CO. SALEM, OHIO HB	TITLE DIMENSION SHEET	DATE OF ISSUE 2/25/85 DESTROY ALL PREVIOUS PRINTS
	DATE 5-28-58 SCALE —	FIG. 4700 SIZE M8
		DRAWING NO. 115-027

FOR APPROVAL

FABRICATION PENDING

Hunt

CONTRACTOR'S SUBMITTAL TRANSMITTAL

LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

CONTRACT NO	TRANSMITTAL NO	DATE
81-C-1644	204	5-15-86

FROM CONTRACTOR: Harry Pepper & Associates, Inc.

TO: Henry Von Oesen & Associates, Inc.

PROJECT TITLE AND LOCATION: Holcomb Blvd Water Treatment Plant

MCB, Cp Lejeune, North Carolina

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

☐ Contractor Approved ☒ OICC Approval ☐ Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES
A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged.
C-Comments
R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
	02734	ROTARY DRILLED WATER WELLS WELL #14			
1	3.1.6	24 Hour Pump Test	7	A	JRB
2	3.1.6	2 Hour Recovery Test	7	A	JRB

CONTRACTOR'S COMMENTS

Contractor was advised by Title II Inspector to do pump test at 350 GPM.

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC: ONE COPY TO ROICC

CONTRACTOR REPRESENTATIVE (Signature): Phil Reese Phil Reese

DATE RECEIVED BY REVIEWER	FROM (Reviewer)	TO
5/20/86	Henry von Oesen & Assoc., Inc.	

☐ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

COPIES TO	DATE	SIGNATURE
ROICC (2) LANTDIV (1) A-E (1)	5/23/86	M Brown Jr

☆ U.S. GOP: 1983 - 739-003/2122 Region 3-11

22 MAY 1986 23

53

24 HOUR PUMP TEST PUMPING RATE 350 GPM ITEM # 1
WELL # 14

TIME	PUMP SETTING 126'	STATIC 16'8"
	PUMPING LEVEL	DRAWDOWN
11:01	63'10	47'2
11:02	65'11	2'1
11:03	67'8	1'9
11:04	69'5	1'9
11:05	70'6	11''
11:06	71'3	9"
11:07	71'11	8"
11:08	72'8	9"
11:09	73'4	8"
11:10	73'10	6"
11:15	75'7	9"
11:20	75'11	4"
11:25	76'3	"
11:30	76'7	"
11:35	77'1	6"
11:40	77'6	5"
11:45	78'	6"
11:50	78'4	4"
11:55	78'9	5"
12:00	79'2	5"
1:00	80'4	1'2"
2:00	81'1	9"
3:00	81'11	10"
4:00	82'8	9"
5:00	83'6	10"
6:00	84'1	7"
7:00	84'7	6"
8:00	85'3	8"
9:00	85'11	"
10:00	86'7	"
11:00	87'2	7"
12:00	87'6	4"
1:00	87'11	5'
2:00	88'2	3"
3:00	88'5	3"
4:00	88'10	5"
5:00	89'1	3"
6:00	89'3	2"
7:00	89'3	-
8:00	89'6	3"
9:00	89'8	2"
10:00	89'11	3 "
11:00	90'1	2"

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED ✓
APPROVED AS NOTED
DISAPPROVED

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NO. N62470-81-C-1644
APPROVAL OF A SUBMITTAL DOES NOT INCLUDE APPROVAL OF ANY DEVIATION FROM THE CONTRACT REQUIREMENTS UNLESS THE CONTRACTOR CALLS ATTENTION TO AND SUPPORTS THE DEVIATION --- THE [illegible] SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICIAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

REVIEWER [signature] DATE MAY 22 1986

FOR OFFICER IN CHARGE OF CONSTRUCTION

I hereby certified that the (material) (equipment) shown and marked in this submittal, shop drawings, catalog cut (s), etc., and approved/proposed to be incorporated into Contract Number N62470-81-C-1644 is in compliance with the Contract Drawings and Specifications and can be installed in the allocated space, and is:

____ Approved for use.

X Submitted for Government approval.

