DOCUMENT 00 90 01
ADDENDUM #1

Project: UT-10571-24

Date: Thursday, April 24, 2025
Bid Date: Monday, May 5, 2025
Bid Time: 2:00 p.m.

This addendum shall be considered part of the Contract Document for the above referenced project as though it had been issued at the same time and shall be incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original Contract Documents, this Addendum shall govern and take precedence. Receipt of this addendum shall be acknowledged in Document 00 41 00 – Bid Form.

Table of Contents

Project Manual

Section 00 40 00 – Bid Form

Delete and replace this section with the version attached.

Section 01 02 50 – Measurement and Payment

Delete and replace this section with the version attached.

Section 33 01 22 – Water Well Rehabilitation

Delete and replace this section with the version attached.

Section 33 20 22 – Install Development Pump Equipment

Paragraph 2.2.A – Amend the first sentence of Paragraph 2.2.A to read as follows:

The test pump shall be a vertical turbine line shaft type pump capable of pumping from 500 to ~~4000~~ 1500 gallons per minute under the head conditions anticipated for the project.

Attachments:

1. Section 00 41 00 Bid Form
2. Section 01 02 50 Measurement and Payment
3. Section 33 01 22 Water Well Rehabilitation
4. Section 33 20 22 Install Development Pump Equipment

END OF ADDENDUM

DOCUMENT 00 41 00
BID FORM

Magna Water District

MWD Haynes Well 7 Rehabilitation

Bids due and publicly read:

Monday, May 5, 2025 at 2:00 PM

Magna Water District

8885 West 3500 South, Magna, UT 84044

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to: Magna Water District.

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security;

B. List of Proposed Subcontractors;

C. List of Proposed Suppliers;

D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;

E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;

F. Required Bidder Qualification Statement with supporting data; and

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

3.01 Unit Price Bids

A. Bidder will perform the following Work at the indicated unit prices:

Base Bid

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
1	Mobilization / Demobilization	LS	1		$
2	Video Survey	EA	2		$
3	Brush and Evacuate Well	HR	20		$
4	Chemicals	LS	1		$
5	Acid Treatment / Agitate / Neutralize / Dispose	HR	40		$
6	Shock Chlorination / Agitate / Dechlorinate / Dispose	HR	40		$
7	Perform Initial Redevelopment	HR	120		$
8	Furnish and Install Two 1-1/2" PVC Pipes	LF	258		$
9	Reinstall Pump	LS	1		$
Total of All Unit Price Base Bid Items					$
Total Unit Price Base Bid (in words): _____					

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item,
2. the Contractor or Owner shall be entitled to an adjustment in Unit Price as indicated in Section 00 80 00 - Supplementary Conditions, SC-13.03E, and
3. estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 Bid Acceptance Period

A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 Instructions to Bidders

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 Receipt of Addenda

A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 Bidder's Representations

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.

5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 Bidder's Certifications

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
    a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
    b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
    c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
    d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

_____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices: _____

_____

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address: _____

_____

_____

Bidder's Contractor License No.: (if applicable) _____

END OF DOCUMENT

SECTION 01 02 50
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Measurement and payment criteria applicable to portions of the Work performed under a unit price payment method.

1.2 RELATED SPECIFICATIONS

A. Section 00 41 00 – Bid Form

B. Section 00 52 00 – Agreement, Article 6 – Payment Procedures

C. Section 00 70 00 – General Conditions

1. Article 7, Paragraph 7.10 - Taxes
2. Article 13, Paragraph 13.03 – Unit Price Work
3. Article 15, Paragraph 15.01 – Progress Payments

1.3 MEASUREMENT OF QUANTITIES

A. Measurement Devices:

1. Weigh Scales: Inspected, tested and certified by the applicable state Weights and Measures department within the past year.
2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
3. Metering Devices: Inspected, tested and certified by the applicable State department within the past year.

