BEAUMONT-CHERRY VALLEY WATER DISTRICT

WELL No's 11, 12, 19, and 20 PUMPING UNIT REPAIR AND WELL REHABILITATION CONTRACT FOR PUBLIC WORK

1. Parties and Date

This Contract is entered into this_____day of_____, 2017, between the BEAUMONT-CHERRY VALLEY WATER DISTRICT, a California Irrigation (Special) District ("District"), and_____("Contractor"), for the Work described as follows:

Removing, Refurbishing, Furnishing, and Installing Well 11, 12, 19 and 20 Pumping Unit Rehabilitation and Well Rehabilitation.

2. Consideration

In consideration of the mutual covenants hereinafter contained, District and Contractor agree to comply with the terms of this Contract and to faithfully perform their duties hereunder.

3. Duties of Contractor

3.1 Contractor agrees to furnish all labor, tools, and equipment necessary to complete the work hereinafter described. Contractor hereby guarantees that all work to be performed by it hereunder will be performed in a good and workmanlike manner. The Work to be performed by Contractor is described on Exhibit "A" attached hereto and by this reference incorporated herein. Pursuant to Public Contract Code Section 3300, Contractor shall possess an active and current Contractor's License, Class A or C-57, which shall be maintained throughout the term of this Contract.

3.2 Contractor shall complete all work required herein on or before **February 1, 2018**

3.3 Contractor shall furnish District with labor and material releases from all subcontractors performing work on, or furnishing materials for, the job prior to final payment by District.

3.4 Contractor shall furnish a performance bond in the amount of the full contract price, a payment bond in the amount of 50% of the full contract price, and a maintenance bond in the amount of the full contract price issued in forms consistent with industry standards by United States Treasury authorized bonding companies as approved by District, prior to commencement of the Work. Bonds shall be furnished on the forms attached at the back of this Contract, if Additive Bid Item is exercised. Contractor hereby guarantees that all materials and workmanship furnished by him under the Contract will meet fully all requirements thereof as to quality or workmanship and of materials furnished by him. Contractor hereby agrees to replace all materials and pay for all installation costs made

necessary by defects in materials or workmanship supplied by him that become evident within

twelve (12) months after the date of final payment and to pay for all work necessary to remove, restore, and replace the materials to full serviceability and to full compliance with the requirements of the Contract, including the test requirements for any part of the materials furnished hereunder which, during said twelve (12) month period, are found to be deficient with respect to any provision of the Contract. Contractor also agrees and does hereby hold District harmless from claims of any kind which may arise from injury or damage due to said defects. Contractor shall replace all defective materials promptly upon receipt of written orders for same from District. If Contractor fails to replace all defective materials promptly, District may secure the service of others to do this work, and Contractor and his surety shall be liable to District for the cost, including removal and replacement thereof. The guarantees, indemnifications and agreements set forth above shall continue to be secured following completion of the project by Contractor providing a maintenance bond in the amount of 100% of the full contract price on a form commonly used in the industry and acceptable to the District, and for this purpose said bond shall remain in force for a period of one (1) year after the date of the final payment.

3.5 Copies of the prevailing rate of per diem wages for each craft, classification or type of worker needed to execute this Contract are available to interested parties upon request. If the total amount of this Contract is $1,000 or more, Contractor agrees to pay such prevailing rates to each workman needed to execute the work required under this Contract and further agrees to comply with the penalty provisions of Section 1775 of the Labor Code in the event of its failure to pay prevailing rates. Pursuant to Section 1727 of the Labor Code, all wages and penalties withheld for failure of Contractor to pay such per diem wages shall be transferred by District to the State Labor Commissioner for disbursement, should Contractor fail to bring suit for recovery within ninety (90) days after completion of the Contract or acceptance of the work.

3.6 Contractor shall pay travel subsistence payments to each workman needed to execute the work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with Section 1773.8 of the Labor Code.

3.7 When Contractor employs workmen in an apprenticeable craft or trade, Contractor shall comply with the provisions of Section 1777.5 of the Labor Code with respect to the employment of properly registered apprentices upon public works. The primary responsibility for compliance with said section for all apprenticeable occupations shall be with Contractor.

3.8 Contractor is advised that eight (8) hours labor constitutes a legal day's work. Pursuant to Section 1813 of the Labor Code, Contractor shall forfeit a penalty of $25.00 per worker for each day that each worker is permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week, except when payment for overtime is made at not less than one and one-half (1-1/2) times the basic rate for that worker.

3.9 In accordance with the requirements of Labor Code Section 1776, Contractor shall keep accurate payroll records on forms provided by the Division of Labor Standards Enforcement,

or keep payroll records containing the same information required by such forms, and shall make any such records available for inspection.

3.10 Contractor shall keep himself fully informed of all laws and regulations in any manner affecting the performance of the Contract work, and shall indemnify District and District's agents against any liability arising from violation of any such law or regulation.

3.11 Contractor shall at its own expense maintain at least the following insurance coverages throughout the performance of this Contract:

(a) Worker's compensation insurance coverages for all persons employed or to be employed in the performance of this Contract, which insurance shall at all times be maintained in strict accordance with the requirements of the current California Worker's Compensation Insurance Laws.

(b) General commercial liability insurance coverage of at least $1,000,000 per occurrence and $2,000,000 general aggregate insuring Contractor and naming District as an additional insured for all claims for bodily injury, personal injury and property damage, arising out of or in connection with any operations under this Contract.

(c) Automobile liability insurance coverage with a limit of liability of $1,000,000 per accident Combined Single Limit.

(d) Course of construction insurance with a limit of liability equal to the full contract amount, unless waived in writing by District.

Prior to commencement of any work under this Contract, Contractor shall obtain and furnish to District a Certificate of Insurance as to each type of insurance required, which certificate shall be on the form provided to Contractor by District.

3.12 Contractor shall be responsible for all loss and damage which may arise out of the nature of the work agreed to herein, or from the action of the elements, or from any unforeseen difficulties which may arise or be encountered in the prosecution of the work until same is fully completed and accepted by District. However, Contractor shall be responsible for damage proximately caused by an act of God within the meaning of Section 4150 of the Government Code only to the extent of five percent (5%) of the contract amount.

3.13 Contractor shall indemnify and hold harmless District, its agents and employees, from and against all claims, damages, losses and expenses, including attorney's fees, arising out of or resulting from performance of work under this Contract and which are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom, caused in whole or in part by any negligent or willful act or omission of the Contractor or anyone directly or indirectly employed by him or for whose acts he may be liable.

3.14 Contractor shall be responsible for securing and paying for all permits and licenses necessary to perform the work described herein.

3.15 If the work entails trenching of five (5) feet or more in depth, Contractor shall make adequate provisions for shoring, bracing, sloping, or other protection from the hazard of caving ground.

3.16 As required by Public Contract Code Section 7104, Contractor shall promptly, and prior to disturbance of conditions, notify District of (a) any material discovered in excavation that Contractor believes to be a hazardous waste that is required to be removed to a Class I, Class II, or Class III disposal site; (b) subsurface or latent physical conditions at the site differing from those indicated by District; and (c) unknown physical conditions of an unusual nature at the site, significantly different from those ordinarily encountered in such contract work. Upon notification, District will promptly investigate the conditions to determine whether a change order is appropriate. In the event of a dispute, Contractor shall not be excused from any scheduled completion date but will retain all rights provided by the Contract or by law for resolving the dispute.

4. District's Responsibilities

4.1 As consideration for performance of the work required herein, District agrees to pay Contractor the total contract amount of**_____, ($_____)**, provided that such amount shall be subject to adjustment pursuant to written change orders signed in advance by District.

4.2 Contractor shall submit progress payment invoices to District at the end of each calendar month during the term of the Contract. All progress payment invoices shall be subject to approval by the District prior to payment by the District. Such progress payment invoices shall be made in accordance with Section 20104.50 of the California Public Contract Code, requiring District to make a determination of suitability of the payment request within seven (7) days of receipt of such request and further requiring District to make payment on properly submitted progress payment invoices within thirty (30) days in order to avoid interest payments to the Contractor upon such amounts.

4.3 When the Contractor determines that he has completed the work required herein, Contractor shall so notify District in writing and shall furnish all labor and material releases required by Section 3.3 of this Contract. District shall thereupon inspect the work and, if acceptable, shall pay to Contractor the contract price, less any amount which District may be authorized or directed by law to retain. Payment of retention proceeds due to Contractor shall be made no later than sixty (60) calendar days after such final acceptance by District, in accordance with Section 7107 of the California Public Contract Code. Contractor is hereby alerted to provisions of Section 7107 of the California Public Contract Code, requiring Contractor to pay each of its subcontractors from whom retention has been withheld, each subcontractor's share of the retention received, within ten (10) calendar days from the time that all or any portion of such retention proceeds are received by Contractor from District. District will allow Contractor to substitute qualified securities, deposited with District or a qualified escrow agent, in lieu of contract retentions in accordance with provisions of California Public Contract Code, Section 22300. The escrow agreement used in such instance shall be substantially similar to that

form set out in Section 22300 of the Public Contract Code. District will provide this form to the Contractor upon request.

4.4 To the extent required by Section 4215 of the Government Code, District shall compensate Contractor for the costs of locating and repairing damage to underground utility facilities not due to the failure of Contractor to exercise reasonable care, and removing or relocating underground utility facilities not indicated in the construction drawings and for equipment necessarily idled during such work. Contractor shall not be assessed liquidated damages for delay caused by failure of District to provide for removal or relocation of such utility facilities.

5. Contractual Relationship

It is expressly agreed that Contractor is an independent contractor, and neither Contractor nor any of its employees shall be deemed employees of District. Contractor shall have full supervision over all workers on the job, including equipment, drivers, and operators, and neither District nor any of District's agents shall be held responsible for any action of Contractor under this Contract. Should any question arise regarding the meaning or import of any of the provisions of this Contract or written or oral instructions from District, the matter shall be referred to District's General Manager, whose decision shall be binding upon Contractor.

6. Assignment Forbidden

Contractor shall not assign or transfer this Contract or any right, title or interest herein without the prior written consent of District. If contractor attempts an assignment of this Contract or any right or interest herein, District may, at its option, terminate and revoke the Contract and shall thereupon be relieved from any and all obligations to Contractor or his assignee or transferee.

7. Time of Essence

Time is of the essence in the performance of this Contract. Contractor will be assessed liquidated damages in the amount of $200.00 per calendar day for each day of unauthorized delay in completing performance.

8. Termination

This Contract may be terminated by District at any time by giving Contractor seven (7) days advance written notice. In the event of termination by District for any reason other than the fault of the Contractor, District shall pay Contractor for all work performed up to that time as provided herein. In the event of breach of the Contract by Contractor, District may terminate the Contract immediately without notice, may reduce payment to the Contractor in the amount necessary to offset District's resulting damages, and may pursue any other available recourse against Contractor.

9. Dispute Resolution

Any separate demand by Contractor for the payment of money or damages shall be resolved in accordance with Public Contract Code Sections 20104 et seq., if they apply. Copies of those sections are available upon request and by this reference are incorporated herein.

10. Attorney's Fees and Costs

If any action is necessary to enforce or interpret the terms of this Contract, the prevailing party shall be entitled to recover from the losing party attorney's fees in an amount determined to be reasonable by the court, together with costs and necessary disbursements.

11. Notices

Any notice required to be given under the terms of this Contract shall be sufficient and complete upon depositing the same in the United States mail, with postage prepaid and addressed as follows:

DISTRICT	**Contractor**
Beaumont-Cherry Valley Water District P.O. Box 2037560 Magnolia Avenue Beaumont, CA 9223	_____

12. Counterparts

This Contract shall be executed in two (2) counterparts, each of which shall constitute an original.

13. Certification of License

Contractor certifies that as of the date of execution of this contract, Contractor has a current contractor's license of the classification indicated below Contractor's signature hereto.

IN WITNESS WHEREOF, each of the parties has caused this Contract to be executed on the day and year first above written.

ATTEST:

(Contractor)

By:

Secretary

Title:

Contractor's License Number & Classification

BEAUMONT-CHERRY VALLEY WATER DISTRICT

ATTEST:

By:

Dan Jaggers
General Manager

Secretary to the Board

CERTIFICATION

LABOR CODE – SECTION 1861

I, the undersigned Contractor, am aware of the provisions of Section 3700 et seq. of the Labor Code which requires every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of the Code, and I, the undersigned Contractor, agree to and will comply with such provisions before commencing the performance of the work of this Contract.

_____
Contractor

By: _____

Title: _____

Exhibit A

Removing, Refurbishing, Furnishing, and Installing Well 11, 12, 19, and 20

Pumping Unit Rehabilitation and Well Rehabilitation

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE I – WELL 11

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
101	Permits, insurance, and management.	1	L.S.	N/A	$
102	Mobilize and demobilize well pump removal crew and equipment necessary to remove and reinstall existing well pumping unit, and motor.	1	L.S.	N/A	$
103	Remove and inspect pump column and column check valve. Tag well to determine presence/amount of fill. Haul column from well 11 site to vendor's yard for evaluation (as necessary). Inspect and provide comments and/or recommendations regarding conditions and serviceability of pump column.	120±	L.F.	$	$
104	Remove pumping unit bowls, and submersible motor, and all related work	1	L.S.	N/A	$
105	Haul Well 11's 7.5 hp electric motor to the District's Storage Yard, Well 2 site at 12th and Michigan, Beaumont, CA				
106	Haul bowl assembly and motor (as required) to Vendor's yard for evaluation. Disassemble and inspect pump bowl assembly. Measure and record wear and damage. Provide report and recommendations to Owner. Return disassembled bowl to Owner's Well 2 site location for storage (if not rebuilt as part of this contract)	1	L.S.	N/A	$
107	Bail well clean. Payment will be based on actual time required to remove fill	8	L.F.	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE I – WELL 11

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
108	Clarify water in preparation for initial video log. Perform color video log of well and provide comments and recommendations to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District).	1	L.S.	N/A	$
109	Wire brush well (Not Applicable)				
110 (See 110 Alternative Bid Item Below)	Furnish new replacement bowl assembly per requirements set forth in Specification Section 11325. Bowl assembly shall be Flowserve, Goulds, or District approved equal.	1	L.S.	N/A	$
111	Inspect and refurbish existing pump discharge elbow assembly as necessary, as required	1	L.S.	N/A	$
112	Install new pumping unit bowl assembly and submersible motor, and all related work				
113	Install 120'± of column and discharge elbow, power cable, and appurtenances including leveling pumping unit (as required) and all related work	1	L.S.	N/A	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE I – WELL 11

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
114	Provide coordination (as necessary) with District Staff of installation of District furnished piping and/or hose for well water clarification (prior to off - site discharge). District to furnish temporary fire hose and/or piping as required	1	L.S	N/A	$
115	Provide start up and performance testing of all new and existing equipment, controls and instrumentation for the lump sum of	1	L.S	N/A	$
117	Disinfect well in accordance with Specification Section 11320, State of California Department of Health Service requirements and in accordance with AWWA procedures for the lump sum of	1	L.S.	N/A	$

TOTAL AMOUNT (Sum of Fee Items 101 through 118:

_____ Dollars $_____
(words) (figures)

Vendor hereby acknowledges that all bid prices include any amounts payable by District for taxes which may result from this proposal.

