

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9512
Exam Date: 09/18/2018

1. Current Owner:
AVISTA CORP 1411 E MISSION AVE SPOKANE WA 99202-1902
2. Accompanied by: Michele Drake
Phone No: (509) 495-8941 email: Michele.drake@avistacorp.com
Address: P.O. BOX 3727 Spokane WA 99220-3727
Relationship to permit Holder: Applicant's representative

3. **SOURCE:**
CLARK FORK RIVER

Tributary
PEND OREILLE LAKE

Method of Determination: Arcmap and DRG

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
96-8408	GROUNDWATER	FISH PROPAGATION	LICENSE
96-8459	SPRINGS	FISH PROPAGATION	LICENSE
96-8493	SPRINGS	FISH PROPAGATION	LICENSE

Comments: WR 96-8408 is from ground water and to the fish hatchery. WRs 96-8459 and 96-8493 are for fish propagation in the same parcel from springs, but fish propagation was on a different area of the lot, are is not a concern from overlap.

2. Other water rights with the same point-of-diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**

CLARK FORK RIVER L7 (SW¼ NE¼), Sec. 28, Twp 55N, Rge 03E, B.M. BONNER County

Method of Determination: Arcmap and field exam using Garmin GPS. POD -116°04.804, 48°05.203.

PLACE OF USE: FISH PROPAGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
55N	03E	28			X L7														

Method of Determination: Arcmap and field exam.

3.

- X Delivery System Diagram Attached (required). Indicate all major components and distances between components.
 Indicate weir size/pipe as applicable.
- X Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be
 1:24,000 or greater.
- X Aerial Photo Attached (required for irrigation of 10+ acres).
- X Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
	GOULDS	20			

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements: Unable to perform flow measurement due to inadequate piping requirements.

E. FLOW CALCULATIONS

 X Additional Computation Sheets Attached

Measured Method: Applicant provided pump curves that annotate 20 HP pump producing 750 gpm of flow, calculations =
 750gpm / 448.83 gpm = 1.67 cfs diversion rate.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} =$$

2. Volume Calculations for Other Uses:

See attached CFS to AF conversion worksheet

Maximum annual volume: 750 gpm x 60 min x 24 hr = 1,080,000.0 gpd / 325,850 gal/af = 3.31 af/day x 225 day operations =
 745.0 af annual volume

G. NARRATIVE/REMARKS/COMMENTS

Field exam with performed on 9/18/2018 with Michele Drake, applicant's representative, showed water being diverted from the Clark Fork River supporting fish propagation. The exam showed one pump pulling non-consumptive surface water from the Clark Fork River for use in fish tanks, with return outflow pipe-to-concrete drain to the river approximately 150 feet

downstream from the intake pipe. Photographs illustrate the water conveyance system in place at the fish handling facility.

The POD was identified by GPS at time of field exam. Based on arcmap layer the gps point shows it not being within a government lot. The DRG layer shows the diversion point being on land, and by definition government lots are located on land and the line is determined by meandering bodies of water. As such, government lot 7 was carried forward to license.

At time of permitting, applicant was allocated 3.35 cfs of diversion. Based on pump curve documents, stamped and provided by applicant's engineer, the 20 hp pump being used produces 750 gpm which converts to 1.67 cfs (see flow measurements above). At permitting, two PODs were identified. At time of field exam, there was one POD in use, which consisted of an intake pipe positioned in the Clark Fork River below the high water mark. The second POD was removed at licensing.

The POU consists of fish ladders that connect to fish holding tanks. Surface water from river is diverted into tanks and then returned to river via a return pipe. Fish storage facility volume was estimated to be 7,400 gal. Field exam photographs show fish tanks situated beneath a covered structure for environmental controls. Based on 20 hp pump producing 750 gpm, operating 225 days out of the year (dates provided by applicant), the maximum annual volume derived is 745.0 af. The surface water is non-consumptive and re-diverted back to the Clark Fork River. 745.0 af will be carried forward to licensing.