1.4 PAYMENT

A. Payment for each Bid item includes full compensation for all required labor, materials, products, tools, equipment, manufacturing, transportation, services and incidentals; application or installation; permits, taxes, royalties, import costs, overhead and profit.

1.5 DESCRIPTION OF BID ITEMS

A. The work generally consists of the following, which are numbered according to the Bid schedule found in Article 5 of Section 00 41 00 – Bid Form:

B. The work generally consists of the following, which are numbered according to the Bid schedule found in Article 5 of Section 00 41 00 – Bid Form:

1. Mobilization/Demobilization

a. Measurement is by lump sum.

b. Payment includes mobilization, demobilization, installation of temporary facilities, brining all necessary construction equipment to the site, all bonds, insurances, permits and fees, traffic control, coordination, quality control and testing of materials, preparation of project schedule, final cleanup and project closeout, and all other items not specifically called for in any other Bid item or called for in the Drawings and Specifications or is customary, incidental or appurtenant to performance of a complete project. Payments shall be made

on according to the schedule established in Paragraph 1.6 herein.

2. Video Survey
    a. Measurement is per each video survey completed. 2 videos total will need to be made, one for the pre survey and one for the post survey.
    b. Payment includes all materials, transportation, equipment, labor and other items required for performing a video survey of the well per the specifications.
3. Brush and Evacuate Well
    a. Measurement is per hour.
    b. Payment includes all items required to brush and evacuate the well with the use of a nylon brush and submersible pump per the specifications.
4. Chemicals
    a. Measurement is by lump sum.
    b. Payment includes the purchasing, delivery, and safe handling of all chemicals required to perform the acid and chlorine treatments per the specifications. Chemical quantities are found in Section 33 01 22 – Water Well Rehabilitation
5. Acid Treatment/Agitate/Neutralize/Dispose
    a. Measurement is per hour.
    b. Payment includes mixing, injection, agitation, evacuation, neutralization and disposal of neutralized acid per the plans and specifications.
6. Shock Chlorination/Agitate/Dechlorinate/Dispose
    a. Measurement is per hour.
    b. Payment includes missing, injection, agitation, evacuation, dichlorination, and disposal of dechlorinated water per the plans and specifications.
7. Perform Initial Redevelopment
    a. Measurement is per hour.
    b. Payment includes redevelopment of the well using dual swab tool fitted with a submersible pump per the plans and specifications.
8. Furnish and Install Two 1-1/2" PVC Sounder Tubes
    a. Measurement is per linear foot.
    b. Payment includes the installation of the two separate pipes that will be used for transducer or sounder tubes and will extend from the surface to just above the pump bowls.
9. Reinstall Pump
    a. Measurement is by lump sum.
    b. Payment includes reinstallation of the pump to the indicated depth as described in the specifications.

1.6 PAYMENT SCHEDULE FOR SELECTED LUMP SUM BID ITEMS

A. MOBILIZATION

1. This Bid item will be paid as follows:

Percent of Original Contract	Percent of Mobilization to be Paid

Amount Earned	
5%	40%
15%	20%
40%	30%
50%	10%

END OF SECTION

This page is left blank intentionally.

SECTION 33 01 22
WATER WELL REHABILITATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. The Work included under this section includes furnishing all labor, materials, tools, equipment, transportation and other items required to remove existing pumping equipment, perform downhole video camera surveys, mechanically clean well using a brush and dual swab, chemically treat and remove scale and iron bacterial accumulations, chemically treat to remove residual drilling additives, swab and bail to remove formation clay, silt, fine sand and other debris, development pumping to remove chemicals, pH control and chemical neutralization, disposal of pumped water, pump test, reinstall pumping equipment and disinfect well and equipment.

