

July 17, 2006

via Federal Express Standard Overnight

Mr. Jerry Salgado
Texas Commission on Environmental Quality
Water Supply Division, Building F, 3rd Floor
12100 Park 35 Circle
Austin, TX 78753

Re: Request for Approval of Calcium Hypochlorite Tablet Disinfection Systems

Owner: United States Department of the Army, Camp Stanley Storage Activity

Public Water System Number: 0150117

Project Name: Water Well Disinfection Systems Upgrade

County(s): Bexar

Dear Mr. Salgado:

This is a request for review and approval of new disinfection systems for the three active water wells that comprise the Public Water System owned and operated by the Camp Stanley Storage Activity in Boerne, Texas. This request complies with the requirements of §290.39(j) *Changes to Existing Systems or Supplies* of 30 TAC Chapter 290, Subchapter D "Rules and Regulations for Public Water Systems" based on a proposed potentially significant change in disinfection systems.

Project Description

The objective of this project is to upgrade the chlorine disinfection systems currently used for the water well systems at the Army's Camp Stanley Storage Activity (CSSA). The proposed scope of work is to replace the existing 150-lb chlorine cylinders and their manually controlled chlorinators with calcium hypochlorite tablet disinfection systems, solution pumps and piping, weigh scales and other instrumentation. The resulting tablet disinfection systems would provide dosing of chlorine solution produced from 3-inch diameter tablets to disinfect the well water produced by all of CSSA's active water wells.

Parsons is the general contractor for this turnkey project providing engineering, procurement and construction management services. Parsons will procure the equipment from a reputable manufacturer and then contract the services of a construction contractor to install the procured equipment to the manufacturers' and Parsons' requirements.

The proposed calcium hypochlorite tablets and disinfection system are Accu-Tab[®] SI tablets and chlorination system as manufactured by PPG Industries. PPG's tablets and equipment have NSF 60 (Drinking Water Treatment Chemicals) and NSF 61 (Drinking Water System Components) certifications, respectively. In addition, the tablets meet AWWA B-300 standard for Hypochlorites. See PPG brochure attached.

No changes in well water flows, chlorine residuals, detention times or injection points are planned as a part of this project. Note: the groundwater produced from the existing water wells is not under the direct influence of surface water.

Project Justification

The existing disinfection systems' use of elemental chlorine poses a potential health risk for Operations personnel that facility management believes is excessive. Thus, the primary purpose of the disinfection system upgrade at the wells is to eliminate the risk of exposure to chlorine gas.

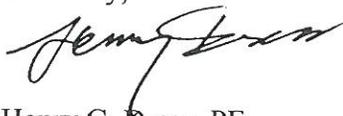


Because the use of calcium hypochlorite for potable water disinfection is well-established and fairly widespread, it is clearly a safe and effective alternative to chlorine gas use. Nevertheless, calcium hypochlorite represents a change in the disinfectant used to maintain a residual in the distribution system, therefore, approval of calcium hypochlorite tablets in place of chlorine gas is requested for this Public Water System as required by Paragraph §290.39(j)(1)(C).

I affirm the attached plans and specifications describing the proposed project are in substantial compliance with all the requirements of 30 TAC Chapter 290, Subchapter D. Approval of this project is duly requested.

If you have any questions or concerns about this project, please contact me at 512-719-6063 (facsimile 512-719-6099).

Sincerely,



Henry C. Dress, PE

PARSONS

8000 Centre Park Drive, Suite 200
Austin, Texas 78754

Attachments:

TCEQ Public Water System Plan Review Submittal Form

Specification Sections: 02666 Water Line Testing and Disinfection
11263 Water Well Disinfection Equipment
11264 Water Well Disinfection Equipment Installation
16010 General Electrical Requirements

Drawings: Bldg. 54 Process Diagram, P-054
Bldg. 54 Mechanical Plan, M-054
Bldg. 54 Electrical Plan, E-054
Well 1 Process Diagram, P-904
Well 1 Mechanical Plan, M-904
Well 1 Electrical Plan, E-904

PPG Brochure

xc:

TCEQ
Bobby Caldwell, Water Program Manager
Region 13 Office
14250 Judson Rd. San Antonio, TX 78233-4480

Camp Stanley Storage Activity
Mr. Jason D. Shirley
Installation Commander
25800 Ralph Fair Rd., Boerne, TX 78015-4800

Other Camp Stanley Storage Activity addressees:

Mr. Herman Stinson, Chief – Logistics Division
Mr. Tom Tijerina, Chief Facility Engineer
Ms. Glaré Sanchez, Environmental Manager

Parsons addressees:

Mr. Brian Vanderglas,
Ms. Samantha Elliot, Parsons

**TCEQ Public Water System Plan Review
Submittal Form**

**TCEQ Public Water System Plan Review Submittal Form
(Complete and Attach to Submittal Package)**

Date: July 17, 2006
 TCEQ PWS Identification No.*: 0150117 CCN No. or Application No.**: Not Applicable
 Water System Name: Camp Stanley
 Water System Owner: U.S. Department of the Army Type of Entity: Non-Transient/Non-Community
 Address: 25800 Ralph Fair Road Boerne, TX 78015 Phone: (210) 295-7420
 Responsible Official: Herman Stinson Title: Chief - Logistics Division
 ***County (system location) : Bexar Subdivision Sec., Phase, Unit, etc. Not Applicable
 Mechanism & Source of Financing Not Applicable
 Engineer: Henry C. Dress Registration Number: 81023
 E-Mail: henry.dress@parsons.com Firm Name: Parsons Phone: (512) 719-6063
 Firm Address: 8000 Centre Park, Suite 200 Austin, TX 78754 Fax: (512) 719-6099

* If no PWS Number exists, the owner must submit a business plan, if required, in accordance with §290.39(f) and (g).
 ** If a required CCN number does not exist, an acceptable application to obtain a CCN number must be made before a project submittal can be technically reviewed. In addition, if a submittal is for a project located outside the CCN area, a CCN amendment application must be submitted before a project may be reviewed for construction approval. Please refer to 30 TAC Chapter 291 for additional information regarding CCNs.

If this is a new (proposed) system, you must attach the following with this submittal:

- Attach a list of all water utilities within 1/2 mile of the proposed service area boundaries
- Copies of formal applications for service from each of the following
 - any municipality if the system is within its ETJ;
 - any district or other political subdivision whose corporate boundaries are within 1/2 mile of the proposed service area boundaries
 - any other water service provider whose certificated service area boundary is within 1/2 mile of the proposed service area boundaries
- Documentation that all application requirements including payment of fees were complied with.
- Copies of written responses from each of the entities listed above.
- Business plan, if required by 30 TAC 290.39(f) & (g). The business plan financial requirements for non-community water systems must confirm capital availability to construct the system according to TCEQ requirements. This would consist of a balance sheet that shows liabilities as well as assets, not just a bank confirmation of a deposit account. Alternatively, if the project is being constructed with loan funds, then a loan commitment letter from the lender specific to that project will suffice.
- Justification for constructing a separate system (unless none of the entities listed above exist)

Type of Project (please check the appropriate boxes). Submit a sealed engineering report that includes the number of connections to be served.

- | | |
|--|---|
| <input type="checkbox"/> Distribution System Modifications | <input type="checkbox"/> Storage Capacity Modifications |
| <input type="checkbox"/> ***Well completion data on previously approved well | <input type="checkbox"/> ***Water Well Construction, Proposed |
| <input type="checkbox"/> Pressure Maintenance Facilities Modification | <input type="checkbox"/> Proposed Innovative Process Study |
| <input checked="" type="checkbox"/> Disinfection Facilities or Other Modifications | <input type="checkbox"/> ***Ground Water Treatment Plant, New |
| <input type="checkbox"/> Preliminary Engineering Report w/o plans | <input type="checkbox"/> Surface Water Treatment Plant, New |
| <input type="checkbox"/> Modification of Surface Water Treatment Plant | <input type="checkbox"/> Tex Water Dev. Board Proj. No. _____ |
| <input checked="" type="checkbox"/> Other (Please Explain) | |

This is not a new PWS, only the disinfection systems and their controls are proposed to change from chlorine gas to calcium hypochlorite tablets. The number of connections served by the existing system will not change with this project.

***Please refer to http://www.tnrcc.state.tx.us/permitting/waterperm/pdw/pdw_rad.html for a list of counties where there is an elevated risk of RADIONUCLIDES in the groundwater. The website also has helpful information regarding the radionuclide testing required in these counties.

IF THIS SUBMITTAL IS A REVISION OF PREVIOUSLY SUBMITTED PLANS, PLEASE ENTER THE ASSIGNED TCEQ LOG NUMBER: _____ Please call (512) 239-6960 if you have questions regarding this form. Your cooperation will help us provide better service. Additional helpful information and rules are available at our website:

<http://www.tnrcc.state.tx.us/permitting/waterperm/ud/planrev.html>

I hereby certify that the above information is, to the best of my knowledge, true and correct.

HENRY C. DRESS JULY 17, 2006
 Printed Engineer's Name Date



Specifications

02666 Water Line Testing and Disinfection

11263 Water Well Disinfection Equipment

11264 Water Well Disinfection Equipment Installation

16010 General Electrical Requirements

SECTION 02666
WATER LINE TESTING AND DISINFECTION

PART 1 - GENERAL**1.01 SUMMARY**

- A. This Section specifies testing and disinfection requirements for potable water lines and equipment.

1.02 RELATED SECTIONS

- A. Section 11263 – Water Well Disinfection Equipment.
- B. Section 11264 - Water Well Disinfection Equipment Installation

1.03 REFERENCES

- A. ANSI/AWWA B300 Hypochlorites
- B. ANSI/AWWA C651 Disinfecting Water Mains
- C. APHA, AWWA, and WEF Standard Methods for the Examination of Water and Wastewater

1.04 SUBMITTALS

- A. The SUBCONTRACTOR shall submit a test schedule a minimum of 3 days before testing is to start. The submittal shall also include the SUBCONTRACTOR's plan for carrying out test, obtaining sufficient flow to flush disinfection water, neutralization of water from the line and equipment, and the capture and release of water after testing and disinfection has been completed.

PART 2 - PRODUCTS**2.01 MATERIAL REQUIREMENTS**

- A. All test equipment for chlorination: temporary valves, temporary hose connections, backflow preventers and other water control equipment, and materials shall be determined and furnished by the SUBCONTRACTOR. No materials shall be used which would be injurious to the water supply.
- B. Chlorine for disinfection shall be in the form of sodium hypochlorite solution, or calcium hypochlorite granules or tablets made into a solution. Sodium hypochlorite and calcium hypochlorite shall be in accordance with the requirements of ANSI/AWWA B300.

PART 3 - EXECUTION**3.01 GENERAL**

- A. SUBCONTRACTOR must use potable water for testing and disinfection. The SUBCONTRACTOR shall make all arrangements for conveying test water to the points of use, for adding the disinfectant to the water and for the disposal of test water.
- B. Disinfection activities shall be scheduled by the SUBCONTRACTOR as late as possible during the contract time period to assure the maximum degree of disinfection of the facilities at the time the Work is accepted by the CONTRACTOR.

- C. Hydrostatic pressure tests shall be conducted to assure system and connection integrity. Tests shall be conducted in segments as required to match pressure ratings.
- D. SUBCONTRACTOR shall be responsible for neutralizing and disposing of the test water following the completion of testing and disinfection.

3.02 HYDROSTATIC TESTING

- A. Hydrostatic testing of water pipes shall be performed as described herein. Before starting testing, all pipes shall be flushed or blown out as appropriate. SUBCONTRACTOR shall test in sections or as a unit. Tests shall be made by closing valves and filling slowly with water. SUBCONTRACTOR shall ensure that all test connections are suitably restrained to resist the thrust of the test pressure without damage to, or movement of, adjacent pipe. Unharnessed sleeve-type couplings, expansion joints, or other sliding joints shall be restrained or suitably anchored before the test. SUBCONTRACTOR shall provide sufficient temporary air taps to evacuate all entrapped air in each segment to be tested. After completion of the tests, such taps shall be permanently plugged. Care shall be taken to see that all air vents are open during filling.
- B. Hydrostatic tests shall consist of holding the test pressure on the portion being tested for a period of not less than 4 hours. At no point shall the test pressure be less than 100 percent of the pipe pressure class at the highest elevation of the section being tested.
- C. If system fails to pass the leakage test, the SUBCONTRACTOR shall determine the cause of the leakage, take corrective measures necessary to repair the leaks, and re-test. All leaks shall be repaired in a manner acceptable to the CONTRACTOR.

3.03 DISINFECTING POTABLE WATER LINES AND EQUIPMENT

- A. General: All potable water lines and equipment except those appurtenant to hydraulic structures shall be disinfected in accordance with the requirements of ANSI/AWWA C651 using the Continuous-Feed Method as modified herein. Preliminary and final flushing shall be done at the ends of mains which have been hydrostatically tested.
- B. Chlorination: A chlorine-water mixture shall be uniformly introduced into the line to be disinfected by means of a solution-feed chlorinating device. The chlorine solution shall be introduced at one end of the pipe through a tap in such a manner that as the pipe is filled with water, the dosage applied to the water entering the pipe shall be approximately 50 mg/L. Care shall be taken to prevent the strong chlorine solution in the line being disinfected from flowing back into the line supplying the water.
- C. Chlorine Residual Test: The CONTRACTOR will make 2-hour chlorine residual tests. The CONTRACTOR will notify the SUBCONTRACTOR of the chlorine test result. Chlorinated water shall be retained in the pipeline for at least 4 hours. After the chlorine-treated water has been retained for the required time, the free chlorine residual at the extremities and at other representative points shall be at least 25 mg/L.
- D. Repetition of Test: The disinfection testing procedure shall be repeated if the initial tests fail to produce satisfactory results. Two consecutive satisfactory test results shall be required after any unsatisfactory test. The tablet method shall not be used for repeated disinfection.
- E. Chlorinating Valves: During the process of chlorinating the pipelines, all valves and other appurtenances shall be operated while the line is filled with the strong chlorine solution.