Conditions 26A and 106 were removed from license. Condition 027 was added to describe non-consumptive water use. All other conditions will remain on license. Overlapping water rights 96-8408, 96-8459, and 96-8493 use water for fish propagation associated with the Cabinet Gorge Dam Fish Passage Project. Overlapping ground water rights are part of the same fish propagation program, but are used on different areas of the parcel and not an overlap concern for this surface water right.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
FISH PROPAGATION	01/01 to 12/31	1.67 CFS	745.0 AF

Totals: 1.67 CFS 745.0 AF

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ None

I. AUTHENTICATION Luke Bates - Water Resource Agent

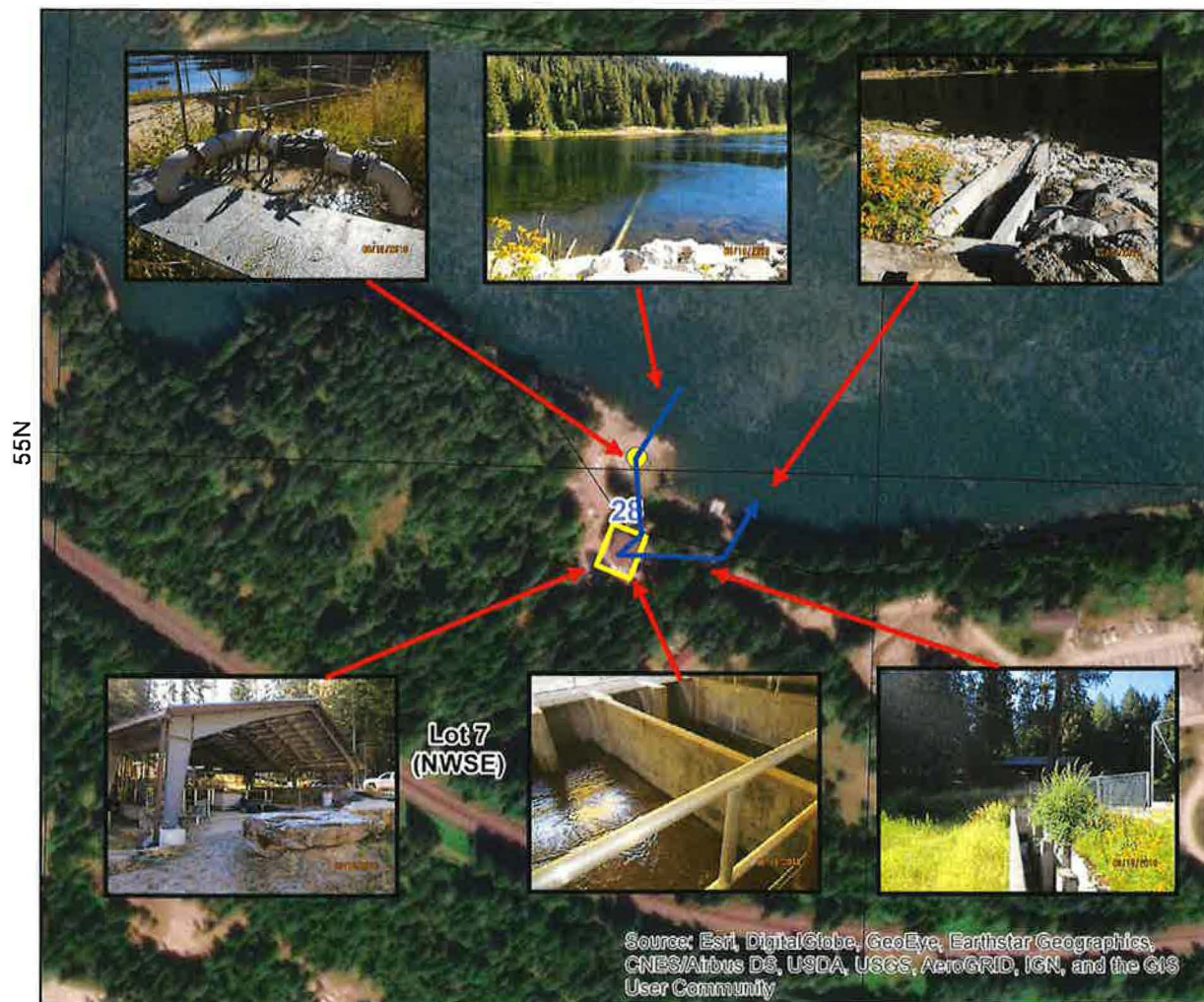
Field Examiner's Name Ash F. Smith Date 4/21/2020

Reviewer [Signature] Date 4/15/2020

State of Idaho
Department of Water Resources
Attachment to Field Exam.
96-9512

FISH PROPAGATION system diagram.