Vendor's Authorized Representative

_____ _____
Vendor (Company Name) Signature

_____
Name (Print)

_____
Title (Print)

ALTERNATIVE BID ITEM 110

Item	Description	Qty	Unit	Unit Cost	Amount
110 (See 110 Base Bid Item Above)	Refurbish and rebuild existing pump bowl assembly pumping unit. Contractor shall anticipate that pumping unit rebuild will require new impellers, bearings, etc.	1	L.S.	N/A	$

ADDITIVE FEE SCHEDULE: CHEMICAL WELL REHABILITATION

Item	Description	Qty	Unit	Unit Cost	Amount
201	Provide chemical well rehabilitation in accordance with Specification Section	1	L.S.	N/A	$

ADDITIVE FEE SCHEDULE: PROJECT BOND

Item	Description	Qty	Unit	Unit Cost	Amount
301	Project Performance Bond equal to 100% of Full Contract Amount	1	L.S.	N/A	$
302	Project Payment Bond equal to 50% of Full Contract Amount	1	L.S.	N/A	$
303	Project Maintenance Bond equal to 100% of Full Contract Amount for a period of 30 months	1	L.S.	N/A	$

ADDITIVE FEE SCHEDULE: MISCELLANEOUS EQUIPMENT (TO PROVIDE AS REQUIRED)

Item	Description	Qty	Unit	Unit Cost	Amount
401A	4" Column, 0.237 wall, 20' length	21	L.F.	$	$
401B	5" Column, 0.258wall, 20' length	21	L.F.	$	$
401C	6" Column, 0.280 wall, 20' length	21	L.F.	$	$
402A	4" Column Coupling	1	EA.	N/A	$
402B	5" Column Coupling	1	EA.	N/A	$
402C	6" Column Coupling	1	EA.	N/A	$
403	Furnish and install submersible power supply cable for 7.5 Hp Submersible, 460 volt, 3 phase, 60 cycle pumping	120'±	L.F.	$	$
407A	½" PVC chlorination/sounding tube and stainless steel straps	120'±	L.F.	$	$
407B	¾" PVC chlorination/sounding tube and stainless steel straps	120'±	L.F.	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE II– WELL 12

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
101	Permits, insurance, and management.	1	L.S.	N/A	$
102	Mobilize and demobilize well pump removal crew and equipment necessary to remove and reinstall existing well pumping unit, discharge head, and motor.	1	L.S.	N/A	$
103	Remove and inspect pump column and shaft (water lubed pump). Tag well to determine presence/amount of fill. Haul shaft from the District's Well 12 site to the Vendor's yard for evaluation (as necessary. Inspect and provide comments and/or recommendations regarding conditions and serviceability of pump column, tube and shaft.	115±	L.F.	$	$
104	Remove pumping unit bowls, and existing suction pipe (if applicable), and strainer, and all related work	1	L.S.	N/A	$
105	Haul Well 12's 20 hp electric motor to the District's electrical repair vendor Brithinee Electric, Inc. for evaluation. District will pay electrical vendor directly for motor inspection and any necessary repairs	1	L.S.	N/A	$
106	Haul bowl assembly to Vendor's yard for evaluation. Disassemble and inspect pump bowl assembly. Measure and record wear and damage. Provide report and recommendations to Owner. Return disassembled bowl to Owner's Well 2 site location for storage (if not rebuilt as part of this contract)	1	L.S.	N/A	$
107	Disassemble, inspect, recondition, and reassemble line shaft	115±	L.F.	$	$
108	Bail well clean. Payment will be based on actual time required to remove fill.	8	Hrs	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE II – WELL 12

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
109	Clarify water in preparation for initial video log. Perform color video log of well and provide comments and recommendations to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District).	1	L.S.	N/A	$
110 (See 110 Alternative Bid Item Below)	Furnish new replacement bowl assembly per requirements set forth in Specification Section 11320. Bowl assembly shall be Flowserve, Goulds, or District approved equal.	1	L.S.	N/A	$
111	Inspect and refurbish existing pump discharge head as necessary and install new shaft bushing, as required	1	L.S.	N/A	$
112	Clarify water in preparation for post brushing and development video log. Perform color video log of well and provide video inspection comments to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District). Not Applicable	N/A	N/A	N/A	$
113	Install pumping unit bowl assembly, including existing suction pipe (if applicable) and strainer, and all related work	1	L.S.	N/A	$
114	Install 150'± of column and shaft, discharge head, and appurtenances including leveling pumping unit (as required) and all related work	150±'	L.F.	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE II – WELL 12

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
115	Pick up District's 20 hp electric motor from the District's electrical repair vendor Brithinee Electric, Inc. and install said 20 hp electric motor including leveling (centering) of motor on pump shaft, reconnection of existing motor power feed and control conductors to existing motor control equipment for the lump sum of	1	L.S.	N/A	$
116	Provide coordination (as necessary) with District Staff of installation of District furnished piping and/or hose for well water clarification (prior to off site discharge). District to furnish temporary fire hose and/or piping as required	1	L.S.	N/A	$
117	Provide start up and performance testing of all new and existing equipment, controls and instrumentation for the lump sum of	1	L.S.	N/A	$
118	Disinfect well in accordance with Specification Section 11320, State of California Department of Health Service requirements and in accordance with AWWA procedures for the lump sum of	1	L.S.	N/A	$

TOTAL AMOUNT (Sum of Fee Items 101 through 118:

_____ Dollars $_____
(words) (figures)

Vendor hereby acknowledges that all bid prices include any amounts payable by District for taxes which may result from this proposal.

Vendor's Authorized Representative

_____ _____
Vendor (Company Name) Signature

_____
Name (Print)

_____
Title (Print)

ALTERNATIVE BID ITEM 110

Item	Description	Qty	Unit	Unit Cost	Amount
110 (See 110 Base Bid Item Above)	Refurbish and rebuild existing pump bowl assembly pumping unit. Contractor shall anticipate that pumping unit rebuild will require new impellers, bearings, etc.	1	L.S.	N/A	$

ADDITIVE FEE SCHEDULE: CHEMICAL WELL REHABILITATION

Item	Description	Qty	Unit	Unit Cost	Amount
201	Provide chemical well rehabilitation in accordance with Specification Section	N/A	N/A	N/A	$

ADDITIVE FEE SCHEDULE: PROJECT BOND

Item	Description	Qty	Unit	Unit Cost	Amount
301	Project Performance Bond equal to 100% of Full Contract Amount	1	L.S.	N/A	$
302	Project Payment Bond equal to 50% of Full Contract Amount	1	L.S.	N/A	$
303	Project Maintenance Bond equal to 100% of Full Contract Amount for a period of 30 months	1	L.S.	N/A	$

ADDITIVE FEE SCHEDULE: MISCELLANEOUS EQUIPMENT (TO PROVIDE AS REQUIRED)

Item	Description	Qty	Unit	Unit Cost	Amount
401A	4" Column, 0.237 wall, 10' length	10	L.F.	$	$
401B	5" Column, 0.258 wall, 10' length	10	EA.	N/A	$
401C	6" Column, 0.280 wall, 10' length	10	L.F.	$	$
402A	4" Column Coupling	1	E.A.	N/A	$
402B	5" Column Coupling	1	E.A.	N/A	$
402C	6" Column Coupling	1	E.A.	N/A	$
403A	1"Line Shaft, 316 Stainless Steel	10	L.F.	$	$
403B	1 3/16" Line Shaft, 316 Stainless Steel	10	L.F.	$	$
403C	1 ¼" Line Shaft, 316 Stainless Steel	10	L.F.	$	$
404A	1" Coupling, 316 Stainless Steel	1	E.A.	N/A	$
404B	1 3/16" Coupling, 316 Stainless Steel	1	E.A.	N/A	$
404C	1 ¼" Coupling, 316 Stainless Steel	1	E.A.	N/A	$
405A	1" Line Shaft Bearing	1	E.A.	N/A	$
405B	1 3/16" Line Shaft Bearing	1	E.A.	N/A	$
405C	1 ¼" Line Shaft Bearing	1	E.A.	N/A	$
406A	½" PVC chlorination/sounding tube and stainless steel straps	150±	L.F.	$	$
406B	¾" PVC chlorination/sounding tube and stainless steel straps	150±	L.F.	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE III – WELL 19

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
101	Permits, insurance, and management.	1	L.S.	N/A	$
102	Mobilize and demobilize well pump removal crew and equipment necessary to remove and reinstall existing well pumping unit, discharge head, and motor.	1	L.S.	N/A	$
103	Remove and inspect pump column and shaft (water lubed pump). Tag well to determine presence/amount of fill. Haul shaft from the District's Well 19 site to the Vendor's yard for evaluation (as necessary. Inspect and provide comments and/or recommendations regarding conditions and serviceability of pump column, tube and shaft.	130'±	L.F.	$	$
104	Remove pumping unit bowls, and existing suction pipe (if applicable), and strainer, and all related work	1	L.S.	N/A	$
105	Haul Well 19's 10 hp electric motor to the District's electrical repair vendor Brithinee Electric, Inc. for evaluation. District will pay electrical vendor directly for motor inspection and any necessary repairs	1	L.S.	N/A	$
106	Haul bowl assembly to Vendor's yard for evaluation. Disassemble and inspect pump bowl assembly. Measure and record wear and damage. Provide report and recommendations to Owner. Return disassembled bowl to Owner's Well 2 site location for storage (if not rebuilt as part of this contract)	1	L.S.	N/A	$
107	Disassemble, inspect, recondition, and reassemble line shaft	130'±	L.F.	$	$
108	Bail well clean. Payment will be based on actual time required to remove fill.	8	Hrs	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE III – WELL 19

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
109	Clarify water in preparation for initial video log. Perform color video log of well and provide comments and recommendations to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District).	1	L.S.	N/A	$
110 (See 110 Alternative Bid Item Below)	Furnish new replacement bowl assembly per requirements set forth in Specification Section 11320. Bowl assembly shall be Flowserve, Goulds, or District approved equal.	1	L.S.	N/A	$
111	Inspect and refurbish existing pump discharge head as necessary and install new shaft bushing, as required	1	L.S.	N/A	$
112	Clarify water in preparation for post brushing and development video log. Perform color video log of well and provide video inspection comments to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District). Not Applicable	N/A	N/A	N/A	$
113	Install pumping unit bowl assembly, including existing suction pipe (if applicable) and strainer, and all related work	1	L.S.	N/A	$
114	Install 130'± of column and shaft, discharge head, and appurtenances including leveling pumping unit (as required) and all related work	130±'	L.F.	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE III – WELL 19

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
115	Pick up District's 10 hp electric motor from the District's electrical repair vendor Brithinee Electric, Inc. and install said 10 hp electric motor including leveling (centering) of motor on pump shaft, reconnection of existing motor power feed and control conductors to existing motor control equipment for the lump sum of	1	L.S.	N/A	$
116	Provide coordination (as necessary) with District Staff of installation of District furnished piping and/or hose for well water clarification (prior to off site discharge). District to furnish temporary fire hose and/or piping as required	1	L.S.	N/A	$
117	Provide start up and performance testing of all new and existing equipment, controls and instrumentation for the lump sum of	1	L.S.	N/A	$
118	Disinfect well in accordance with Specification Section 11320, State of California Department of Health Service requirements and in accordance with AWWA procedures for the lump sum of	1	L.S.	N/A	$

TOTAL AMOUNT (Sum of Fee Items 101 through 118:

_____ Dollars $_____
(words) (figures)

Vendor hereby acknowledges that all bid prices include any amounts payable by District for taxes which may result from this proposal.

Vendor's Authorized Representative

_____ _____
Vendor (Company Name) Signature

_____
Name (Print)

_____
Title (Print)

ALTERNATIVE BID ITEM 110

Item	Description	Qty	Unit	Unit Cost	Amount
110 (See 110 Base Bid Item Above)	Refurbish and rebuild existing pump bowl assembly pumping unit. Contractor shall anticipate that pumping unit rebuild will require new impellers, bearings, etc.	1	L.S.	N/A	$

ADDITIVE FEE SCHEDULE: CHEMICAL WELL REHABILITATION

Item	Description	Qty	Unit	Unit Cost	Amount
201	Provide chemical well rehabilitation in accordance with Specification Section	N/A	N/A	N/A	$

ADDITIVE FEE SCHEDULE: PROJECT BOND

Item	Description	Qty	Unit	Unit Cost	Amount
301	Project Performance Bond equal to 100% of Full Contract Amount	1	L.S.	N/A	$
302	Project Payment Bond equal to 50% of Full Contract Amount	1	L.S.	N/A	$
303	Project Maintenance Bond equal to 100% of Full Contract Amount for a period of 30 months	1	L.S.	N/A	$

ADDITIVE FEE SCHEDULE: MISCELLANEOUS EQUIPMENT (TO PROVIDE AS REQUIRED)

Item	Description	Qty	Unit	Unit Cost	Amount
401A	4" Column, 0.237 wall, 10' length	10	L.F.	$	$
401B	5" Column, 0.258 wall, 10' length	10	EA.	N/A	$
401C	6" Column, 0.280 wall, 10' length	10	L.F.	$	$
402A	4" Column Coupling	1	E.A.	N/A	$
402B	5" Column Coupling	1	E.A.	N/A	$
402C	6" Column Coupling	1	E.A.	N/A	$
403A	1"Line Shaft, 316 Stainless Steel	10	L.F.	$	$
403B	1 3/16" Line Shaft, 316 Stainless Steel	10	L.F.	$	$
403C	1 ¼" Line Shaft, 316 Stainless Steel	10	L.F.	$	$
404A	1" Coupling, 316 Stainless Steel	1	E.A.	N/A	$
404B	1 3/16" Coupling, 316 Stainless Steel	1	E.A.	N/A	$
404C	1 ¼" Coupling, 316 Stainless Steel	1	E.A.	N/A	$
405A	1" Line Shaft Bearing	1	E.A.	N/A	$
405B	1 3/16" Line Shaft Bearing	1	E.A.	N/A	$
405C	1 ¼" Line Shaft Bearing	1	E.A.	N/A	$
406A	½" PVC chlorination/sounding tube and stainless steel straps	150±	L.F.	$	$
406B	¾" PVC chlorination/sounding tube and stainless steel straps	150±	L.F.	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE IV – WELL 20

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
101	Permits, insurance, and management.	1	L.S.	N/A	$
102	Mobilize and demobilize well pump removal crew and equipment necessary to remove and reinstall existing pumping unit and motor	1	L.S.	N/A	$
103	Remove and inspect pump column and column check valve. Tag well to determine presence/amount of fill. Haul column from the District's Well 20 site to the Vendor's yard for evaluation (as necessary). Inspect and provide comments and/or recommendations regarding conditions and serviceability pump column.	150±	L.F.	$	$
104	Remove pumping unit bowls, and submersible motor, and all related work	1	L.S.	N/A	$
105	Haul Well 20's 5 hp electric motor to the District's Storage Yard, Well 2 site at 12th and Michigan, Beaumont, CA	1	L.S.	N/A	$
106	Haul bowl assembly and motor (as required to Vendor's yard for evaluation. Disassemble and inspect pump bowl assembly return existing electrical submersible motor to District Storage Yard per item 105. Measure and record wear and damage. Provide report and recommendations to Owner. Return disassembled bowl to Owner's Well 2 site location for storage (if not rebuilt as part of this contract)	1	L.S.	N/A	$
107	Bail well clean. Payment will be based on actual time required to	8	Hrs.	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE IV – WELL 20

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
108	Clarify water in preparation for initial video log. Perform color video log of well and provide comments and recommendations to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District).	1	L.S.	N/A	$
110 (See 110 Alternative Bid Item Below)	Furnish new replacement bowl assembly per requirements set forth in Specification Section 11325. Bowl assembly shall be Flowserve, Goulds, or District approved equal.	1	L.S.	N/A	$
111	Inspect and refurbish existing pump discharge elbow as necessary, as required	1	L.S.	N/A	$
112	Install pumping unit bowl assembly submersible motor, and all related work	1	L.S.	N/A	
113	Install 150'± of column, discharge elbow, and appurtenances including leveling pumping unit (as required) and all related work	150'±	L.S.	N/A	$
114	Provide coordination (as necessary) with District Staff of installation of District furnished piping and/or hose for well water clarification (prior to off-site discharge). District to furnish temporary fire hose and/or piping as required	1	L.S.	$	$

EXHIBIT "A"

BEAUMONT-CHERRY VALLEY WATER DISTRICT
WELL PLANT 11, 12, 19, and 20 PUMPING UNIT REPAIR WORK

SCHEDULE IV – WELL 20

SCOPE OF WORK-FEE SCHEDULE

The undersigned hereby proposes to furnish all labor, materials, equipment and methods necessary for constructing all Work specified in the Scope of Work-Fee Schedule amounts set forth below, and commence work within one (1) week of Notice to Proceed. The undersigned also acknowledges that all prices include sales tax and all other applicable taxes and fees. See attached data sheets for details related to well and pumping plant.

Item	Description	Qty	Unit	Unit Cost	Amount
115	Provide start up and performance testing of all new and existing equipment, controls and instrumentation for the lump sum of	1	L.S.	N/A	$
116	Disinfect well in accordance with Specification Section 11320, State of California Department of Health Service requirements and in accordance with AWWA procedures for the lump sum of	1	L.S.	N/A	$

TOTAL AMOUNT (Sum of Fee Items 101 through 118:

_____ Dollars $_____
(words) (figures)

Vendor hereby acknowledges that all bid prices include any amounts payable by District for taxes which may result from this proposal.

Vendor's Authorized Representative

_____ _____
Vendor (Company Name) Signature

_____
Name (Print)

_____
Title (Print)

ALTERNATIVE BID ITEM 110

Item	Description	Qty	Unit	Unit Cost	Amount
110 (See 110 Base Bid Item Above)	Refurbish and rebuild existing pump bowl assembly pumping unit. Contractor shall anticipate that pumping unit rebuild will require new impellers, bearings, etc.	1	L.S.	N/A	$

ADDITIVE FEE SCHEDULE: CHEMICAL WELL REHABILITATION

Item	Description	Qty	Unit	Unit Cost	Amount
201	Provide chemical well rehabilitation in accordance with Specification Section	N/A	N/A	N/A	$

ADDITIVE FEE SCHEDULE: PROJECT BOND

Item	Description	Qty	Unit	Unit Cost	Amount
301	Project Performance Bond equal to 100% of Full Contract Amount	1	L.S.	N/A	$
302	Project Payment Bond equal to 50% of Full Contract Amount	1	L.S.	N/A	$
303	Project Maintenance Bond equal to 100% of Full Contract Amount for a period of 30 months	1	L.S.	N/A	$

ADDITIVE FEE SCHEDULE: MISCELLANEOUS EQUIPMENT (TO PROVIDE AS REQUIRED)

Item	Description	Qty	Unit	Unit Cost	Amount
401A	4" Column, 0.237 wall, 20' length	21	L.F.	$	$
401B	5" Column, 0.258wall, 20' length	21	L.F.	$	$
401C	6" Column, 0.280 wall, 20' length	21	L.F.	$	$
402A	4" Column Coupling	1	EA.	N/A	$
402B	5" Column Coupling	1	EA.	N/A	$
402C	6" Column Coupling	1	EA.	N/A	$
403	Furnish and install submersible power supply cable for 5 Hp Submersible, 460 volt, 3 phase, 60 cycle pumping unit	150'±	L.F.	$	$
407A	½" PVC chlorination/sounding tube and stainless steel straps	150'±	L.F.	$	$
407B	¾" PVC chlorination/sounding tube and stainless steel straps	150'±	L.F.	$	$

EXHIBIT A

WELL 11, 12, 19 AND 20 PUMPING UNIT REHABILITATION AND WELL REHABILITATION

SPECIAL REQUIREMENTS

1. The Work

The Work shall include all labor, materials, equipment, and methods required for inspection and repair or replacement of the District's existing Well 11, 12, 19 and Well 20 domestic water well pumping units and rehabilitation of Well 11, 12, 19 and Well 20 in accordance with the Scope of Work-Fee Schedule. The Owner reserves the right to award Schedule I, Schedule II, Schedule III, Schedule IV or all Schedules as part of the well rehabilitation contracts as shown in Exhibit "A". Specific work to be performed identified in Exhibit "A" includes the following general items for each well as follows:

I. Well 11

Remove, inspect, rehabilitate, and refurbish the existing submersible well pumping unit and column and possibly refurbish the existing bowl assembly or furnish a new bowl assembly (based upon existing equipment inspection), provide new 7.5 horsepower electric submersible motor, and bail well clean, re-install the existing or new equipment for Well
11. Bidder (Vendor) shall complete all items included in Exhibit "A" Schedule I – Well 11, Scope of Work Fee Schedule. The Work will include all work listed in the Scope of Work-Fee Schedule and Alternate Work-Fee Schedule and as described herein.