____ Approved for use subject to Government approval of specific deviation.

Authorized Reviewer _____ DATE _____

Signature CQC Rep. [signature] DATE 5-15-86

TWO HOUR RECOVERY
WELL # 14

ITEM # 2

11:01	47'3
11:02	39'1
11:03	36'11
11:04	32'9
11:05	30'5
11:06	29'2
11:07	27'10
11:08	25'3
11:09	24'6
11:10	22'9
11:15	21'1
11:20	20'
11:25	18'5
11:30	17'11
11:35	17'1
11:40	16'10
11:45	16'8"
11:50	"
11:55	"
12:00	"
1:00	"

CONTRACTOR'S SUBMITTAL TRANSMITTAL

LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

CONTRACT NO	TRANSMITTAL NO	DATE
81-C-1644	185	3-19-86

FROM CONTRACTOR: Harry Pepper & Associates, Inc.

TO: Henry Von Oesen & Associates, Inc.

PROJECT TITLE AND LOCATION: Holcomb Blvd Water Treatment Plant

MCB, Cp Lejeune, North Carolina

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

☐ Contractor Approved ☒ OICC Approval ☐ Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES
A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged.
C-Comments
R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
	02734	ROTARY DRILLED WATER WELLS WELL #14			
1	2.2.4	Recommendation and Data Submittal	7	A	JRB
2	2.2	Driller's Log	7	A	JRB
3	2.2.3	Electric Log and Gamma Log	7	A	JRB
4	2.2.2	Water Analysis	7	A	JRB
5	2.2.2	Sieve Analysis	7	A	JRB
6	1.2.1	Shop Drawings	7	A	JRB

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC: ONE COPY TO ROICC

CONTRACTOR REPRESENTATIVE (Signature): Phil Reese Phil Reese

DATE RECEIVED BY REVIEWER	FROM (Reviewer)	TO
3/24/86	Henry van Oesen & Assoc., Inc.	

☒ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

Contractor's approval appears to be appropriate.

COPIES TO	DATE	SIGNATURE
ROICC (2) LANTDIV (1) A-E (1)	4/2/86	

☆ U.S. GPO:1984-537-003/11170 Region 3-11

HARRY PEPPER & ASSOCIATES, INC.

ENGINEERING CONTRACTORS

ITEM # 1

March 19, 1986

Henry Von Oesen & Associates, Inc.
611 Princess Street
Wilmington, NC 28402

RE: N62470-81-C-1644
Expansion of Holcomb Blvd
Water Treatment Plant
Camp Lejeune, NC 28542
Well # 14

Gentlemen:

We are enclosing seven (7) copies of the Driller's Log, Gamma Log, Electric Log, Water and Sieve Anaylsis for your review.The test well was drilled at 250'. Water samples were taken at the 178 ' level.

We recommend a line of .030 slot stainless steel screen set at the 130-180' level for a total of 50VF of screen. The gravel pack recommended is 8-12. It is our best estimate that this well may field 260 GPM.

Please review the data and advise if we are to proceed with developing a permanent well at this site.

Very truly yours,
HARRY PEPPER & ASSOCIATES, INC.

Phil Reese
CQC Officer

Enclosures

119 WEST EIGHTH STREET • P.O. BOX 3007 • JACKSONVILLE, FL. 32206 904/356-3954

It is hereby certified that the (material) (equipment) shown and marked in this submittal, shop drawings, catalog cut(s), etc., and approved/proposed to be incorporated into Contract Number N62470-81-C-1644 is in compliance with the Contract Drawings and Specifications and can be installed in the allocated space, and is:

_____ Approved for use.

__X__ Submitted for Government approval.

_____ Approved for use subject to Government approval of specific deviation.

Authorized Reviewer _____ DATE _____

Signature CQC Rep. Phil Lewis DATE 3-19-86

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED X
APPROVED AS NOTED _____
DISAPPROVED _____

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NO. N62470-81-C-1644
APPROVAL OF A SUBMITTAL DOES NOT INCLUDE APPROVAL OF ANY DEVIATION FROM THE CONTRACT REQUIREMENTS UNLESS THE CONTRACTOR CALLS ATTENTION TO AND SUPPORTS THE DEVIATION --- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICIAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