03E



-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

0 0.035 0.07 0.14 Miles



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CFS to AF CONVERSION INSTRUCTIONS

This program easily and conveniently converts cubic-feet-second to acre-feet per year and vice versa. To operate, enter the number you wish to convert in either manually entry box. The conversion appears in "teal" in the opposite box.

Pressing the "Reset Values" button will return all colors and values to their respective default values.

Press the "Return" button to return to the calculator

Occasionally the message "NaN" is observed in one of the computational fields. This is an error message which stands for "Not a Number" and is generated because something other than a number has been entered in one of the manual entry fields. NaN's must be corrected before numerical results will be displayed.

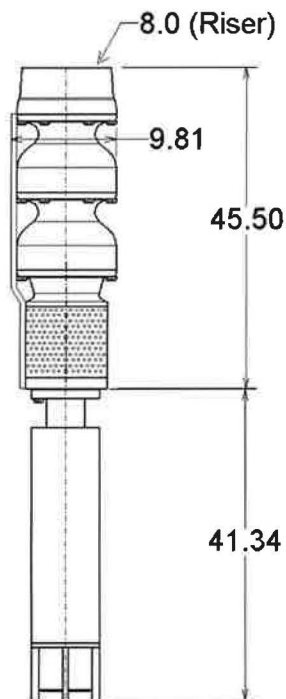
cfs	gpm		gal/day	acft/day	acft/yr
1.57110	750.0417	<--Converts To-->	1080060	3.31231	1209.821

[Return](#)[Reset Values](#)

Utah Division of Water Rights | 1594 West North Temple Suite 220, P.O. Box 146300, Salt Lake City, Utah 84114-6300 | 801-538-7240
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DESIGN = @ 225 DAYS
∴ 745.3 AFT / SEASON

OUTLINE DRAWING



CUSTOMER WESTERN HYDRO PACIFIC
P.O. NO. _____
ITEM NO. ITEM 001
NO. OF UNITS 1
PUMP SIZE 9THC NO. OF STGS. 3
GPM 750.0 GPM T.D.H. 81.6 FT
LIQUID _____
SP.GR. 1.000 TEMP. 70.0 DEG F VISC. _____
COL SIZE 8.0 IN SHAFT 0.0000 IN DIA.
COUPLING GUARD YES ☐ NO ☒
DRIVER MFG. HITACHI
HP 20.0 HP RPM 1800 VSS ☐ VHS ☐
PH. 3 CYCLES 60 HZ VOLTS 460
ENCL. _____ MOTOR SIZE 8.0 IN
WEIGHT:
PUMP 340 LB
DRIVER 410 LB
TOTAL 750 LB



