

Las Colinas

Condominium Owners' Association, Inc.

1600 N. Wilmot Road
Tucson, AZ 85712
520 390-2310

November 12, 2019

Executive Summary **Solving the Scale Problem in the Hot Water & Boiler System**

Background:

Las Colinas was built as an apartment complex in 1973. It was designed to have a common water system serving all 250 Units. There is no way to separately meter the Units as water lines may enter from multiple directions. The Association purchases water from the City of Tucson, then heating, treating and distributing water throughout the property. This requires three boiler systems and circulation pumps, which are constantly keeping both hot and cold water flowing through the three loops that supply the individual units. It requires the maintenance of many miles of hot and cold water lines that run under the grounds, beneath the parking lots, and through the slabs under the floors.

The water in Tucson is naturally very hard, meaning that it contains a lot of minerals. This is not a problem, except when you heat calcium and magnesium – they get “sticky” and adhere to the copper pipes and interior of the boilers. This calcium buildup is known as “scale”. Scale build-up reduces the efficiency of our entire hot water distribution system. Ultimately it damages pipes, boilers and fixtures to the point of failure.

In 2010, when we replaced our old boilers, we had to replace 100 feet of pipe that was so obstructed with scale it was unbelievable that the people in buildings 19, 20, and 21 got any hot water at all. We knew we had to do something to protect our investment in boilers and reduce costly repairs.

Culligan Water Softeners:

After research and consultation with experts, we installed Culligan water softener systems for each of the three boilers. We noticed improvement right away. However, while the scale problem was improved, we still had more scale damage to our boilers and hot water lines than we were happy with. So, we continued to look for better solutions. Unfortunately, the alternatives were prohibitively expensive. Meanwhile, as we plan for a water reclamation system to help irrigate our plants we became aware that the salt from the Culligan system ends up back-washed into our sewer lines – which would render our reclaimed water dangerous to the plants.

Life Source Scale Solver Option:

Fortunately, we discovered a system from California that offered to solve our scale problem and eliminate the salt. Even more amazing, it would not cost any more than the salt-based solution we have now. In fact, as we would be buying the systems, after three years we would be saving \$15,000.00 per year. At a projected life of ten years, this would add up to \$105,000.00 in savings.

So we arranged to meet with the Arizona distributor, and then visit an installation that had been in place for four years. We took the Association's plumber to see what the inside of the pipes looked like. Very clean. And we reviewed a copy of a study done at ASU addressing the issue of how to prevent scale without the environmental damage of salt. Their study showed that this technology, known as Template Assisted Crystallization, or TAC, was 99% effective in preventing scale in circumstances similar to ours. (80 degree Celsius Tempe City water.) Please see a copy of the ASU study results attached.

Description of System and Installation:

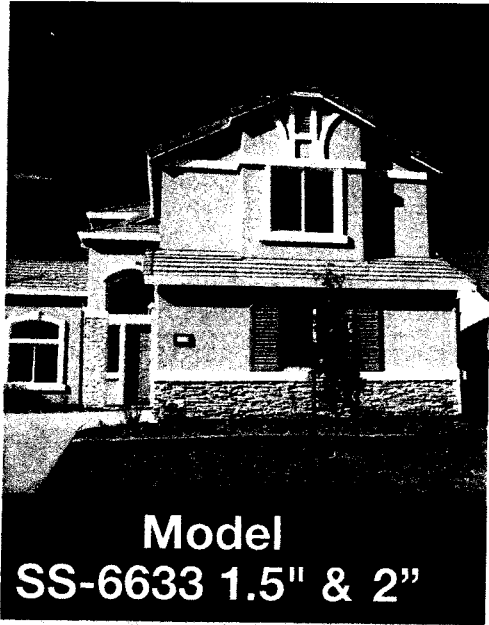
The system has two tanks. The first tank has a coconut carbon filtration system. The second tank has polymer beads, which treats the calcium and magnesium to make its molecules smooth and not sticky. The tanks are about the same size as the Culligan tanks, so there is no special installation required. There is also no maintenance required. We can test the water ourselves with kits. (Like we test the water quality for the pools.)

Cost:

The cost for three systems, one for each boiler, is a total of just under \$45,000.00. The monthly payments are about the same as what we are paying now to Culligan. After three years, we will own our equipment, with no maintenance cost, and then save the amount of approximately \$15,000.00 per year. No maintenance, less scale, no salt. Win, win, win.