- F. Final Flushing: Final flushing shall be done by the SUBCONTRACTOR after it has been notified of a satisfactory chlorine residual test by the CONTRACTOR. After the applicable retention period, the chlorinated water shall be flushed from the line until chlorine measurements show that the concentration in the water leaving the pipeline is no higher than that generally prevailing in the system, which is within minimum and maximum residual limits. If there is any question that the chlorinated discharge will cause damage to the environment, a reducing agent shall be applied to the water to neutralize thoroughly the chlorine residual remaining in the water at no additional cost to the CONTRACTOR.
- G. Disinfection of Connections: Pipe and appurtenances used to connect the newly installed sections shall also be disinfected in accordance with AWWA C651.
- H. Neutralization of Chlorinated Water: The SUBCONTRACTOR shall neutralize and dispose of chlorinated water in accordance with Appendix "B" of AWWA Standard C651.
- 3.04 BACTERIOLOGICAL TESTING OF DISINFECTED POTABLE WATER LINES AND EQUIPMENT**
- A. CONTRACTOR will collect two sets of samples at least 24 hours apart after completion of final flushing as indicated above. Samples will be taken at locations indicated in ANSI/AWWA C651 and will be tested for coliform organisms and standard plate count according to Standard Methods for the Examination of Water and Wastewater. Laboratory costs of initial testing will be the CONTRACTOR'S responsibility.
- B. If disinfection fails to produce satisfactory bacteriological counts, the SUBCONTRACTOR shall flush again and the CONTRACTOR will collect a second set of samples. If the results of tests from the second samples exceed the acceptable criteria in Standard Methods, the pipe shall be re-disinfected and will be re-sampled and re-tested until satisfactory results are obtained. The SUBCONTRACTOR shall be responsible for the costs of all repeat bacteriological sampling and testing.

END OF SECTION

**SECTION 11263
WATER WELL DISINFECTION EQUIPMENT**

PART 1 - GENERAL

1.01 SUMMARY

- A. Two tablet disinfection systems shall be designed and supplied to feed low concentrations of calcium hypochlorite in solution continuously as required to provide disinfection of groundwater produced by 3 water wells (CS-9, CS-10, and CS-1) used in Texas Public Water System 0150117 at Camp Stanley Storage Activity in Bexar County, Texas.
- B. Each disinfection system shall be pre-assembled, modularized units, skid-mounted on welded aluminum frames (Type 6061-T), pre-wired and plumbed with controls, marked connections for all utility tie-in locations to the maximum extent practical. Primary equipment will consist of a chlorinator, a local control panel, a centrifugal pump, and a solution tank.
- C. Delivery shall be by erosion feed technology to control accurate and consistent concentration limits in the water system. Systems using spray or vortex technology are not acceptable.
- D. A maximum chlorine solution concentration of 0.05% (500 ppm) shall be maintained to minimize calcification inside system components.
- E. Chlorinators shall automatically produce chlorine solution in a batch mode at a greater rate than that dosed to the systems.
- F. A centrifugal pump wired to the system control panel shall feed freshly mixed chlorine treatment solution as indicated on the drawings. Systems using any type of metering pump to feed solutions are not acceptable.
- G. SUPPLIER shall provide, test, commission and start up two complete calcium hypochlorite tablet disinfection systems comprised of all equipment and ancillary devices including all tablet chlorinators, solution tanks, solution injection pumps, controls, valves, piping, gauges, switches, regulators, filters, safety devices, fittings and adaptors necessary and as shown on the drawings and specified herein comprising complete and functional skid-mounted disinfection systems.
- H. Systems shall be suitable only for NSF Standard 60 listed calcium hypochlorite tablets, and shall be capable of meeting all requirements of the Texas Department of Health and the Texas Commission on Environmental Quality.

1.02 RELATED SECTIONS AND DRAWINGS

- A. Section 02666 – Water Line Testing and Disinfection
- B. Section 11264 – Water Well Disinfection Equipment Installation
- C. Section 16010 – General Electrical Requirements.
- D. Building 54 Tablet Disinfection System Equipment Plan, M-054.
- E. Building 54 Tablet Disinfection System Process Diagram, P-054.
- F. Building 54 Tablet Disinfection System Electrical Plan, E-054.
- G. Well 1 Tablet Disinfection System Equipment Plan, M-904.
- H. Well 1 Tablet Disinfection System Process Diagram, P-904.
- I. Well 1 Tablet Disinfection System Electrical Plan, E-904.

1.03 REFERENCES

- A. National Sanitation Foundation (NSF) Standard 60 Drinking Water Chemicals
- B. National Sanitation Foundation (NSF) Standard 61 Drinking Water System Components
- C. American Water Works Association (AWWA) Standard B300-04
- D. 30 TAC 290 – Title 30 of the Texas Administrative Code, Chapter 290 - Public Drinking Water

1.04 SUBMITTALS

- A. Submit the following:
 - 1. Manufacturer's Product Data.
 - 2. Fabrication and assembly drawings for all components.
 - 3. Foundation, anchoring and installation drawings.
 - 4. Detailed specifications for all components.

5. Control logic and wiring diagrams
6. Certificates of compliance.
7. Operation and maintenance manuals.
8. Training documentation.

1.05 QUALITY ASSURANCE

- A. The disinfection systems shall be new and from an experienced manufacturer.
- B. The manufacturer shall have similar equipment installed and successfully operating for a minimum of five years and shall demonstrate equal or larger capacity operating installations using similar equipment.
- C. The disinfection system manufacturer shall test each device for mechanical correctness. All disinfection equipment, valves, piping, etc. shall be NSF 61 approved.

1.06 WARRANTY

- A. Warrant all components to be free of defects in materials, workmanship, and labor for 12 months from the date of acceptance by the BUYER.
- B. Individual warranties by component manufacturers in lieu of single source responsibility by the SUPPLIER are not acceptable.
- C. Items which fail during the warranty period, excluding expendable items, shall be replaced without cost to the BUYER.
- D. Provide manufacturer's guarantee and warranty certificates prior to equipment start-up.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All equipment shall be best construction with components designed for long life, continuous operation and low maintenance in a corrosive atmosphere.
- B. All equipment shall be selected to meet CSSA site conditions.

2.02 SCHEDULE OF PRIMARY EQUIPMENT

- A. Provide the following equipment for **Water Well CS-1**:
 1. Inlet particle filter;
 2. Calcium hypochlorite tablet chlorinator;
 3. Weigh scale;
 4. Adjustable pressure regulator
 5. Chlorine solution storage tank
 6. Instrumentation
 7. 2 Centrifugal pumps with constant speed motors (1 duty/1 shelf spare)
 8. Local Control Panel with Programmable Logic Controller
- B. Provide the following equipment for a dual feed disinfection system at Bldg. 54 for **Water Wells CS-9 & CS-10**:
 1. Inlet particle filter
 2. Calcium hypochlorite tablet chlorinator
 3. Weigh scale
 4. Chlorine solution storage tank
 5. Instrumentation
 6. 2 Centrifugal pumps (1 duty/1 shelf spare) with variable frequency drives (VFD)
 7. Local Control Panel with Programmable Logic Controller

2.03 INLET PARTICLE FILTER

- A. Feed water to chlorinator shall be filtered by a pleated cartridge style filter element with a 50 micron rating to prevent particulate matter from entering chlorinator.

2.04 CALCIUM HYPOCHLORITE TABLET CHLORINATOR

- A. Calcium hypochlorite tablet chlorinator shall be provided with a weigh scale and a SCADA-compatible local control panel to modulate solution production and pumping of chlorine

solution on an as needed basis. Dispenser size to be capable of producing a worst-case scenario disinfection supply of 4.5 lb/day (chlorine equivalent) per well for a maximum flow per well of 130 gpm. Chlorinator shall have a minimum turndown capability of 5:1 and have a sieve plate inside chlorinator on which tablets are placed so that as water flows across sieve plate, the tablets erode at a rate proportional to the flow rate. Tablet Chlorinator: Accu-Tab® by PPG Industries, Inc.

2.05 WEIGH SCALE

- A. Chlorinator shall be provided with a load cell type weigh scale installed beneath chlorinator that provides determination of daily use, amount remaining and low level alarm annunciation.

2.06 CHLORINE SOLUTION TANKS

- A. Chlorine solution tanks shall be fabricated from high-density polyethylene and shall have a working capacity of approximately 70 gallons:

2.07 CALCIUM HYPOCHLORITE TABLETS/PELLETS

- A. The calcium hypochlorite tablets/pellets shall have an available chlorine content between 60 and 70% by weight. Tablets must meet NSF Standard 60 for drinking water applications and AWWA Standard B300-04 with respect to the use of hypochlorites in water disinfection.

2.08 SOLUTION INJECTION PUMPS

- A. Centrifugal pumps shall be provided at Wells CS-1, and 9 & 10 to inject the dilute calcium hypochlorite solution into a pressurized stream of water well discharge piping. Pumps shall be close-coupled with shaft sealing. The pumps shall provide sufficient pressure to reintroduce the hypochlorite solution into the water lines going to the potable water reservoir. Well 1 discharge pressure is approximately 90 psig. Wells 9&10 have a discharge pressure of approximately 30 psig.
- B. Provide solution Injection Pump Air Bleed to prime solution pumps at start-up, or whenever necessary.
- C. Provide Primary Backflow Prevention: a PVC check valve on each system to prevent reverse flow of water through disinfection systems.
- D. For wells 9&10, provide a VFD controller and an operator interface to control of the speed of the solution pump motor and thereby the amount of solution pumped. VFD should be sized appropriately to control pump speed in desired range. VFD shall have keypad and display for programming, and shall have integral PID controller. VFD shall be provided and installed within Local Control Panel described in Section 2.11, or provided with separate NEMA 4X enclosure and integrated with LCP.

2.09 INSTRUMENTATION

SUPPLIER shall provide all instrumentation needed to accurately regulate the flow of hypochlorite solution based on the well water flowrate.

- A. Low-Low Level Switch. Shuts pump down preventing cavitation. A restart timer will prevent the pump from "chattering".
- B. Flow Control Valve. PVC gate valve mounted in line with the flow meter to allow manual fine adjustment of water-dissolving stream flowrate.
- C. Pressure regulating valve for CS-1 to reduce pressure from 90 psi to system required pressure.
- D. Pressure indicating gauges.
- E. Solenoid Valves. Open and close based on solution tank level.
- F. Chlorinator feed sensor. Digital flow meter with a flow sensor to transmit a pulse signal to a digital monitor, measuring the flow of the fresh water-dissolving stream.
- G. High/Low Level Solution Tank Control. Low level: activation causes solenoid valve to open filling the tank. High level: activation causes the solenoid valve to close. Low, low level shall be protective and cause solution pump to shut down.
- H. Wellwater flowmeters (By Others)
- I. Wellwater flow transmitters (By Others)

2.10 LOCAL CONTROL PANEL WITH PROGRAMMABLE LOGIC CONTROLLER

- A. Provide SCADA-compatible local control panels in a NEMA 4X enclosure to start and stop equipment, to modulate solution production and pumping, to announce alarms and to monitor system status. Panels shall have stepdown transformers to power instrumentation.
 - 1. For wells 9&10 a programmable logic controller shall provide on-off control for hypochlorite solution production and flow-paced control of hypochlorite solution injection by accepting an analog signal from flow transmitter FIT-05401 via RTU-054 to speed control the solution pump and thereby regulate dosage rates.
 - 2. For well 1 a programmable logic controller shall provide on-off control for hypochlorite solution production and hypochlorite injection with alarm annunciation and outputs via RTU-904. Dosage rates will be manually adjusted.

2.11 POWER REQUIREMENTS

- A. See drawings for requirements and available power.

2.12 SUPPLEMENTAL EQUIPMENT AND PIPING

- A. General: Furnish and install all piping, valves, fittings, gaskets, bolts, nuts, couplings, anchors and supports, which shall be engineered as needed, and all other materials required for the entire installation within each building. All materials in contact with hypochlorite shall be suitable for this service. During erection, cutting oil, grease, solvents and other foreign material inside any portion of the system shall be thoroughly removed by flushing or cleaning. New equipment, pipe, fittings and accessories received in an oily condition shall be dismantled and cleaned before use.
- B. All potable water and hypochlorite solution piping shall be new PVC. All PVC pipes and related products shall conform to NSF Standard 61 and bear its seal of approval. Pipe and fittings shall be Schedule 80 when internal diameter is less than or equal to 1 ½ inches, and with a pressure rating for the service of a minimum of 150 psi. Threaded joints shall be made up with compounds or tape approved for water service. Solvent welded joints on PVC water pipe are also acceptable. Systems with flexible tubing are not acceptable.

2.13 CALCIUM HYPOCHLORITE TABLETS

- A. The calcium hypochlorite tablets/pellets shall have an available chlorine content between 60 and 70%. Tablets must meet NSF Standard 60 for drinking water applications and AWWA Standard B300-04 with respect to the use of hypochlorites in water disinfection. Accu-Tab® SI (scale inhibitor) calcium hypochlorite tablets by PPG Industries, Inc.

2.14 ACCEPTABLE PRIMARY EQUIPMENT MANUFACTURERS

- A. PPG Industries Accu-Tab® PowerPro Pressure System.