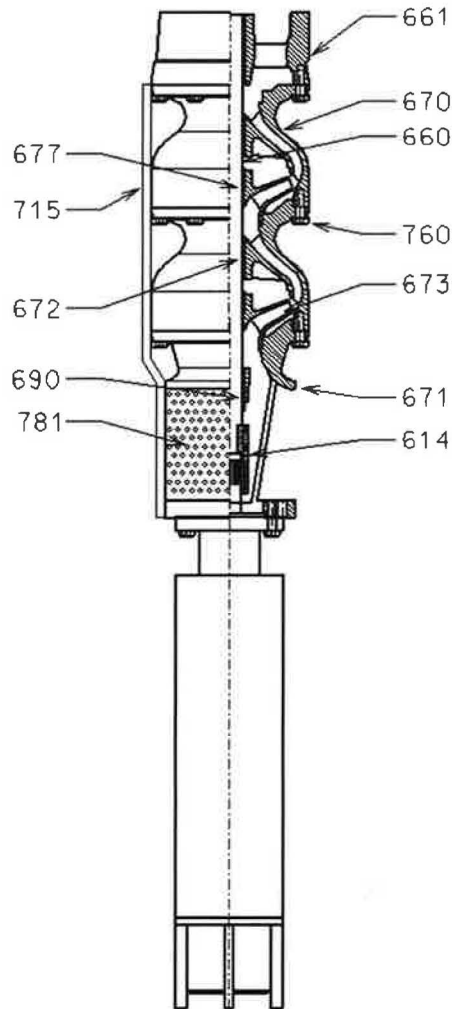
NO.	NOTES
1	T.P.L. (TOTAL PUMP LENGTH) IS THE DISTANCE TO LOWEST PROJECTION ON PUMP ± 1.0
2	TOLERANCE ON ALL DIMENSIONS IS $\pm .12$ OR $\pm .12$ PER 5 FT WHICHEVER IS GREATER. TOLERANCE ON ALL PIPING DIMENSIONS IS AS FOLLOWS: DISCH. NOZZLE FLANGE IS $\pm .25$ AUXILIARY CONNECTIONS ARE ± 1.0
3	HT - DISTANCE OF DRIVER FACE TO TOP OF HEADSHAFT.
4	ALL DIMENSIONS SHOWN ARE IN INCHES UNLESS OTHERWISE STATED.
5	DRAWING IS NOT TO SCALE.
6	RECOMMENDED DIAMETER RANGE TO CLEAR PUMP, DRAIN AND COLUMN ASSEMBLY IS 9.81 in
7	1/2" NPT - GAUGE CONN. (PLUGGED)
8	DRIVER MAY BE ROTATED AT 90° INTERVALS ABOUT VERTICAL CENTERLINE. FOR DETAILS REFER TO DRIVER DIMENSION DRAWING.
9	BEFORE STARTING PUMP, IMPELLER MUST BE LIFTED 0.19 in
10	M.A.W.P DISCH.HEAD,DISCH.SIDE =
11	THIS PUMP ASSEMBLY HAS BEEN DESIGNED SO THAT ITS NATURAL FREQUENCY RESPONSES AVOID THE SPECIFIC OPERATING SPEED (OR SPEEDS) BY AN ADEQUATE SAFETY MARGIN. THE DESIGN HAS ASSUMED THE FOUNDATION TO BE RIGID.

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED	
CERTIFIED BY	DATE 07/09/2014
TITLE OUTLINE MODEL VIS-T 9THC 3 STAGES	
xylem Let's Solve Water	GOULDS a xylem brand S.O. NUMBER

CROSS SECTIONAL DRAWING

Model VIS-T
Size 9THC

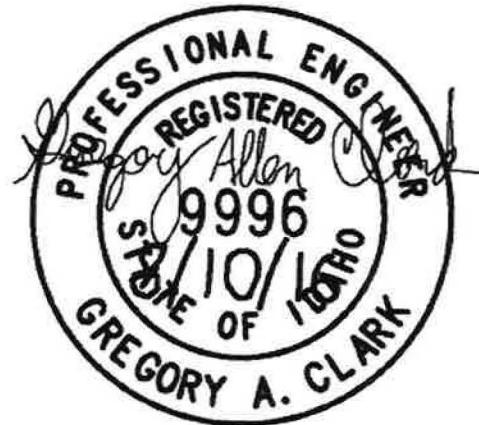
xylem
Let's Solve Water



BILL OF MATERIAL

Bowl Assembly

ITEM	PART NAME	CODE	MATERIAL	ASTM#
614	COUPLING -- SUB MOTOR	2218	SST 416	A582M-95b
660	BOWL SHAFT	2227	SST 416	A582M-95b
670	BOWL- INTERMEDIATE	6911	CAST IRON CL30 ENAMEL	A48-94e1
671	SUBADAPTER	1018	DUCTILE IRON 65-45-12	A536-84(1999)e1
672	BEARING- INT BOWL	1109	FEDERALLOY BISMUTH BRZ	B584-00
673	IMPELLER	1203	SST 316	A744M-00
677	COLLET- IMPELLER	2242	CARBON STEEL 1018	A108-99
690	BEARING- SUCTION	1109	FEDERALLOY BISMUTH BRZ	B584-00
715	GUARD- CABLE	3215	SST 304	A240M-00
760	CAPSCREW- HEX	2298	STEEL BOLTING GR 8	J429-99
781	SCREEN- SUCTION	3211	SST 316	A240M-00



Service:
End User: CABINET GORGE
Project No:
Item No: ITEM 001
Customer P.O. No:
Serial No:
Customer: WESTERN HYDRO PACIFIC

DRAWING NO DW14-07-09 01/ITEM 001

* Recommended spare parts
Items not illustrated

Model: VIS-T**Size: 9THC****60Hz****RPM: 1718****Stages: 3**

Job/Inq.No. :