District will notify Vendor of acceptance of total Project Amount with a "Notice to Proceed" letter for Well 11 work items.

A. The Vendor shall furnish all materials, labor, equipment, tools, transportation and services for the removal of the District's existing Well 11 submersible pumping unit and 120' of column, inspection of said column, pumping unit, and pumping unit power cable, rehabilitation of pump bowl assembly (or re-equipping with new pump bowl assembly, as required) for Well 11.

Well 11 is located within an existing block wall building with a removable wood roof structure located within Edgar Canyon approximately 50 feet North of 12303 Oak Glen Road, Yucaipa, CA. The entrance to Well 11 is made via an existing District access road located north of 12303 Oak Glen Road, Yucaipa, CA. A location map, Plan view of the Site, and Site Photographs are attached in Appendix "B" for Well 11.

B. Well 11 consists of an existing well with a 10" steel casing from 0' to 145' below ground surface.

C. The Work includes all work set for on the Scope of Work-Fee Schedule and generally as described in the following items:

Well 11 Work to be Performed by Vendor

- Provide temporary facilities as necessary for removal of pumping facilities
- Remove existing Well 11 submersible pumping unit equipment including 7.5 horsepower 480 volt 3 phase electric submersible motor, discharge head, 120'± of column and power cable, and Grundfos pump. Tag well to determine presence of fill.
- Inspect and provide comments and/or recommendations regarding serviceability of existing pump column and column couplings.
- Deliver the District's existing 7.5 hp submersible electric motor from the Well 11 project site to the vendor's yard for inspection.
- Haul column, column couplings, submersible motor, and pump bowl assembly to Vendor yard for evaluation regarding condition and serviceability of the column..
- Recondition (as required) 120'± of existing pump column.
- Disassemble and inspect pump bowl assembly. Measure and record wear and damage. Provide report and recommendations to District of bowl conditions and refurbishment options (this work is to be completed in order for the District to access the existing bowl condition only, upon completion of this work, the District will then make the decision whether to rebuild the existing bowl assembly or replace said existing bowl assembly with a new bowl assembly). In the event the District elects to replace the existing bowl assembly, said existing bowl assembly shall be delivered from the Vendors place of disassembly to the District's Well 2 site for storage subsequent to disassembly and inspection.
- Provide report and recommendations to District of column and column coupling conditions and serviceability.
- Bail well clean.
- Clarify water in preparation for initial (pre cleaning) video log. Perform color video log of well and provide comments and recommendations to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District).
- If District elects to chemically rehabilitate the well, the Vendor shall chemically and mechanically rehabilitate the well as set forth in the specifications. Fee shall be based upon actual work performed.
- If District selects to replace the pumping unit bowl assembly, the Vendor shall furnish a new replacement bowl assembly to match existing pumping unit bowl

assembly. Bowl assembly shall be furnished and installed to meet pumping unit requirements set forth in Specification Section 11325. Fee shall be based upon replacing the existing Grundfos Pump End bowl assembly with a new Grundfos Pump End bowl assembly, or approved equal

- Refurbish existing pump discharge elbow as necessary, as required.
- Furnish and install new 7.5 hp submersible electric motor at the Well 11 project site.
- Install pumping unit including refurbished or new bowls, existing pump column, couplings, discharge head and new 7.5 hp submersible electric motor and level discharge elbow, and meggar pumping unit.
- Coordinate installation of Owner furnished and installed fire hose or piping to existing recharge ponds (for water clarification) directly east of well site. Owner will furnish and install discharge hose or piping for well startup water clarification prior startup of Well 11.
- Start up and performance test new and existing equipment, controls and instrumentation; Vendor shall operate pump as required.
- Disinfect well in accordance with Specification Section 11320, State of California Department of Health Service requirements and in accordance with AWWA procedures
- Clean up well site.

Well 11 Work to be Performed by District's Staff

- Assist Vendor with disassembly of Well 11 building's removable roof. Vendor shall provide truck crane for actual roof removal activity.
- District will perform bacteriological testing and assist Vendor with pumping unit startup and testing.
- District will install temporary discharge hose for rehabilitation (if performed) and for well startup and testing water clarification prior to discharge.

II. Well 12

Remove, inspect, rehabilitate, and refurbish the existing well pump line shaft and bowl assembly or furnish a new bowl assembly (based upon existing equipment inspection), and bail well clean, perform video inspection of well, and re-install the existing or new equipment for Well 12. Bidder (Vendor) shall complete all items included in Exhibit "A" Schedule II – Well 12, Scope of Work Fee Schedule. The Work will include all work listed in the Scope of Work-Fee Schedule and Alternate Work-Fee Schedule and as described herein.

District will notify Vendor of acceptance of total Project Amount with a "Notice to Proceed" letter for Well 12 work items.

A. The Vendor shall furnish all materials, labor, equipment, tools, transportation and services for the removal of the District's existing Well 12 pumping unit, inspection of said pumping unit, rehabilitation of pump bowl assembly and line shaft (or re-equipping with new pump bowl assembly and/or line shaft, as required).

Well 12 is located in an existing masonry wall building with a removable wood roof structure which is located within Edgar Canyon approximately 750 feet northeast of

12303 Oak Glen Road, Yucaipa, CA. A location map, plan view of the site, and site photographs are attached in Appendix "B" for Well 12.

B. The Well 12 Work includes all work set for on the Schedule II– Well 12 Scope of Work-Fee Schedule and generally as described in the following items:

Well 12 Work to be Performed by Vendor

- Provide temporary facilities as necessary for removal of pumping facilities.
- Remove existing Well 12 pumping unit equipment including 20 horsepower 480 volt 3 phase electric motor, discharge head, 150'± of column and line shaft (including couplings, centering spiders, and bearings) for water lubricated pumping unit. Tag well to determine presence of fill.
- Inspect and provide comments and/or recommendations regarding serviceability of existing pump column and shaft.
- Deliver the District's existing 20 hp electric motor from the Well 12 project site to the District's electrical repair vendor, Brithinee Electric. District will arrange and pay for Brithinee Electric to inspect and perform a full spectrum vibration analysis on the existing motor and make any repairs deemed necessary to the motor. Brithinee Electric is located at 620 South Rancho Avenue in the City of Colton, Ca.
- Haul column, line shaft, centering spiders, bearings, and pump bowl assembly to Vendor yard for evaluation regarding condition and serviceability of the column, line shaft, centering spiders, bearings, and bowl assembly.
- Inspect existing column removed from Well 12. Provide written report and recommendations to District of column conditions and serviceability.
- Recondition (as required) existing pump column and line shaft.
- Disassemble and inspect pump bowl assembly. Provide report and recommendations to District of bowl conditions and refurbishment options (this work is to be completed in order for the District to access the existing bowl condition only, upon completion of this work, the District will then make the decision whether to rebuild the existing bowl assembly or replace said existing bowl assembly with a new bowl assembly). In the event the District elects to replace the existing bowl assembly, said existing bowl assembly shall be delivered from the Vendors place of disassembly to the District's Well 2 site for storage subsequent to disassembly and inspection.
- Bail well clean.
- Clarify water in preparation for initial (pre cleaning) video log. Perform color video log of well and provide comments and recommendations to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District).
- If District selects to replace the pumping unit bowl assembly and/or motor, the Vendor shall furnish a new replacement bowl assembly and/or motor. Bowl assembly and motor shall be furnished and installed to meet pumping unit and motor requirements set forth in Specification Section 11320. Fee shall be based upon replacing the existing bowl assembly with a new Flowserve, Goulds, or approved equal bowl assembly.

- Refurbish existing pump discharge head as necessary, as required.
- Pick up and deliver the District's existing 20 hp electric motor from the District's electrical repair vendor, Brithinee Electric to the Well 12 project site.
- Install pumping unit including refurbished or new bowls, existing pump 150'± of column, line shaft, centering spiders, bearings and electric motor.
- Coordinate installation of any appurtenances necessary to flush well. Owner will furnish and install discharge hoses or piping for well startup water clarification prior startup of Well 12.
- Start up and performance test new and existing equipment, controls and instrumentation; Vendor shall operate pump as required.
- Disinfect well in accordance with Specification Section 11320, State of California Department of Health Service requirements and in accordance with AWWA procedures
- Clean up well site.

Well 12 Work to be Performed by District's Staff

- Assist Vendor with disassembly and assembly of Well 12 building's removable roof. Vendor shall provide truck crane for actual roof removal activity.
- District will perform bacteriological testing and assist Vendor with pumping unit startup and testing.
- District will install temporary discharge hose or piping for rehabilitation (if performed) and for well startup and testing water clarification prior to discharge.

III. Well 19

Remove, inspect, rehabilitate, and refurbish the existing well pumping unit and column and possibly refurbish the existing bowl assembly or furnish a new bowl assembly (based upon existing equipment inspection), and bail well clean, re-install the existing or new equipment for Well 19. Bidder (Vendor) shall complete all items included in Exhibit "A" Schedule III – Well 19, Scope of Work Fee Schedule. The Work will include all work listed in the Scope of Work-Fee Schedule and Alternate Work-Fee Schedule and as described herein.

District will notify Vendor of acceptance of total Project Amount with a "Notice to Proceed" letter for Well 19 work items.

A. The Vendor shall furnish all materials, labor, equipment, tools, transportation and services for the removal of the District's existing Well 19 pumping unit and column, inspection of said column, pumping unit, and rehabilitation of pump bowl assembly (or re-equipping with new pump bowl assembly, as required) for Well 19.

Well 19 is located within an existing wood wall building with a removable wood roof structure located within Edgar Canyon approximately 550 feet southeast of 12303 Oak Glen Road, Yucaipa, CA. The entrance to Well 19 is made via an existing District access road located at 12303 Oak Glen Road, Yucaipa, CA. A location map, Plan view of the

Site, and Site Photographs are attached in Appendix "B" for Well 19.

B. The Work includes all work set for on the Scope of Work-Fee Schedule and generally as described in the following items:

Well 19 Work to be Performed by Vendor

- Provide temporary facilities as necessary for removal of pumping facilities
- Remove existing Well 19 pumping unit equipment including 10 horsepower 480 volt 3 phase electric motor, discharge head, 130'± of column and line shaft (including couplings, centering spiders, and bearings) for water lubricated pumping unit. Tag well to determine presence of fill.
- Inspect and provide comments and/or recommendations regarding serviceability of existing pump column and column couplings.
- Haul column, column couplings, and pump bowl assembly to Vendor yard for evaluation regarding condition and serviceability of the column, tube, and shaft.
- Recondition (as required) 130'± of existing pump column.
- Disassemble and inspect pump bowl assembly. Measure and record wear and damage. Provide report and recommendations to District of bowl conditions and refurbishment options (this work is to be completed in order for the District to access the existing bowl condition only, upon completion of this work, the District will then make the decision whether to rebuild the existing bowl assembly or replace said existing bowl assembly with a new bowl assembly). In the event the District elects to replace the existing bowl assembly, said existing bowl assembly shall be delivered from the Vendors place of disassembly to the District's Well 2 site for storage subsequent to disassembly and inspection.
- Provide report and recommendations to District of column and column coupling conditions and serviceability.
- Bail well clean.
- Clarify water in preparation for initial (pre cleaning) video log. Perform color video log of well and provide comments and recommendations to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District).
- If District selects to replace the pumping unit bowl assembly, the Vendor shall furnish a new replacement bowl assembly to match existing pumping unit bowl assembly. Bowl assembly shall be furnished and installed to meet pumping unit requirements set forth in Specification Section 11325. Fee shall be based upon replacing the existing Pump End bowl assembly with a new Flowserve, Goulds, or approved equal.
- Refurbish existing pump discharge head as necessary, as required.

- Install existing 10 HP electric motor at the Well 19 project site.
- Furnish and install 480 Volt electric motor control panel.
- Install pumping unit including refurbished or new bowls, existing pump column, couplings, discharge head and 10 HP electric motor and level discharge elbow, and meggar pumping unit.
- Coordinate installation of Owner furnished and installed fire hose or piping for well flushing (for water clarification). Owner will furnish and install discharge hose or piping for well startup water clarification prior startup of well 19.
- Start up and performance test new and existing equipment, controls and instrumentation; Vendor shall operate pump as required.
- Disinfect well in accordance with Specification Section 11320, State of California Department of Health Service requirements and in accordance with AWWA procedures
- Clean up well site.

Well 19 Work to be Performed by District's Staff

- Assist Vendor with disassembly of Well 19 building's removable roof. Vendor shall provide truck crane for actual roof removal activity.
- District will perform bacteriological testing and assist Vendor with pumping unit startup and testing.
- District will install temporary discharge hose for rehabilitation (if performed) and for well startup and testing water clarification prior to discharge.

IV. Well 20

Remove, inspect, rehabilitate, and refurbish the existing submersible well pumping unit and column and possibly refurbish the existing bowl assembly or furnish a new bowl assembly (based upon existing equipment inspection), provide new 5 horsepower electric submersible motor, and bail well clean, re-install the existing or new equipment for Well 20. Bidder (Vendor) shall complete all items included in Exhibit "A" Schedule IV – Well 20, Scope of Work Fee Schedule. The Work will include all work listed in the Scope of Work-Fee Schedule and Alternate Work-Fee Schedule and as described herein.

District will notify Vendor of acceptance of total Project Amount with a "Notice to Proceed" letter for Well 20 work items.

D. The Vendor shall furnish all materials, labor, equipment, tools, transportation and services for the removal of the District's existing Well 20 submersible pumping unit and 170' of column, inspection of said column, pumping unit, and pumping unit power cable, rehabilitation of pump bowl assembly (or re-equipping with new pump bowl assembly, as required) for Well 20.

Well 20 is located within an existing wood wall building with a removable wood roof structure located within Edgar Canyon approximately 715 feet South of 12303 Oak Glen Road, Yucaipa, CA. The entrance to Well 20 is made via an existing District access road located at 12303 Oak Glen Road, Yucaipa, CA. A location map, Plan view of the Site, and Site Photographs are attached in Appendix "B" for Well 20.

E. Well 20 consists of an existing well with a 12" steel casing from 0' to 170' below ground surface.

F. The Work includes all work set for on the Scope of Work-Fee Schedule and generally as described in the following items:

Well 20 Work to be Performed by Vendor

- Provide temporary facilities as necessary for removal of pumping facilities
- Remove existing Well 20 submersible pumping unit equipment including 5 horsepower 480 volt 3 phase electric submersible motor, discharge head, 150'± of column and power cable, and Grundfos pump. Tag well to determine presence of fill.
- Inspect and provide comments and/or recommendations regarding serviceability of existing pump column and column couplings.
- Deliver the District's existing 5 hp submersible electric motor from the Well 20 project site to the vendor's yard for inspection.
- Haul column, column couplings, submersible motor, and pump bowl assembly to Vendor yard for evaluation regarding condition and serviceability of the column..
- Recondition (as required) 150'± of existing pump column.
- Disassemble and inspect pump bowl assembly. Measure and record wear and damage. Provide report and recommendations to District of bowl conditions and refurbishment options (this work is to be completed in order for the District to access the existing bowl condition only, upon completion of this work, the District will then make the decision whether to rebuild the existing bowl assembly or replace said existing bowl assembly with a new bowl assembly). In the event the District elects to replace the existing bowl assembly, said existing bowl assembly shall be delivered from the Vendors place of disassembly to the District's Well 2 site for storage subsequent to disassembly and inspection.
- Provide report and recommendations to District of column and column coupling conditions and serviceability.
- Bail well clean.
- Clarify water in preparation for initial (pre cleaning) video log. Perform color video log of well and provide comments and recommendations to District. Camera shall be capable of lateral (side) as well as axial viewing. Provide DVD disk (2 copies) to District. (Survey shall be conducted by an independent party approved by District
- If District selects to replace the pumping unit bowl assembly, the Vendor shall furnish a new replacement bowl assembly to match existing pumping unit bowl

assembly. Bowl assembly shall be furnished and installed to meet pumping unit requirements set forth in Specification Section 11325. Fee shall be based upon replacing the existing Grundfos Pump End bowl assembly with a new Grundfos Pump End bowl assembly, or approved equal

- Refurbish existing pump discharge head as necessary, as required.
- Furnish and install new 5 hp submersible electric motor at the Well 20 project site.
- Install pumping unit including refurbished or new bowls, existing pump column, couplings, discharge head and new 5 hp submersible electric motor and level discharge elbow, and meggar pumping unit.
- Coordinate installation of Owner furnished and installed fire hose or piping to existing recharge ponds (for water clarification) directly east of well site. Owner will furnish and install discharge hose or piping for well startup water clarification prior startup of Well 20.
- Start up and performance test new and existing equipment, controls and instrumentation; Vendor shall operate pump as required.
- Disinfect well in accordance with Specification Section 11320, State of California Department of Health Service requirements and in accordance with AWWA procedures
- Clean up well site.

Well 20 Work to be Performed by District's Staff

- Assist Vendor with disassembly of Well 20 building's removable roof. Vendor shall provide truck crane for actual roof removal activity.
- District will perform bacteriological testing and assist Vendor with pumping unit startup and testing.
- District will install temporary discharge hose for rehabilitation (if performed) and for well startup and testing water clarification prior to discharge.

2. Disposal of Rehabilitation (if required), Disinfection and Testing Water

Disposal of rehabilitation, chlorinated water and testing water may be through a District furnished and installed discharge hose from each existing well site to a point of discharge into the District's existing recharge ponds located in the vicinity of each well site. Vendor shall coordinate well discharge with the District to ensure that existing properties are protected and that well discharge does not overtop said existing recharge ponds.