2.15 SPECIAL TOOLS

- A. Provide one set of any special tools required for operation and maintenance of supplied equipment.

2.16 SPARE PARTS AND SUPPLIES

- A. Furnish spare parts per equipment manufacturer's recommendation for 12 months of operation. Parts shall be packaged for prolonged storage, and the package shall clearly identify the equipment to which it applies.
- B. Furnish two 55-lb pails of Accu-Tab® SI tablets for startup and initial operations.

PART 3 - EXECUTION**3.01 DEMOLITION (By Others)****3.02 INSTALLATION (By Others)****3.03 SERVICES OF THE MANUFACTURER**

The equipment SUPPLIER shall furnish the services of Manufacturer's representative to check installation, commission, start-up equipment and instruct operating personnel in the proper operation and maintenance of equipment and system. Manufacturer's representative

shall be available for a minimum of two trips to the site for each system without extra cost to the BUYER. Testing shall include initial disinfection of new piping system per 30 TAC 290.

- A. Inspection: Manufacturer's representative shall inspect the final installation, test and commission equipment in accordance with manufacturer's written instructions by calibrating equipment to site specific conditions, and supervise and support initial operation.
- B. Training: Manufacturer's representative shall instruct plant personnel on proper operation and maintenance procedures by providing at a minimum 4 hours total of onsite hands-on training for two plant operators.
- C. Equipment Service Agreement: SUPPLIER shall provide complete routine and periodic maintenance and support service to equipment for initial 12 months of operation.

3.04 PAINTING (By Others)

3.05 CLEANING (By Others)

END OF SECTION

**SECTION 11264
WATER WELL DISINFECTION EQUIPMENT INSTALLATION**

PART 1 - GENERAL**1.01 SUMMARY**

- A. Install two skid-mounted calcium hypochlorite tablet disinfection systems as provided by the Disinfection System Equipment Supplier, one system inside CS-1 Well Building and the other inside a new Bldg. 54. Demolish all old chlorine equipment and install all new equipment and ancillary devices including: valves, piping, fittings, gauges, switches, regulators, filters, conduit, wires, circuit breakers, support brackets, anchors, hardware, safety devices, and all other ancillary materials required to construct a complete and operable system.
- B. Bring utilities to tie-in location as marked on the skid.

1.02 RELATED SECTIONS AND DRAWINGS

- A. Section 02666 Water Line Testing and Disinfection
- B. Section 11263 Water Well Disinfection Equipment
- C. Section 16010 General Electrical Requirements.
- D. Building 54 Tablet Disinfection System Equipment Plan, M-054.
- E. Building 54 Tablet Disinfection System Process Diagram, P-054.
- F. Building 54 Tablet Disinfection System Electrical Plan, E-054.
- G. Well 1 Tablet Disinfection System Equipment Plan, M-904.
- H. Well 1 Tablet Disinfection System Process Diagram, P-904.
- I. Well 1 Tablet Disinfection System Electrical Plan, E-904.

1.03 REFERENCES

- A. 30 TAC 290 – Title 30 of the Texas Administrative Code, Chapter 290 – Public Drinking Water
- B. National Sanitation Foundation (NSF) Standard 61- Drinking Water Components

1.04 SUBMITTALS

- A. Submit red-lined as-built drawing mark-ups at completion of installation work to CONTRACTOR.

1.05 QUALITY ASSURANCE

- A. All materials shall be new, produced by a reputable manufacturer and procured from a quality supplier.

1.06 WARRANTY

- A. Warrant all materials, workmanship, and labor for 12 months from the date of acceptance by the OWNER.
- B. Materials or defects in labor that cause a failure during the warranty period, shall be replaced without cost to the OWNER.

PART 2 - PRODUCTS**2.01 GENERAL**

- A. All materials shall be best available with components designed for long life, continuous operation and low maintenance in a corrosive atmosphere.
- B. All materials and products shall be selected to meet CSSA site-specific conditions.

2.02 DISINFECTION EQUIPMENT AND CMU BUILDING 54 (By Others)**2.03 EXHAUST FANS FOR BUILDING 54 AND WELL 1 BUILDING**

- A. Axial Wall-Mounted Exhaust Fan Rated at minimum 550 CFM and 1/4"SP for each building. UL Listed 16" Propeller, Direct Drive, 120V, 1 Phase, 60HZ, TEAO, 1/20 HP Motor. Captive-Aire Systems CEPRSM16 or equal.

2.04 SUPPLEMENTAL MATERIALS

- A. Installation SUBCONTRACTOR shall furnish all piping, valves, conduit, cable, enclosures, transient voltage surge suppressors, circuit breakers, fittings, gaskets, bolts, nuts, couplings, anchors, supports, and all other materials, as shown on the drawings or which shall be engineered as needed, but are not supplied by the Disinfection System Equipment Supplier, yet are required to complete installation of the entire system.
- B. Piping, fittings and related products shall be all new PVC and shall conform to NSF Standard 61. Pipe and fittings shall have a Schedule 80 wall thickness when internal diameter is less than or equal to 1 ½ inches, and with a pressure rating for the service of a minimum of 150 psi. Threaded joints shall be made up with compounds or tape approved for water service. Solvent welded joints on PVC water pipe are also acceptable.

2.05 SPECIAL REQUIREMENTS

- A. Provide fiberglass reinforced high strength molded grating to cover pipe vault in Bldg. 54. Grating shall be fabricated using isophthalic polyester resin or approved equal. Grating shall be 1-1/2" thick with 1-1/2" square openings. Gridwalk® high strength molded grating by American Grating, LLC or equal. Cut grating to fit vault opening.
- B. Electrical services to buildings shall have transient voltage surge suppressors as indicated on the drawings to guard against lightning or other electrical surges.

PART 3 – EXECUTION**3.01 DEMOLITION**

- A. Existing chlorine equipment and piping shall be removed from service and building to allow installation of new equipment. OWNER will be responsible for disposal of demolished equipment only.
- B. Demolish Building 54, BY OTHERS.

3.02 INSTALLATION

- A. Construction of new Building 54, BY OTHERS.
- B. SUBCONTRACTOR shall install all disinfection equipment, piping, instrumentation, and all other ancillaries in accordance with the drawings and manufacturer's written instructions. Installation shall include all anchors and supports for piping, equipment and instrumentation as well as service and utility connections.
- C. Anchor skid-mounted systems to Building floors with expansion bolts.
- D. Bring power and plumbing to utility tie-in locations. Field route conduit and piping to make connections while maintaining neat and orderly installation. Avoid routing piping and conduit so that it becomes a trip hazard for operations personnel. Run below grade or surface mount on building walls.
- E. Lubricate equipment as recommended by the manufacturer's written instructions.
- F. Make sure that each piece of equipment is securely anchored to the wall or to its foundation.
- G. Make certain all pipe connections are tight by pressuring testing system with potable water.
- H. Install all equipment in a craftsman-like manner, e.g., level and plumb, using best current industry practices.
- I. Connect skid control panels to RTUs.

3.03 SERVICES OF THE MANUFACTURER

- A. The Disinfection System Equipment Supplier will furnish the services of a qualified field engineer to check installation, commission, and start-up equipment. Installation SUBCONTRACTOR shall coordinate work with Equipment Supplier's representative to facilitate testing, inspection, commissioning and start-up of new system.

3.04 PAINTING

- A. Field Painting: Equipment and piping, especially ferrous materials or those susceptible to corrosion and that did not receive a factory finish shall be painted to match factory finish. Field touch up factory painted items damaged during shipping or installation. Items shall be thoroughly cleaned of all foreign material and shall be primed and top coated with the manufacturer's factory equivalent coating materials.

SECTION 16010
GENERAL ELECTRICAL REQUIREMENTS
WATER WELL DISINFECTION SYSTEM

PART 1 - GENERAL

1.01 SCOPE

- A. The electrical work includes furnishing all material, equipment, components, and labor for a complete electrical installation.
- B. This section summarizes the general requirements for electrical work.

1.02 RELATED SECTIONS AND DRAWINGS

- A. Section 11263 – Water Well Disinfection Equipment
- B. Section 11264 – Water Well Disinfection Equipment Installation
- C. Building 54 Tablet Disinfection System Process Diagram, P-054.
- D. Building 54 Tablet Disinfection System Electrical Plan, E-054.
- E. Well 1 Tablet Disinfection System Process Diagram, P-904
- F. Well 1 Tablet Disinfection System Electrical Plan, E-904.

1.03 DEFINITIONS

- A. Provide: Furnish, completely install, and connect.
- B. Product Data: Catalog cuts, schematics, and descriptive literature.
- C. Shop Drawings: Factory-prepared specific to the installation.
- D. Indicated: Shown on the Contract Drawings.
- E. Noted: Indicated or specified elsewhere.

1.04 QUALITY ASSURANCE

- A. Provide complete electrical installation in accordance with the latest revised edition of National Electrical Code (NFPA 70), Life Safety Code (NFPA 101), and in accordance with all applicable state and local laws, ordinances, and codes. Obtain all necessary permits and have all work inspected by appropriate authorities having jurisdiction (AHJ).
- B. Qualifications of Manufacturers. Furnish manufacturer's electrical equipment of the types and sizes specified which have successfully operated for not less than the past 2 years except where specific types are named by manufacturer and catalog number or designation under other Sections of Division 16.
- C. Codes and Standards. Provide electrical equipment and materials, including installation, conforming to the following codes and standards, as applicable. The equipment and materials shall bear labels to indicate manufacturing conformance to the specified standards, or equal. Where two or more codes or standards are at variance, conform to the more restrictive requirement.
 - 1. NFPA 70; National Electrical Code (NEC).
 - 2. American National Standards Institute (ANSI).
 - 3. American Society for Testing and Materials (ASTM).
 - 4. Institute of Electrical and Electronics Engineers (IEEE).
 - 5. Insulated Cable Engineers Association (ICEA).
 - 6. National Electrical Manufacturers Association (NEMA).
 - 7. National Electrical Testing Association (NETA), Section 16T, Electrical Acceptance Tests.
 - 8. National Fire Protection Association (NFPA).
 - 9. Occupational Safety and Health Act (OSHA).
 - 10. Underwriters' Laboratories, Inc. (UL).
 - 11. NFPA 101, Life Safety Code.

1.05 SUBMITTALS

- A. Shop Drawings

1. Submit, for the OWNER's approval, shop drawings to the extent required in this Section and other Sections of Division 16.
2. Complete equipment descriptive, operation, and installation data shall be submitted with the shop drawings. Shop drawings shall be clear, neat, orderly, legible, and in the final format. Hand-drawn sketches, redrawn copies of contract drawings, and other preliminary type drawings are not acceptable and will be rejected without review. Shop drawings shall include the following.
 - a. Dimensions and weights of equipment.
 - b. Nameplate data, including the nameplate material, heights of letters, inscriptions, and method of mounting.
 - c. Details showing enlarged views of small parts when required.
 - d. Arrangements of equipment and nameplates.
 - e. Plans showing the equipment assembly, space requirements, conduit hub sizes, clearances, and locations for conduits and anchor bolts.
 - f. Elevations showing all parts, devices, components and nameplates, positions and arrangements of the equipment. Show as many elevations as necessary to clearly depict component and device arrangements.
 - g. Schematic and elementary wiring diagrams, of each unit of each equipment, showing numbered terminal points, numbered wires, and numbered interconnections to other equipment and remote devices.
 - h. Connection wiring diagrams of each unit of each equipment, showing numbered terminal points, numbered wires, and numbered interconnections to other equipment and remote devices.
 - i. Include numbering of external wiring in the instruction manual.
 - j. Complete catalog information of all parts and components of electrical equipment. Equipment, components and materials shall be clearly identified as to which exact item is being submitted.
 - k. Symbols and Legend sheet to describe all symbols used on shop drawings.
- B. Re-submittals. When a re-submittal is required, the Manufacturer shall submit all previously accepted material in addition to the corrected or added information. It is intended that each re-submittal be a complete and stand-alone document.
- C. Materials List. Submit material lists, for the OWNER's review and approval, within 30 days of Notice to Proceed. Include all products described in Division 16, including the equipment described in shop drawings. List only those products named in the Contract Documents or approved substitutions.
- D. Technical Data. Submit descriptive and instruction manuals to the extent required under this Section and other Sections of Division 16.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery. Deliver electrical materials and equipment in manufacturers' original cartons or containers with seals intact, as applicable.

1.07 GUARANTEE AND WARRANTIES

- A. Guarantee all work of Division 16 in accordance with the General Conditions.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Provide new materials and equipment as required to complete all indicated and specified electrical work, including incidental items inferable from the contract documents that are necessary to complete the work. Provide materials and equipment of latest design that are the standard products of established manufacturers. For uniformity, only one manufacturer is acceptable for each type of product. Manufacture individual parts to standard sizes and gauges so that repair parts can be installed in the field. Make like parts of duplicate units interchangeable.