Scope:

The Scale Solver system will only be used to treat the hot water. Much as we like the idea of treating all of our water, we use much more cold water than hot – so it would increase the costs by two to three times. While the treatment of the hot water saves us money by reducing repairs on the boilers and pipes, treating the cold water would not have any anticipated savings. Moreover, the additional systems would have to be installed in the front of the property, by the back-flow, where we have a ten inch mainline serving our property. This would require special plumbing, and a new building to house the equipment. Not practical at this time. However, we will continue to monitor developments in technology.



**Model
SS-6633 1.5" & 2"**

SCALE SOLVER[®]

HARD WATER PROTECTION

For decades, water softeners have been virtually the only means of treating hard water. Other alternatives including chemical treatments, electromagnets and electronic devices have been available but have proved to be ineffective. LifeSource now offers a revolutionary new system called ScaleSolver[®].

Hard Water Protection for You and Your Home

LifeSource ScaleSolver with PowerTAC[™] is the ultimate high performance scale prevention system for homes. ScaleSolver systems do not add anything to water while retaining healthy and beneficial minerals such as calcium and magnesium.

ScaleSolver[®] Benefits

PREVENTS SCALE BUILD-UP

Acts as a shield, preventing scale formation on boilers, water appliances and fixtures. Reverses existing scale problems.

ENVIRONMENTALLY FRIENDLY

Uses no chemicals or salts. Does not produce wastewater or use electricity.

TESTED AND PROVEN

Tested in laboratories by researchers at Arizona State University. PowerTAC achieved a 96% effectiveness rating.

NO MAINTENANCE

Virtually maintenance free. No salt or filter changes.

SIMPLE INSTALLATION

Installed on main water line after LifeSource Water Filter.

Protect Your Home

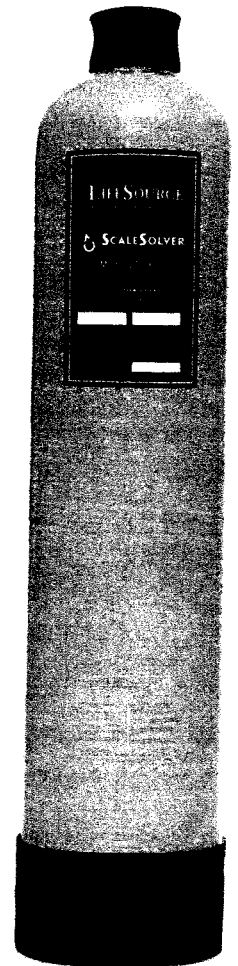
Hard water scale, also called lime scale, forms from naturally occurring calcium and magnesium in water. Scale deposits build up over time and solidify on fixtures, water heaters and water appliances.

ScaleSolver conditions the minerals in water as it enters your home and prevents annoying and costly scale buildup. Mineral deposits on countertops and faucets will easily wipe off.

APPLICATIONS

Residential

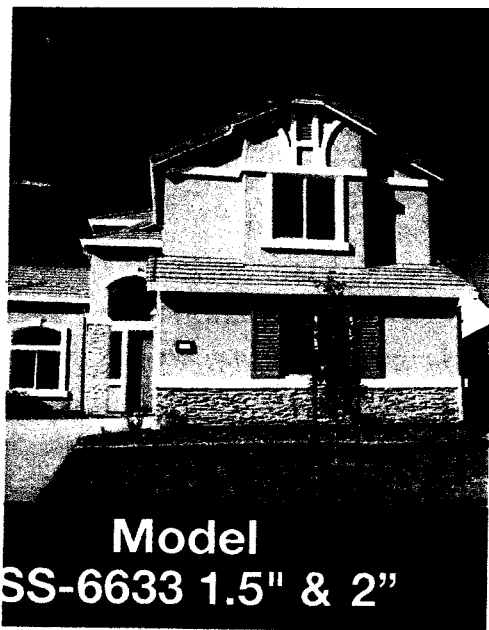
- Laundry
- Dishwashers
- Baths and Showers
- Coffee & Tea Machines
- Mist Cooling Systems
- Tankless & Conventional Water Heaters