REVIEWER J. M. Bowman DATE APR 02 1986

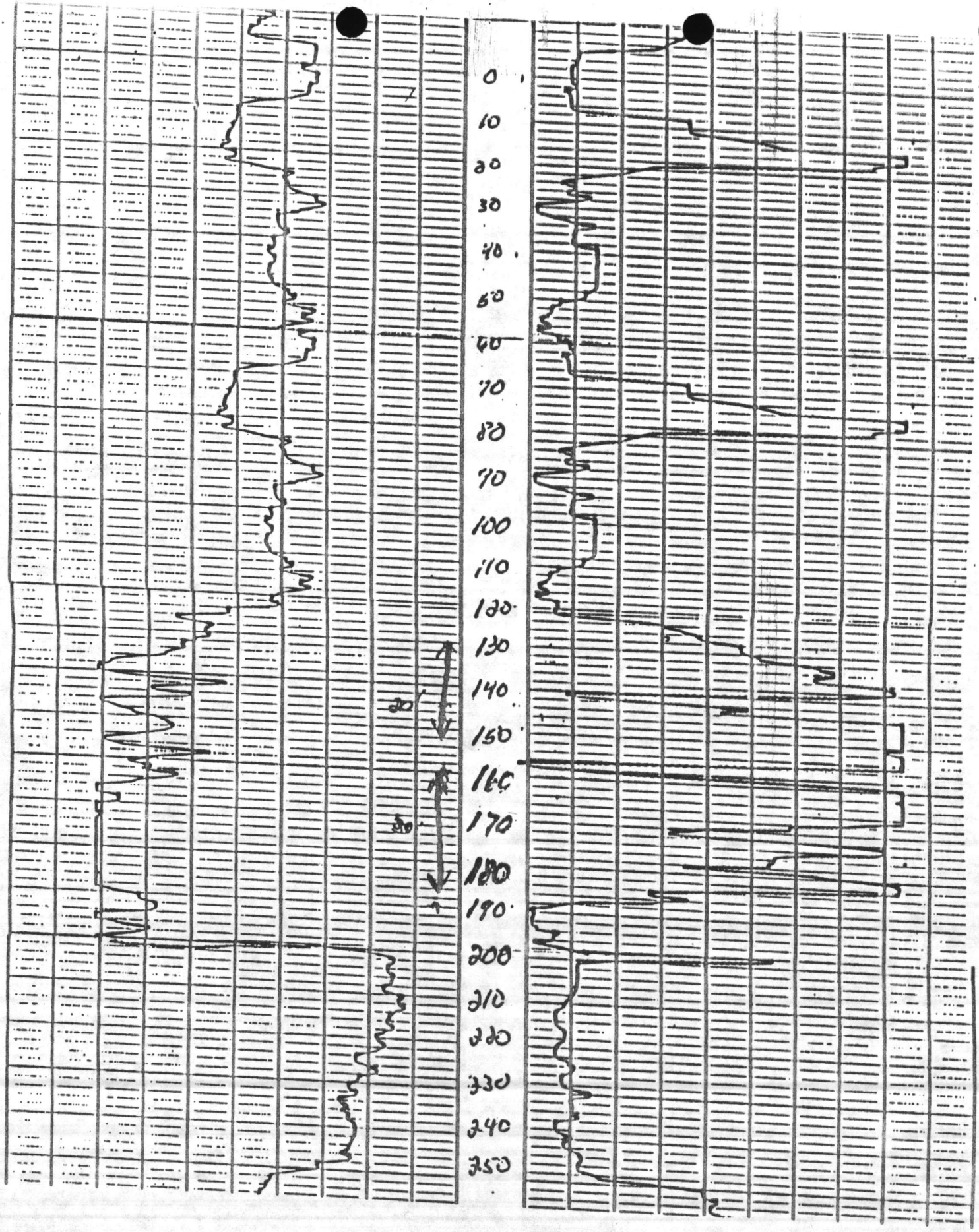
FOR OFFICER IN CHARGE OF CONSTRUCTION

WELL DRILLERS LOG
FOR MAGETTE WELL AND PUMP CO.