1.2 RELATED WORK

A. Section 33 01 25 – Initial Well Redevelopment

B. Section 33 20 24 – Well Development by Pumping

C. Section 33 20 26 – Step Rate Drawdown Test

D. Section 33 20 28 – Constant Rate Drawdown Test

E. Section 33 20 30 – Video Camera Survey

1.3 REFERENCES

A. ANSI/NSF 60 – Drinking Water Treatment Chemicals - Health Effects

B. ANSI/NSF 61 – Drinking Water System Components - Health Effects

C. American Water Works Association (AWWA)

1. ANSI/AWWA A100-90 - Water Wells
2. ANSI/AWWA C654 – Disinfection of Wells

D. State of Utah, Administrative Rules for Public Drinking Water System

E. OSHA 29 CFR 1910 – Occupational Safety and Health Standards

1.4 SUBMITTALS

A. Contractor shall submit a list of his proposed equipment to the Engineer for approval prior to beginning rehabilitation work on the water well.

B. Submittal data shall include but not be limited to the following:

1. Well development and pumping equipment.
2. Description of holding tanks for de-chlorination of treated well water
3. Technical and specification sheets for replacement pump equipment
4. Monitoring data on pH and chlorine levels in the well and holding tanks, pumping rates, drawdowns, and pH and chlorine levels and discharge rates from the holding tanks to the discharge locations

1.5 QUALITY ASSURANCE

A. Use of all chemicals, well development activities and discharge of well development water and removal of debris shall be in accordance with industry standards, the referenced standards as well as pertinent State and Local regulations and requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. All chemicals used in treating the well shall be carefully transported, stored and handled in accordance with local, state and federal regulations, as appropriate, and in accordance with the manufactures recommendation and MSDS sheets.

1.7 PROJECT CONDITIONS

A. Well site and permission for access shall be provided by the Owner, who shall provide land and/or right of way for the Work as described herein and shall make suitable provisions for ingress and egress to the site.

B. Contractor shall not enter the property adjacent to the project site, nor occupy with men, materials, tools, or equipment adjacent properties without written consent of the Owner of such adjacent properties.

C. All development water shall be held on-site in holding tanks until approved for discharge to a storm drain as shown in the Drawings and as approved by the Engineer.

PART 2 - PRODUCTS

2.1 CONSTRUCTION WATER QUALITY

A. The only water that is to be introduced into the well shall be taken from a public drinking water system. The owner will provide the contractor with access to culinary water. The contractor will be responsible for conveyance of water to the site.

B. Control of Development Water

1. Contractor shall take sufficient precautions to insure that discharges from well rehabilitation operations do not contaminate local streams or waters.
2. Contractor shall contain all development water in mobile on-site holding tanks and neutralize or de-chlorinate the water until the water quality reaches acceptable levels.
3. Upon completion of well rehabilitation, holding tanks shall be removed from the project site.

C. Discharge of Development Water

1. When water being pumped from the well reaches background chlorine residual levels of zero, discharge water may be discharged directly to the designated location.

2.2 WELL EQUIPMENT AND TREATMENT MATERIALS

A. All interior surfaces must consist of products complying with ANSI/NSF Standard 61. This requirement applies to the pump, pump column, tremie pipe, electrical wire, sensors, and all other equipment or surfaces which may make contact with drinking water.

B. All substances introduced into the well during construction or development shall be certified to comply with ANSI/NSF Standard 60 or as specifically approved in writing by the Division of Drinking Water. This requirement applies to treatment additives including biocide dispersants, wetting agents, surfactants, and acid for removing mineral deposits.

1. Chemicals to be used will be provided by the contractor and may include:
   a. Hydrochloric Acid (NSF 60 Certified)

(i) 446 gallons required

b. Bio-Dispersant (NSF 60 Certified)

(i) 52 gallons required

c. Non-Ionic Surfactant (NSF 60 Certified)

(i) 6 gallons required

d. Catalyst Acid Inhibitor (NSF 60 Certified or as approved). Rodine to be used as a possible alternate acid inhibitor.