- B. Prohibited Materials. Neither aluminum conductors, cast "pot metal" conduit fittings, nor set screw conduit couplings and connectors are acceptable.
- C. Indoor Equipment. Enclosures for electrical equipment installed in electrical and control rooms shall be rated NEMA 1 or NEMA 12. Enclosures for equipment installed in non-hazardous process areas shall be rated NEMA 4X stainless steel.
- D. Outdoor Equipment. Outdoor electrical equipment shall be weatherproof, NEMA 4X, unless otherwise indicated.
- E. Factory Finishes. Unless otherwise specified, the sheet metal surfaces of equipment enclosures shall be phosphatized and coated with a rust-inhibiting primer. Over the primer, apply a corrosion resistant baked enamel finish on the interior and exterior metal surfaces. The color shall be ANSI No. 49 medium light gray. Furnish hardware with a corrosion resistant finish. Finish cast iron outlet bodies, boxes, covers, and fittings with cadmium zinc electroplate covered with aluminum cellulose lacquer. In corrosive areas, all surfaces of rigid steel conduit, cast metal boxes, cast metal outlet bodies, covers, fittings, supports, and clamps shall have a PVC coating bonded to the outer surface, and the hardware shall be Type 316 stainless steel. Sheet metal enclosures, in corrosive areas, shall have an outer coating of corrosion resistant epoxy.

2.02 SOURCE QUALITY CONTROL

- A. Factory Tests. Factory tests are required for all electrical equipment and assemblies. Perform factory tests in accordance with the applicable codes and standards specified for the equipment.
- B. Factory Inspection. OWNER or the designated representative, may inspect fabricated electrical equipment at the factory. Notify OWNER in sufficient time so factory inspection can be arranged. Factory inspection shall be made after manufacturer has performed satisfactory checks, adjustments, tests, and operations. Approval of equipment at the factory only allows the manufacturer to ship the equipment to the site, and does not constitute final acceptance.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. The complete installation is to be accomplished by skilled electrical tradesmen, with certified or suitably qualified individuals performing all special systems installation and testing. All workmanship shall be of the highest quality. The electrical installation shall be left in a neat, clean condition ready for use. Work or finished conditions deemed sub-standard work will be rejected. Any portions of the work rejected as above shall be immediately repaired and/or replaced as required to satisfy the OWNER and the requirements of the contract.
- B. Schedule the work and cooperate with all trades to avoid delays, interferences, and unnecessary work. If any conflicts occur which necessitate departures from the Contract Drawings and Specifications, details of departures and reasons shall be submitted immediately for the Engineer's consideration.

3.02 CERTIFICATION AND TESTS

- A. Prior to request for final review, test all systems and repair or replace all defective work. Submit, with request for final review, written certification that all electrical systems are complete and operational.
- B. At the time of final review of electrical work, demonstrate the operation of electrical systems. Furnish labor, apparatus, and equipment for systems demonstration.
- C. After final review and acceptance, turn over to the OWNER all keys for electrical equipment locks. Present to the OWNER or the OWNER's designated representative, demonstrations and verbal instructions for proper operation and maintenance of the electrical equipment and systems.

END OF SECTION 16010

Drawings

Bldg. 54 Process Diagram, P-054

Bldg. 54 Mechanical Plan, M-054

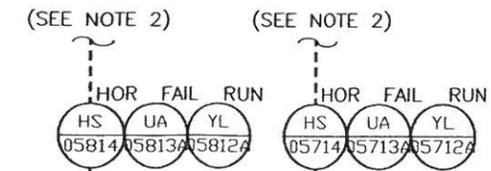
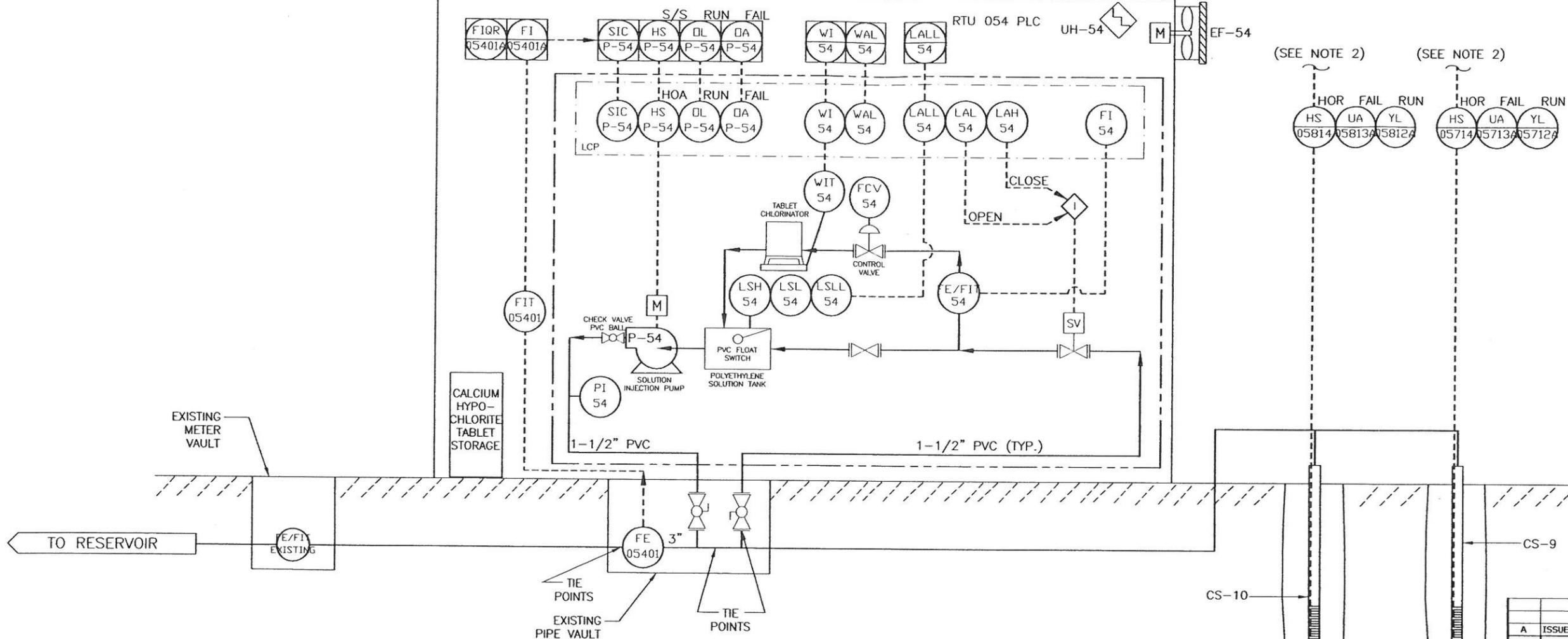
Bldg. 54 Electrical Plan, E-054

Well 1 Process Diagram, P-904

Well 1 Mechanical Plan, M-904

Well 1 Electrical Plan, E-904

BLDG 54
CHLORINE BUILDING
(NEW)



Denotes RTU Display

--- Denotes Skid-Mounted Equipment

NEW EQUIPMENT

8' by 10'-8" CMU BUILDING WITH EXHAUST FAN, HEATER AND LIGHTS, BY OTHERS
P-54 PUMP WITH SHELF SPARE
SCALE, CHLORINATOR, TANK AND LOCAL CONTROL PANEL (LCP)

- NOTES**
1. TABLET SYSTEMS INSTRUMENTED TO START UP AND MODULATE CHLORINE FLOW BASED ON WELL(S) PRODUCTION RATE.
 2. SEE SCADA PROJECT P&ID I-06 FOR PUMP CONTROLS



REV.	DESCRIPTION	BY:	DATE:
A	ISSUED FOR TCEQ REVIEW AND APPROVAL	HCD	7/2006

REVISIONS

SCALES SHOWN ON THIS DRAWING ARE APPLICABLE ONLY TO B SIZE DRAWING

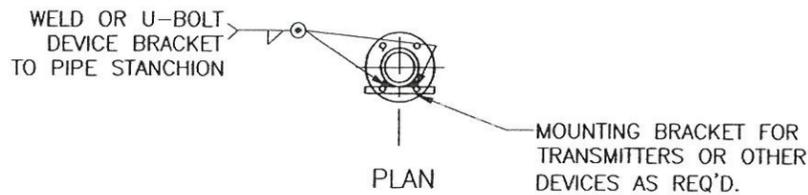
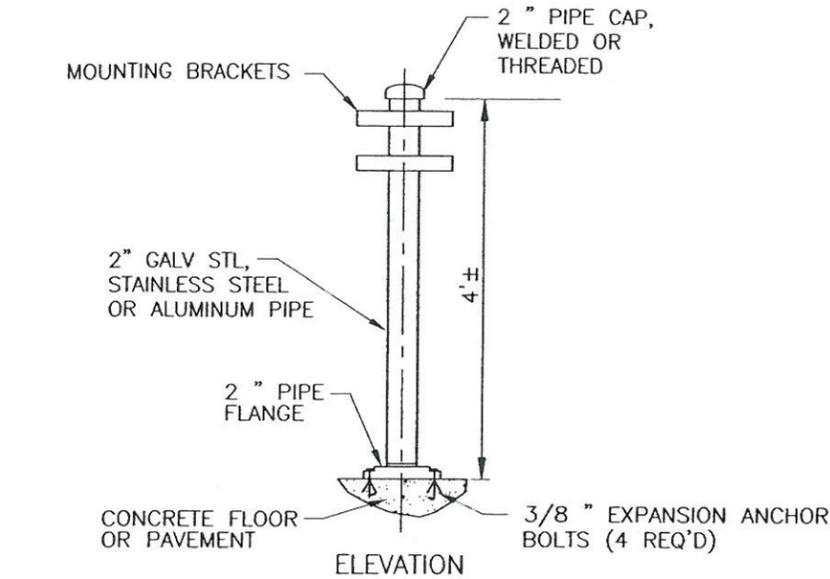
CAMP STANLEY STORAGE ACTIVITY FACILITY UPGRADES

Contract No. FA-8903-04-D-8675 Task Order No. 022

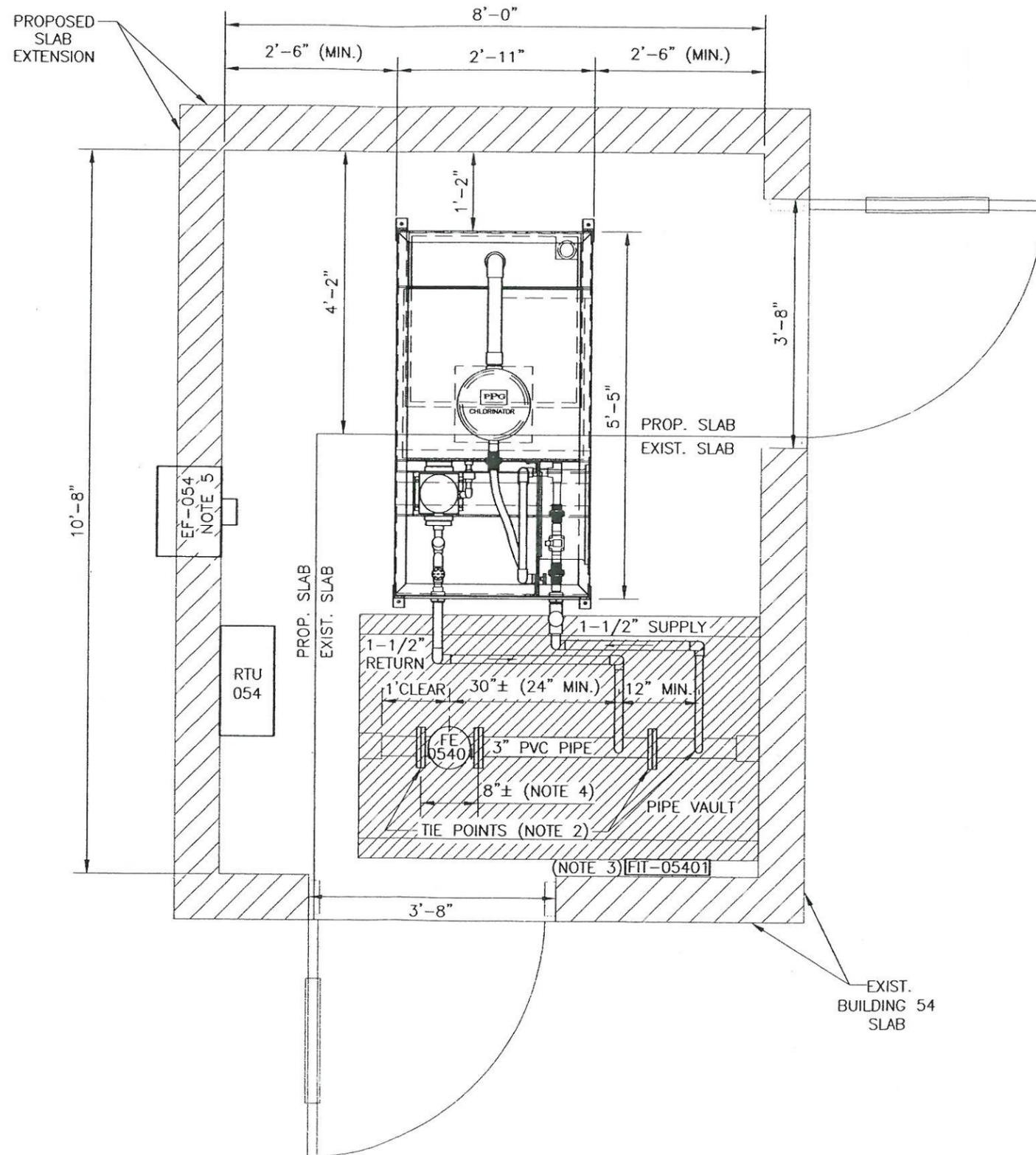
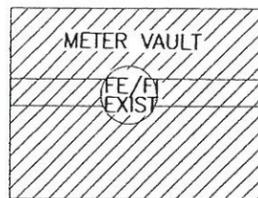
CONTRACTOR : **PARSONS** Job No. 745006 WBS 04001

Drawing Title :
**CSSA BUILDING 54
TABLET DISINFECTION SYSTEM
PROCESS DIAGRAM**

Designed : MD	Drawn : SM	Rev: A
Checked : HCD	Approved : TT	
Scale : NONE	Date : JULY 2006	Drawing No. : P-054

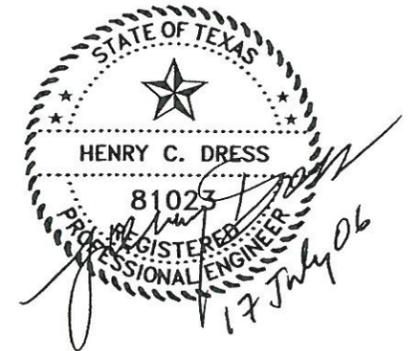


DETAIL 1



NOTES

1. USE FRP GRATING (1.5" x 1.5") TO COVER PIPE VAULT. USE 4'x6' PANEL AND CUT TO FIT. (GRIDWALK BY AMERICAN GRATING LLC OR EQUAL).
2. FIELD ROUTE PIPING FROM SKID TO PIPE VAULT CONNECTIONS.
3. MOUNT FIT-05401 ON INSTRUMENT STANCHION (SEE DETAIL 1) OR WALL MOUNT.
4. INSTALL FE-05401 IN PIPE VAULT INSTEAD OF EXISTING METER VAULT. USE GROUNDING RINGS OR GROUNDING ELECTRODE TO MAKE SURE FLOWTUBE IS PROPERLY GROUNDING.
5. AXIAL WALL-MOUNTED EXHAUST FAN RATED AT APPROXIMATELY 550 CFM and 1/4"SP. 16" PROP., DIRECT DRIVE, 120V, 1 PHASE, 60HZ, TEAO, 1/20 HP MOTOR. CAPTIVE-AIRE SYSTEMS MODEL CEPRSM16 OR UL LISTED EQUAL.