ITEM # 2

DEPTH IN FEET		MATERIAL SAMPLED	Well # 14
0	45	White Clay	
50	80	Fine Sand	
85	125	Shell and Fine Sand	
130	145	Limestone	
150	180	Strata Sand	
185	250	Fine Sand and Blue Clay	

Flow # 3


0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
20
30

LAW & COMPANY

Consulting and Analytical Chemists

ESTABLISHED 1903

Item # 4

Well #663

Main Office
1711 Castle Street
P.O. Box 629
Wilmington, N.C. 28402

REPORT DATE: 3-18-86

RICHARD SPIVEY, President
919-762-7082 919-762-8956
TWX 510-937-0280

MAJETTE WELL & PUMP COMPANY
POST OFFICE BOX 908
SMITHFIELD, VA. 23430
ATTN: BUD KELLOG

DATE COLLECTED: 3-13-86
DATE RECRIVED: 3-13-86
COLLECTED BY: Bud Kellogg
LAB I.D.# EW 3576

SAMPLE DESCRIPTION: WELL #14 178'

TESTS/SAMPLES		RESULTS			RESULTS
pH		7.8	POTASSIUM	PPM	1.2
CARBON DIOXIDE	PPM	0	CHLORIDE	PPM	56
SULFIDES	PPM	0	NITRATE NITROGEN	PPM	<.2
CHLORINE DEMAND	PPM	.8	IRON	PPM	.80
COLOR	APHA	20	MANGANESE	PPM	.03
TURBIDITY	NTU	3	SILICON	PPM	4.2
TOTAL ALKALINITY	PPM	214	FLOURIDE	PPM	<.2
HYDROXIDE	PPM	0	TEMP. (^{o}F)		60^{o}
BICARBONATE	PPM	196	DISSOLVED OXYGEN	MG/L	6
CARBONATE	PPM	18			
TOTAL HARDNESS	PPM	202			
NON-CARBONATE	PPM	0			
CARBONATE	PPM	202			
TOTAL DISSOLVED SOLIDS	PPM	250			
SPECIFIC CONDUCTANCE	UMHOS	350			
SULFATES	PPM	4			
CALCIUM	PPM	49			
MAGNESIUM	PPM	1.2			
SODIUM	PPM	7.6			

CHEMIST: Dolly Bridwell

TOTAL CHARGES: 180.00

Item #5

HSSC
HOWARD SMITH SCREEN COMPANY
A Halliburton Company
P.O. Box 666 • Houston, Texas 77001
713-869-5771 • Telex: 77-4667