3. Authorization to Proceed

Owner will provide an Authorization to Proceed Letter for each well site to the Vendor. The Vendor will then be authorized to begin Contract Work submittal document submission, material ordering, and construction scheduling.

4. Working Hours

Vendor shall perform all work between 7:00 AM and 5:00 PM, Monday through Thursday. Vendor shall not work on Owner holidays. Said holidays are as follows:

New Year's Day
Martin Luther King Jr. Day
Presidents Day
Memorial Day
Independence Day
Labor Day
Veterans Day - November 11
Thanksgiving Day
Day After Thanksgiving Day
Christmas Day

When a legal holiday falls on a Saturday, it is observed on the preceding Friday, when it falls on a Sunday, it is observed on the following Monday.

5. Permits, Certificates, Laws, and Ordinances

Vendor shall, at his own expense, procure all permits, certificates, and licenses required of him by the State of California, County of Riverside, County of San Bernardino, California Regional Water Quality Control Board, South Coast Air Quality Management District, or any other authority or agency having jurisdiction for the execution of the Work. Vendor shall comply with all federal, state, and local laws, ordinances, or rules and regulations relating to the performance of said Work.

6. Records

The Vendor shall keep records providing the following information for those items of work that are performed:

A. A complete daily log and record on the well shall be furnished to the District.
B. Complete log of existing materials and equipment removed from the existing wells
C. Complete log of existing or new materials and equipment installed in existing wells
D. As-Built Drawings/Submittals documenting final construction.

7. Project Completion Date

Project completion date shall be 30 days from the date of the Authorization to Proceed Letter for each well site issued by the District. The 30 day completion date will be adjusted for each well as necessary to provide for material acquisition delays in the event the existing pumping units are not refurbished and new pumping unit bowl assemblies are required.

8. Liquidated Damages for Delay

Vendor shall pay to Owner, as fixed and agreed, liquidated damages for each calendar day's delay in the completion of all the work beyond the time agreed upon, the amount of $200.00.

9. Contract Information/Drawings

The following Appendices are made a part of these Contract Documents:

APPENDIX LIST
(Attached in the back of these Contract Documents)

Title	Appendix No.
Specification 11320 - Deepwell Vertical Turbine Pumping Unit Technical Specifications	A
Specification 11325 - Submersible Deepwell Vertical Turbine Pumping Unit Technical Specifications	
Specification 11330- Technical Specifications Well Rehabilitation Specifications Rehabilitation of Well 11, 12, 19 and 20	
Well 11 Location Map, Site Plan Image, and Photos	B
Well 12 Location Map, Site Plan Image and Photos	
Well 19 Location Map, Site Plan Image and Photos	
Well 20 Location Map, Site Plan Image and Photos	
Well 11 Well and Pumping Unit Information Well 12 Well and Pumping Unit Information Well 19 Well and Pumping Unit Information Well 20 Well and Pumping Unit Information	C
Sample Maintenance Bond	D

10. Right to Change Work

District reserves the right to direct Vendor to cease work upon the well at any phase and to determine payment for work performed in accordance with the bid unit prices. District also reserves the right to either increase or decrease other related work in accordance with the aforementioned unit prices. Payment for all work shall be predicated upon work completed.

11. Payment Requests

Vendor shall submit all partial payment requests and final payment request to District. Payment requests shall be submitted by the 18th day of the month preceding the month in which payment will be made. On approval by the District, partial payments will be made by the first day of the month following the month in which request for payment is made.

All payment requests shall show all Scope of Work-Fee Items and sub items for the Contract Work. In addition, said requests shall show the percentage of completion of each Fee Item and sub item and the amount thereof, said amounts being totaled to arrive at the value of the completed

Work. The net partial payment amount shall equal 95% of said total.

12. Site Maintenance

A. The Vendor shall at all times maintain each well site and each discharge site in a neat and orderly fashion, free from trash and construction waste materials. All cleared and waste material shall become the property of the Vendor and shall be disposed of by him outside the limits of the work in accordance with applicable ordinances and regulations of governmental agencies having jurisdictions.

B. Unattended construction materials and equipment shall be left in a manner such that they do not constitute fire hazards, exposed to vandalism, or become a nuisance or danger due to forces of nature such as rain or wind.

C. The Vendor shall secure well head (plate off) at all times when well work is not being actively performed with a securing system acceptable to the District.

D. Existing improvements as designated by the District, whether on the construction site or on other property, shall be protected in place and shall be provided with adequate access.

E. While construction is being conducted, the Vendor shall provide safety in the area of construction.

F. Vendor shall remove any sediment deposited to city streets or storm water channels on a daily basis.

13. Data to be submitted by Vendor

Vendor shall furnish District the following data and said data must be accepted by District prior to performing any Contract Work appurtenant to specific submittal items. Data (two copies) shall be submitted directly to the District for review and acceptance or rejection. Vendor shall submit five copies of accepted data the District for distribution of same.

A. Material and Equipment Lists with Catalogs

Schedule I Pump shaft, line shaft, bearing, and coupling manufacturer's data sheets
Schedule I Pump column and coupling manufacturer’s data sheets
Schedule II Pump column materials and couplings manufacturer’s data sheets

B. Fabrication and Component Drawings with Diagrams

Schedule I Pumping unit bowl assembly and appurtenances
Schedule II Submersible pumping unit motor and bowl assembly and appurtenances

C. Construction Schedule

Construction Schedule

D. Well Chemical Rehabilitation Materials (if required)

Materials and Proposed Methods of Well Chemical Rehabilitation and Pump

Development (if determined to be performed subsequent to initial well video).

14. Vendor Cooperation and Coordination

Vendor shall cooperate with District and all jurisdictional agencies. Vendor shall establish a work schedule sufficiently in advance of work to permit coordination of work with District and other agencies. Owner will have representatives on site to observe and verify compliance with Contract Documents. Vendor shall not operate any existing facilities, including opening or closing of pipeline valves.

15. Construction Water and Power

Owner will provide a reasonable quantity of construction water free of charge from Owner's existing potable water system. Vender is notified that water pressure near the well facilities consists of low pressure water supply and pumps will be necessary if high pressure water delivery is required. Vendor shall apply for an Owner supplied meter. Vendor shall furnish and install Owner approved backflow device (as necessary) and all necessary piping and appurtenances, including pumps and water trucks, necessary to convey water from Owner's meter to work location.

Vendor shall provide required power to perform all phases of work.

16. Specified Model Numbers

All model numbers used herein are provided for information only, to assist Vendor in selecting equipment that conforms to Specifications. In case of any conflict between model numbers given herein and the descriptive specifications or performance specified, the descriptive specifications and performance specified shall govern.

17. Well Protection

The Vendor shall protect open wells by installing a steel locking cover which shall be maintained in place at all times unless work within the well is actively in progress.

18. Well Disinfection

Unless otherwise stated, the Vendor shall use the following procedure to disinfect well and that the Vendor shall perform and assist District's Staff with disinfection and pump startup as described hereafter and as necessary to achieve well disinfection:

A. Immediately prior to installation of permanent pumping equipment, Vendor shall disinfect pumping unit components with chlorine.

B. Upon completion of well pumping unit installation, the Vendor shall disinfect the well and installed pumping unit with chlorine solution.

1) Vendor shall dose the well by adding liquid chlorine solution to well to obtain required concentration of at least 100 parts per million.

2) Immediately after dosing the well, District and Vendor shall pump water to ground surface until chlorine is detected and shall then allow the water to return into the well. Vendor shall repeat said procedure twice at one hour intervals.

3) The well will then be allowed to stand without pumping or agitation for 24 hours.

4) The District and the Vendor shall then pump the well to waste until chlorine is no longer evident, and shall continue to pump the well to waste for 15 minutes thereafter.

5) The District and the Vendor shall then allow the well to stand without pumping or agitation for 24 hours prior to sampling.

6) The District will then secure two samples of water from the well in approved containers, and have said samples analyzed by a State certified analytical laboratory for total coliform (presence/absence), fecal coliform (presence/absence), and heterotrophic plate count. The District will secure the first sample within five minutes of starting the pump at the specified pumping rate, and the second sample thirty minutes thereafter.

7) The well shall be deemed properly disinfected only if the sample analysis results indicate absence of total coliform bacteria, absence of fecal coliform bacteria, and a heterotrophic plate count of less than 500 colony forming units per milliliter (CFU/ml).

8) If the sample analysis results do not indicate that the well was properly disinfected, the District and the Vendor shall repeat the entire disinfection procedure, including sampling, sample analysis, and reporting of sample analysis results.

C. After 24 hours, the Vendor will assist the District, as necessary, to secure two samples of water from the well in approved sealed containers. District will have said samples analyzed by a State certified analytical laboratory for chlorine residual, total coliform (presence/absence), *e. coli* (presence/absence), and heterotrophic plate count. The District will secure the first sample within five minutes of starting the pump at the specified pumping rate, and the second sample thirty minutes thereafter.

D. The well shall be deemed properly disinfected only if the sample analysis results indicate absence of total coliform bacteria, absence of *e. coli* bacteria, and a heterotrophic plate count of less than 500 colony forming units per milliliter (CFU/ml)

APPENDIX A

Specification Section 11320
Deep well Vertical Turbine
Pumping Unit Technical Specification

Specification Section 11325
Submersible Deep well Vertical Turbine
Pumping Unit Technical Specification

Specification Section 11330
Technical Well Rehabilitation Specification
Rehabilitation

SECTION 11320

DEEPWELL VERTICAL TURBINE PUMPING UNIT
TECHNICAL SPECIFICATIONS

PART 1 - GENERAL

1.1 Specific Project Description

Contractor shall provide a new bowl assemble, as necessary for Well 12 and 19 in accordance with Schedule I and II, Fee Schedule Items 110 and 113 and Item 1.02, hereafter. Specific pumping unit related work to be performed as part of this project is identified in the Schedule I- Well 12 Fee Schedule-Scope of Work. Schedule II well 19 fee schedule – Scope of Work Well 12 and 19. Pumping Unit Repair Special Requirements, and generally described as follows:

In the event the existing pumping unit is deemed non re-buildable Contractor shall provide up to two (2) new deepwell vertical turbine pumping units (bowl assemblies) to meet the specific project pumping unit requirements described in Section 1.02, below.

1.2 Specific Project Pumping Unit Requirements (if existing pumping unit bowl assemblies are deemed non-re-buildable

A. General

The Contractor shall provide a complete new deep well pump bowl assembly (bowls, bearings, impellers, etc) consisting of a cast or ductile iron bowl assembly to meet pumping unit performance requirements specified herein for Well 12 and well 19 as necessary.

Well 12's existing pumping unit consists of a water lubricated line shaft vertical turbine pump. Well 19's existing pumping unit consists of a water lubricated line shaft vertical turbine pump All new pumping unit components shall meet the performance requirements of this specification section, as listed below.

Bidders shall submit fabrication drawings for each new bowl assembly as required and certified pump performance curves per Section 1.03 herein.

B. Well No. 12 and Well No. 19 Pumping Units

1. Performance (Pump preliminary performance criteria set forth is based on the existing District historic flow rate and head information for each identified pumping unit.

Well Number	Discharge Capacity (GPM)	Bowl Head (Feet)
12	300	N/A
19	240	N/A

2. The well 12 pumping unit shall be of the water lubricated line shaft (water lubricated), enclosed impeller deepwell vertical turbine unit design.
The well 19 pumping unit shall be of the water lubricated line shaft (water lubricated) enclosed impeller deep well vertical turbine unit design.

3. Well 12 Maximum Horsepower - Speed 20 hp - 1800 rpm
Well 19 Maximum Horsepower – Speed 10 hp – 1800 rpm

At no point on the pump curve shall the existing driving equipment be overloaded.

4. Bowl Assembly Diameter: sized to fit within existing well casing.

5. Column Piping: Wire brush, steam clean, scrape, and reuse existing column piping from Wells 12 and 19. In the event some of the pump column is deemed unsuitable for service, Vendor shall contact District for approval of replacement of column with new column piping quoted in Bid Schedule I and II.

6. Refurnish and install existing refurbished (as necessary) stainless line shafting (water lubricated). Vendor to verify actual length and dimensions. Provide all couplings, bearings, keys, bolts and nuts.

7. Discharge Head: Reuse existing cast iron discharge head for each well. Vendor shall refurbish existing discharge heads for reinstallation of pumping unit. Vendor shall re-plumb and reinstall pump line shaft water lubrication line and all oil lubrication line to the discharge head.

Existing well 12 and 19 discharge head: Cast Iron

8. Pump manufacturer shall select pump and verify performance in the event the existing pumping unit is non-rebuildable. Selected pump shall be approved by District.

9. Existing pump: Well 12 – Peerless Pump Model Number unknown. Well 19 – Peerless Pump – Model number unknown. (See Appendix C for specific information) as available.

E. <u>Existing Motor</u>

1. Horsepower: Well 12 – 20 hp /Well 19 – 10 hp

Brake Horsepower (Field) shall not exceed nameplate rating within entire operating range.

2. Power: 3 phase, 60 hertz, 460 volts.

3. Speed: 1800 RPM (no load).

4. Starting Characteristics: Full Voltage Contactor

1.3 Pumping Unit Data to be submitted by Bidder

Unless specified otherwise in Section 1.02 herein, bidder shall submit a certified pumping unit component drawing for each different pumping unit to be furnished and it shall show dimensions of pumping unit and its components including bowl assembly, connection to existing column assembly and shaft assembly, discharge head assembly, motor, and related appurtenances.

Bidders shall submit a certified pump performance curve together with design calculations for each different pump to be furnished. Each curve shall show head versus capacity, pump bowl efficiency versus capacity, brake horsepower versus capacity, and overall (wire to water) efficiency versus capacity, all for full operating range specified.

Each certified pump curve shall be continuous from zero capacity to maximum pumping unit capacity on the abscissa. It shall be furnished full size on 8-1/2 inches (ordinate) x 11 inches (abscissa) paper. Bidder shall indicate certified values on each curve for the following characteristics at all specified design points since consideration will be given thereto in selecting units to be furnished.

A. Discharge capacity in gallon per minute.

B. Total discharge head in feet (bowl head).

C. Pump bowl efficiency.

D. Brake horsepower (including losses in pump, shaft, column, and head).

E. Wire to water efficiency (including losses in motor, pump, shaft, column, and head).

F. Down thrust and momentary up thrust.

G. Net positive suction head (close coupled booster application only).

Bidder shall submit a guaranteed motor performance curve together with other performance data for each different motor to be furnished. Each curve shall denote horsepower, service factor, efficiency, locked rotor current, and temperature rise and each curve shall show efficiency, power factor, speed, kilowatt input, current, and line voltage under operating range between full load and half load.

1.4 Vendor Submittals **(Provide Submittals Only for New Equipment)**

Complete submittals (shop drawings) showing performances, fabrication, assembly, and installation, together with detailed specifications and data covering performance and materials of construction, power drive assembly, parts, devices, wiring diagrams, and other accessories forming a part of the pumping units shall be submitted. Submittals shall include, but shall not be limited to, the following:

A. Submit the following minimum information for each pumping unit specified herein for the District's review and approval:

   1. Items as specified in Section 1.03

   2. Type and model number with reference to pumping units suitability for service for pumps specific intended use.

3. Assembly drawing, nomenclature and material list.

4. Type, manufacturer, model numbers, location and spacing of bearings.

5. Impeller diameter, eye area, sphere size, and identification number.

6. Maximum rotative speed.

7. Complete performance curves indicating total dynamic head, flow rate, brake horsepower, shutoff head, net positive suction head required, RPM, and efficiency.

   The manufacturer shall indicate by arrows to points on the H/Q curves the limits recommended for stable operation, between which pumps are to be operated to prevent surging, cavitation, and vibration. The stable operating range shall be as large as possible and shall be based on actual hydraulic and mechanical characteristics of the units.

   Provide certified performance curves prior to shipment.

8. Motor data, including the manufacturer, size, type designation, minimum guaranteed efficiency and power factor at full load, 3/4 load, and 1/2 load, locked motor current in amps, full load current in amps, the motor speed in rpm, mounting details, and other data as required in the Contract Documents.

9. Outline dimensions and weights of pumping unit components and as assembled.

10. Materials of pump construction including bowls, bowl lining, shafts bearings, impellers and castings. Written certification of pumping unit's capability to withstand specified pressures.

11. Protective coating of pumping unit.

12. Installation instructions.

13. Operation and maintenance manuals.

1.6 Quality

A. All pumping equipment furnished under this Section shall be of a design and manufacture that has been used in similar applications. Manufacturer shall demonstrate to the satisfaction of the District that pumps of similar construction are in service and functioning properly. Manufacturers as specified herein manufacture pumping units with acceptable quality or experience. Manufacturers must, however, meet the performance requirements stated herein for the actual pumps specified. Listing of said manufacturers does not imply that said performance requirements can be met for each pumping unit specified. Contractor shall be responsible to verify that manufacturers supplying equipment meet the size and capacity requirement specified herein.

B. Pump manufacturer shall verify applicability of pumping equipment with respect to NPSHA, suction piping, can and discharge geometry to assure prevention of cavitation, vibration, surging, overheating, corrosion, and vortexing.

C. Pumping unit Supplier shall be an authorized distributor approved by District. Said distributor shall have adequate service facilities within a 60 mile radius of District's office and shall have a service organization, machine shop facilities, and parts inventory such that servicing or replacement of pumping units can be provided with minimum delay.

PART 2 - PRODUCTS

2.1 General

Deepwell vertical turbine pumps shall be enclosed line shaft (oil lubricated) or open line shaft (water lubricated) type, whichever is specified, with aboveground flanged discharge and enclosed impellers.

All parts of the pump exposed to water shall be of stainless steel, brass, heavy cast iron, or equivalent corrosion resistant material.

Unless otherwise specified herein, all applicable provisions of AWWA E 101 (Part A), latest, are hereby made a part of these Specifications.

Pumps shall be manufactured by Flowserve, Floway, Goulds, Peerless, or approved equal.

