



UNIVERSAL WATER SOFTENER CORP.

A SUBSIDIARY OF AQUA-CHEM, INC.

Mfr's of Domestic and Industrial Water Softeners and Filters

MAILING ADDRESS EST. 1925
P.O. BOX 147
GENEVA, ILLINOIS 60134

SHIPPING ADDRESS
1425 W. HAWTHORNE LANE
WEST CHICAGO, ILLINOIS 60185

ANALYSIS NO. B-1961

DATE REC'D. 3/4/72

PHONE 312-231-7170

DATE COMP. 3/5/72

JOBBER • Pacific Hydre Corp., 420 Bryant St., San Francisco, California

DEALER • Osterberg & Stewart, 2523 River Rd., Modesto, California 95351 CITY WATER SUPPLY _____

CUSTOMER • Oddfellows Sierra Rec. Assn., P. O. Box 116, Long Barn, California 95335 PRIVATE WATER SUPPLY Well #1

NUMBER IN FAMILY _____ GALLON PER HOUR PUMP CAPACITY 1800
ESTIMATED GALLONS PER MONTH USAGE _____ TO BE TREATED: ALL WATER HOT ONLY

SPECIAL NOTE: WE ASSUME THAT WATER SUBMITTED IS BACTERIOLOGICALLY SAFE TO DRINK. IF YOU ARE IN DOUBT WE SUGGEST THAT YOU CONTACT YOUR STATE OR LOCAL HEALTH DEPT. FOR A BACTERIOLOGICAL ANALYSIS.

COLOR: None ODOR: _____
SEDIMENT: NEGLIGIBLE _____
SMALL AMOUNT
LARGE AMOUNT _____
TURBIDITY Low P.P.M. _____

TO FIND POUNDS OF MINERAL IMPURITIES PER 1,000 GALLONS OF THIS WATER DIVIDE COMPENSATED HARDNESS BY 7.
THE HARDNESS IS: LOW AVG. _____ HIGH _____ EXTREMELY HIGH. _____
THE AMOUNT OF IRON: NEGLIGIBLE
HIGH ENOUGH TO STAIN BUT CAN BE REMOVED BY SOFTENER. _____
VERY HIGH AND REQUIRES PRIOR FILTERING. _____

*SIZE SOFTENER ON THIS HARDNESS FACTOR 2.0 G.P.G.

OUR RECOMMENDATION OF EQUIPMENT IS AS FOLLOWS

ACTUAL HARDNESS 2.0 G.P.G.
ACTUAL CALCIUM AND MAGNESIUM HARDNESS. CAUSES SCALE IN PIPING, EXCESSIVE SOAP CONSUMPTION, BATH-TUB RINGS, DIRTY GRAY LAUNDRY AND BURNED OUT HEATER TANKS, ETC.

1st ITEM TO BE INSTALLED UC-2 CHLORINATOR-CHEMICAL FEED PUMP (SET PER INSTRUCTIONS)

IRON Excellent .01 P.P.M.
OVER 0.3 P.P.M. OF IRON WILL STAIN FIXTURES, DISCOLOR CLOTHING AND IMPART BAD TASTE AND ODOR TO FOOD AND CREATE MORE HOUSEHOLD PROBLEMS THAN HARDNESS IN MOST INSTANCES.

ITEM TO BE INSTALLED _____ AUTOMATIC FILTER (SET TO BACKWASH) _____ WEEKLY

pH VALUE Corrosive 6.0
WATER ABOVE 7.0 IS ALKALINE, BELOW 7.0 IS ACID. ACID WATER WITH PH 6.8 OR BELOW WILL ATTACK PIPING AND PLUMBING FIXTURES. ACID WATER SHOULD BE NEUTRALIZED.

OR _____ MANUAL FILTER (BACKWASH EVERY) _____ DAYS

CARBON DIOXIDE 3.1 G.P.G.
(CO₂) FORMS CARBONIC ACID IN WATER AND CAUSES PITTING IN PIPING AND DAMAGE TO ENAMEL ON FIXTURES PLUS MAKING WATER POSSIBLY CORROSIVE.

OR Two G-40 MULTI-CARTRIDGE FILTER (NO BACKWASH REQUIRED)

CHLORIDES Excellent .8 G.P.G.
CHLORIDES ADD TO HARDNESS OF THE WATER. OVER 50 G.P.G. MAKES WATER SALTY TO THE TASTE. NO PRACTICAL WAY TO REMOVE CHLORIDES HAS BEEN FOUND. SOFTENING WILL MAKE WATER MORE USABLE FOR HOUSEHOLD SOAP CONSUMING PURPOSES.