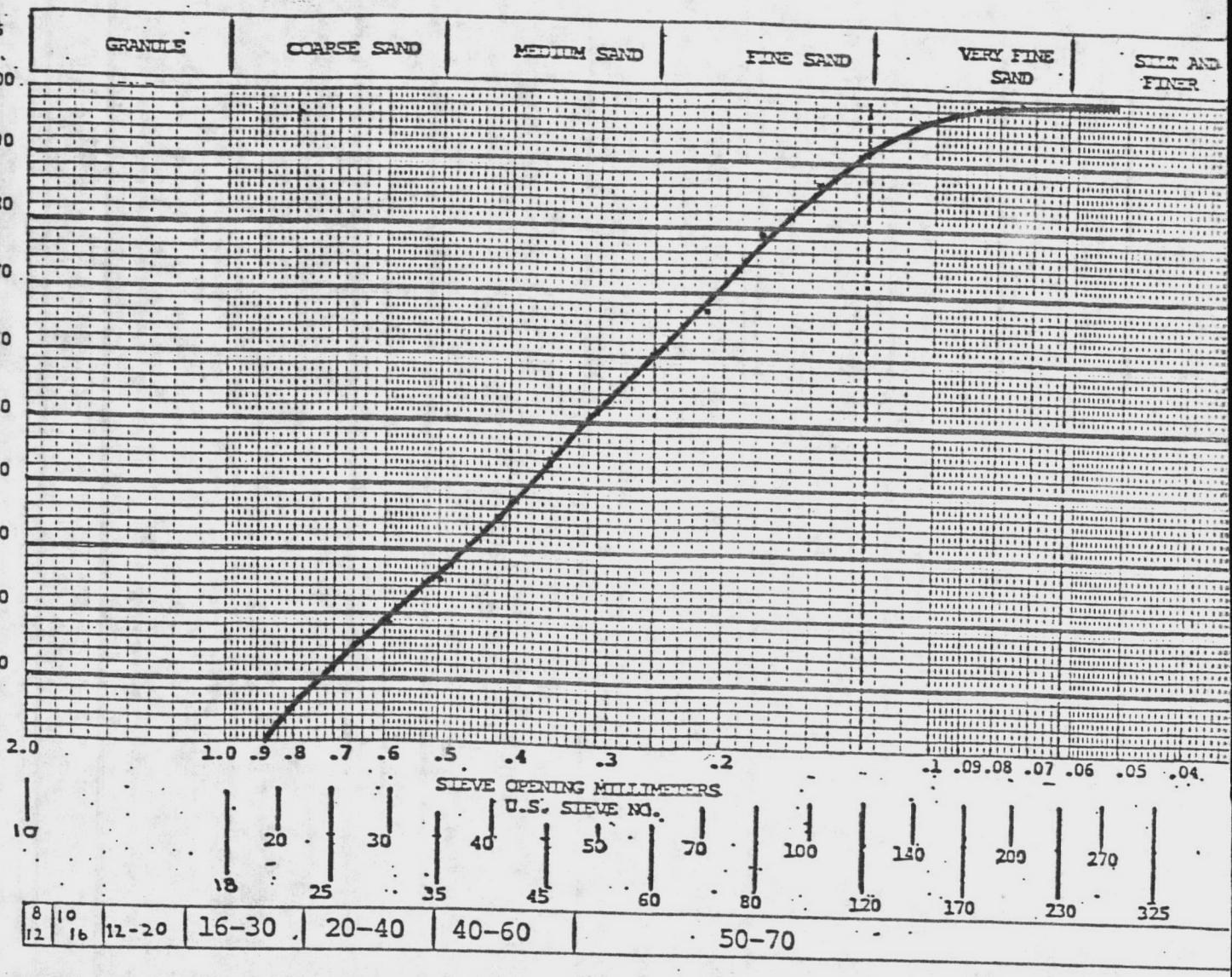
CONTACT...-
TELEPHONE.-
REMARKS...WATER WELL
RECOMMENDATIONS:
GRAVEL SIZE----------
SCREEN SIZE----------

COMPANY...R.L.MAGETTE COMPANY
WELL.....#14
DEPTH.....130-180
FIELD.....-
COUNTY....-
STATE.....VA

SIEVE ANALYSIS REPORT

S	IN	MM	WT RET	CUM WT	CUM %
10	.0787	2.000	-.-	-.-	-.-
14	.0555	1.410	-.-	-.-	-.-
18	.0394	1.000	-.-	-.-	-.-
20	.0331	0.840	-.-	-.-	-.-
25	.0280	0.710	-.-	-.-	-.-
30	.0234	0.589	6.0	6.0	18.6
35	.0197	0.500	2.3	8.3	25.8
40	.0165	0.420	3.1	11.4	35.4
45	.0139	0.351	2.9	14.3	44.4
50	.0117	0.297	2.5	16.8	52.2
60	.0098	0.250	2.5	19.3	59.9
70	.0083	0.210	2.4	21.7	67.4
80	.0070	0.177	3.7	25.4	78.9
100	.0059	0.149	2.3	27.7	86.0
120	.0049	0.124	2.1	29.8	92.5
140	.0041	0.104	1.3	31.1	96.6
170	.0035	0.088	0.5	31.6	98.1
200	.0029	0.074	0.3	31.9	99.1
230	.0024	0.062	0.2	32.1	99.7
270	.0021	0.053	0.1	32.2	100.0
325	.0017	0.044	-.-	-.-	-.-
325			-.-	-.-	-.-