2.2 Pump and Components

A. Pump Bowls

Bowls shall be of ductile iron double bolted or close-grained, gray cast iron, Class 30, precision cast, free from blow holes, sand pockets, and other detrimental defects as required by pump working and shutoff pressures specified under Item 1.02. Water passageways in said bowls shall be smooth so as to allow freedom from cavitation and permit maximum efficiency. Each bowl shall have end or side seal (or both) to prevent slippage of water between bowl and impeller.

Bowls shall be lined with vitreous porcelain enamel, or equal, to produce long effective life (said lining shall not be applied for the purpose of short time gain in efficiency). Lining, identical to that furnished hereunder, shall have been used in the field under similar conditions with satisfactory results for at least a five-year period.

Bowls shall be of such size to fit the well casing with proper clearance (net clearance of 2 inches or more). Bowls shall be capable of withstanding 1-1/2 times the pump shut-off head pressure (zero discharge) or twice the rated capacity pressure, whichever is greater. Bowl materials shall have a minimum tensile strength of 30,000 psi. Bowl assembly shall be provided with ductile iron double bolted construction (as necessary) to meet specific requirements set forth in Section 1.02, herein.

B. Pump Impellers

Impellers shall be of the enclosed type, constructed of SAE 40 bronze. They shall be balanced hydraulically and dynamically to prevent vibration and shall be smoothly finished on all surfaces for minimum friction. Impellers shall be accurately fitted and securely locked to the pump shaft. Vertical adjustment of impellers shall be possible by adjusting top shaft nut. Impellers in multi-stage pumps shall all have the same diameter and trim.

C. Pump Shaft

Pump shaft shall be constructed of AISI-410 or 416 stainless steel and shall be accurately machined to provide smooth operation. It shall easily withstand torsional loads and other stresses encountered within the pump. Pump shaft shall have adequate bearing support at every bowl section and at top bottom and case section, and shall be equipped with a suitable steel coupling for connection to the line shaft.

D. Pump Bearings

Pump bearings shall be sleeve type constructed of SAE 40, 64, 67, or 660 bronze, or approved equal. Bearing area, bearing cooling, and bearing lubrication shall be ample for long, trouble-free operation.

E. Discharge Case

Discharge case shall securely fasten the pump bowl assembly to the column piping. It shall be heavily reinforced with streamlined fluid passages and it shall contain sleeve bearings for the pump shaft. Discharge case shall be provided with a means of reducing to a minimum the leakage of water into the shaft enclosing tube. It shall have bypass ports of sufficient area to permit the escape of water that leaks through the seal bushing.

F. Suction Case

Suction case shall securely fasten the suction piping to the bowl assembly. It shall be heavily reinforced with streamlined fluid passages and it shall contain a sleeve bearing for the pump shaft which is effectively plugged at the bottom to form a grease container. A sand collar shall prevent sand from entering the suction case bearing.

G. Suction Pipe and Strainer

Unless specified otherwise, the suction pipe shall be 10 feet in length and comprised of the same material and diameter as the column piping. A cone type strainer shall be provided for attachment to the suction pipe. The strainer shall be galvanized steel, bronze, or equivalent and shall have a net inlet area of a least four times the suction pipe area. The maximum strainer opening shall not be more than 75% of the minimum opening of the water passage through the bowl or impeller.

H. Column Piping

Column piping shall be threaded pipe conforming to the following diameters and weights per foot, unless specified otherwise.

Nominal Size (Inches)	Outside Diameter (Inches)	Weight Per Foot (Pounds)
6	6.625	18.97
8	8.625	24.70
10	10.750	34.24
12	12.750	43.77
14	14.000	54.57
16	16.000	62.58

Pipe shall be furnished in interchangeable sections of 20-foot nominal length for enclosed line shaft and 10-foot length for open line shaft, with the exception of the top column section which shall be of 5-foot nominal length and the bottom column section which may be of shorter length. Column pipe sections shall be connected with threaded steel sleeve type couplings. Ends of each pipe section shall be faced normal to section axis and machined with threads to permit ends to butt to ensure proper alignment when assembled. Coating of the column piping, either interior or exterior, is not required.

I. Line Shaft

Line shaft shall be comprised of AISI C-1045 material for oil lubricated pumps and Type 316 stainless steel for water lubricated pumps, or approved equal. Line shaft sections excluding top and bottom sections shall match column sections (10-foot or 20-foot nominal length). Top and bottom shaft sections shall match top and bottom column sections. Unless specified otherwise, top shaft shall be two (2) piece with coupling within discharge head.

Shaft enclosing tubing shall be Schedule 80 extra heavy steel pipe, maximum 5-foot lengths. Enclosed line shafting shall be supported by bronze bearings which shall also join tube sections. Open line shafting shall be supported by rubber bearings with bronze retainers which shall also join column sections.

When enclosed line shaft is specified, molded rubber stabilizing spiders that will deform to permit proper alignment of the shafting and tubing assembly within the column shall be furnished and spaced every 40 feet maximum throughout the column length.

2.3 Discharge Head (Not Required-Refurbish and Reuse Existing Discharge Head)

Discharge head shall be constructed of high grade cast iron or fabricated steel as shown on the Drawings as specified in Section 1.02, and shall be capable of withstanding all loads imposed during normal operation. Discharge head shall be furnished with a tube tension and seal assembly, as approved by District, for enclosed line shaft and a stuffing box assembly for open line shaft.

Discharge head shall be suitably enclosed to prevent the entrance of dust and foreign material. Access to the tube tension and seal or stuffing box assembly shall be ample. Drain plugs shall be provided at the bottom. Unless specified otherwise, discharge head shall accommodate two (2) piece top shaft with coupling.

Discharge head shall have a standard flanged outlet of the size specified except where otherwise permitted. If the discharge flange is not the size specified, an adapter consisting of a smooth eccentric increaser (with bottoms level) or reducer (with tops level) shall be provided. Said adapter shall be flanged to mate the discharge head at one end and as specified at the other.

Discharge head assembly shall be capable of withstanding 1-1/2 times the pump shut-off head pressure (zero discharge) or twice the rated capacity pressure, whichever is greater.

Motor base, column flange face, and discharge flange face shall be accurately machined, faced, and drilled to NEMA and ASA Standards. Upon assembly, motor and discharge head shall form an integral unit.

2.4 Lubrication System (Not Required Reuse Existing Water Lubricated System)

Oil lubrication system shall be automatic gravity feed and it shall consist of an oil reservoir, solenoid control valve, sight feed valve, and appurtenant supports and oil lines. It shall be furnished with sight glass or other plainly visible oil indicator device.

Unless specified otherwise, oil reservoir shall have a capacity of two gallons and it shall be Peerless or approved equal. It shall be mounted on the pump discharge head unless specified otherwise.

Oiler solenoid control valve shall open or close upon command of control system and it shall be ASCO 826111, or approved equal. It shall automatically start or stop the flow of lubricating oil to the bearings. It shall also permit manual operation upon control system failure. It shall be rated 120 psi minimum, 120 volt, 60 hertz, unless specified otherwise.

Oil piping shall be sized according to the viscosity of the oil recommended by the pump manufacturer and ambient temperature at the pumping unit. Said piping shall permit conveyance of full oil supply required by pumping unit.

Water lubrication system shall be automatic unless specified otherwise. It shall consist of piping or tubing from a source of water pressurized when pump is off, solenoid control valve, and appurtenant piping supports. System shall comply with pump manufacturer's recommendations for flow.

Water solenoid control valve shall open or close upon command of control system. It shall automatically start or stop the flow of water to the shaft bearings. It shall also permit manual operation upon control system failure.

2.5 Nameplate (Required)

Nameplate, easy to read and corrosion resistant, shall be provided with each pump and shall contain complete pump information including manufacturer, serial number, model number, capacity in gallons per minute, total dynamic head in feet, and pump speed, all at specified design point. Said nameplate shall be mounted on pump head.

2.6 Vertical Hollow Shaft Electric Motor (Not Required –Refurbish and Reuse Existing Motor)

A. General

Vertical hollow shaft electric motors shall be Design B, high thrust, squirrel cage, induction type having NEMA weather protected Type I enclosures unless specified otherwise. Motors shall be built to form an integral part of pump head assembly and shall be suitable electrically and mechanically to efficiently and effectively drive pumps specified. Motors shall operate in accordance with these Specifications.

Motors shall be manufactured by General Electric Corporation, U.S. Electrical Motors Division Emerson Electric Co., or Westinghouse Electric Corporation, or approved equal. Unless specified otherwise all materials, workmanship, and tests shall conform with the applicable specifications of the National Electrical Manufacturers Association (NEMA), Institute of Electrical and Electronic Engineers (IEEE), and American Standards Association (ASA), and the Anti-Friction Bearing Manufacturers Association (AFBMA).

B. Power

Unless specified otherwise, motors shall be nameplate rated, 3 phase, 60 hertz, 460 volts.

C. Speed

Unless specified otherwise, motors shall be 4 pole and shall have no load speed of 1800 rpm.

D. Starting Characteristics

Motors rated 200 hp and smaller shall be full voltage line start and motors rated 250 hp and larger shall be part winding increment start, unless specified otherwise.

E. Efficiency

All motors shall be rated premium efficiency, unless specified otherwise. Rated efficiencies shall be based on NEMA Standard MG1-12.536. Guaranteed efficiencies shall be determined in accordance with IEEE #12, Test Method B and E, latest revision.

F. Service Factor

Rated service factor shall be 1.15 or greater.

G. Insulation System

All motors shall be provided with Class "F" or better insulation systems except that motor lead insulation may be Class "B" or better. Impregnating materials shall be rated Class "F" (155 degrees C) minimum. Completed windings, when tested in accordance with IEEE #57, latest revision, shall show a thermal rating of not less than 150 degrees C for 30,000 hour's life.

Windings shall be held firmly in stator slots to prevent coil shift. Sharp edges and burrs shall be removed from stator slots prior to winding or inserting coils. Slot liners and coil end phase insulation, in addition to the coating, shall be provided. Stator windings shall be of high conductivity copper magnet wire.

Completed stator windings shall be provided with a properly cured, uniform impregnation for mechanical rigidity, moisture resistance, and protection against winding failures from accumulation of foreign conductive matter. The completed insulation system shall be capable of withstanding phase-to-ground rms voltage of 600 volts continuous and 2,300 volts instantaneous (surge or transient).

H. Temperature Rise

Rated temperature rise above 40 degrees C ambient temperature measured by resistance at service factor load of 1.15 shall not exceed 90 degrees C.

I. Inrush Current

Motors rated between 10 hp and 50 hp shall be rated NEMA locked rotor Code H or better and motors rated 50 hp and larger shall be rated NEMA locked rotor Code G or better except where NEMA locked rotor Code H is specifically permitted.

J. Load Conditions

Actual motor loads shall not exceed the nameplate rating (horsepower) unless specified otherwise.

K. Motor Balance

Motors shall be dynamically balanced to a maximum of .001 inches peak to peak amplitude, especially at upper bearing housing.

L. Bearings

Motors shall be equipped with anti-friction type thrust and guide bearings. Angular contact ball thrust bearings shall be used in preference to spherical roller thrust bearings wherever possible. Angular contact ball thrust bearing shall be self cooled wherever possible. Water cooled angular contact ball thrust bearings shall be used only when approved by District. Spherical roller thrust bearings shall be water cooled.

Bearings shall be of sufficient capacity to carry all static and dynamic up and down thrust loads, both momentary and continuous, imposed by the pump. Bearings shall provide minimum 3 year B10 life (26,300 hours) based on continuous design thrust load or minimum 1 year B10 life (8770 hours) based on maximum pump shutoff thrust load, whichever is greater. Bearings shall also provide for minimum momentary upthrust equal to 30% of rated downthrust.

M. Bushings

Motors shall be equipped with lower end head shaft steady bushings unless specified otherwise.

N. Lubrication System

Motor thrust bearings shall be oil lubricated; however, motor guide bearings may be grease lubricated. Oil lubrication systems shall provide optimum lubrication of bearings. Said systems shall have sufficient oil storage and oil cooling capacity to limit oil bath temperature rise to 45 degrees C above 40 degrees C ambient temperature unless temperature rise of 50 degrees C is specifically permitted. Oil lubricated motors shall have visual level indicators and accessible fill and drain plugs. Indicators and plugs shall be located 180 degrees from pump discharge unless specified otherwise. Grease lubrication systems shall be regreasable and shall provide for automatic flushing or purging of grease cavity during regreasing.

O. Thermal Protection

Motors shall be equipped with 120 volt thermal sensors, one for each phase, affixed to or embedded in motor windings, set to open control circuit at 135 degrees C. All thermal sensor leads shall terminate in motor terminal box. Control modules and reset switches shall be furnished with the thermal sensors. The thermal sensors shall be Texas Instruments 4BA or 7BA, or approved equal. The control modules shall be Texas Instruments 50AA, or approved equal.

P. Space Heaters

Motors shall be equipped with 120 volt single phase belt type space heaters capable of raising motor temperature 10 degrees C above ambient temperature to prevent condensation. All space heater leads shall terminate in motor terminal box.

Q. Non-Reverse Protection

Motors shall be equipped with non-reverse mechanisms which shall limit maximum reversal to within 10 degrees of rotation.

R. Terminal Box

Motors shall be equipped with extra large heavy duty split type conduit boxes. Unless specified otherwise, motor terminal boxes shall be located 90 degrees from pump discharge.

S. Screens

Motors shall be equipped with suitable corrosion resistant safety and rodent screens. Said screens shall not interfere with motor cooling or motor heat dissipation.

T. Nameplates

Nameplates, easy to read and corrosion resistant, shall be provided with each motor and said nameplates shall include the following information:

1. Motor Data Nameplate - Manufacturer, serial number, model number, rated horsepower, service factor, frequency, phase, load voltage, full load current, full load speed, design designation, locked rotor-code, insulation class, temperature rise, ambient temperature, thermal sensor setting, NEMA nominal efficiency, guaranteed minimum efficiency, and full load power factor.

2. Connection Data Nameplate - Motor start, motor run characteristics, and motor connection diagram.

3. Bearing Data Nameplate - Manufacturers, bearing types (thrust and guide), bearing numbers, thrust capacity, oil type, minimum operating oil viscosity, maximum operating oil bath temperature, required cooling water flow, and maximum cooling water pressure.

PART 3 - EXECUTION

3.1. Pumping Unit Factory Performance Test (Not Required)

Each completed pumping unit (pump bowl assembly and vertical hollow shaft motor to be furnished) shall be given a certified factory performance test by pump manufacturer prior to shipment from factory. Pumping unit shall be tested at all design points for verification of certified performance curve furnished by Bidder and approved by District.

Tests shall be performed using suitable equipment for measuring bowl capacity, bowl head, power (input, brake, and water), and speed, all as approved by District. Equipment shall include a power meter for measuring input power (wire), a dynamometer for determination of pump brake horsepower, and a water meter for measuring output power (water). Contractor shall submit three copies of each certified factory performance test for acceptance by District. District reserves the right to have a representative present during any tests and to witness same.

3.2. Pumping Unit Installation (Required)

Contractor shall bear full responsibility for the satisfactory installation and initial operation of all pumping units furnished under these Specifications and shall provide sufficient personal supervision over all installation and startup procedures accordingly, unless otherwise specified. Contractor shall also provide all test equipment necessary to determine initial operating performance.

During installation, Contractor shall disinfect all portions of the pump bowl assembly and column piping with a chlorine solution and method acceptable to District.

3.3. Pumping Unit Field Performance Test (Acceptance Test)

After equipment has been completely installed, field tests shall be performed by the Contractor which shall be witnessed by District. Each pumping unit furnished hereunder shall be operated for a period of two weeks during which time acceptance tests may be conducted. Head capacity, overall efficiency, and input and output horsepower shall be determined for at least three different operating conditions in the operating range of the pumping unit, including the specified design point, for comparison with the certified pump curves and the factory performance test results, both as approved by District.

Pumping units (pump and motor) shall perform in the field substantially in accordance with the certified pump curves and the factory performance test results as adjusted for field conditions. If, in the opinion of District, the equipment furnished does not perform in accordance with these Specifications, Contractor shall promptly make all necessary repairs or corrections so that the equipment fully complies with these Specifications. Contractor shall remove, restore, and replace the equipment if required. Factory and field performance tests shall be rerun if necessary. Pump manufacturer's field service engineer shall assist District in the proper conduct of the above field acceptance tests.

3.4. Pumping Unit Vibration

Completed pumping unit (pump and motor) shall receive a final field trim balance, as may be required, and vibration of unit shall not exceed 0.0025 inches, peak to peak amplitude when operating. Contractor shall field measure vibration with a suitable calibrated instrument and all measurements shall be witnessed by District. Vibration shall be measured at motor thrust bearing housing and at any other locations on pumping unit as directed by District.

END OF SECTION

SECTION 11325

SUBMERSIBLE DEEPWELL VERTICAL TURBINE PUMPING UNIT TECHNICAL SPECIFICATIONS

PART 1 - GENERAL

1.1 GENERAL

This Specification is for submersible deep well vertical turbine pumps including surface plate, column pipe, submersible motor, pumping unit, submersible cable, and appurtenances. All equipment furnished under this section shall be new and of current manufacture and shall be guaranteed free from defects in material, design, or workmanship. All parts of the pump and motor exposed to water shall be of stainless steel, brass, heavy cast iron, or equivalent corrosion-proof material. Unless otherwise specified herein, all applicable provisions of ANSI/AWWA, latest edition, for Submersible Vertical Turbine Pumps, E-101, Part A, latest edition, for Vertical Turbine Pumps, are hereby made a part of these Specifications.

In the event the existing pumping unit is deemed non re-buildable Contractor shall provide one (1) new submersible deepwell vertical turbine pumping unit (bowl assembly and motor) to meet the specific project pumping unit requirements described in Section 1.02, below.