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CAMP STANLEY STORAGE ACTIVITY FACILITY UPGRADES			
Contract No. FA-8903-04-D-8675 Task Order No. 022			
CONTRACTOR : PARSONS Job No. 745006 WBS 04001			
Drawing Title : CSSA BUILDING 54 TABLET DISINFECTION SYSTEM EQUIPMENT PLAN			
Designed : HCD	Drawn : SM	Rev: A	
Checked : SE	Approved : TT		
Scale : NONE	Date : JULY 2006	Drawing No. : M-054	

NOTES

- INSTALL 100A, 240V, 1PH, 3WIRE, 60HZ U.L LISTED SERVICE ENTRANCE EQUIPMENT CIRCUIT BREAKER, 65 KAIC RMS SYMMETRICAL @ 240V, IN NEMA 12 ENCLOSURE. PROVIDE LAMINATED NAME PLATE ON BREAKER COVER INDICATING "ELECTRICAL SERVICE DISCONNECT" IN 5/8" HIGH WHITE LETTERS ON RED BACKGROUND. BREAKER TO BE INSTALLED ON EXTERIOR WALL OF NEW BLDG. SIEMENS E12ED42B125L OR EQUAL. PROVIDE NEW OVERHEAD SERVICE INCLUDING SERVICE CONDUCTORS, WEATHERHEAD AND SERVICE MAST. PROVIDE ALL SUPPORT BRACKETS, HARDWARE, ANCHORS AND ANCILLARY MATERIALS REQUIRED TO CONSTRUCT A COMPLETE OPERABLE SYSTEM. FIELD VERIFY INFORMATION PRIOR TO ORDERING COMPONENTS AND MATERIALS.
- ALL RACEWAY SHALL BE RIGID GALVANIZED STEEL OR INTERMEDIATE METALLIC CONDUIT. ALL BOXES SHALL BE CAST FERRALLOY OR ALUMINUM WITH GASKETED COVER. ALL BOXES SHALL BE WATERTIGHT. NEW EQUIPMENT ENCLOSURES SHALL BE NEMA 12. RACEWAY SHALL BE RUN PARALLEL AND/OR PERPENDICULAR TO BUILDING WALLS AND SHALL BE SECURELY INSTALLED ON WALLS OR CEILINGS. SEAL ALL PENETRATIONS WATERTIGHT. ALL FLEXIBLE CONDUIT SHALL BE STEEL LIQUID TIGHT FLEXIBLE CONDUIT. ALL BOXES AND ENCLOSURES SHALL BE RIGIDLY MOUNTED ON WALLS OR STRUCTURES. PROVIDE GALVANIZED STEEL CHANNEL SUPPORTS SOLIDLY ANCHORED TO STRUCTURES FOR SUPPORT.
- ALL POWER WIRE SHALL BE 600V, THW, THWN OR THHN STRANDED COPPER. COLOR CODE SHALL BE AS FOLLOWS: ØA - BLACK, ØB - RED, NEUTRAL - WHITE, GROUND - GREEN. ALL RACEWAYS SHALL CONTAIN A GROUND CONDUCTOR (MINIMUM #12 AWG) THAT SHALL BE BONDED TO EACH BOX AND ENCLOSURE. ALL BOXES, ENCLOSURES AND INDIVIDUAL PIECES OF ELECTRICALLY OPERATED EQUIPMENT SHALL BE PROVIDED WITH A GROUND STUD.
- BLDG. TO BE EQUIPPED WITH A NEMA 12 ENCLOSURE ELECTRICAL PANEL, DOOR-IN-DOOR CONSTRUCTION WITH WELDED CIRCUIT CARD HOLDER, LAMINATED NAMEPLATE, STANDARD LOCK/KEYS, COPPER GRD BAR BRAZED TO BOX, TIN PLATED COPPER MAIN BUS, 100% NEUTRAL BUS, 18 POLES, RATED 125A, 120/240V, 1PH, 3WIRE, 60HZ, 10KAIC RMS SYM @ 240V WITH 125A COPPER MAIN LUGS ONLY AND 1-20A/2P, 1-30A/2P, 6-15A/1P, 2-20A/1P BRANCH CIRCUIT BREAKERS. SIEMENS P1A18ML125TS OR EQUAL. PROVIDE A 120/240V, 1PH, 3W, NEMA 4X SURFACE MOUNTED TVSS WITH PANELBOARD. MTL SURGE TECHNOLOGIES MODEL LP 14301 OR EQUAL.
- PROVIDE BRANCH CIRCUIT TO FEED NEW LOCAL CONTROL PANEL (LCP) FROM 20A/2P CIRCUIT BREAKER IN ELECTRICAL PANEL.
- PROVIDE CONDUIT AND CONDUCTORS BETWEEN LCP AND RTU-054 AS INDICATED ON PLAN. SPARE CONDUCTORS SHALL BE NEATLY COILED AND STOWED WITHIN THE ENCLOSURE. ALL WIRES SHALL BE IDENTIFIED AS TO TERMINAL NUMBER. SPARES SHALL BE SO IDENTIFIED.

RELOCATED EXISTING ELECTRIC UNIT HEATER, (NOTE 12)

LOCAL CONTROL PANEL(LCP) SKID MOUNTED (SEE NOTE 7)

2#12 & 1#12G - 3/4" C TRANSITION TO LTFMC FOR FINAL CONNECTION TO FAN

4-2/C#16SHLD, 1" C (SEE NOTE 6)

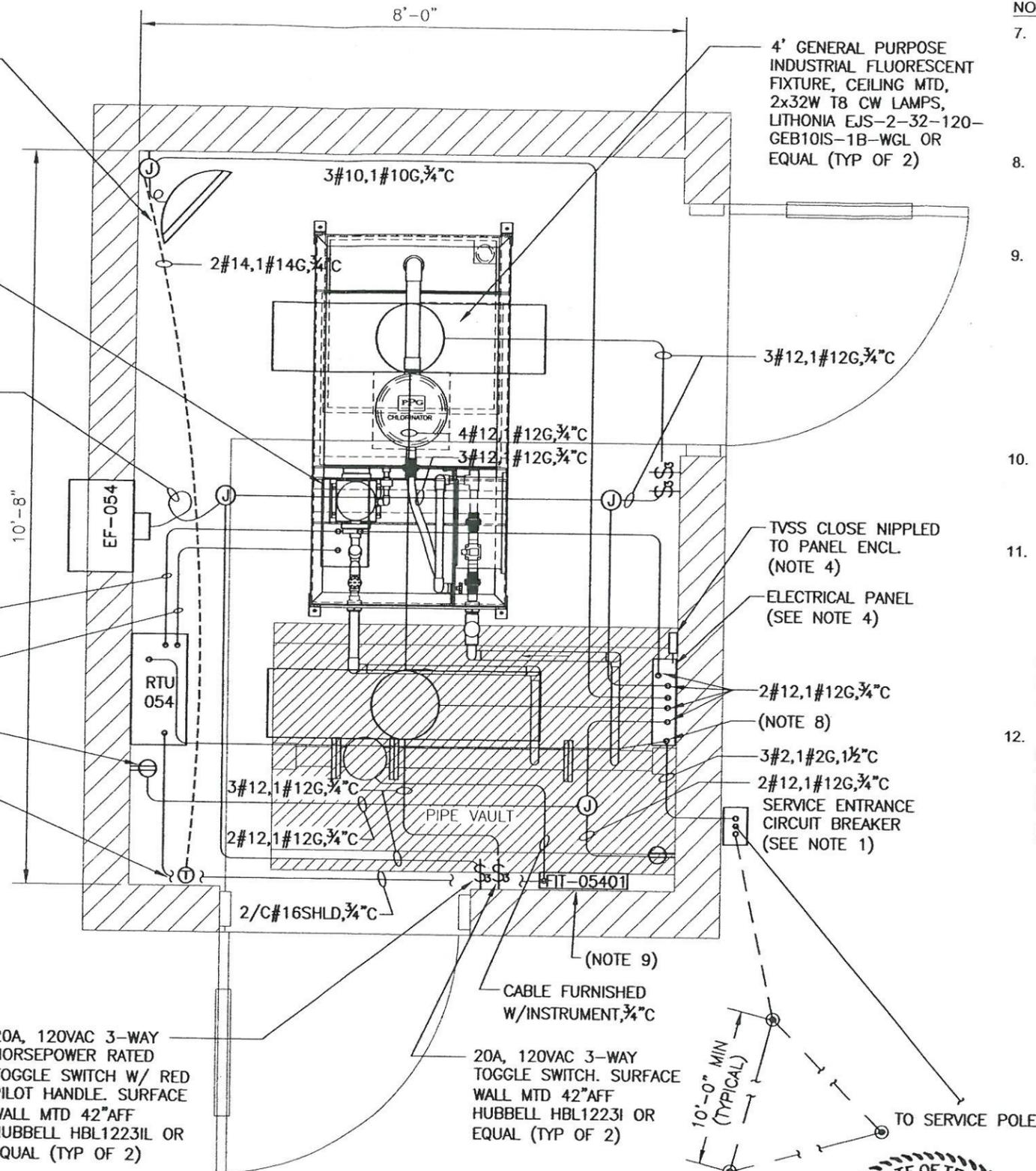
16#14, 1#14, 1" C (SEE NOTE 6)

GFCI (TYPICAL OF 2) (SEE NOTE 10)

TWO STAGE, LINE VOLTAGE THERMOSTAT MTD 60" AFF, JOHNSON CONTROLS T25A-1C OR EQUAL

20A, 120VAC 3-WAY HORSEPOWER RATED TOGGLE SWITCH W/ RED PILOT HANDLE. SURFACE WALL MTD 42" AFF HUBBELL HBL12231L OR EQUAL (TYP OF 2)

#2 GROUNDING ELECTRODE CONDUCTOR TO COUNTERPOISE CONSISTING OF 3-3/4"x10' COPPER CLAD STEEL DRIVEN RODS CONNECTED WITH #2 BARE STRANDED TINNED COPPER CONDUCTOR EXOTHERMICALLY WELDED TO EACH ROD AND BURIED 18" BELOW GRADE.