8-86
CHARLES E. JACKSON



FCR

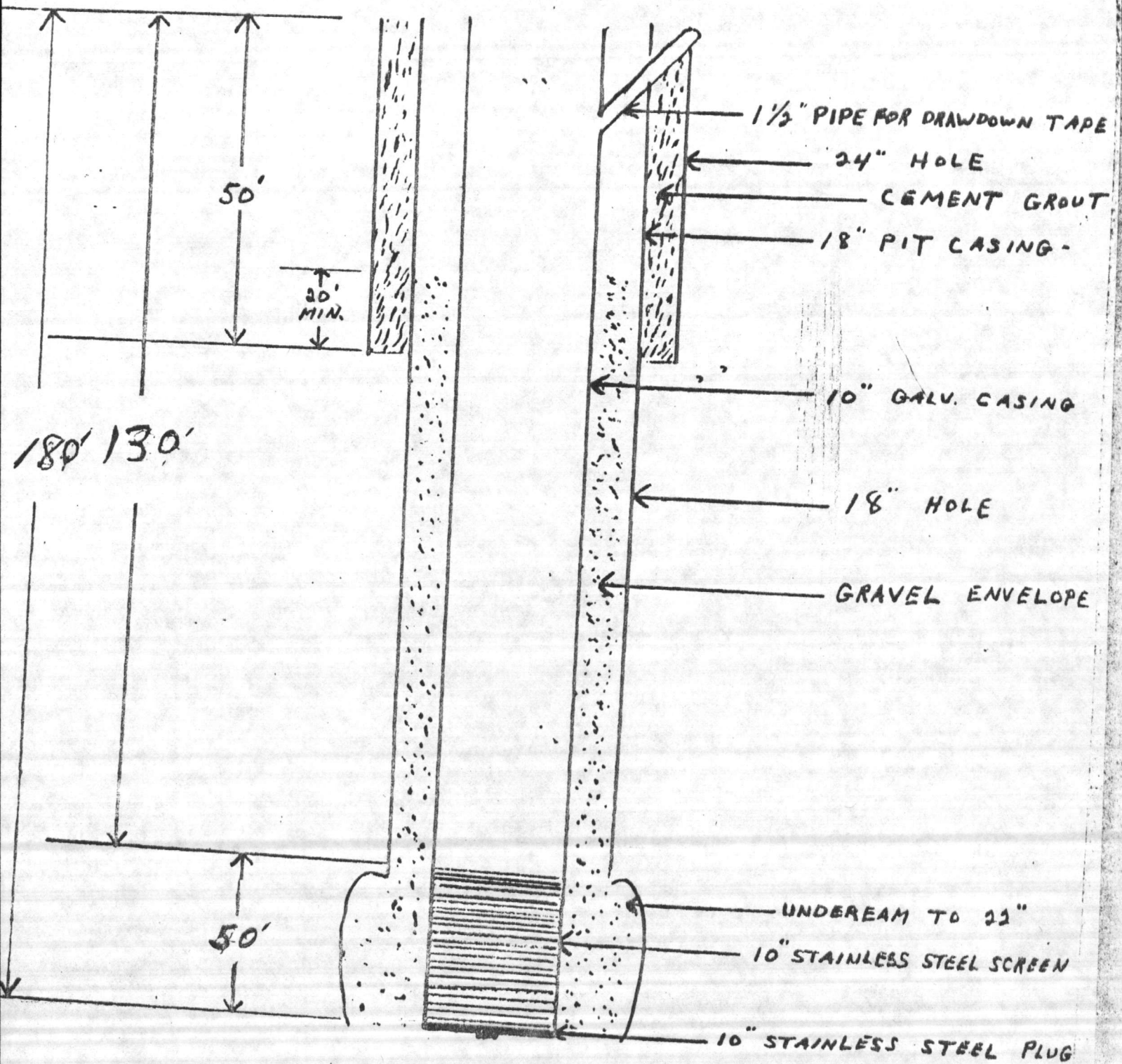
R. L. MAGETTE COMPANY

WATER SUPPLY CONTRACTORS
DOMESTIC : INDUSTRIAL : MUNICIPAL
Wells, Pumps and Community Water Systems
Serving Tidewater Virginia and Eastern North Carolina

P. O. Box 908 Phone - 804 - 357-4105
Smithfield, Virginia 23430

Item #6

WELL #14



Hunt

CONTRACTOR'S SUBMITTAL TRANSMITTAL

LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

5/[illegible]/02

CONTRACT NO	TRANSMITTAL NO	DATE
81-C-1644	204	5-15-86

FROM CONTRACTOR: Harry Pepper & Associates, Inc.

TO: Henry Von Oesen & Associates, Inc.