End User : CABINET GORGE

Item/Equip.No. : ITEM 001

Order No. :

Purchaser : WESTERN HYDRO PACIFIC

Issued by : David Weickum

Quotation No. : DW14-07-09 01

Certified By :

Service :

Date : 07/09/2014

Rev. : 0

Operating Conditions

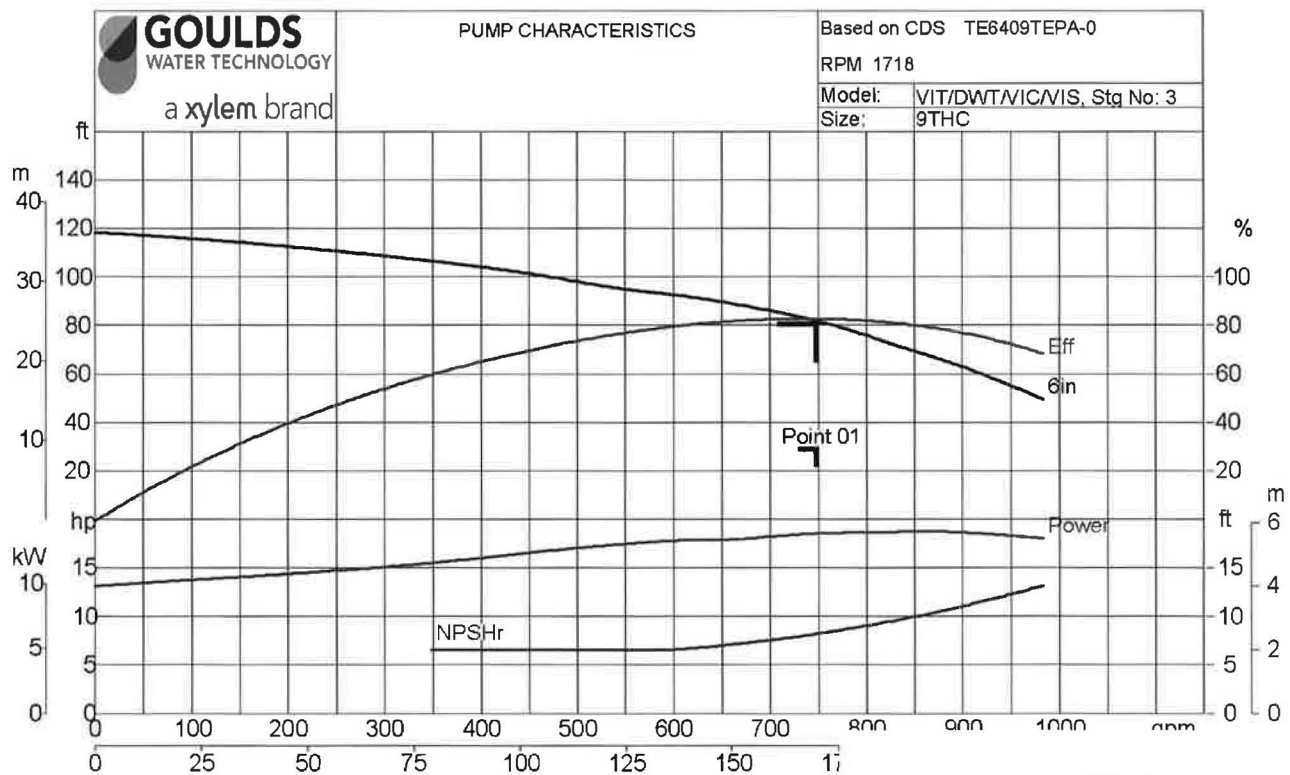
Temp.: 70.0 deg F
 Design Flow: 750.0 gpm
 Design TDH: 81.6 ft
 Actual Flow: 750.0 gpm
 Actual Bowl Head: 81.6 ft
 NPSHa:
 Solid size:
 Bowl Size: 9.2500 in
 Liquid:
 S.G./Visc.: 1.000/1.000 cp

Pump Performance

Bowl Efficiency: 83.9 %
 Rated Pump Efficiency: 83.4 %
 Rated Total Power: 18.53 hp
 Non-Overloading Power: 18.7 hp
 Imp. Dia. First 1 Stg(s): 6.0000 in
 NPSHr: 8.3 ft
 Shut off Head: 118.4 ft
 Max. Lateral: 0.7500 in
 Bowl Material: Cast iron with glass enamel
 Impeller Material: 316SS
 Suction Specific Speed: 9,600 gpm(US) ft
 Min. Hydraulic Flow: 362.7 gpm
 Min. Thermal Flow: N/A
 Imp. Dia. Add'l Stg(s): 6.0000 in
 Vapor Press:
 Max. Solids Size: 1.0000 in
 Thrust K factor:

Notes: 1. Bowl Performance Curve based on Pumping Clear, non-Aerated Water. Rated Point only is guaranteed.