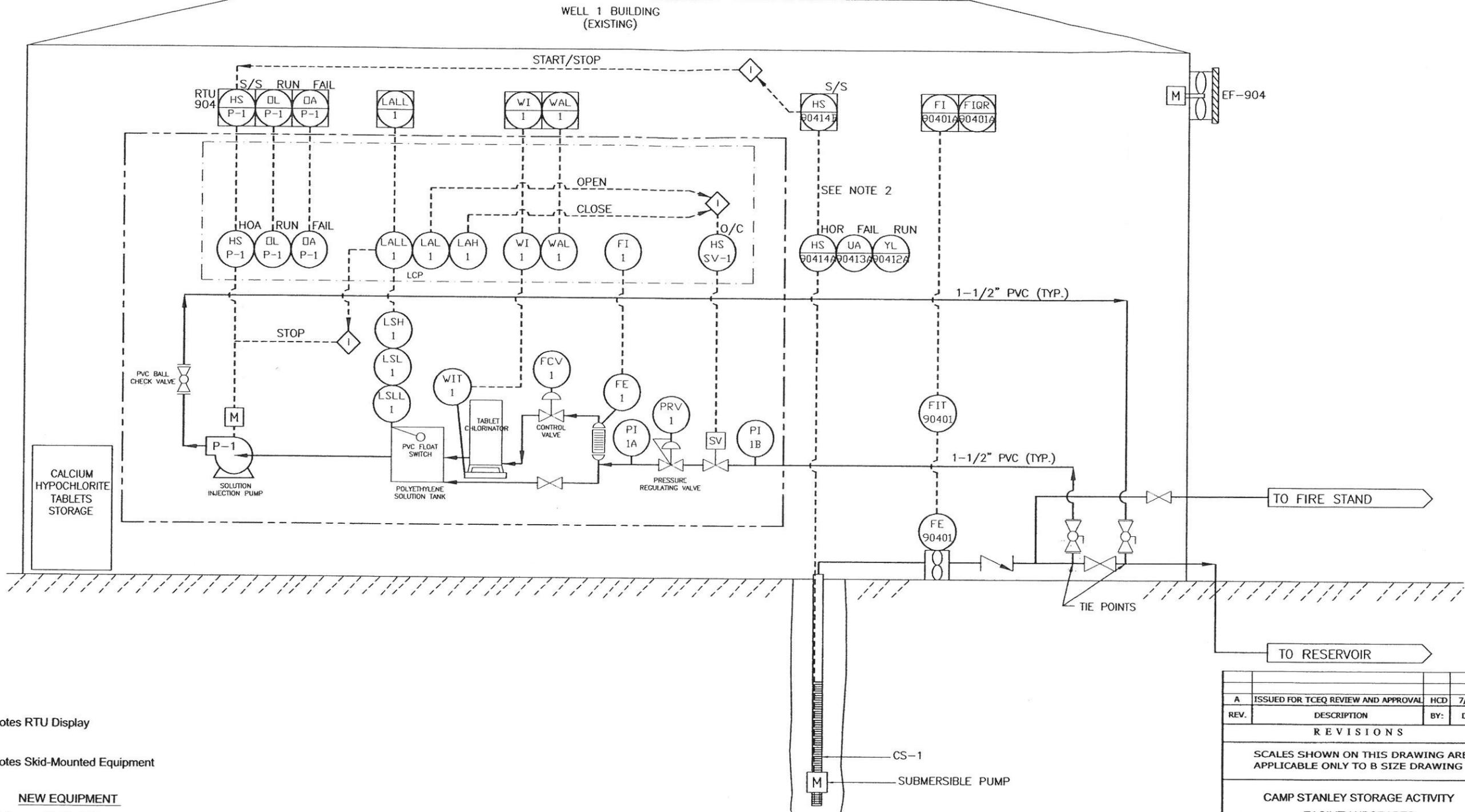


NOTES (cont'd)

- ALL INSTRUMENTATION AND CONTROL WIRING ON CHLORINATOR SKID MOUNTED UNIT TO BE WIRED BY MANUFACTURER OF THE EQUIPMENT. COORDINATE WITH MANUFACTURER FOR FIELD WIRING REQUIREMENTS AND PROVIDE SAME AS REQUIRED.
- PROVIDE BRANCH CIRCUIT TO FEED NEW RTU. CIRCUIT SHALL BE 120VAC, 1Ø. PROVIDE 20A/1 POLE THERMAL MAGNETIC CIRCUIT BREAKER 2#12 & 1#12G - 3/4" C.
- THE CENTRIFUGAL PUMP (P-54) WIRED TO THE LCP ON THE SKID IS ENERGIZED TO FEED FRESHLY MIXED CHLORINE SOLUTION UNTIL THE LOW FLOW CUTOFF ON FLOWMETER FIT-05401 IS REACHED AND STOPS THE PUMP. THE DISTRIBUTION OF CHLORINE SOLUTION WILL VARY WITH THE FLOW READ BY FLOWMETER FE-05401. THIS SIGNAL IS TO BE SENT THROUGH RTU-054 TO THE VFD CONTROLLING THE CENTRIFUGAL PUMP (P-54) ON THE SKID.
- DUPLEX GROUND FAULT RECEPTACLES, 20 AMP, 125 VOLT, 4-6mA TRIP LEVEL, HEAVY DUTY SPECIFICATION GRADE, MTD 24" AFF. HUBBELL GF5362A OR EQUAL.
- DEMOLITION OF BUILDINGS INCLUDES DEMOLITION OF EXISTING ELECTRICAL EQUIPMENT, WHICH SHALL BE DISCONNECTED FROM POWER SOURCE. ALL EXPOSED RACEWAYS AND CONDUCTORS SHALL BE REMOVED UP TO THE SOURCE OF POWER. REMOVE ALL WIRES FROM UNDERGROUND RACEWAYS, CUT RACEWAYS FLUSH WITH GRADE, CAP BOTH ENDS AND ABANDON IN PLACE.
- SALVAGE AND REUSE EXISTING BLDG. 54 HEATER. FIELD VERIFY HEATER POWER AND CONTROL WIRING REQUIREMENTS AND PROVIDE NEW CIRCUITS AS REQUIRED. PROVIDE NEW THERMOSTAT FOR HEATER CONTROL AS INDICATED AND AS REQUIRED FOR CONTROL OF THE EXISTING HEATER AS FIELD VERIFIED.

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DESCRIPTION	BY:	DATE:
REVISIONS		
SCALES SHOWN ON THIS DRAWING ARE APPLICABLE ONLY TO B SIZE DRAWING		
CAMP STANLEY STORAGE ACTIVITY FACILITY UPGRADES		
Contract No. FA-8903-04-D-8675 Task Order No. 022		
CONTRACTOR:		
PARSONS Job No. 745006 WBS 04001		
Drawing Title:		
CSSA BUILDING 54 TABLET DISINFECTION SYSTEM ELECTRICAL PLAN		
Designed: RL	Drawn: BH	Rev: A
Checked: HCD	Approved: TT	
Scale: NONE	Date: JULY 2006	Drawing No.: E-054





 Denotes RTU Display
 Denotes Skid-Mounted Equipment

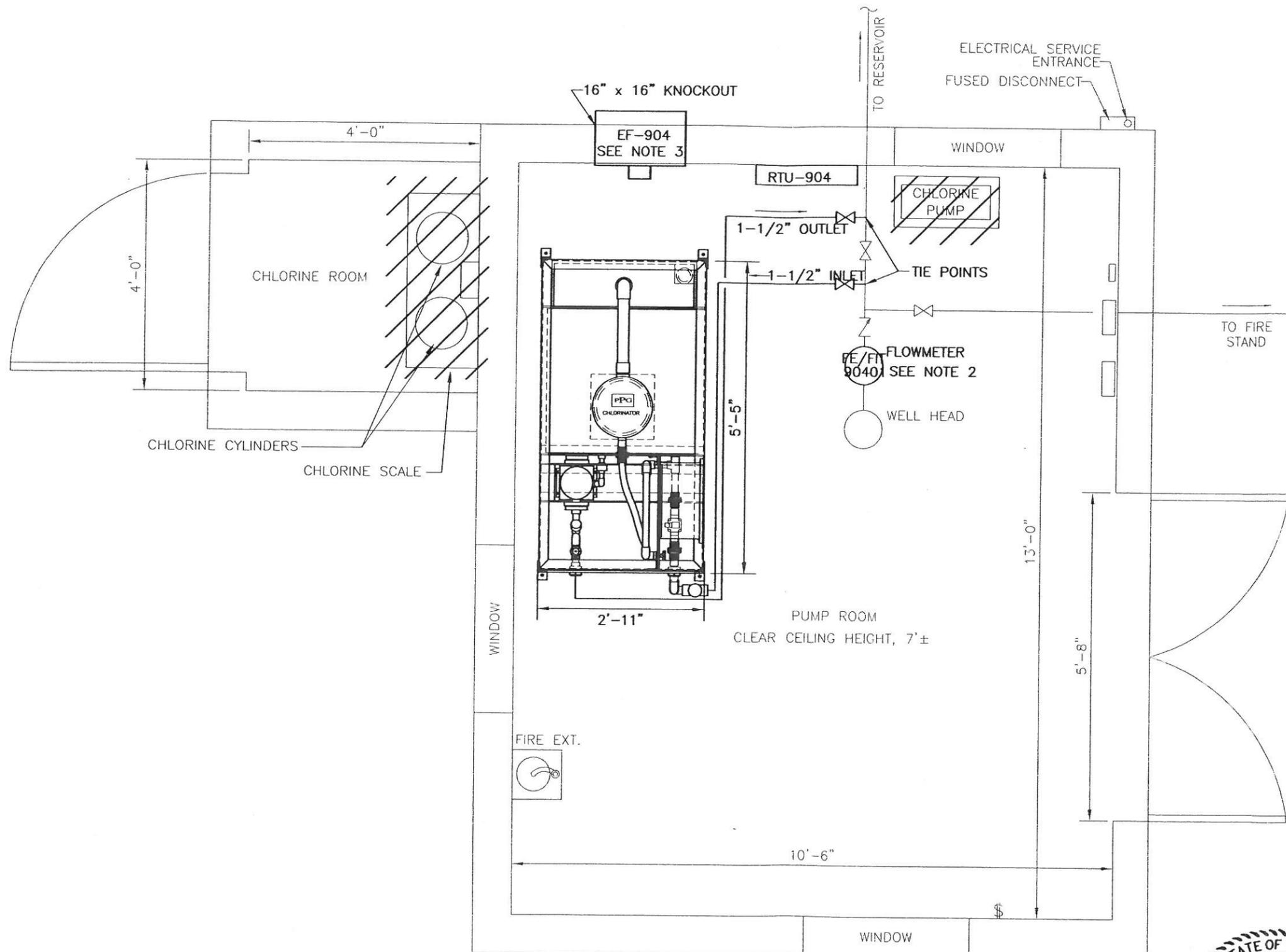
NEW EQUIPMENT

- P-1 Centrifugal Pump with Shelf Spare
- Scale, Chlorinator, Tank and Local Control Panel (LCP)
- All skid-mounted valves, piping and instruments
- Exhaust Fan

- NOTES:**
- INTERLOCK TABLET SYSTEM LCP WITH EXISTING WELL PUMP.
 - SEE SCADA PROJECT P&ID I-12 FOR PUMP CONTROLS


 HENRY C. DRESS
 81023
 REGISTERED PROFESSIONAL ENGINEER
 17 July 06

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Contract No. FA-8903-04-D-8675 Task Order No. 022			
CONTRACTOR:			
PARSONS Job No. 745006 WBS 04001			
Drawing Title:			
CSSA WELL 1 TABLET DISINFECTION SYSTEM PROCESS DIAGRAM			
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Checked : HCD	Approved : TT		
Scale : NONE	Date : JULY 2006	Drawing No. : P-904	



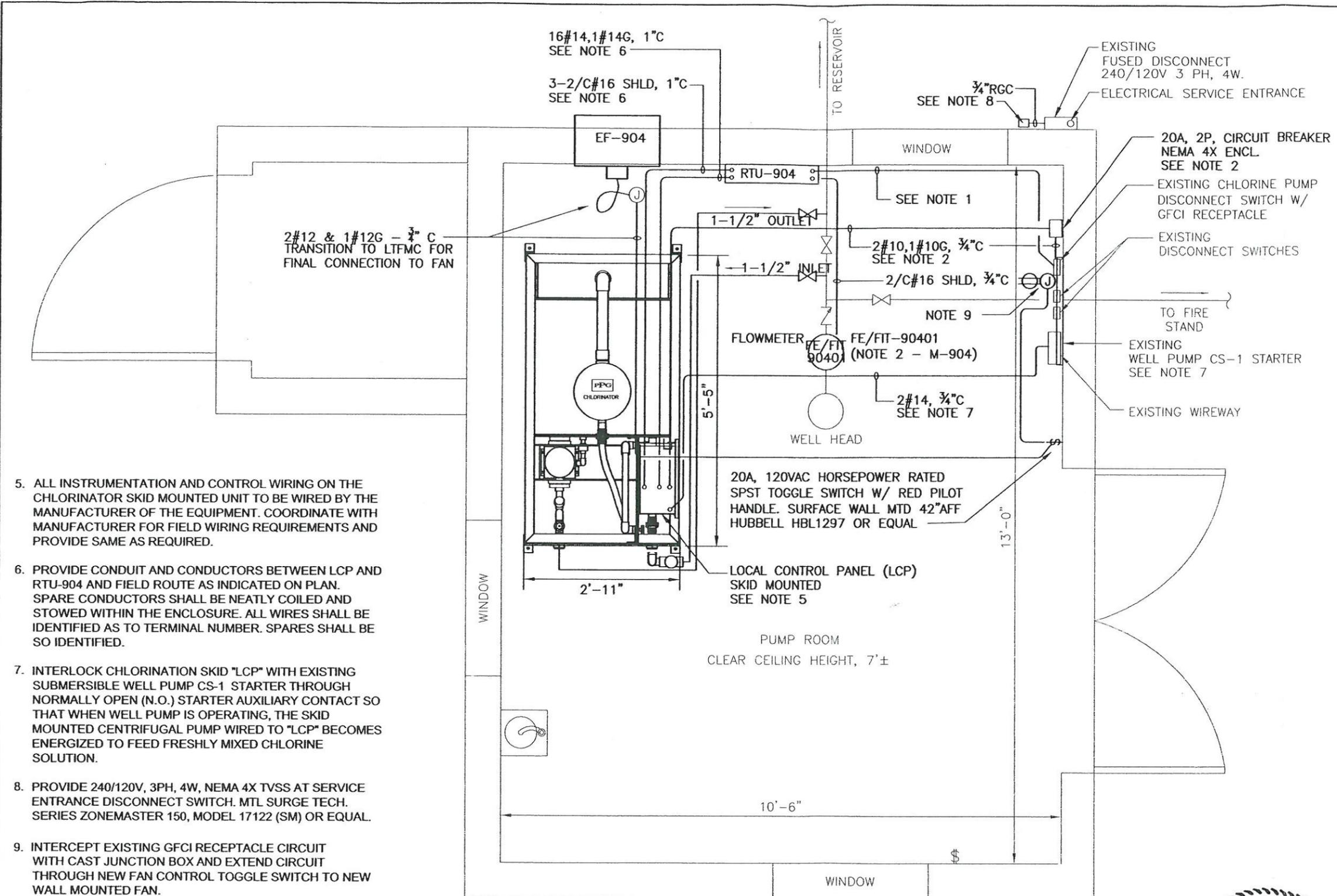
NOTES

1. DEMOLISH CHLORINE CYLINDERS, WEIGH SCALE, CHLORINATOR, CHLORINE SOLUTION PUMP AND ALL RELATED VALVES AND PIPING.
2. MOUNT FIT-90401 ON INSTRUMENT STANCHION OR WALL MOUNT.
3. AXIAL WALL-MOUNTED EXHAUST FAN RATED AT APPROXIMATELY 550 CFM and 1/4"SP. 16" PROP., DIRECT DRIVE, 120V, 1 PHASE, 60HZ, TEAO, 1/20 HP MOTOR. CAPTIVE-AIRE SYSTEMS MODEL CEPRSM16 OR UL LISTED EQUAL.
4. TABLET SYSTEM TO START AUTOMATICALLY WHEN WELL PUMP ENGAGES.