PROJECT TITLE AND LOCATION: Holcomb Blvd Water Treatment Plant

MCB, Cp Lejeune, North Carolina

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

☐ Contractor Approved ☒ OICC Approval ☐ Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES
A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged.
C-Comments
R-Resubmit

ITEM NO	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
	02734	ROTARY DRILLED WATER WELLS WELL #14			
1	3.1.6	24 Hour Pump Test	7	A	JRB
2	3.1.6	2 Hour Recovery Test	7	A	JRB

CONTRACTOR'S COMMENTS

Contractor was advised by Title II Inspector to do pump test at 350 GPM.

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC: ONE COPY TO ROICC

CONTRACTOR REPRESENTATIVE (Signature): Phil Reese Phil Reese

DATE RECEIVED BY REVIEWER: 5/20/86

FROM (Reviewer): Henry von Oesen & Assoc., Inc.

TO:

☐ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

COPIES TO
ROICC (2)
LANTDIV (1)
A-E (1)

DATE: 5/23/86

SIGNATURE: [signature]

☆ U.S. GOP: 1983 - 739-003/2122 Region 3-11

24 HOUR PUMP TEST PUMPING RATE 350 GPM ITEM # 1
WELL # 14

TIME	PUMP SETTTING 126'	STATIC 16'8"
	PUMPING LEVEL	DRAWDOWN
11:01	63'10	47'2
11:02	65'11	2'1
11:03	67'8	1'9
11:04	69'5	1'9
11:05	70'6	11''
11:06	71'3	9"
11:07	71'11	8"
11:08	72'8	9"
11:09	73'4	8"
11:10	73'10	6"
11:15	75'7	9"
11:20	75'11	4"
11:25	76'3	"
11:30	76'7	"
11:35	77'1	6"
11:40	77'6	5"
11:45	78'	6"
11:50	78'4	4"
11:55	78'9	5"
12:00	79'2	5"
1:00	80'4	1'2"
2:00	81'1	9"
3:00	81'11	10"
4:00	82'8	9"
5:00	83'6	10"
6:00	84'1	7"
7:00	84'7	6"
8:00	85'3	8"
9:00	85'11	"
10:00	86'7	"
11:00	87'2	7"
12:00	87'6	4"
1:00	87'11	5'
2:00	88'2	3"
3:00	88'5	3"
4:00	88'10	5"
5:00	89'1	3"
6:00	89'3	2"
7:00	89'3	-
8:00	89'6	3"
9:00	89'8	2"
10:00	89'11	3 "
11:00	90'1	2"

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED ✓
APPROVED AS NOTED
DISAPPROVED

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NO. N62470-81-C-1644
APPROVAL OF A SHOP DRAWING DOES NOT INCLUDE APPROVAL OF ANY DEVIATION FROM THE CONTRACT REQUIREMENTS UNLESS THE CONTRACTOR CALLS ATTENTION TO AND SUPPORTS THE DEVIATION --- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICIAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

REVIEWER [signature] DATE MAY 22 1986

FOR OFFICER IN CHARGE OF CONSTRUCTION

I hereby certified that the (material) (equipment) shown and listed in this submittal, shop drawings, catalog cut(s), etc., and approved/proposed to be incorporated into Contract Number N62470-81-C-1644 is in compliance with the Contract Drawings and Specifications and can be installed in the allocated space, and is:

____ Approved for use.

__X__ Submitted for Government approval.

____ Approved for use subject to Government approval of specific deviation.

Authorized Reviewer _____ DATE _____

Signature CQC Rep. [signature] DATE 5-15-86

ITEM # 2

TWO HOUR RECOVERY
WELL # 14

11:01	47'3
11:02	39'1
11:03	36'11
11:04	32'9
11:05	30'5
11:06	29'2
11:07	27'10
11:08	25'3
11:09	24'6
11:10	22'9
11:15	21'1
11:20	20'
11:25	18'5
11:30	17'11
11:35	17'1
11:40	16'10
11:45	16'8"
11:50	"
11:55	"
12:00	"
1:00	"

Hunt

CONTRACTOR'S SUBMITTAL TRANSMITTAL

LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

CONTRACT NO	TRANSMITTAL NO	DATE
81-C-1644	201	5-8-86

FROM CONTRACTOR: Harry Pepper & Associates, Inc.