(i) 60 gallons required for KW-Catalyst acid inhibitor
(ii) 12 gallons required if Rodine is selected

e. Acid Neutralizer – Soda Ash

(i) 2 bags required

f. Sodium Hypochlorite (NSF 60 Certified)

(i) 112 gallons required

g. Chlorine Enhancer (NSF 60 Certified)

(i) 198 gallons required

h. NW-220 Mud Dispersant (NSF 60 Certified)

(i) 20 gallons required

i. Chlorine Neutralizer

(i) (1) 50lb bags required

PART 3 - EXECUTION

3.1 WELL TREATMENT, RE-DEVELOPMENT AND RE-EQUIPPING

A. General Sequence of Work

1. The general sequence of work shall be as follows:

a. Remove all pumping equipment

b. Perform a TV video survey of well casing and screen

c. Perform wire brushing and dual swabbing of well casing and screen

d. If needed, add acid treatment chemicals and monitor pH to ensure optimal cleaning effects.

e. Swab perforated sections of well

f. Adjust pH of standing well water to maintain desired pH level

g. Bail and/or pump debris from bottom of well, if necessary

h. Pump well into holding tanks to purge acid chemicals from well

i. Neutralize and discharge purge water to area shown on drawings

j. Add "shock chlorination" to well and monitor pH to ensure optimal cleaning effects.

k. Swab perforated sections of well

l. Adjust pH of standing well water to maintain desired pH level

m. Perform initial re-development of well casing and screen

n. Bail and/or pump debris from bottom of well, if necessary

o. Pump well into holding tanks to purge treatment chemicals from well

p. De-chlorinate and discharge purge water to area shown on drawings

q. Perform pump development, step drawdown testing, and continuous pumping test

r. Clean existing pumping equipment

s. Modify discharge head for installation of a chemical addition tremie line

t. Install permanent pumping equipment and PVC tremie line

u. Perform site clean-up and demobilize equipment

B. Removal of Pumping Equipment

1. All pumping equipment shall be removed from the well and carefully stored above the ground surface on the project site for observation.

C. Video of well casing and screen

1. Video survey shall conform to Section 33 20 30 – Video Camera Survey.

D. Wire Brushing of Well Casing

1. The contractor shall use a stiff metal wire brush or a nylon brush with a dual swab tool to remove mineral scale and iron bacterial growth from the inside surface of the well casing. The type of brush to be used will be determined by the engineer after review of the well video survey. The bottom of the well shall be cleaned with a submersible pump capable of purging accumulated debris from the bottom of the well.

E. Addition of Chemicals

1. Liquid chemicals shall be pumped into the perforated sections of the well by means of a tremie pipe or through the dual swab tool. A tremie line or similar applicator shall be installed inside the dual swab tool if this is the chosen method. The chemicals shall be added from the bottom of the perforations up through the perforated portions of the well. The flow rate of the chemicals shall be metered at the surface and controlled to no more than 10 gpm. The tremie pipe shall be from 1 to 2-inch diameter and consist of non-reactive materials.

2. All chemicals will be provided by the contractor. After adding the initial chemical treatment, the well water shall be mechanically agitated with a surge block for at least 30 minutes before checking the pH level with a non-reactive sampling bailer fitted with a ball valve at the bottom. If the pH is above 3 for acid treatment or 5.0 for chlorination, the chemistry of the water should be adjusted by adding a sufficient volume, by means of a tremie pipe, to lower the pH to less than 3.0 for acid and 5.0 for chlorination. While chemicals are in the well, pH should always be kept below these levels.

3. The mechanical development process should be started immediately once the liquid treatment chemicals have been added to the well. Agitation with a surge block shall be started from the bottom of the well and worked upward in even sections and time increments to the static water level. Once the surge block reaches the top of the screen interval, pump any accumulated debris from the bottom of the well. Monitor the content of any debris recovered for color of scale/sludge, percentage of scale/sludge of total debris, sand, etc. Surge for 3-4 hours and check the chemistry for color and pH with an inert sample bailer.