////// TO BE DEMOLISHED



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REVISIONS			
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CAMP STANLEY STORAGE ACTIVITY FACILITY UPGRADES			
Contract No. FA-8903-04-D-8675 Task Order No. 022			
CONTRACTOR: PARSONS Job No. 745006 WBS 04001			
Drawing Title: CSSA WELL 1 BUILDING TABLET DISINFECTION SYSTEM EQUIPMENT PLAN			
Designed: HCD	Drawn: SM	Rev: A	
Checked: SE	Approved: TT		
Scale: NONE	Date: JULY 2006	Drawing No.: M-904	



- NOTES**
1. PROVIDE RK1 FAST ACTING FUSE IN UNUSED PHASE OF DISCONNECT SWITCH AND EXTEND 120 VOLT POWER TO RTU-904 FROM NEW FUSE IN DISCONNECT SWITCH. 2#12, 1#12G, 3/4\"C.
 2. PROVIDE CIRCUIT BREAKER IN NEMA 4X ENCLOSURE RATED 20 AMP, 2 POLE, 230 VOLT. EXTEND 2#10, 1#10G, 3/4\"C, FROM LINE SIDE OF C. BREAKER TO EXISTING WIREWAY AND TAP TWO (2) PHASE CONDUCTORS. FROM LOAD SIDE OF C. BREAKER EXTEND 2#10, 1#10G, 3/4\"C, 230 VOLT CIRCUIT TO CHLORINATOR SKID MOUNTED PANEL LCP.
 3. ALL RACEWAY SHALL BE RIGID GALVANIZED STEEL OR INTERMEDIATE METALLIC CONDUIT. ALL BOXES SHALL BE CAST FERROALLOY OR ALUMINUM WITH GASKETED COVER. ALL BOXES SHALL BE WATERTIGHT. NEW EQUIPMENT ENCLOSURES SHALL BE NEMA 4X. RACEWAY SHALL BE RUN PARALLEL AND/OR PERPENDICULAR TO BUILDING WALLS AND SHALL BE SECURELY INSTALLED ON WALLS OR CEILINGS. SEAL ALL PENETRATIONS WATERTIGHT. ALL FLEXIBLE CONDUIT SHALL BE STEEL LIQUID TIGHT FLEXIBLE CONDUIT. ALL BOXES AND ENCLOSURES SHALL BE RIGIDLY MOUNTED ON WALLS OR STRUCTURES. PROVIDE GALVANIZED STEEL CHANNEL SUPPORTS SOLIDLY ANCHORED TO STRUCTURES FOR SUPPORT.
 4. ALL POWER WIRE SHALL BE 600V, THW, THWN OR THHN STRANDED COPPER. COLOR CODE SHALL BE AS FOLLOWS: ØA - BLACK, ØB - RED, NEUTRAL - WHITE, GROUND - GREEN. ALL RACEWAYS SHALL CONTAIN A GROUND CONDUCTOR (MINIMUM #12 AWG) THAT SHALL BE BONDED TO EACH BOX AND ENCLOSURE. ALL BOXES, ENCLOSURES AND INDIVIDUAL PIECES OF ELECTRICALLY OPERATED EQUIPMENT SHALL BE PROVIDED WITH A GROUND STUD.

5. ALL INSTRUMENTATION AND CONTROL WIRING ON THE CHLORINATOR SKID MOUNTED UNIT TO BE WIRED BY THE MANUFACTURER OF THE EQUIPMENT. COORDINATE WITH MANUFACTURER FOR FIELD WIRING REQUIREMENTS AND PROVIDE SAME AS REQUIRED.
6. PROVIDE CONDUIT AND CONDUCTORS BETWEEN LCP AND RTU-904 AND FIELD ROUTE AS INDICATED ON PLAN. SPARE CONDUCTORS SHALL BE NEATLY COILED AND STOWED WITHIN THE ENCLOSURE. ALL WIRES SHALL BE IDENTIFIED AS TO TERMINAL NUMBER. SPARES SHALL BE SO IDENTIFIED.
7. INTERLOCK CHLORINATION SKID "LCP" WITH EXISTING SUBMERSIBLE WELL PUMP CS-1 STARTER THROUGH NORMALLY OPEN (N.O.) STARTER AUXILIARY CONTACT SO THAT WHEN WELL PUMP IS OPERATING, THE SKID MOUNTED CENTRIFUGAL PUMP WIRED TO "LCP" BECOMES ENERGIZED TO FEED FRESHLY MIXED CHLORINE SOLUTION.
8. PROVIDE 240/120V, 3PH, 4W, NEMA 4X TVSS AT SERVICE ENTRANCE DISCONNECT SWITCH. MTL SURGE TECH. SERIES ZONEMASTER 150, MODEL 17122 (SM) OR EQUAL.
9. INTERCEPT EXISTING GFCI RECEPTACLE CIRCUIT WITH CAST JUNCTION BOX AND EXTEND CIRCUIT THROUGH NEW FAN CONTROL TOGGLE SWITCH TO NEW WALL MOUNTED FAN.

A	ISSUED FOR TCEQ REVIEW AND APPROVAL	HCD	7/2006
REV.	DESCRIPTION	BY:	DATE:
REVISIONS			
SCALES SHOWN ON THIS DRAWING ARE APPLICABLE ONLY TO B SIZE DRAWING			
CAMP STANLEY STORAGE ACTIVITY FACILITY UPGRADES			
Contract No. FA-8903-04-D-8675 Task Order No. 022			
CONTRACTOR :			
PARSONS Job No. 745006 WBS 04001			
Drawing Title :			
CSSA WELL 1 BUILDING TABLET DISINFECTION SYSTEM ELECTRICAL PLAN			
Designed :	RL	Drawn :	BH
Checked :	HCD	Approved :	TT
Scale :	NONE	Date :	JUNE 2006
		Drawing No. :	E-904



PPG Brochure

Accu-Tab[®]

Tablet Chlorination System

Safety, convenience & accuracy...because every drop counts!



Accu-Tab[®] Tablet

Chlorination System

for Potable/Industrial

Water Treatment





NOW, A SAFER, SIMPLER, MORE CONVENIENT CHOICE – THE ACCU-TAB® TABLET CHLORINATION SYSTEM FROM PPG

Since it was introduced to the water and waste treatment markets in 1993, PPG's *Accu-Tab* System has become the leader in tablet chlorination.

And here's why...

SAFER... The *Accu-Tab* System is a good alternative to chlorine gas. Because there are no chlorine cylinders to handle, leaks can't occur. There's no need for SCBA gear and costly scrubber systems – just rubber gloves and safety glasses. So, generally, Process Safety Management and Risk Management Program compliance concerns are alleviated.

SIMPLE... *Accu-Tab* three-inch calcium hypochlorite tablets are easy to store and handle. They are shipped in convenient 55-pound pails and improved 400-pound bulk bags with lifting straps.

ACCURATE... The *Accu-Tab* System is as accurate as gas, more consistent than bleach and easier to maintain than both. *Accu-Tab* chlorinators have earned the NSF standard 61 certification for drinking water.

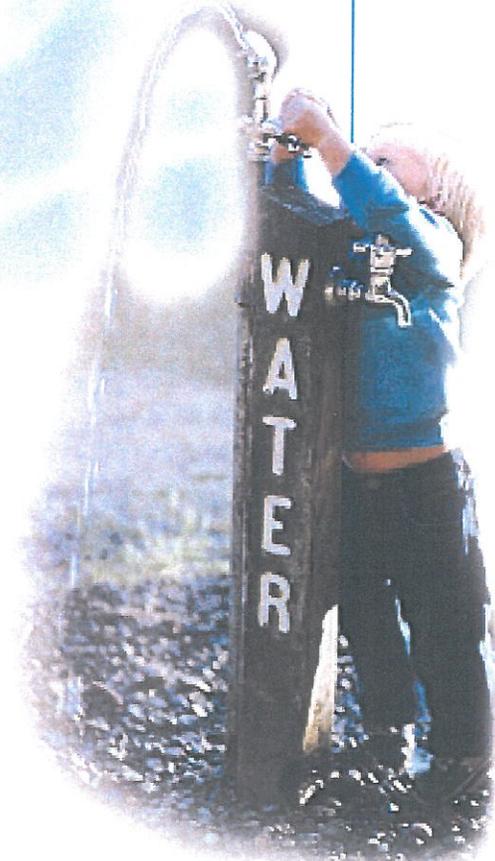
LOW MAINTENANCE... Patented erosion chlorinators have no moving parts or small openings to clog, and eliminate the need for metering pumps. That cuts maintenance to a minimum.

THE ACCU-TAB TABLET CHLORINATION SYSTEM IS EVERYWHERE...

The *Accu-Tab* System's simple, patented chlorinators and unique tablets together allow for consistent and controllable chlorine dosages. It's been used to chlorinate water plants as large as 14 million gallons per day, with demands exceeding 400 pounds per day of chlorine. On the other end of the scale, smaller units have turn-down ability to supply the 35 GPM well water user without over chlorination.

In a few short years, the *Accu-Tab* System has been utilized in drinking water applications in nearly 40 states for primary disinfectant treatment or remote booster chlorination stations. Accurate enough to perform under the close daily scrutiny of USDA inspectors, the *Accu-Tab* system is now used in a significant number of poultry processing plants in the U.S. And the number is growing every day. Other applications include:

- Waste water
- Potable water (surface and wells)
- Poultry and meat processing
- Food and beverage processing
- Pulp and paper
- Textile process water
- Cooling towers



"We replaced our chlorine dioxide chilled water treatment with the Accu-Tab system. We found this system to perform adequately and be very safe to use. We then added an Accu-Tab system to our evisceration line, replacing the liquid bleach system. We found that our operating costs were lower, and we recorded less treatment failures with the Accu-Tab system. All of our counts are below acceptable levels for bacteria, and we've had no downtime problems."

*Michael Pagano
Maintenance Manager, Draper Valley Farms
Mt. Vernon, Washington*

A LOW CAPITAL COST ALTERNATIVE

As regulatory requirements and safety issues provide increasing incentive for water treatment plants to reconsider their water treatment systems, it is important to recognize that the *Accu-Tab* System's solid form of chlorine offers safety and low maintenance benefits together with small capital investments.

The *Accu-Tab* System consists of a chlorinator and tablets. Gas and bleach have significant capital costs and require accessories to achieve compliance with regulatory requirements. Then there's the factor of downtime from malfunctioning metering pumps, replacement costs for corroded piping or electrical systems and lost labor time, whether from adjusting chlorine levels – or worse – from accidental spills, splashes and leaks. The charts below tell the story.

"Continuing to chlorinate with gas was going to cost us a fortune in equipment, and gas just isn't that safe to handle or be around. PPG's Accu-Tab System is so accurate and works so easily that it really is one of the best things we've done around here."

James Leonard

*Quality Control Manager
U.S. Utilities/Aqua KWS*

The *Accu-Tab*® System vs. Bleach and Gas

	<i>Accu-Tab</i> System	Bleach	Gas
Safety	Easy to handle, no spills	Spill and leak concerns	Major gas leak concerns
Charging chemical	Easy to add tablets, only one person needed	Hard to maneuver, heavy drums or lots of small carboys	Two trained persons needed, breathing protection required
Material compatibility	More neutral pH, less corrosive	High pH, corrosive	Low pH, very corrosive
Convenience	55-lb. pail of tablets is easy to handle	Bleach drums are awkward to handle	Hard to maneuver cylinders, special handling training needed
Maintains chlorine strength	Small change over a year	Significant loss in a week	Consistently 100% chlorine
Chlorine delivery control	Consistent strength makes for easy, reliable control	Ever changing strength makes for control difficulty	Troublesome regulators needed, harder to automate
Storage convenience	55-lb. pails stacked three high, same space as 150-lb. cylinder, no separate room	Drums or bulk tanks require space and possibly containment pad	Separate room with special access needed, fans, scrubbers
Auxiliary equipment	No moving parts in chlorinator itself	Troublesome metering pumps required	Eductors, regulators have small orifices prone to plugging

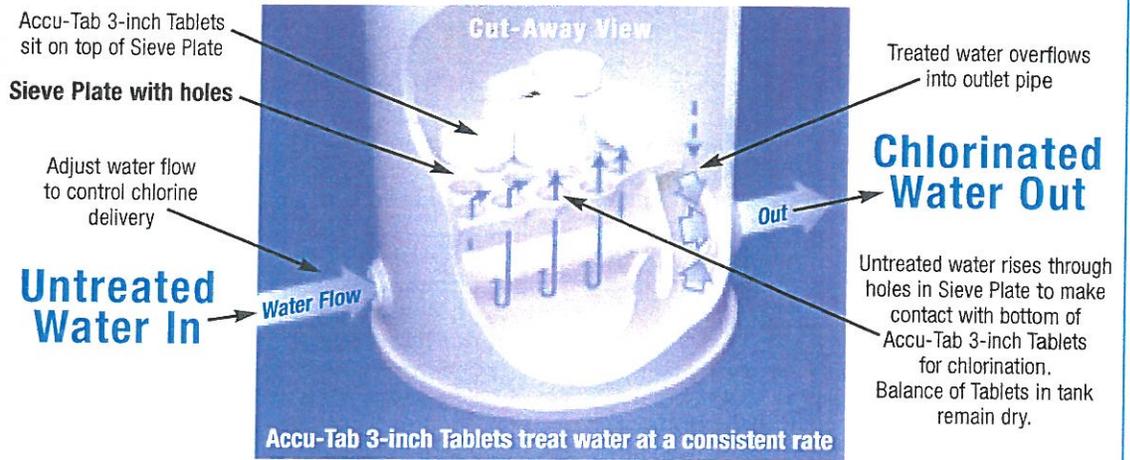
A WORD ABOUT CHLORINE CHEMISTRY

Chlorine is available in many different forms. The most common include gas, liquid chlorine (sodium hypochlorite or bleach) and solid calcium hypochlorite. All three forms generate hypochlorous acid – the germ-killing form of chlorine – when dissolved in water. Chlorine is the only chemical that provides residual protection, which is very important and required in many water treatment applications.