2. For units requiring performance test, all performance tests will be conducted per ANSI/HI 14.6 standards unless otherwise noted in the selection software submittal documents. Test results meeting with grade 2B tolerances for pumps with a rated shaft power of 134HP or less and grade 1B for greater than 134HP will be considered passing.



Model: VIS-T**Size: 9THC****60Hz****RPM****Stages: 3**

Job/Inq.No. :

Purchaser : WESTERN HYDRO PACIFIC

End User : CABINET GORGE

Item/Equip.No. : ITEM 001

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Operating Conditions

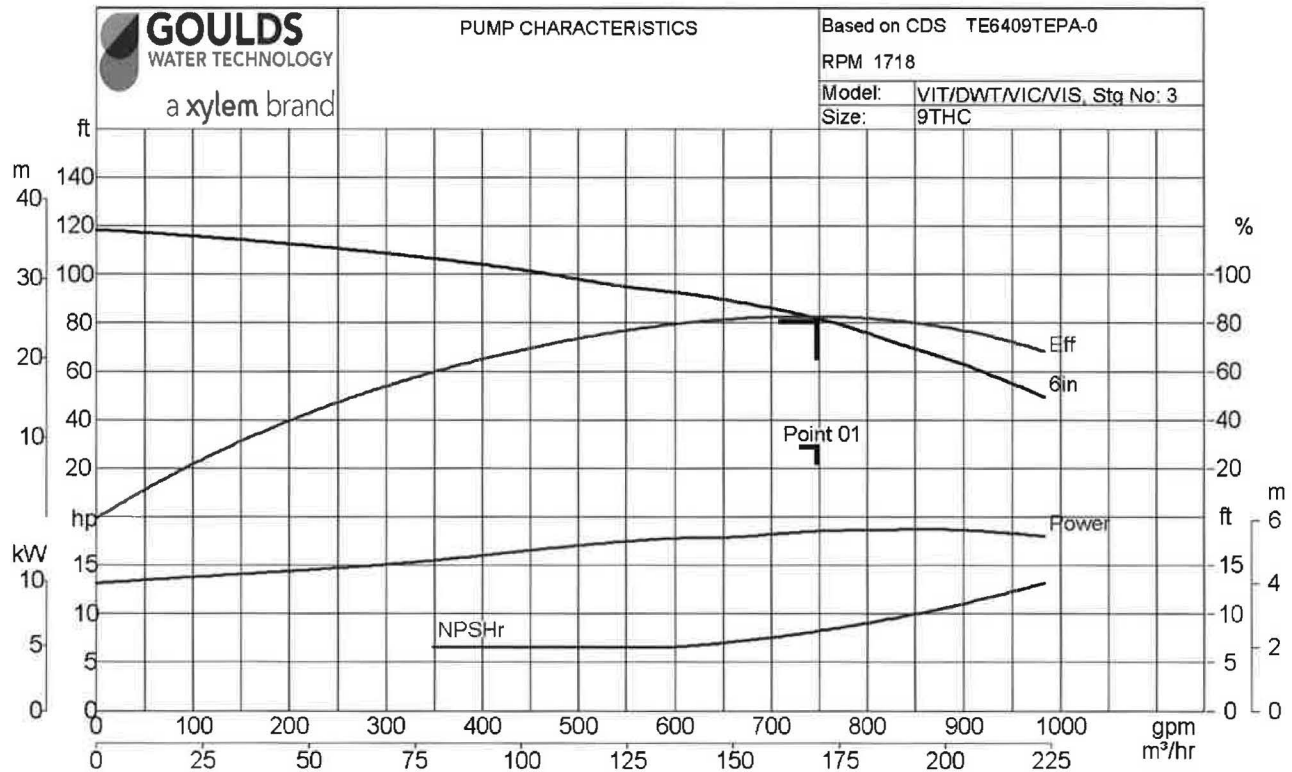
Liquid:
Temp.: 70.0 deg F
S.G./Visc.: 1.000/1,000 cp
Flow: 750.0 gpm
TDH: 81.6 ft
NPSHa:
Solid size:
Vapor Press:

Pump Performance @ 1718 RPM

Published Efficiency: 83.9 %
Rated Pump Efficiency: 83.4 %
Rated Total Power: 18.53 hp
Non-Overloading Power: 18.7 hp
Imp. Dia. First 1 Stg(s): 6.0000 in
NPSHr: 8.3 ft
Shut off Head: 118.4 ft
Max. Solids Size: 1.0000 in

Specific Speed 1st stg: 3,587 gpm(US) ft
Specific Speed Adl stg:
Min. Hydraulic Flow: 362.7 gpm
Min. Thermal Flow: N/A
Imp. Dia. Adl Stg(s): 6.0000 in

- Notes:**
1. Bowl Performance Curve based on Pumping Clear, non-Aerated Water. Rated Point only is guaranteed.
 2. For units requiring performance test, all performance tests will be conducted per ANSI/HI 14.6 standards unless otherwise noted in the selection software submittal documents. Test results meeting with grade 2B tolerances for pumps with a rated shaft power of 134HP or less and grade 1B for greater than 134HP will be considered passing.



WESTERN HYDRO PACIFIC

Proposal No: DW14-07-09 01

Item No: ITEM 001

July 9, 2014

MANUFACTURER: Goulds

MODEL:VIS-T Size:9THC 3 Stage(s) QTY:1

Operating conditions

SERVICE

LIQUID (70.0 deg F) SP.GR 1.000
LIQUID TYPE Non Toxic
CAPACITY 750.0 gpm
HEAD 81.6 ft

Performance at 1718 RPM

BOWL EFFY 83.9% @design
RUN OUT CAPACITY 982.9 (gpm) (Min Req.Submerg. 18.14 (in) @ Run o
POWER 18.53 @design, 13.1 @ Shut off, 18.7 NOL (hp)
TOTAL THRUST 1,217.4 @ Shut off, 862.9 @design (Lb)
DISCH. PRESSURE 51.3 psi g @ Shut off, 35.3 @design (at bowl)
MIN. FLOW Continuous Stable: 362.7 gpm Hydraulic: 362.7 gpm 1

(1) for vortex suppression, based on H.I. 1994 Edition

(2) Min Req.Submerg. 16.64 (in) @ Rated

Materials

BOWL Cast iron with glass enamel
IMPELLER 316SS (Enclosed) taper locked
IMPELLER DIA 6.0000 (in)
BOWL SHAFT 416SS 1.5000 (in) diameter
SUCT.ADAPTER BRG Bronze
BOWL BEARINGS Bronze
SUCT.ADAPTER Ductile iron
BOWL FEATURES Motor adapter
DOCUMENTATION Std pump inst. and operation manual and order data



Driver : Motor

FURNISHED BY Pump mfg
RATING 20.0 hp
PHASE/FREQ/VOLTS 3/60 Hz/460
ACTUAL SPEED 1,718
STATOR HOUSING/SHELL MAT. Epoxy coated Carbon steel
SPLINED COUPLING MAT. 416SS

Manufacturer : Hitachi

MOUNTED BY Customer
SPEED 1800 RPM
TYPE Wet winding

Weights

Total Bowl Weight	340.0 (1b)
Driver Weight	410.0 (1b)
Total Unit Weight	750.0 (1b)