4. Monitoring and Adjusting the pH during Treatment: Samples of well water should be collected every 3-4 hours during treatment time and monitored for pH and color. Samples should be collected with a non-reactive sampling bailer fitted with a ball

valve at the bottom. Multiple samples should be collected from various points within the well screen. When the pH rises above the required levels, adjust pH downward by adding a sufficient volume of chemicals to lower the pH to less than these levels. The pH should be checked prior to leaving the site in the evening. After any dosage of chemicals to adjust pH, the well shall be surged for 30 minutes to assure a uniform mixture. In the morning, the well should be surged for 30-60 minutes before checking pH to assure similar well conditions. If pH is greater than the required levels, adjust accordingly. If pH is lower than the required levels, agitate for 2-4 hours and recheck pH. Continue this process until instructed by the engineer to stop (approximately 12 to 16 hours).

5. Record Keeping: Keep a log of time, pH, color, and pH adjustments for review and evaluation of treatment effectiveness. Full treatment is estimated to take 36 hours per chemical treatment.

F. Removal and Disposal of Treatment Water and Debris

1. Once each stage of chemical treatment is complete, the well should be bailed and/or pumped clean of all materials and debris from the bottom of the well. The well shall then be redeveloped by means of a dual swab surge block with simultaneous pumping to remove any development debris. When the well is redeveloped and cleaned of development debris, a development pump shall be installed. The pump suction should be installed to a minimum depth of 10 feet above the first set of screens. The well should then be pumped to purge the treatment water from the well. Pump discharge should be directed to portable surface holding tanks with a minimum total storage capacity of approximately 40,000 gallons. Bailing / pumping / surge block are not to exceed 600 gallons per minute.
2. The water in the holding tanks shall be neutralized or de-chlorinated by adding a neutralizing or dechlorination agent. To assure thorough mixing in the holding tanks, the neutralizing additive should be injected into the pump discharge on a constant feed basis. For acid treatments, pH should return to 6.5 or higher and for chlorine, no chlorine residual shall remain prior to disposal. The discharge from the holding tanks to the designated area shall be monitored with a flow meter and regulated to no greater than 50 gallons per minute. Chlorine or pH readings of the discharge water should be recorded regularly for permitting submittals.
3. When the holding tanks have been emptied, the well pump can be restarted and the process repeated. The residual pH/chlorine levels of subsequent batches will be expected to improve with each batch but may fluctuate somewhat. This process of pumping into the holding tanks should be repeated until the water coming from the well reaches background levels, or as directed by the Engineer.
4. When the pH level coming from the well during acid treatment reaches 6.5 or higher, and when chlorine residual of the water coming from the well during chlorine treatments reaches zero, the discharge water may be disposed of directly to the designated discharge area.
    a. Alternative methods of acid neutralization/de-chlorination must be approved by the Engineer and meet the requirements for discharge prior to allowing any water to be discharged to the designated area.

G. Initial Well Re-Development

1. Initial well re-development will be executed in accordance with Section 33 01 25 - Initial Well Redevelopment.

H. Well Development and Pump Testing

1. Contractor shall install a test pump and perform additional development by pumping in accordance with Section 33 20 24 – Well Development by Pumping and test pumping in accordance with Section 33 20 26 – Step Rate Drawdown Test and 33 20

28 – Constant Rate Drawdown Test.

I. Modify Discharge Head

1. The discharge head shall have a port added for installation of a 1½ -inch pvc chemical addition tremie line.

J. Clean Permanent Pumping Equipment

1. In order to ensure adequate cleaning of the pumping equipment, the bowls shall be disassembled and all mineral accumulation shall be removed.
2. After disassembly, cleaning is to include wire brushing to remove all iron oxide scale and any mineral deposition prior to steam cleaning.
3. All existing permanent pumping equipment that will be re-installed in the well shall be thoroughly steam cleaned inside and out.
4. Water used for steam cleaning shall maintain a chlorine level of at least 50 parts per million.
5. After steam cleaning the pumping equipment shall be re-assembled and prepared for installation

K. Installation of Permanent Pumping Equipment

1. Upon completion of all development and well testing work, the contractor shall install the existing or replacement pumping equipment and appurtenant piping and electrical control equipment.