1.2 SPECIFIC PROJECT PUMPING UNIT REQUIREMENTS (if existing pumping unit bowl assembly is deemed non-re-buildable

A. General

The Contractor shall provide a complete new submersible deepwell pump bowl assembly (bowls, bearings, impellers, etc.) consisting of a type 304 stainless steel assembly to meet pumping unit performance requirements specified herein for Wells 11 and 20 as necessary.

Well 20's existing pumping unit consists of a Grundfos Submersible-1998 deepwell vertical turbine pumping unit with a 5 horsepower Submersible Motor. All new pumping unit components shall meet the performance requirements of this specification section, as listed below.

Bidders shall submit fabrication drawings for the new bowl assembly, motor assembly, and pump performance curves per Section 1.04 herein.

B. Well No. 11 and 20 Pump

1. Performance (Pump preliminary performance criteria set forth is based on the existing well performance as follows:

Well Number	Discharge Capacity (GPM)	Bowl Head (Feet)
11	50	N/A
20	100	N/A

* Design condition

2. Pumping unit shall be of the water lubricated, enclosed impeller deepwell vertical turbine unit design.

3. Maximum Horsepower - Speed – Maximum Thrust Factor: 5 hp - 1770 rpm

   At no point on the pump curve shall the existing driving equipment be overloaded.

4. Bowl Assembly Diameter as necessary to fit with existing well screen.

5. Column Piping: Wire brush, steam clean, scrape, and reuse existing column piping from Well 11 and 20. In the event some of the pump column is deemed unsuitable for service, Vendor shall contact District for approval of replacement of column with new column piping quoted in Bid Schedule III.

6. Refurnish and install existing refurbished column piping.

7. Discharge elbow: Refurbish, reuse and reinstall existing discharge elbow as required for reinstallation of pumping unit. Vendor shall re-plumb and reinstall pump all piping associated with above grade facilities removed during pumping unit removal.

8. Pump manufacturer shall coordinate pumping unit selection regarding pump and verify performance. The District assumes that the existing pumping unit will most likely not be rebuildable. Selected pump shall be approved by District.
9. Existing pump: (See Appendix C for specific information)

E. Existing Submersible Motor

1. Horsepower:
   Well 11 – 7.5 Hp Grundfos Submersible-1998 motor
   Well 20 – 5 Hp Grundfos Submersible-1998 motor

   Brake Horsepower (Field) shall not exceed nameplate rating within entire operating range.

2. Power: 3 phase, 60 hertz, 460 volts.

3. Speed: 1770 RPM (no load).

4. Starting Characteristics: Full Voltage Contactor

The pumps shall be manufactured by Grundfos or District approved equal.

1.3 UNIT RESPONSIBILITY

All combinations of manufactured equipment which are approved under this specification shall be entirely compatible and the Contractor and the listed manufacturer shall be responsible for the compatible and successful operation of the various components of the units conforming to the specified requirements. All necessary mountings, couplings, and appurtenances shall be included with each unit. All materials employed in the pump equipment shall be suitable for the intended application and shall be high grade commercial quality, free from all defects and imperfections that might affect the serviceability of the product for the purpose for which it is intended.

1.4 SUBMITTALS

Submittals shall be provided to the Engineer for approval prior to beginning manufacture/construction of the pumping units in accordance with the General Conditions. Submittals shall include:

A. Shop Drawings including the following information:

1. Pump name and identification number.

2. Pumping unit outline diagrams.

3. Pump detailed description and specification.

4. Electrical data including control and wiring diagrams.

5. Assembly and installation drawings including surface plate anchor bolt plan, part nomenclature, materials list, outline, dimensions, and shipping weight.

B. pump curves showing head versus capacity, bowl efficiency versus capacity; NPSH and BHP requirements, and thrust and moment of inertia characteristics. Each curve shall be continuous over the full operating range from zero (0) flow up to the maximum flow permissible through each pump, and shall be based upon the RPM listed. Each curve shall state the RPM speed of the pumping unit, and shall be furnished full-size on 8-1/2" x 11" paper. The Contractor shall provide pumps capable of meeting all aspects Section 1.02 and as shown on the Drawings.

C. Operation & Maintenance Manuals. Sets of printed instructions relating to proper maintenance and parts lists indicating the various parts by name, number and diagram where necessary shall be furnished in duplicate with each unit or set of identical units as required by the General and/or Special Conditions. Recommended spare parts lists shall be included and local supplier's name where spare parts are available.

1.04 OPERATING CONDITIONS.

The capacities, heads, efficiencies, and horsepower requirements are for completely assembled units and are specified in the Detailed Submersible Well Pump Specification section. Each pumping unit shall meet the requirements and design points as specified therein.

PART 2 - PRODUCT

2.1 PUMP ASSEMBLY CONSTRUCTION

A. Surface Plate (Not Required). The pump surface plate shall be of fabricated steel. The plate shall incorporate a long radius elbow welded securely to a 24" square steel base flange which shall rigidly support the entire weight of the motor, bowl assembly, column pipe, cable, and water column. The cable outlet shall have a cable seal of adequate size to accommodate the cable size. Threaded penetration couplings shall be provided for chlorination pipe and airline tubing specified herein.

B. Steel Column Pipe. Where specified, the steel column pipe shall be of ASTM A53 grade B steel pipe or ASTM A120 in interchangeable sections not over 21 feet in length and with the ends of each section faced parallel and machined with 8 straight threads per inch permitting the ends to butt and insuring alignment when connected by standard mill steel couplings. The weight of the column pipe shall be no less than that stated in ANSI Specification E101, Section 5.1 "Standard Specifications for Discharge Column Pipe". Unless specified otherwise, the column size shall be such that friction loss will not exceed 5' per 100', based on the rated capacity of the pump. Where possible, the column size shall also be such as to provide a velocity of not less than 5' per second at the rated capacity.

C. PVC Column Pipe. Where specified, PVC column pipe shall be constructed to ASTM D1784, ASTM D1785 Schedule 80, and ASTM D2837. Piping shall be of interchangeable sections not over 20 feet in length. The ends of each section shall be of a groove and spline design with PVC couplings. Piping shall be easily adaptable to solvent weld fittings (tees, elbows, flanges, etc). PVC column pipe, couplings, and fittings shall be NSF61 listed. Coupling joints use high strength thermoplastic splines to provide full 360° restraint with evenly distributed loading and shall include elastomeric sealing gaskets for water tight seal. Unless specified otherwise, the column size shall be such that friction loss will not exceed 5' per 100', based on the rated capacity of the pump. Where possible, the column size shall also be such as to provide a velocity of not less than 5' per second at the rated capacity. PVC column pipe and joint couplers shall be Certa-Lok as manufactured by CertainTeed Corporation or approved equal.

D. Submersible Motor. The motor shall be of the submersible type, capable of continuous operation at the nameplate rating under water at a maximum temperature of 77 degrees F, and if specified for Variable Frequency Duty rating shall be suitable for Variable Frequency Starting, with a maximum ramp time of no more than 5 seconds.

The motor shall be constructed of carbon steel and/or stainless steel, stainless steel and/or cast iron fitted, exterior shell shall be 304 stainless steel. All exposed fasteners, plugs, and shafting shall be of stainless steel construction.

The motor shall be rated for the horsepower and RPM specified in the Detailed Submersible Well Pump Specification Section 1.02, 3 phase, 60 Hz, 480 volt, with a minimum service factor of 1.15.

The motor shall be of the water filled "wet winding" type. It shall be filled with a 50/50 solution of water and propylene-glycol. The motor winding insulation shall consist of an epoxy enamel layer over the copper conductor, covered by a denatured polypropylene insulation layer with an external nylon sheath. The motor shall be totally enclosed, utilizing an elastomer expansion diaphragm for the equalization of the internal and external pressure.

The motor shall be equipped with a double rubber type shaft seal, to seal the motor at the point that the shaft extends through the casing. The motor shall be equipped with thrust bearings capable of carrying the weight of all rotating elements plus the hydraulic thrust of the pump at shut off head or at the design flow and head, whichever is greater. The motor shall have replaceable sleeve type radial bearings located at each end of the rotor.

The motor shall be provided with one set of three separate continuous power leads with a minimum length of 15 feet. The leads shall be internally splice directly to the stator windings.

Unless specified otherwise in Section 1.02, Submersible motor shall be as manufactured by Franklin, Hitachi, Pleuger, or approved equal.

E. Pump Bowls. The bowls shall be constructed of Type 304 Stainless Steel and must be accurately machined and fitted to close tolerances. They shall be capable of withstanding a hydrostatic pressure equal to twice the pressure at rated flow or 1.5 times shut-off head, whichever is greater. All intermediate bowls shall be of identical design for interchangeability. All the bowls shall be fitted with sleeve type bearings of bronze alloy C89835. A discharge bowl shall be used to connect bowl assembly to the discharge pipe. The bearing shall have a threaded cap or plug at the top to protect the bearing from abrasives. The hub of the discharge bowl should be such that the bearing can be easily removed through the top of the hub. A thrust ring shall be above the top impeller to prevent excessive vertical upthrust.

F. Pump Impellers. Impellers shall be the totally enclosed type. The impellers shall be constructed from Stainless Steel or ASTM B584 Silicon Bronze and statically balanced. They shall be free from defects and must be accurately cast, machined, balanced, and filed for optimum performance and minimum vibration. Impellers shall be smoothly finished on all surfaces to reduce friction losses to a minimum. Impellers shall be balanced to grade G6.3 of ISO 1940 as minimum. They shall be securely fastened to the bowl shaft with taper locks of 416 SS.

G. Pump Shaft. The pump shaft shall be constructed of ASTM A582 grade 416 stainless steel and shall be accurately machined to a sufficient dimension to provide smooth operation and to easily withstand torsional loads and other stresses encountered within the pump. The pump shaft shall have adequate bearing support at every bowl section with water lubricated bronze bearings.

H. Wear Ring. Pumps shall be fitted with replaceable wear rings of bronze material in the motor adapter and intermediate bowls. Wear rings shall have the minimum practical clearance to the mating cylinder surface of the impeller to provide adequate sealing independent of the impellers.

I. Motor Coupling. The shaft coupling shall be of stainless steel and be capable of transmitting the total torque and total thrust of the bowl assembly in either direction of rotation.

J. Motor Adaptor. The inlet motor adapter shall be of: Type 304 stainless steel or ASTM A536 Gr. 60-40-18 ductile iron and shall contain an extra long bronze bearing. The inlet area shall have a net open

area of at least four times the eye of the impeller and shall be protected with a 304 stainless steel screen. The openings on the screen shall not be more than 75% of the minimum opening of the water passage through the bowl or the impeller.

K. Submersible Cable. The submersible cable shall conform to U.L. standard 44 or 83 for submersible cable, shall have three continuous conductors rated for 600 volt. The individual conductors shall be class "B" stranded THHN/THWN insulated rated 75 degree C (wet), or better, The three conductor or four conductor cables shall be contained in a flat jacket composed of synthetic rubber or thermo plastic with non-hygroscopic fillers between the conductor cables. The cable shall be of sufficient length to allow easy connection in the terminal box at the well head. The cable shall be securely attached to the column pipe.

L. Pump Nameplate. The pump shall be supplied with an easy-to-read, corrosion resistant nameplate. It shall contain complete pump information including: pump manufacturer's name, serial number, pump model number, number of stages, speed, T.D.H. and capacity in GPM at the middle design point, year manufactured, etc. Said nameplate shall be mounted on the pump surface plate.

M. Motor Shroud. When specified in the Specification Section 1.02, a stainless steel or PVC shroud shall be installed to allow the well water to flow across the motor prior to entering the pump intake impeller to provide cooling for the motor.

When specified, the stainless steel shroud shall have a minimum wall thickness of 0.125", sized to provide an acceptable velocity across the motor at the rated flow, and adequately fit within the well casing.

When specified, the PVC shroud shall be sized to provide an acceptable velocity across the motor at the rated flow, and adequately fit within the well casing.

The shroud shall be attached to the bowl assembly per the manufactures recommendation and shall be equipped with a center device to properly center the motor inside the shroud. All fasteners shall be stainless steel.

2.2 JOINTLESS CHLORINATION PIPE. A 3/4" dia. jointless dual purpose air line / chlorination pipe of polyethylene flexible tubing shall be furnished of sufficient length to extend from the surface to the top of the bowl assembly. The tubing shall be attached to the column assembly with 1 inch wide stainless steel hose clamps spaced a maximum of 10 feet apart. Stub-up and cap-off tubing 6” above the pump surface plate.

2.3 JOINTLESS AIR LINE TUBE. A 3/8" jointless airline of polyethylene flexible tubing shall be furnished of sufficient length to extend from the surface to the top of the bowl assembly. . The tube shall be attached to the column assembly with 1 inch wide stainless steel hose clamps spaced a maximum of 10 feet apart. Stub-up and cap-off pipe 6" above the pump base plate.

PART 3 - EXECUTION

3.1 PUMPING UNIT - PUMP DEALER REQUIREMENTS. Pump supplier shall have complete office/shop facilities located within 100 miles of the job site, and shall have a 10 years minimum successful experience record for pump sales/service.

3.2 DELIVERY. The Contractor shall order the pump at the earliest possible time to allow time for the preparation, submittal, approval of shop drawings, and subsequent manufacture and installation of the pump in a timely manner.

3.3 PREPARATION. Sets of instructions for field procedures for erection, adjustments, inspection, and testing shall be provided prior to installation of the pumps, as required by the General or Special Conditions.

3.4 EQUIPMENT TESTING. The purpose of equipment testing is to demonstrate that the pump units meet the specified requirements.

A. Tests shall be performed on the actual assembled unit over the entire operating range on the certified performance curve. Prototype model tests will not be acceptable.

B. All pumps 10 to 50 horsepower shall be factory-tested in accordance with the above specifications. Pumps larger than 50 horsepower may be subject to a "factory witness test" attended by a District representative. The District shall be notified at least 2 weeks in advance such that a representative can witness the pump testing. Certified test results shall be submitted to the Engineer for approval prior to shipment.

C. Pump curves shall reflect data secured during actual test runs and shall be signed by a responsible representative of the pump manufacture. Test reports and procedures shall conform to applicable requirements of the Hydraulic Institute Standards.

3.5 INSTALLATION. The Contractor shall install all pumping equipment in strict accordance with the manufacturer's instructions. Care shall be used in handling to avoid bumping, twisting, dropping, or otherwise damaging the equipment.

All pump manufacturers shall furnish the services of factory-trained personnel as required to examine the installation, supervise start-up of equipment installed, and repair the equipment at no additional expense to the District.

3.6 FIELD ACCEPTANCE TEST. The contractor under this specification shall have full responsibility for the proper installation and performance of said pumping equipment, including furnishing the services of a pumping equipment Field Service startup personnel to inspect equipment installation, and to adjust, if necessary, any portion of the pumping equipment required herein. The manufacturer’s Field Service startup personnel shall assist the District in the proper conduct of pumping unit field acceptance tests. The pump units shall perform in the field as shown on the certified pump curves furnished by the Contractor. Tests shall also demonstrate operation without cavitation, vibration, overheating of moving parts, and excessive noise. The Contractor and pump manufacturer shall make necessary corrections to achieve smooth pump operation. In the event the tests reveal noncompliance of the workmanship or equipment, the Contractor shall either make alterations as necessary or replace the pumps in order to meet the requirements of the specifications at no additional cost to the District.

3.7 CERTIFICATION OF INSTALLATION. The Contractor shall submit a letter to the District confirming that all pumping equipment was inspected, operation checked, and installation approved in writing by the respective pumping equipment supplier.

3.8 WARRANTY. All pumping equipment shall carry an extended warranty for a two year period from the date of **acceptance**. All warranties shall be turned into the District prior to project completion.

END OF SECTION 11325

EXHIBIT "A"

SECTION 11330

TECHNICAL WELL REHABILITATION SPECIFICATIONS
REHABILITATION OF WELL 11, 12, 19, AND 20

INCLUDES ADDATIVE BID ITEM FOR CHEMICAL WELL REHABILITATION

PART 1 - GENERAL

1.01 General

If selected as an Addative Bid Item, the Vendor shall furnish all labor, equipment, materials, and services to rehabilitate wells as specified in the bidding sheets (or Scope of Work, as applicable) including removal of pumping unit, inspection of pumping unit, removal of oil from the surface of the water, wire brushing, cleaning debris from the bottom of the well, chemical treatment, disinfection, and installation of pumping unit. All work will be performed during normal working hours as set forth in the Special Requirements.

PART 2 - REHABILITATION OF WATER WELL

2.1 Removal of Pumping Unit

Vendor shall furnish all labor, equipment, materials, and services to remove and reinstall the motor, pump discharge head, column pipe, tube, shaft, and pump for the Well. All connecting appurtenances and equipment removed from the Well shall be properly lubricated and sealed from dirt, dust, water, condensation, and any other form of contamination.

Vendor shall inspect and make recommendations for repair of pumping unit bowl assembly, column for cracking/defects and tubing for defects/oil leakage.

2.2 Removal of Oil from Well (if pumping unit is an oil lubricated pump)

(a) Vendor shall furnish all labor, equipment, materials and services to remove the line shaft turbine pump oil from the water table surface following the completion of the pump removal. The oil shall be gently bailed from each well and placed in suitable leak proof containers.

(b) Vendor shall properly dispose of oil removed from each well. Disposal shall be in accordance with all federal, state and local regulations.

2.3 Video Logging of Wells

The successful bidder will provide two (2) color video logs for the well; one before and one after rehabilitation. The Vendor shall provide equipment that is capable of producing a clear video image of the well casing both submerged and out of the water. The camera must be capable of providing a clear video image of the Well and must be capable of displaying a right angle, side-scan view of the Well casing at the direction of the District. The equipment shall indicate digitally on screen the depth of the camera within one (1) foot of its actual location at one-foot intervals. The District must be present during the video scan. The successful bidder will provide a written field log of the observations from each video scan. Two DVD Copies of each inspection scan shall be provided to the District upon completion of each video-logging run. The successful bidder will schedule the video loggings with the District at least two (2) Working Days in advance. Prior to performing videologs, water shall be added to the well in sufficient quantity and for sufficient duration to clarify the water in the well.