ITEM TO BE INSTALLED _____ AUTOMATIC SOFTENER (SET TO REGENERATE) _____ WEEKLY

SULPHATES Excellent .1 G.P.G.
SULPHATES ADD TO HARDNESS OF THE WATER. OVER 60 G.P.G. MAKES THE WATER LAXATIVE AND GIVES IT A METALLIC TASTE. NO PRACTICAL WAY HAS BEEN FOUND TO REMOVE SULPHATES. SOFTENING WILL MAKE WATER MORE USABLE FOR HOUSEHOLD SOAP CONSUMING PURPOSES.

OR _____ AUTOMATIC SOFTENER (SET TO REGENERATE) _____ WEEKLY

ALKALINITY 2.7 G.P.G.
ALKALINITY ADDS TO THE HARDNESS OF THE WATER. SOFTENING WILL NOT REMOVE IT.

OR _____ MANUAL SOFTENER (REGENERATE EVERY) _____ DAYS

ALGAE GROWTH Trace
THERE IS SOME TYPE OF ALGAE GROWTH OR ORGANIC MATTER IN SAMPLE AS RECEIVED. DUE TO THE AMOUNT AND NATURE OF THE SEDIMENT IN THIS SAMPLE IT COULD FOUL UP A SOFTENER OR FILTER BED AND HAMPER ITS EFFICIENT OPERATION OVER A PERIOD OF TIME UNLESS CORRECTED. RECOMMENDED CHLORINATION WILL CONTROL IT AND ALLOW OTHER RECOMMENDED EQUIPMENT AFTER IT TO REMOVE IRON, HARDNESS, SEDIMENT AND OTHER MINERAL CONDITIONS SATISFACTORILY.

NOTE: MANUAL SOFTENER RECOMMENDED ABOVE SHOULD BE BACKWASHED BETWEEN REGENERATION BECAUSE OF HIGH IRON OR SEDIMENT EVERY _____ DAYS.

HYDROGEN SULPHIDE (H₂S) _____ P.P.M.
A GAS CONDITION RECOGNIZED BY ITS ROTTEN EGG ODOR. IF DETECTED WHILE TAKING SAMPLE REQUEST SPECIAL H₂S SAMPLE BOTTLE. NO H₂S CONTENT WILL BE NOTED ABOVE UNLESS SPECIAL H₂S SAMPLE IS SUBMITTED.

ITEM TO BE INSTALLED _____ AUTO. CARBON T & O FILTER (SET TO BACKWASH) _____ WEEKLY

T.D.S. High But okay 300 P.P.M.

OR _____ MANUAL CARBON T & O FILTER (BACKWASH EVERY) _____ DAYS

OR Three G-40C MULTI-CARTRIDGE T & O FILTER (NO BACKWASH REQUIRED)

IMPORTANT: INSTALL ALL OF THE ABOVE EQUIPMENT AND ONLY THE EQUIPMENT RECOMMENDED ABOVE IF YOU WANT TO PROPERLY CONDITION THIS WATER, OMITTING OR SUBSTITUTING EQUIPMENT MAY POSSIBLY GIVE YOU UNSATISFACTORY RESULTS BASED ON SAMPLE SUBMITTED FOR THIS ANALYSIS.
THE MANUFACTURER IS NOT LIABLE FOR A RECOMMENDATION WHICH INVOLVES CONDITIONS BEYOND ITS CONTROL SUCH AS A NON-REPRESENTATIVE WATER SAMPLE, SEVERE CHANGES IN WATER COMPOSITION, OR LARGE AMOUNTS OF IRON, SLUDGE ENTERING FROM A PRESSURE TANK OR CITY WATER MAIN. IRON SLUDGE SHOULD BE REMOVED WITH A FILTER BEFORE SOFTENING.

G.P.G. - GRAINS PER GALLON
P.P.M. - PARTS PER MILLION
17.1 P.P.M. = 1 GRAIN

COMMENTS O V E R

* THIS IS COMPENSATED HARDNESS FACTOR WHICH IS COMPUTED FROM THE ACTUAL HARDNESS PLUS ADDITIONAL MINERAL CONTENT AS ANALYZED ABOVE. THE WATER HARDNESS IS AS GIVEN IN ACTUAL HARDNESS.