L. Tremie Line

1. The Contractor shall install a 1½ -inch schedule 80 PVC chemical addition tremie line into the well simultaneously with the pumping equipment.
2. The pipe will either be flush threaded or connected using threaded couplings capable of withstanding the weight of the pipe below each coupling.
3. The tremie line shall be strapped to the pump column above the bowls and centralizers shall be added below the bowls at 40 foot intervals to center the line in the well.
4. Contractor shall submit a proposed design for centering line below bowls, securing line to pump column and passing the pump bowls.
5. The tremie line shall be sealed at the surface where it connects to the well head. The Contractor shall submit a plan for sealing this line with the proposed centering plan.
6. Perforate the PVC with 1/8- inch diameter holes once every 10 feet in the area below the pump.
7. For bidding purposes, assume 500 feet of pipe for each well.

PART 4 - HEALTH AND SAFETY PROCEDURES

4.1 HEALTH AND SAFETY PROCEDURES

A. Health and Safety Plan

1. There are a number of critical health and safety issues related to general well and pump mechanical and electrical operation and control, as well as specific concerns of handling potentially hazardous well treatment and rehabilitation fluids, and related issues such as electrical supplies including overhead wires and confined space operation.
2. The requirement for overall safety for human health and the environment is of

paramount importance. The contractor shall have a health and safety plan that is specific yet is flexible to assure that personnel are thoroughly familiar with chemical use and handling and mechanical activities.

a. The contractor is responsible for and shall ensure that all personnel have proper personal protective equipment (PPE) that is appropriate to protect workers from the chemicals to be used for well treatment.

B. Level of Protection for Mixing and Handling Well Treatment Chemicals

1. Well maintenance treatments involve the use of reactive chemicals. Once a chemical regime is selected, the appropriate use of chemical-resistant gloves, boots, and apparel, full-face splash shields, and other specific protection such as for handling hot and cold solutions should be specified. An excellent strategic policy for safety is to, as a rule, employ treatment mixtures that minimize hazard and the likelihood of personal injury due to error, while still being effective.

C. Chemical Handling Hazards

1. Transferring chemical solutions: Typically, the major exposure injury risk point during treatment is at drums containing concentrated acid, caustic, or oxidizing agent solutions. Spilling or transfer hose troubles may result in skin exposure. Vapors may cause mucous membrane and eye tissue irritation or damage. Persons handling concentrated chemicals should wear full-face splash guards and respirators and chemical resistant clothing and gloves. Persons handling dilute solutions may work with care in OSHA Level D gear (29 CFR 1910).

D. Mixing Chemicals

1. Mixing hazards: Mixing of concentrated reactive solutions can result in personal hazards. For example, neutralization of acids poses a potential hazard if basic compounds are added too rapidly to strongly acidic solutions (pH <5) as significant foaming may occur.
2. Personnel should review how to handle specific chemical source stock and solutions. MSDS provide general guidance but should not be relied upon for complete instructions.
3. General chemical mixing safety requirements are listed below:
    a. Personnel should always add acid to water and not vice versa.
    b. Strong oxidants should never be used where hydrocarbon concentrations are high in well water solutions, as ignition is a low-but-not-zero probability.
    c. Alkaline and caustic compounds should be added slowly to acidic compounds when neutralization is required, and never added to wells when acid solutions are still in the well.
    d. Hoses, valves, and connections should be secured and not leaking. Spraying acid or oxidant chemicals can result in dermal burns and clothing damage.
    e. All work should be conducted in unobstructed and/or well-ventilated areas.
    f. Personnel must routinely review MSDS and company recipe sheets before each treatment event and work at a deliberate pace, avoiding rush.
    g. Extra lime or soda ash should be kept on hand to treat spills, and eyewash packages and abundant clean water should be kept close at hand for dilution if personnel are splashed.
    h. An emergency action plan should be prepared by the contractor to cover any spills, accidental contact with chemicals or unanticipated events.
    i. An emergency evacuation plan should be prepared by the contractor and in place prior to initiating work on the project.

j. Phone numbers for emergency responders should be placed in a safe and prominent location on the job site.