CHLORINATION BY EROSION TECHNOLOGY

The *Accu-Tab* System combines uniquely designed, patented chlorinators with slow release 65% calcium hypochlorite to provide one complete system for tablet chlorination. *Accu-Tab* gravity chlorinators are *not* designed to hold pressure, which would cause them to fill with water and erode all the tablets at once. Instead, incoming water from a side stream contacts only the tablets at the bottom of the feeder, so tablets at the top stay dry. No premature dissolving. *Accu-Tab* tablets erode at a predictable rate according to the amount of water that enters the chlorinator. By controlling the water flow rate, highly accurate chlorine dosage can be achieved. Chlorinator effluent is returned to the unchlorinated main system flow providing the desired level of available chlorine to meet your operational requirements.

Accu-Tab® System (Not Pressurized)



ACCU-TAB® CHLORINATORS...

Accu-Tab chlorinators are made of rigid PVC with four standard sizes available for industrial applications – 3012, 3075, 3150 and 3550. Larger sizes can be specified. PPG has an *Accu-Tab* chlorinator for nearly every requirement – from less than a pound a day to a few hundred pounds a day.



"Accu-Tab SI tablets work, and they work great. We were using calcium tablets at one site, but had continuous scale build-up on the pump's impeller. Now, having used the SI tablets at this site for more than a year, the impeller on the pump looks fine. The SI tablets have really helped us save on maintenance costs."

*Bob Anderson
Maintenance Mechanic II
City of Phoenix Water District*

ACCU-TAB® TABLETS...

PPG manufactures calcium hypo-chlorite tablets for potable and industrial water chlorination, NSF 60 listed.

Accu-Tab SI (scale inhibitor) tablets are specially formulated to inhibit scaling in hard water applications. The scale inhibitor tablets provide:

- Chlorination and scale prevention in one easy step
- Control of scale formation in chlorinator
- Suitable for water with up to 500 ppm calcium

Accu-Tab SI tablets offer accurate, effective chlorination and easy-to-handle packaging in 55-lb. polyethylene pails, as well as improved 400-lb. bulk bags



How It Works

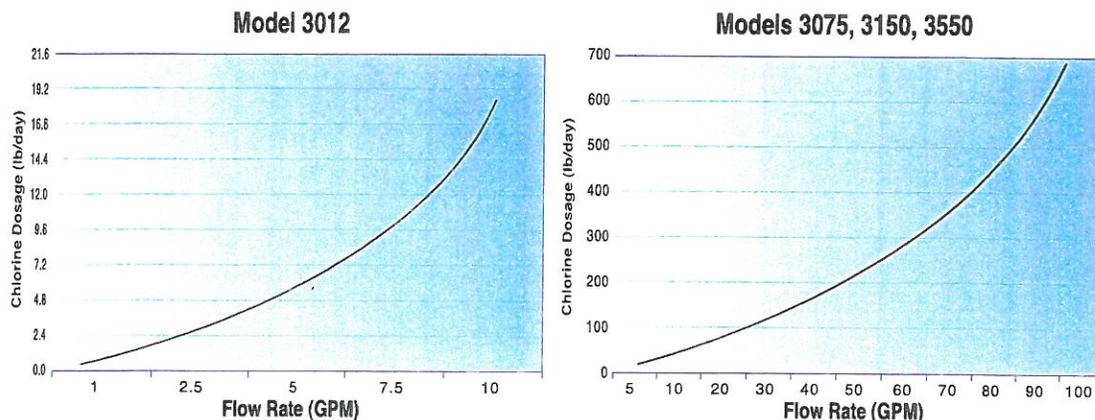
Chlorinator Specifications

	Model 3012	Model 3075	Model 3150	Model 3550
Chlorine Delivery (per day):	2-12 lbs.	5-50 lbs.	24-280 lbs.	Up to 650 lbs.
Tablet Capacity:	12 lbs.	75 lbs.	150 lbs.	550 lbs.
Base (diameter):	9"	13"	18"	24"
Height:	26"	24"	26"	48"
Inlet Connection:	3/4" FPT	1" FPT	1 1/2" FPT	2" FPT
Outlet Connection:	1 1/2" FPT	2" FPT	3" FPT	4" FPT

SIZING AN ACCU-TAB SYSTEM IS AS EASY AS 1-2-3...

1. Determine your chlorine usage rate in lb. of Cl₂/day. (for liquid sodium hypochlorite assume 1 gal. = 1 lb. of Cl₂)
2. Using the Chlorinator Specifications table (above) select the chlorinator that offers the required chlorine delivery and the tablet capacity that suits your desired refilling interval.
3. Refer to the delivery rate graphs (below) to estimate the water flow rate needed to dose your chlorine requirement.

Chlorinator Delivery Rates



INSTALLATION OPTIONS

A **gravity return system** can be specified when the chlorine effluent is to be returned to the main water stream in an open tank, channel or filter, and when the chlorinator can be physically located at an elevation higher than the re-injection point.

A **pressure return system** is required when the chlorinator effluent must be directed to multiple locations, or any time the chlorinated stream is to be re-injected to a pressurized tank or line.

THE GRAVITY RETURN SYSTEM

The gravity system represents the ultimate in reliability with negligible capital costs. Nothing moves but the water. All that's required is the PVC chlorinator, a rotameter, a few valves and some PVC pipe.

As illustrated below, a gravity return installation routes a sidestream of the main water flow through a simple rotameter and valve used to adjust the flow of the chlorinator. The chlorinator **must** be in an elevated position so that its effluent drains by gravity (to ensure that the chlorinator never fills with water). The specific chlorinator model, rotameter and piping size necessary will vary, depending on the chlorine dosage required.

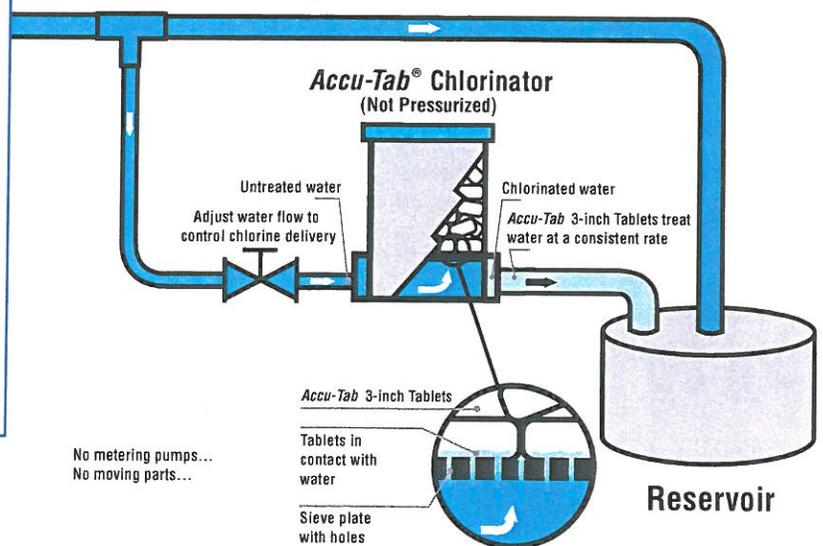
Being calcium hypochlorite-based, the *Accu-Tab* system is not required to have a separate entry building or room, as is the case with chlorine gas, and takes up a fraction of the space required for a similar bleach system. As a result, the system can often be installed in smaller, more convenient locations, increasing both operational efficiency and reducing chemical delivery problems. Since the chlorinated effluent is never pressurized, the potential of a chlorinated solution spraying out of a corroded or broken pipe is eliminated.

The system is easily adaptable for automatic control with the addition of an actuated control valve to adjust incoming water flow and an ORP or residual chlorine analyzer. What could be simpler?

BENEFITS OF THE GRAVITY RETURN SYSTEM

- Safer – no leaks or spills
- Simple – nothing moves except the water
- Low capital costs – negligible by comparison
- Convenient – located right at the addition point
- Minimal training required

System Water Flow



No metering pumps...
No moving parts...

"With PPG's Accu-Tab tablet chlorination system, we're able to maintain a much better chlorine residual than with liquid bleach. Plus, I have to tell you that we don't miss wrestling with those 55-gallon bleach drums."

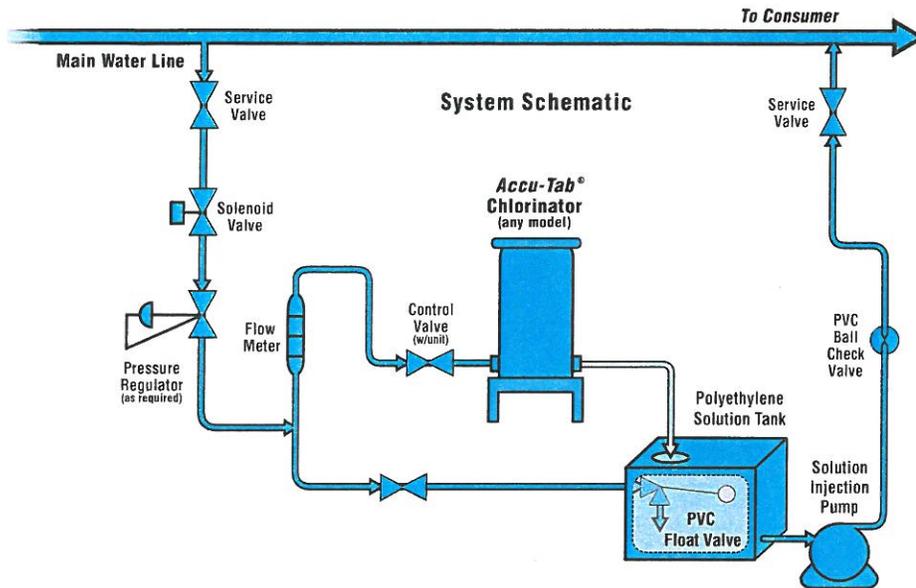
*Charlie Piquet
Water System Technician
Chubbuck, Idaho*

THE PRESSURE RETURN SYSTEM

A pressure return system removes a sidestream of the main water flow and introduces a portion of it into the chlorinator where *Accu-Tab* tablets are eroded at a controlled rate. A centrifugal pump re-injects the resulting chlorinated solution back into the main water line. This sidestream loop is nearly identical to the familiar chlorine gas injection system, without the danger and the hassle.

Pressure return units provide a compact, turnkey system based on any of the *Accu-Tab* chlorinator models. They come complete with valves, piping, pumps, surge tanks and the electronic controls necessary to dose the desired amount of chlorine into the main water system. Systems are also available with multiple chlorinators, automatic controllers and SCADA compatibility.

PPG engineered systems are designed specifically for use with the *Accu-Tab* calcium hypochlorite tablets and chlorinators.



"I was 110 percent against putting the Accu-Tab system in our wells. I just didn't think it would work. I have to admit now that I was wrong. The Accu-Tab system is so simple, and it really works great. The other good news is that it only took us a couple of hours to convert to the system, so we were up and running in no time."

*Michelle Cutler
Operations
Superintendent
Charles County
Water District*



Shown with automated controller and weigh scale options.



THE ACCU-TAB SYSTEM IS FULLY CERTIFIED

- NSF Standard 60 and 61 listed for drinking water
- USDA approved uses: G-4, G-5, G-7, D-2 and Q-4 for SI tablets
- AWWA Standard B-300
- EPA Registration #748-275, #748-295
- FDA approval 21CFR178.1010
- Kosher approved

Accu-Tab is a registered trademark of PPG Industries, Inc. for tablet chlorination systems, chlorinators and calcium hypochlorite tablets.

Statements and methods presented are based upon the best available information and practices known to PPG Industries at present, but are not representations or warranties of performance, result or comprehensiveness, nor do they imply and recommendations to infringe any patent or an offer of license under any patent.

The products mentioned herein can be hazardous if not used properly. Any health hazard and safety information contained herein should be passed on to your customers or employees, as the case may be. PPG Industries also recommends that, before use, anyone using or handling this product thoroughly read and understand the information and precautions on the label, as well as in other product safety publications such as the Material Safety Data Sheet. Like all potentially hazardous materials, this product must be kept out of the reach of children.



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