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The only problem they appear to have is one of low pH. This can easily be controlled by installing the UC-2 chemical feeder between the well pump and the storage tank and feed soda ash to raise the pH. The storage tank must have a capacity of at least 600 gallons to provide contact time for the soda ash to react. They could also add a chlorine solution to the soda ash mixture. This would also remove any algae or iron problems plus help to purify the water.

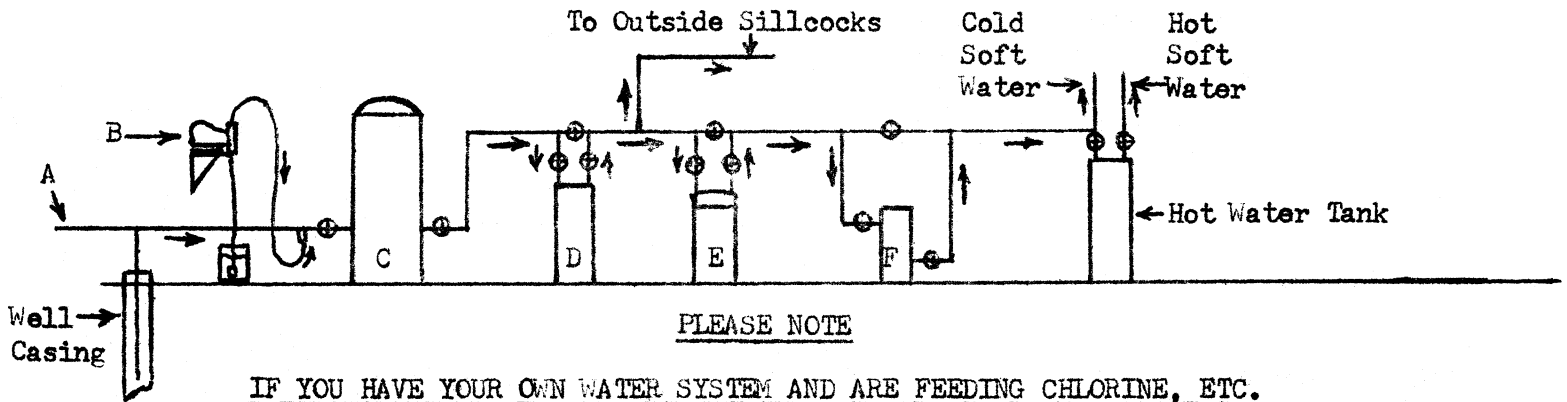
After the storage tank, the multi-cartridge filters should be installed to remove any sediment, iron and etc. that may be in the line.

This should provide them with good clear water. No softening should be required.

See Form #7BB attached.

The carbon type taste and odor filter recommended last in the sequence of equipment is optional. Install only if you find the slight taste and odor of chlorine objectionable that is left by the chlorinator. The carbon filter will remove all chlorine taste and odor and give the water a final polish.

TYPICAL INSTALLATION SEQUENCE



When chlorinating or feeding Soda Ash, Alum, etc., contact time with the water is very important. A contact time of 15 to 20 minutes is essential. This contact or mixing occurs within the pressure tank. For the average home installation, therefore, the pressure tank must have a water capacity of 50-60 gallons or more and the more the better. Remember that most pressure tanks are only 2/3 water with 1/3 being air, so keep this in mind when sizing the tank. If the present tank is too small a second "holding" tank can be installed in a "series" installation after the present pressure tank to bring the total combined capacity to the 50 to 60 gallons water capacity or more. All tanks must be of the "flow-through" type where water flows through and mixes within the tank. "Air Cell" or other "Tee" connected pressure-dome-type-tanks do not provide for any "mixing" or "contact" at all and cannot be used alone. A second flow-through-type tank of suitable capacity must always be installed in a "series" hookup after them. For commercial installations, contact us for specific requirements.

THIS IS A TYPICAL INSTALLATION. IF OUR RECOMMENDATION DID NOT INCLUDE ALL ITEMS SHOWN, SIMPLY IGNORE THEM IN THE DIAGRAM. THE PURPOSE OF THE DIAGRAM IS TO SHOW WHERE ANY UNIT IS INSTALLED IN RELATION TO EACH OTHER.