TO: Henry Von Oesen & Associates, Inc.

PROJECT TITLE AND LOCATION: Holcomb Blvd Water Treatment Plant

MCB, Cp Lejeune, North Carolina

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

☐ Contractor Approved ☒ OICC Approval ☐ Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES
A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged.
C-Comments
R-Resubmit

ITEM NO	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
	02734	ROTARY DRILLED WATER WELLS WELL # 14			
1		Step Test	7	A	JRB

CONTRACTOR'S COMMENTS

Contractor advised that Pumping Rate for 24 Hour test would be at 350 GPM.

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC: ONE COPY TO ROICC

CONTRACTOR REPRESENTATIVE (Signature): Phil Reese Phil Reese

DATE RECEIVED BY REVIEWER	FROM (Reviewer)	TO
5/12/86	HENRY VON OESEN & ASSOC., INC.	

☐ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

5/21/86

COPIES TO	DATE	SIGNATURE
ROICC (2) LANTDIV (1) A-E (1)	5/14/86	

☆ U.S. GOP: 1983 - 739-003/2122 Region 3-11

15 MAY 1986 11 33

TIME	STATIC	PUMPING LEVEL	PUMPING RATE
8:00	16'8	92'5	350 GPM
8:15		98'5	400 GPM
8:30		100'	"
8:45		100'11	"
9:00		101'9	"
9:30		102'6	"
10:00		103'	"
10:30		103'5	"
11:00		103'8	"

Well # 14
Step Test
5/5/86

ITEM # 1

TIME	STATIC	PUMPING LEVEL	PUMPING RATE
2:05	16'8"	27'9	100 GPM
2:30		29'6	"
2:45		31'3	"
3:00		32'1	"
3:30		32'10	"
4:00		33'8	"
4:30		33'11	"
5:00		34'6	"
5:15		44'8	150 GPM
5:30		47'1	"
5:45		48'11	"
6:00		49'8	"
6:30		50'5	"
7:00		50'9	"
7:30		51'1	"
8:00		51'3	"
8:15		59'6	200 GPM
8:30		61'2	"
8:45		61'9	"
9:00		62'6	"
9:30		63'1	"
10:00		63'5	"
10:30		64'	"
11:00		64'6	"
11:15		65'2	250 GPM
11:30		65'9	"
11:45		65'11	"
12:00		66'5	"
XXXXX		XXXX	
1:00		66'9	"
1:30		66'11	"
2:00		67'1	"
2:15		75'1	300 GPM=
2:30		76'11	"
2:45		77'9	"
3:00		78'4	"
3:30		78'11	"
4:00		79'5	"
4:30		79'10	"
5:00		80'3	"
5:15		87'11	350 GPM
5:30		89'2	"
5:45		90'1	"
6:00		90'10	"
6:30		91'5	"
7:00		92'11	"
7:30		92'3	"

NAVAL FACILITIES ENGINEERING [illegible] ND
NORFOLK, VIRGINIA 23511

APPROVED ✓

APPROVED AS NOTED

DISAPPROVED

SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. N62470-81-C-1644

APPROVAL OF A SUBMITTAL DOES NOT INCLUDE APPROVAL OF ANY DEVIATION FROM THE CONTRACT REQUIREMENTS UNLESS THE CONTRACTOR CALLS ATTENTION TO AND SUPPORTS THE DEVIATION --- THE CONTRACTOR IS RESPONSIBLE FOR ERECTING PROPER PHYSICAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

REVIEWER [signature] DATE MAY 14 1986

FOR OFFICER IN CHARGE OF CONSTRUCTION

"It is hereby certified that the (material) (equipment) shown and marked in this submittal, shop drawings, catalog cut (s), etc., and approved/proposed to be incorporated into Contract Number N62470-81-C-1644 is in compliance with the Contract Drawings and Specifications and can be installed in the allocated space, and is:

_____ Approved for use.

__X__ Submitted for Government approval.

_____ Approved for use subject to Government approval of specific deviation.

Authorized Reviewer _____ DATE _____

Signature CQC Rep. Phil Reese DATE 5-8-86