E. Site Security

1. The contractor shall ensure that there is no public access to the site during work activities.
2. The contractor shall ensure that the well house is locked and that there is no public access to the well head either during or after work hours.
3. The contractor shall ensure that all chemicals used for treatment and/or neutralization are secured from public access and are protected from tampering or removal from the job site.

END OF SECTION

SECTION 33 20 22
INSTALL DEVELOPMENT PUMP EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Work to be performed under this Section includes the work necessary to provide, install, and remove the pump and associated appurtenances for development, test pumping, and water level measurement, and includes installation of a 2-inch water level measurement access pipe.

1.2 RELATED WORK

A. Section 33 20 40 – Plumbness and Alignment

B. Section 33 20 61 – Disposal of Drilling Fluids, Cuttings and Pumped Water

1.3 REFERENCES

Not Used.

1.4 SUBMITTALS

Not Used.

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide all temporary and permanent materials, supplies, tools, equipment, and labor required to accomplish the work as specified.

B. Plumbness and alignment testing will be performed prior to installing the test pump in accordance with Section 33 20 40 – Plumbness and Alignment.

2.2 PUMPING EQUIPMENT

A. The test pump shall be a vertical turbine line shaft type pump capable of pumping from 500 to ~~4000~~ *1500* gallons per minute under the head conditions anticipated for the project. The Contractor shall initially set the pump at a depth of 400 feet below ground surface but be capable of lowering the pump setting to achieve the maximum rated capacity of the pump, if necessary.

B. The pump motor shall be of a variable-speed type and be equipped with sound deadening devices as appropriate. Discharge piping shall be provided by the Contractor and be of sufficient size and length to conduct water to the wastewater disposal area as specified in Section 33 20 61 – Disposal of Drilling Fluids, Cuttings and Pumped Water. The Contractor shall provide instantaneous and totalizing flow meters or other approved devices that will-measure the flow rate to an accuracy of at least 5 percent. The Contractor shall also provide an orifice plate and manometer with appropriate apparatuses to measure discharge flow from the well.

2.3 SAMPLE PORT

A. Provide a sample port at the well head for the collection of water quality samples.

B. Provide an access port and tube for measurement of water level with an electric water level probe.

C. Provide a 2-inch diameter access port and tube for water level sensing with a transducer and

data logger.

2.4 DATA LOGGER AND ELECTRIC WATER LEVEL PROBE

A. Provide a water level transducer and data logger along with an electric water level probe acceptable to the Engineer.

2.5 SAND CONTENT MEASURING DEVICE

A. Provide a sand content measuring device such as a Rossum centrifugal sand separator, or equal.

PART 3 - EXECUTION

3.1 GENERAL

A. Following the completion of initial development with the cable tool rig, the Contractor shall install a deep well high capacity test pump to perform the development of the well by pumping. This pump shall not be removed from the well until all well testing, including recovery monitoring, is complete. All fuel shall be provided by the Contractor.

B. Provide a 2-inch diameter sounding tube adequate for insertion of water level sensing devices into the well before, during, and after the test pumping. The access pipe must allow free passage of pressure transducers that are 1-inch in diameter and approximately 8-inches long. The sounding tube shall be securely fastened to the pump column assembly, terminate approximately 5 feet above the pump, and be perforated along the bottom 10 feet.

C. Provide and install a water level transducer and data logger with an electric water level probe to a depth determined by Engineer. Water level transducer and data logger shall remain down-hole until all development and test pumping are complete. Failure of compliance or equipment failure shall result in the contractor performing the test pumping again until satisfactory records are produced from the water level transducer.

END OF SECTION