2.4 Bailing Well Clean

Vendor shall remove the debris from the bottom of the Well using a bottom bailer or an District-approved bailing method to depths specified for the Well.

2.5 Wire Brushing of Well

The well shall be cleaned using a **rotary brush method**. The brush shall be a minimum of five (5) feet in length and have 100% contact for the length of the brush with the well casing. The brush shall turn no less than ten (10) revolutions per minute. The rate of brushing shall be no more than forty (40) feet per hour. The bristle material shall be manufactured of stainless steel, low carbon steel, or nylon. Nylon bristles shall be used for wire-wrap screens. As the well casing is cleaned, the scale and encrustation being removed will be allowed to settle to the bottom of the Well. Actual method and tool must be submitted to the District for approval prior to the start of work. The successful bidder is responsible for safely controlling all fluid and debris around and exiting the site.

2.6 Chemical Treatment of Well (Addative Bid Item)

A. At the Districts discression subsequent to performance of the first video log (pre rehabilitation) the District will determine if it will exercise the chemical treatment of the well addative bid item. Vendor shall furnish all labor, equipment, materials, and services to chemically treat the well. Care shall be taken to follow all Federal, State, and local regulations pertaining to the handling and disposal of the waste chemicals.

B. Prior to commencing the Work, Vendor shall supply to the District a copy of the manufacturer's Material Safety Data Sheets (MSDS) for all well treatment and neutralizing chemicals for the District's approval and a shop drawing of the snug

fitting double surge block assembly. A Certificate of Analysis (COA) from the manufacturer/supplier must be provided for the acid used. In addition, the Vendor shall provide their proposed program to apply the chemicals, method of neutralizing the acid, method of disposal, Emergency Response Plan, and list of staff qualified to handle the above chemicals. Said list shall include training and certifications received by each individual pertinent to their duties.

All individuals involved in handling well treatment chemicals shall possess all certifications, authorizations and licenses required by local, state and federal authorities to perform the work.

C. Vendor shall chemically treat the well utilizing the method specified below.

1. The well shall be pretreated to disrupt the fouling mechanisms existing within the well column. Pretreatment shall consist of wire brushing of the entire wetted portion of the well as specified herein, followed by bailing the well clean.

2. A treatment solution consisting of the following chemicals shall be mixed above-ground and injected into the existing perforated sections of the casing starting from the bottom of the lower perforated casing to the top of the perforated casing using a double packer tremie method:

    a. Hydrochloric acid (approximately 30% activity): 9% of Total Well Volume
    b. Biodispersant (Johnson Screens NW-310 or equivalent): 3% of Total Well Volume
    c. Nonionic surfactant (Johnson Screens NW-400 or equivalent): 0.1% of Total Well Volume

2. Total Well Volume shall mean 1.5 X the volume of standing water within the well casing.

3. Immediately following the injection of the treatment solution, the Vendor shall swab the perforated sections of the casing with a minimum 20 foot long, snug fitting double surge block. Swabbing shall begin at the bottom of the lower perforated casing and work continuously upwards to the top of the upper perforated casing. After the upper most portion of the well is swabbed, Vendor shall secure a water sample to verify the pH. The sample may be secured by air lifting, submersible pumping, or thief sampling. **If the pH is above three (3), additional treatment solution will be added to the well at the discretion of the District**. If additional treatment solution is needed, the solution will be added and swabbed into place using the double surge block. Sampling and treatment solution addition shall continue until pH is equal to three (3) or less.

4. Vendor shall them wire-brush the well as specified in Section 2.05 above.

5. The well will then be allowed to stand for 12 hours. Immediately after 12 hours the Vendor shall swab each 20 foot perforated section for 15 minutes with the double surge block. Swabbing shall begin at the top of the upper perforated casing and work continuously downward to the bottom of the lower perforated casing.

D. Vendor shall remove and dispose of the treatment chemicals as outlined below.

1. After completion of swabbing as described above, the Vendor shall remove five (5) volumes of wastewater from the well into an above-ground portable tank, such as a Baker Tank. The wastewater will be removed continuously from the well by air lifting or pumping. Air lifting or pumping shall begin at the bottom of the well and work upward to the top of the upper perforated casing interval. The well should be continually purged until the pH has stabilized to a normal background level and the turbidity of the discharge has dissipated.

2. At the discretion of the District, water samples will be secured from the well after removal of the treated water to determine pH after removal. The total number of samples will not exceed four (4) in order to determine pH. Should the pH be greater than nine (9) or less than six (6), the Vendor will remove additional wastewater from the well at the direction of the District and dispose of same.

3. After removal of the wastewater, and at the direction of the District, Vendor shall bail the well clean.

4. Prior to disposal, Vendor shall neutralize the pH of the wastewater in the above-ground tank by adding sufficient soda ash (powder), magnesium hydroxide (slurry), potassium hydroxide (liquid), or other pre-approved neutralizing agent. **Neutralization will not be allowed in the well casing**.

5. All wastewater and residual solids from chemical treatment shall be disposed of by the Vendor in a manner and at the facility designated by the Vendor and approved by the District, in accordance with the attached Scope of Work.

6. Vendor shall discharge the neutralized wastewater onsite at a controlled rate to avoid erosion, as directed by District.

E. Vendor has the option of submitting in writing to District alternative methods of chemically treating the well, such as the use of available proprietary chemical

well treatment systems. Alternative methods may only be used if approved by District in advance of bid opening by issuance of a Contract Addendum.

F. All chemicals used in treating the well shall be of food-grade quality. All biodispersants, surfactants and additives, both proprietary and non-proprietary, shall be NSF approved for potable well use.

2.7 Well Disinfection

After wire brushing and removal of debris, the well shall be disinfected with a chlorine solution. Unless otherwise permitted, Vendor shall use the following procedure to disinfect the well:

a. Before dosing, the Vendor shall check the pH of the well to determine if buffering of the chlorine will be necessary. If the pH is above 7.5 a chlorine enhancing chemical such as Johnson Screen's "NW-410," Layne-Christensen's "Oximate," or other District pre-approved equivalent must be used to lower the pH and enhance the effectiveness of chlorination. The chlorine enhancing chemical shall be used at a rate of 1.5 gallons per 1,000 gallons of disinfectant solution for a target pH of 6.5 to 7.5 during chlorination.

b. Vendor shall prepare a disinfectant solution consisting of water, sodium hypochlorite solution, and, if necessary, chlorine enhancing chemical, above-ground for addition to the well. The disinfectant solution shall have a free chlorine concentration of 300 parts per million (ppm). To achieve 300 ppm of chlorine, approximately 2.4 gallons of 12.5% Sodium Hypochlorite solution will be required per 1,000 gallons of disinfectant solution. The sodium hypochlorite solution used shall not have been stored more than 60 days.

c. Vendor shall dose the well by adding two times the Well Casing Volume of disinfectant solution to the well. The method used to introduce the disinfectant solution into the well shall ensure that the disinfectant solution reaches all portions of the well in which contamination might have occurred during construction.

d. Immediately after dosing the well, Vendor shall agitate the chlorinated water within the well by swabbing the well.

e. After the well has been swabbed, Vendor shall secure a water sample to verify the chlorine concentration. The sample may be secured by air lifting, submersible pumping, or thief sampling. If the chlorine concentration is less than 100 ppm, additional disinfectant solution will be added to the well, at the discretion of the District. Sampling and disinfectant solution addition shall continue until the chlorine concentration is between 100 and 300 ppm. **A chlorine concentration of greater than 500 ppm is not permitted.**

f. Vendor shall repeat the agitation, sampling, and disinfectant solution addition procedure twice at one hour intervals.

g. Vendor shall then allow the well to stand without pumping or agitation for at least 6 hours.

h. Vendor shall then reinstall the permanent pumping unit into the well, and shall pump the chlorinated water from the well into an above-ground portable tank, such as a Baker Tank until chlorine is no longer evident and shall continue to pump until 15 minutes thereafter.

i. Vendor shall then allow the well to stand without pumping or agitation for 24 hours prior to sampling.

j. District will then secure two samples of water from the well in approved containers, and have said samples analyzed by a State Certified analytical laboratory for total coliform (presence/absence), fecal coliform (presence/absence), and heterotrophic plate count. District will secure the first sample within five minutes of starting the pump at the specified pumping rate, and the second sample thirty minutes thereafter. District will furnish results of said analyses to Vendor within 48 hours of sampling.

k. The well shall be deemed properly disinfected only if the sample analysis results indicate absence of total coliform bacteria, absence of fecal coliform bacteria, and a heterotrophic plate count of less than 500 colony forming units per milliliter (CFU/ml).

l. If the sample analysis results do not indicate that the well was properly disinfected, the Vendor shall repeat the entire disinfection procedure, including sampling, sample analysis, and reporting of sample analysis results. Vendor shall continue to repeat the entire disinfection procedure until sample analysis results indicate that the well has been properly disinfected.

m. The chlorinated water shall be dechlorinated to less than 0.1 ppm of chlorine prior to disposal. Dechlorination shall take place within the above-ground portable tank. The dechlorinated water shall be discharged off site at a controlled rate to avoid erosion, as directed by District.

PART 3 - CLEANUP

3.01 Cleanup

Vendor shall clean and restore all areas occupied by him in connection with the Work to preconstruction condition. Cleanup shall include, but shall not be limited to, removal and disposal of equipment, rubbish, excess materials, temporary structures, deposited sediments, and excavated materials and restoration of equipment, fences, pavements, trees, shrubs, piping, and ground surface. All parts of work site shall be left in a neat and presentable condition, all to satisfaction of District.

APPENDIX B

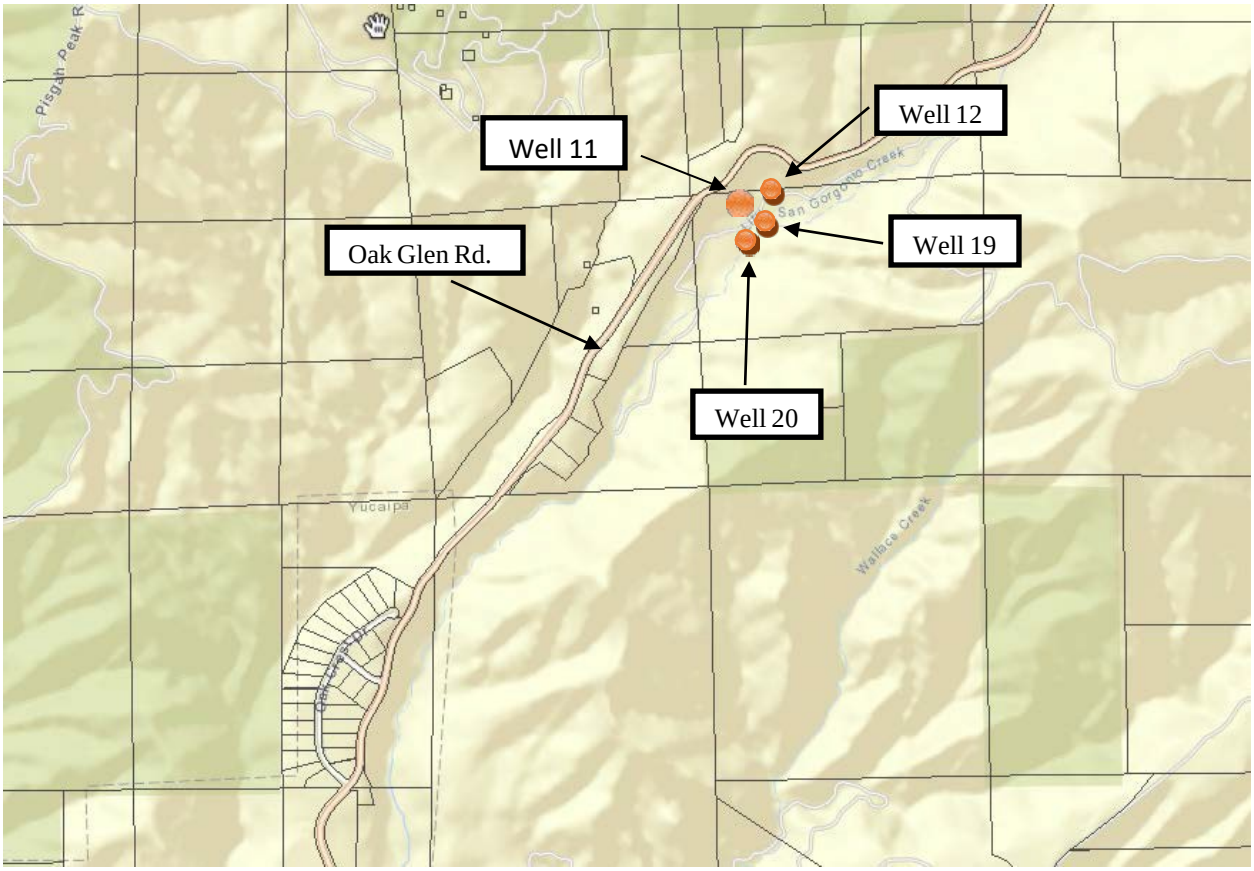
Well 11 Location Map, Site Plan Image, and Photos

Well 12 Location Map, Site Plan Image, and Photos

Well 19 Location Map, Site Plan Image, and Photos

Well 20 Location Map, Site Plan Image, and Photos

Well 11, 12, 19 and 20 Location Map



Well 11 Site Plan Image

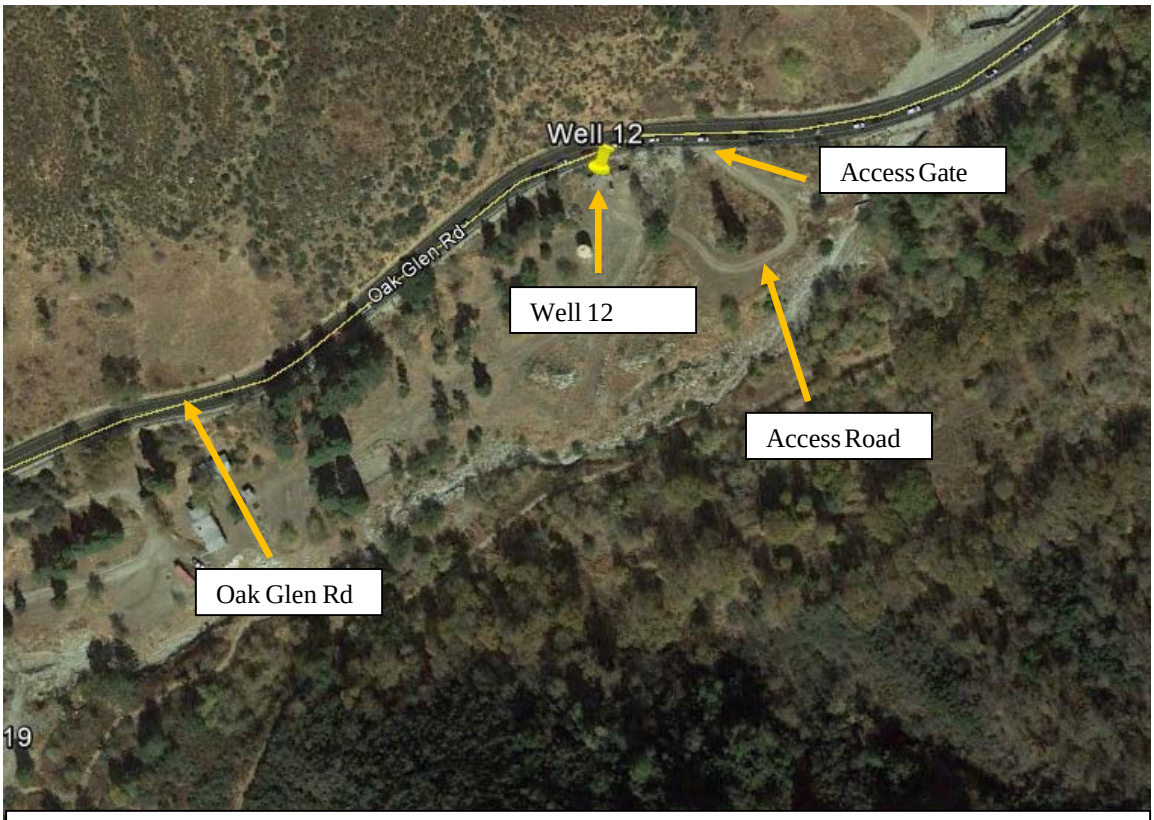
Well 11 Photos

Well 11 Block Building with Weed Roof

Well 11 Discharge Line

Well 11 Submersible

Well 12 Site Plan Image



Close Up of Site

Well 12 Photos

Well 12 Building

Well 12 Motor with Angle Drive

Well 12 Angle Drive Connection

Well 12 Discharge Line

Wells 19 and 20 Site Plan Image

Well 19 Photos

Well 19 Building

Well 19 Motor

Well 19 Discharge Line

Well 20 Photos

Well 20 Building

Well 20 Submersible

Well 20 Discharge Line

APPENDIX C

Well 11 Well and Pumping Unit Information

Well 12 Well and Pumping Unit Information

Well 19 Well and Pumping Unit Information

Well 20 Well and Pumping Unit Information

DATA SHEET GENERAL INFORMATION	
System Name	Beaumont-Cherry Valley WD
System Number	3310002
Source of Information *(well log, DHS/County files, system, etc)*	Well log
Organization Collecting Information *(DHS, County, System, other)*	DHS
Date Information Collected/Updated	09/03/03
WELL IDENTIFICATION	
* Well Number or Name	Well # 11
* DHS Source Identification Number (**FRDS ID No.**)	3310002-012
DWR Well Log on File? ("YES" or "NO")	No
State Well Number (from DWR)	
Well Status (Active, Standby, Inactive)	Active
WELL LOCATION	
Latitude	
Longitude	
Ground Surface Elevation (ft above Mean Sea Level)	
Street Address	
Nearest Cross Street	
City	Yuciapa
County	San Bernardino
* Neighborhood/Surrounding Area *(see Note 1)*	Ru
Site plan on file? ("YES" or "NO")	No
DWR Ground Water Basin	Upper Edgar Canyon
DWR Ground Water Sub-basin	
SANITARY CONDITIONS	
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	100
Distance to Active Wells (ft)	
Distance to Abandoned Wells (ft)	
Distance to Surface Water (ft)	100
** Size of controlled area around well (square feet)	>43,560
* Type of access control to well site *(fencing, building, etc)*	Building
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	Yes
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	N/A
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	Yes
* Drainage away from well? ("YES" or "NO")	Yes
ENCLOSURE/HOUSING	
Enclosure Type *(building, vault, none, etc.)*	Block Building
Floor material	Concrete
Located in Pit? ("YES" or "NO")	No
Pit depth (feet) (if applicable)	N/A
WELL CONSTRUCTION	
Date drilled	1927
Drilling Method	Unknown
Depth of Bore Hole (feet below ground surface)	145
Casing Beginning Depth/Ending Depth(ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/140
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	10
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel
	(separate multiple entries in field with semi-colon)
WELL CONSTRUCTION (continued)	