EXAMPLE: If your water source was a city supply, you would ignore the well, unit B, unit C, unit D, and F. You would be installing unit E, the water softener only in most cases.

- A. Cold raw water line from city supply or your own well.
- B. (CHEMICAL FEED PUMP) - Install as shown if recommended. An alternate hookup would be to run the injection line from the feeder down the well casing itself to just above the pump or intake. Order the accessory anti-siphon valve and additional tubing for this type of installation.
- C. (PRESSURE TANK) - Not required if your water supply is a city system.
- D. (FILTER) - This could be an Iron Filter, Sediment Filter, Acid Neutralizing Filter of the mineral bed type or a cartridge type multi-cartridge Iron/Sediment Filter. It would almost never be a Carbon Filter at this point. We usually recommend pre-filtering ahead of any Carbon Filter. The Carbon Filter would always be located at position "F".
- E. (SOFTENER) - Always located at this point in relation to other recommended units or alone as the recommendation indicates.
- F. (FILTER) - This would always be the point of installing any carbon-type filter whether mineral bed type or cartridge type. Carbon filters are always last in the sequence of installation.

STATEMENT CONCERNING REASON FOR RECOMMENDING CHEMICAL SOLUTION FEED PUMP & CHLORINATION

The water sample submitted for analysis contained algae in sufficient quantity to possibly eventually cause softener or filter bed fouling or bleed through of algae in the service water line causing staining and discoloration and possibly odor unless it is controlled by chlorination. NO SOFTENER OR FILTER MANUFACTURED BY ANY COMPANY CAN, BY ITSELF, ELIMINATE OR CONTROL THE ALGAE PROBLEM.

You may choose not to install the Chemical Solution Feed Pump recommended and chlorinate at this time. It can be done at any time in the future. It is recommended, however, that it be installed now to prevent mineral bed fouling and bleed-through from happening now or any time in the future. There is the remote possibility that the softener or filter may perform satisfactorily without chlorination of this water supply, but statistics and our wide experience with the algae problem indicate that 98% of the time algae control with chlorination must be employed for continuous satisfactory results over a long period of time.

Because of this algae condition, plus iron and other factors in your water supply, you are now getting from your water faucets a water supply which is not clear, which stains your fixtures, etc., and which may possibly have a disagreeable taste or odor, not to mention other factors such as hardness, corrosiveness, etc. The one sure way to permanently correct the algae caused problems is to employ chlorination, now, in conjunction with the other equipment also recommended in this analysis.

IF YOU DO NOT CHOOSE TO INSTALL THE AUTOMATIC CHLORINATOR AT THIS TIME
DO THE FOLLOWING

As a substitute for automatic chlorination you can hand chlorinate the softener to help control the algae noted. If faithfully done on a weekly basis, it will help control the algae buildup and may prove adequate to the point that automatic chlorination will never be necessary.

To hand chlorinate proceed as follows:

Once weekly add one cup of ordinary household chlorine bleach, such as Linco, Chlorox, etc. to the brine well tube of the brine tank. Pour the bleach in carefully using a small glass measuring cup with a lip for ease of pouring. On some model softeners the brine well tube is quite small with a plastic cap fit over the tube. This may be pried up so the bleach may be poured in.

DO NOT POUR THE BLEACH ON TOP OF THE SALT. The bleach must go into the bottom of the brine tank so it can mix with the brine solution before it will do any good. Pouring the bleach on top of the salt could cause fuming, which in time could react adversely on the plastic tank and valve. You must be sure to pour the bleach down the brine well tube with no slop over on to the salt itself and it will be absolutely harmless to the softener. One may improvise a funnel arrangement if desired, to facilitate hand chlorinating. Any small, long-necked plastic, or non-metallic, funnel would be ideal and are available at many hardware stores.

Add the chlorine bleach at an hour closest to the normal regeneration time as practical. Example: If your softener was set to regenerate at 2:00 AM Wednesday, pour the bleach into the brine well at 10:00 PM or so on Tuesday night - - - remembering that Wednesday AM begins at Midnight Tuesday. Always remember, whatever day or time your softener is set to regenerate, you must put the bleach into the brine well at a time ahead of the regeneration time and the closer to that time, the better.

NOTE: If one cup of bleach weekly does not do the intended job of clearing the water, you might try one cup two times weekly setting the softener to regenerate after the bleach is added, or two cups at one time. If hand chlorination doesn't control the problem, then automatic chlorination will have to be employed as originally recommended.

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