Program Version 1.39.0.0

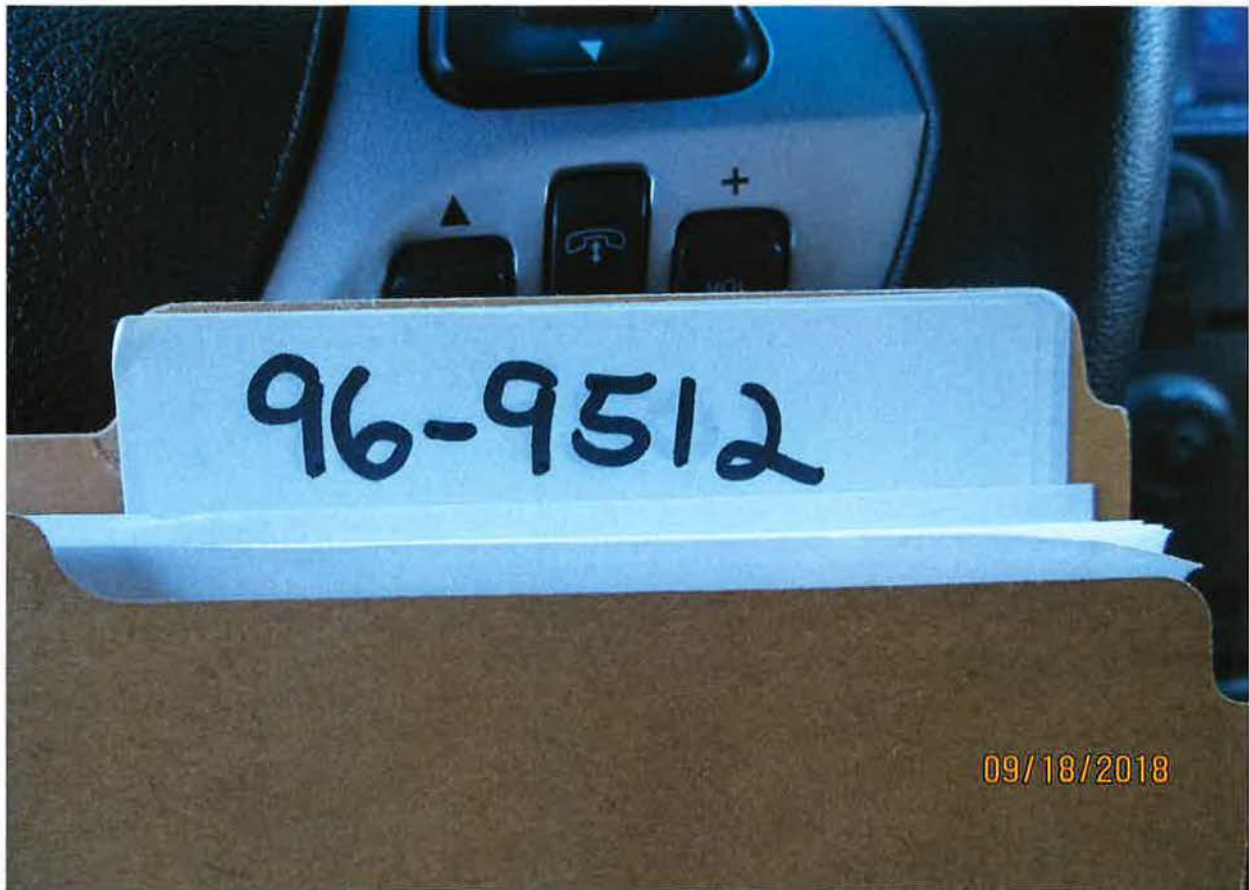
Our offer does not include specific review and incorporation of any Statutory or Regulatory Requirements and the offer is limited to the requirements of the design specifications. Should any Statutory or Regulatory requirements need to be reviewed and incorporated then the Customer is responsible to identify those and provide copies for review and revision of our offer.

Our quotation is offered in accordance with our comments and exceptions identified in our proposal.

For units requiring performance test, all performance tests will be conducted per ANSI/HI 14.6 standards unless otherwise noted in the selection software submittal documents. Test results meeting with grade 2B tolerances for pumps with a rated shaft power of 134HP or less and grade 1B for greater than 134HP will be considered passing.

Customer is responsible for verifying that the recommendations made and the materials selected are satisfactory for the Customer's intended environment and Customer's use of the selected pump. Customer is responsible for determining the suitability of Goulds recommendations for all operating conditions within Customer's and/or End User's control. Goulds disclaims all warranties, express or implied, including, but not limited to, warranties of merchantability and fitness for a particular purpose.





POD – 20 HP PUMP DIVERTS FROM RIVER



INFLOW TO POD FROM RIVER



SYSTEM CONTROL PANEL



CONTROL PANEL



POU – FISH STOCK TANK



POU



POU



OUTFLOW TO RIVER



POU – FISH LADDER



POU





POU – FISH LADDER



POU