Conductor casing used? ("YES", "NO" or "UNKNOWN") *(See Note 2)*	Unknown
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	N/A
* Depth to highest perforations/screens (ft below surface) (or "UNKNOWN")	45
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	45/140
* Total length of screened interval (ft) *(default = 10% pump capacity in gpm)* (or "UNKNOWN")	95
* Annular Seal?("YES", "NO" or "UNKNOWN") *(See Note 3)*	Yes
* Depth of Annular Seal (ft)	35
Material of Annular Seal *(cement grout, bentonite, etc.)*	Concrete
Gravel pack, Depth to top (ft below ground surface)	No
Total length of gravel pack (ft)	N/A
AQUIFER	
* Aquifer Materials *(list all that apply: sand, silt, clay, gravel, rock, fractured rock)*	Gravel, clay
* Effective porosity (decimal percent) *(default = 0.2)* (or "UNKNOWN")	0.2
* Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	Unknown
Thickness of confining layer, if known (ft)	N/A
Depth to confining layer, if known (ft below ground)	N/A
* Static water level (ft below ground surface)	500+
Static water level measurement: Date/Method	56, 8/1, Sounder
Pumping water level (ft below ground surface)	125
Pumping water level measurement: Date/Method	8/1, Sounder
WELL PRODUCTION	
Well Yield (gpm)	50
Well Yield Based On (i.e., pump test, etc.)	Pump Test
Date measured	Aug-01
Is the well metered? ("YES" or "NO")	Yes
Production (gallons per year)	
Frequency of Use (hours/year)	8,760
Typical pumping duration (hours/day)	24/day
PUMP	
Make	Submersible - 1998
Type	Grundfos
Size (hp)	7.5
* Capacity (gpm)	100
Depth to suction intake (ft below ground surface)	Unknown
Lubrication Type	Water
Type of Power: *(i.e., electric, diesel, etc.)*	Electric
Auxiliary power available? ("YES" or "NO")	No
Operation controlled by: *(i.e., level in tank, pressure, etc.)*	Central Computer
Pump to Waste capability? ("YES" or "NO")	Yes
Discharges to: *(i.e., distribution system, storage, etc.)*	Edgar Canyon Main
REMARKS AND DEFECTS (use additional sheets as necessary)	
50 psi pump at well site to provide adequate pressure to one nearby dwelling. Not Chlorinated. But receiving chlorinated water from Well 12 before feeding the dwelling.	

		(separate multiple entries in field with
DATA SHEET GENERAL INFORMATION		
System Name		Beaumont-Cherry Valley WO
System Number Source of Information *(well log, OHS/County files. system, etc)*		3310002 Well log
Organization Collecting Information *(OHS, County, System, other)*		OHS
Date Information Collected/Updated		09/03/03
WELL IDENTIFICATION		
* Well Number or Name		Well # 12
* DHS Source Identification Number (FROS ID No.)		3310002-013
DWR Well Log on File? ("YES" or "NO")		No
State Well Number (from DWR) Well Status (Active, Standby, Inactive)		Active
WELL LOCATION		
Latitude		
Longitude		
Ground Surface Elevation (ft above Mean Sea Level)		
Street Address		
Nearest Cross Street		
City		Beaumont
County		Riverside
• Neighborhood/Surrounding Area *(see Note 1)*		Ru
Site plan on file? ("YES" or "NO")		No
DWR Ground Water Basin		Upper Edgar Canyon
DWR Ground Water Sub-basin		
SANITARY CONDITIONS		
•• Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)		100
Distance to Active Wells (ft)		
Distance to Abandoned Wells (ft)		
Distance to Surface Water (ft)		
** Size of controlled area around well (square feet)		>43,560
* Type of access control to well site *(fencing, building, etc)*		
* Surface Seal? (Concrete slab)("YES","NO" or "UNKNOWN")		Yes
* Dimensions of concrete slab: Length(ft}/ Width(ft)/ Thick(in)		
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")		Yes
* Drainage away from well? ("YES" or "NO")		Yes
ENCLOSURE/HOUSI NG		
Enclosure Type *(building, vault, none, etc.)*		Block Building
Floor material		Concrete
Located in Pit? ("YES" or "NO")		No
Pit depth (feet) (if applicable)		*NIA*
WELL CONSTRUCTION		
Date drilled		3/1/1942
Drilling Method		Unknown
Depth of Bore Hole (feet below ground surface)		253
Casing Beginning Depth/Ending Depth (ft below surface) ; 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.		Unknown
Casing Diameter (inches) ; 2nd Casing Diameter; 3rd Casing, etc.		N/A
Casing Material, 2nd Casing Material; 3rd Casing, etc.		*NIA*

	(separate multiple entries in field with semi-colon)
WELL CONSTRUCTION (continued)	
Conductor casing used? ('YES:', "NO" or "UNKNOWN") *(See Note 2)*	Unknown
Conductor casing removed? (".YES", "NO" or "UNKNOWN")	N/A
* Depth to highest perforations/screens (ft below surface) (or "UNKNOWN'1	25
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval,etc.	25/140
* Total length of screened interval (ft) *(default = 10% pump capacity in gpm)* (or "UNKNOWN")	115
* Annular Seal?("YES", "NO" or "UNKNOWN") *(See Note 3)*	None
• Depth of Annular Seal (ft)	N/A
Material of Annular Seal *(ceme.nt grout, bentonite, etc.)*	N/A
Gravel pack, Depth to top (ft below ground surface)	None
Total length of gravel pack (ft) .	NIA
AQUIFER	
•Aquifer Materials *(list all that apply: sand, silt, clay, gravel, rock, fractured rock)*	Clay, gravel
* Effective porosity (decimal percent) *(default - 0.2)* (or "UNKNOWN")	0.2
* Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	Unknown
Thickness of ccnfining layer, if known (ft)	N/A
Depth to confining layer, if known (ft below ground)	N/A
* Static water level (ft below ground surface)	500+
Static water level measurement: Date/Method	N/A
Pumping water level (ft below ground surface)	Unknown
Pumping water level measurement: Date/Method	N/A
WELL PRODUCTION	
Well Yield (gpm)	
Well Yield Based On (i.e., pump test, etc.)	
Date measured	
Is the well metered? ("YES" or- "NO")	
Production (gallons per year)	
Frequency of Use (hours/year)	
Typical pumping duration (hours/day)	24/day
PUMP	
Make	Peerless
Type	DWT
Size (hp)	20
* Capacity (gpm)	300
Depth to suction intake (ft below ground surface)	Unknown
Lubrication Type	Water
Type of Power: *(i.e., electric, diesel, etc.)*	Electric
Auxiliary power available? ("YES" or "NO")	Gas engine angle drive
Operation controlled by: *(i.e., level in tank, pressure, etc.)*	Central Computer
Pump to Waste capability? ("YES" or "NO")	Yes
Discharges to: *(i.e., distribution system, storage, etc.)*	Upper Edgar Canyon Pressure Sustaining Reservior

REMARKS AND DEFECTS (use additional sheets as necessary)

New chlorination system (Accu-tab 3012). Sharing the sand separator facility with Well 13.

	(separate multiple entries in field with semi-colon)
DATA SHEET GENERAL INFORMATION	
System Name	Beaumont-Cherry Valley WO
System Number	3310002
source of Information *(well log, OHS/County files, system, etc)*	Well log
Organization Collecting Information *(OHS, County, System, other)*	OHS
Date Information Collected/Updated	09/03/03
WELL IDENTIFICATION	
* Well Number or Name	Well # 19
* OHS Source Identification Number (FROS ID No.)	3310002-020
DWR Well Log on File? ("YES" or "NO")	Yes
State Well Number (from DWR)	
[Well Status (Active, Standby, Inactive)	Active
WELL LOCATION	
Latitude	
Longitude	
Ground Surface Elevation {ft above Mean Sea Level)	
Street Address	
Nearest Cross Street	
City	Beaumont
County	Riverside
* Neighborhood/Surrounding Area *(see Note 1)*	Ru
Site plan on file? ("YES" or "NO")	No
DWR Ground Water Basin	Upper Edgar Canyon
DWR Ground Water Sub-basin	
SANITARY CONDITIONS	
istance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	100
Distance to Active Wells (ft)	
Distance to Abandoned Wells (ft)	
Distance to Surface Water {ft)	100
** Size of controlled area around well (square feet)	>43,560
* Type of access control to well site *(fencing, building, etc)*	Building
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	Yes
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	Yes
* Drainage away from well? ("YES" or "NO")	Yes
ENCLOSURE/HOUSING	
Enclosure Type *(building, vault, none, etc.)*	Wooden Building
Floor material	Concrete
Located in Pit? ("YES" or "NO")	No
Pit depth (feet) (if applicable)	N/A
WELL CONSTRUCTION	
Date drilled	8/9/1967
Drilling Method	Cable
Depth of Bore Hole {feet below ground surface)	200
Casing Beginning Depth/Ending Depth (ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/175
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	12
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel

	(separate multiple entries in field with semi-colon)
WELL CONSTRUCTION (continued)	
Conductor casing used? ("YE::;", "Nu" or "UNKi.uvvN") *(See Note 2)*	No
Conductor casing removed? ("'llES", "NO" or "UNKNOWN")	*NIA*
• Depth to highest perforations/screens (ft below surface) (or "UNKNOWN")	60
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/_Ending Depth; 3rd Screened Interval, etc.	60/172
•Total length of screened interval (ft) *(default = 10% pump capacity in gpm)* (or "UNKNOWN")	112
•Annular Seal?("YES", "NO" or "UNKNOWN") *(See Note 3)*	Yes
• Depth of Annular Seal (ft) '	30
Material of Annular Seal *(cement grout, bentonite, etc.)*	Cement grout
Gravel pack, Depth to top (ft below ground surface)	No
Total length of gravel pack (ft)	N/A
AQUIFER	
•Aquifer Materials *(list all that apply: sand, silt, clay, gravel, rock, fractured rock)*	Gravel, sand, clay
• Effective porosity (decimal percent) *(default = 0.2)* (or "UNKNOWN")	0.2
• Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	Unknown
Thickness of confining layer, if known (ft)	Unknown
Depth to confining layer, if known (ft below ground)	Unknown
• Static water level (ft below ground surface)	500+
Static water level measurement: Date/Method	NIA
Pumping water level (ft below ground surface)	Unknown
Pumping water level measurement: Date/Method	*NIA*
WEL.L PRODUCTION	
Well Yield (gpm) ' Well Yield Based On (i.e., pump test, etc.)	
Date measured	
Is the well metered? ("YES" or "NO")	
Production (gallons per year)	
Frequency of Use (hours/year)	
Typical pumping duration (hours/day)	24/day
PUMP	
Make	Peerless
Type	DWT
Size (hp)	10
• Capacity (gpm)	240
Depth to suction intake (ft below ground surface)	Unknown
Lubrication Type	Water
Type of Power: *(i.e., electric, diesel, etc.)*	Electric
Auxiliary power available? ("YES" or "NO")	No
Operation controlled by: *(i.e., level in tank, pressure, etc.)*	Levelintank
Pump to Waste capability? ("YES" or "NO")	Yes
Discharges to; *(i.e., distribution system, storage, etc.)*	Edgar Canyon Main
REMARKS AND DEFECTS (use additional sheets as necessary)	
Not chlorinated. Pump-to-water line need to be adjusted to drain to prevent stagnation. [1]	

DATA SHEET GENERAL INFORMATION	
System Name	Beaumont-Cherry Valley WD
System Number	3310002
Source of Information *(well log, OHS/County files, system, etc)*	Well log
Organization Collecting Information *(OHS, County,* System,*other)*	OHS
Date Information Collected/Updated	09/03/03
WELL IDENTIFICATION	
* Well Number or Name	Well # 20
OHS Source Identification Number (FROS ID No.)	3310002-021
DWR Well Log on File? ("YES" or "NO")	Yes
State Well Number (from DWR)	
Well Status (Active, Standby, Inactive)	Active
WELL LOCATION	
Latitude	
Longitude	
Ground Surface Elevation (ft above Mean Sea Level)	
Street Address	
Nearest Cross Street	
City	Yuciapa
County	San Bernardino
* Neighborhood/Surrounding Area *(see Note 1)*	Ru
Site plan on file? ("YES" or "NO")	No
DWR Ground Water Basin	Upper Edgar Canyon
DWR Ground Water Sub-basin	
SANITARY CONDITIONS	
Distance to closest Sewer Line. Sewage Disposal, Septic Tank (ft)	550
Distance to Active Wells (ft)	200
Distance to Abandoned Wells (ft)	
Distance to Surface Water (ft)	50
** Size of controlled area around well (square feet)	>43,560
* Type of access control to well site *(fencing, building, etc)*	Building
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	Yes
" Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	Yes
* Drainage away from well? ("YES" or "NO")	Yes
ENCLOSURE/HOUSING	
Enclosure Type *(building, vault, none, etc.)*	Wooden Building
Floor material	Concrete
Located in Pit? ("YES" or "NO")	No
Pit depth (feet) (if applicable)	*NIA*
WELL CONSTRUCTION	
Date drilled	8/26/1969
Drilling Method	Cable
Depth of Bore Hole (feet below ground surface)	165
Casing Beginning Depth/Ending Depth(ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing,etc.	0/165
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	12
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel
	(separate multiple entries in field with semi-colon)

WELL CONSTRUCTION (continued)	
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See *Note 2)*	No
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	*NIA*
• Depth to highest perforations/creens (ft below surface) (or "UNKNOWN")	80
Screened Interval Beginning Depth/Ending Depth (fl below surface); 2nd Screened Interval Beg. Depthl Ending Depth; 3rd Screened Interval, etc.	80/163
• Total length of screened interval (ft) *(default = 10% pump capacity in gpm)* (or "UNKNOWN")	83
* Annular Seal?("YES", "NO" or "UNKNOWN") *(See Note 3)*	Yes
• Depth of Annular Seal (ft)	40
Material of Annular Seal *(cement grout, bentonite, etc.)*	Cement grout
Gravel pack, Depth to top (ft below ground surface)	No
Total length of gravel pack (ft)	*NIA*
, AQUIFER	
•Aquifer Materials *(list all that apply: sand,* silt, *clay, gravel, rock, fractured rock)*	Sand, gravel, clay
• Effective porosity (decimal percent) *(default - 0.2)* (or "UNKNOWN")	0.2
• Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	Unknown
Thickness of confining layer, if known (ft)	Unknown
Depthto confining layer, if known (ft below ground)	Unknown
• Static water level (ft below mound surface)	70
Static water level measurement: Date/Method	7/01, Sounder
Pumping water level (ft below ground surface)	98
Pumping water'level measurement: Date/Method	7/01, Sounder
WELL PRODUCTION	
Well Yield (gpm)	50
Well Yield Based On (i.e., pump test, etc.)	Pump Test
Date measured	August, 2001
Is the well metered? ("YES" or "NO")	Yes
Production (gallons per year)	Varies
Frequency of Use (hours/year)	8,760
Typical pumping duration (hours/day)	24/dav
PUMP	
Make	Submersible - 1998
Type	Grundfos
Size (hp)	5
• Capacity (gpm)	100
Depth to suction intake (ft below ground surface)	Unknown
Lubrication Type	Water
Type of Power: *(i.e., electric, diesel, etc.)*	Electric
Auxiliary power available? ("YES" or "NO")	No
Operation controlled by: *(i.e., level in tank, pressure, etc.)*	Level in tank
Pump to Waste capability? ("YES" or "NO")	Yes
Discharges to: *(i.e., distribution* system, *storage, etc.)*	Edgar Canyon Main
REMARKS AND DEFECTS (use additional sheets as necessary)	
Not Chlorinated	

APPENDIX D

Maintenance Bond Example

M A I N T E N A N C E B O N D
FOR PUMPING EQUIPMENT
(By Supplier)

KNOW ALL MEN BY THESE PRESENTS, that we,_____,
as Surety, hereinafter called Surety, are held and firmly bound unto Beaumont-Cherry Valley Water District , hereinafter called District, in the penal sum of $__, for the payment whereof (Supplier) and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these present.

WHEREAS, Supplier has provided pumping equipment for District project _____
_____in accordance with the Specifications.

NOW, THEREFORE, the condition of the obligation is such that, if Supplier shall remedy any defects due to faulty materials or workmanship which shall appear within a period of 1 year from the date the project is accepted as provided for in the specification, then this obligation is to be void, otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that the District shall give Supplier and Surety notice of observed defects with reasonable promptness.

Signed and sealed this_____day of_____, 20____

Supplier (SEAL)	Surety (SEAL)
Title	Title