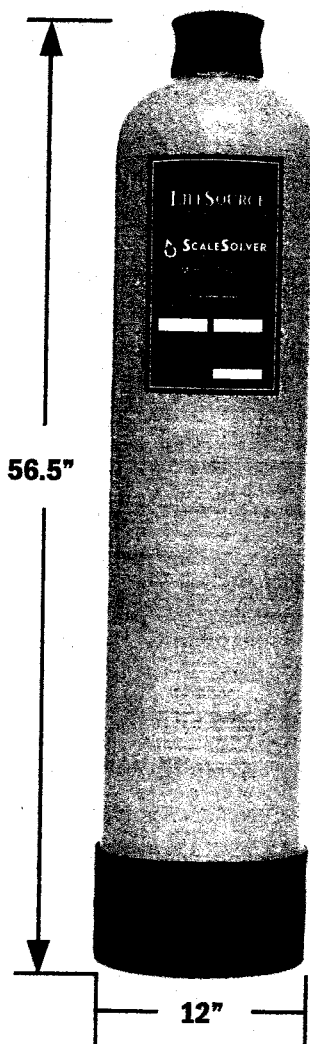
SS-6633

LifeSource Water Systems, Inc.
523 South Fair Oaks Ave. ♦ Pasadena, CA 91105 ♦ www.LifeSourceWater.com
Established 1984 ♦ CA License # 787179 ♦ NV License # 059578

**LIFE SOURCE**
WATER SYSTEMS[®]



**Model
SS-6633 1.5" & 2"**



SCALE SOLVER[®]

HARD WATER PROTECTION

How it Works

The LifeSource ScaleSolver with PowerTAC™ is a high efficiency Template Assisted Crystallization (TAC) technology. PowerTAC converts healthy hardness minerals into harmless, microscopic crystals that do not attach to hard surfaces.

Features

- ◆ Extremely fast acting regardless of hardness level.
- ◆ Long lasting PowerTAC media.
- ◆ No control valve or electricity required.
- ◆ No salt or other chemical additives required.
- ◆ No backwash waste. Can be used where water softeners are banned.
- ◆ Tests show ScaleSolver is more effective than water softeners.
- ◆ Protects the environment and eliminates water waste.

PowerTAC™ Physical Properties

- Composition - Specially treated polymer

Operating Conditions

Can be used in continuous or intermittent operation. Install on cold water supply only. No backwash required.

Water Chemistry Specifications

- pH 6.5 to 8.5
- Max. Hardness 75 grains (1300 ppm CaCO₃)
- Temperature 41 to 140° F (5-60° C)
- Max. Chlorine <3 ppm
- Max. Iron, ferrous 0.3 mg/l
- Max. Manganese 0.05 mg/l
- Max. Copper 1.3 mg/l
- Oil & H₂S Remove pre ScaleSolver
- Polyphosphates Remove pre ScaleSolver

Specifications

- Dimensions 12" x 56.5"
- Max. Flow Rate 30 gpm
- Max. Pressure 100 psi

Testing and Regulatory Approvals

ScaleSolver tested and certified to NSF/ANSI Standard 61. PowerTAC tested at Arizona State University using the German DVGW -W512 test protocol.

*(German Technical and Scientific Association for Gas and Water)



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LIFESOURCE
WATER SYSTEMS[®]

COMMERCIAL FILTRATION SYSTEMS

WATER FILTRATION

LifeSource has been building efficient high performance commercial water treatment systems in the U.S. since 1984. Our long lasting commercial products are economical and simple to maintain for a large variety of commercial and industrial applications.

LifeSource granular activated carbon (GAC) filtration systems are designed for point of entry (POE) applications where dechlorinated water is required. Chlorine, a disinfection agent, is added to municipal water supplies to destroy bacteria and other living micro-organisms.

LifeSource filter systems utilize a proprietary, long lasting activated carbon blend, designed primarily for chlorine and chloramine removal.

PRODUCT FEATURES

- ◆ **High Grade Granular Activated Carbon (GAC)**
NSF/ANSI-42 Tested and Certified for chlorine/chloramine taste and odor. Proven long lasting system with a service cycle of 5,704,000 gallons.
- ◆ **Durable Automatic Control Valve/Timer**
Automatically controls backwash and rinse cycles, rinses sediment out of carbon. Lead-free brass valve body for superior strength and durability.
- ◆ **Zero Maintenance System**
No regular service intervals and no filter changes required

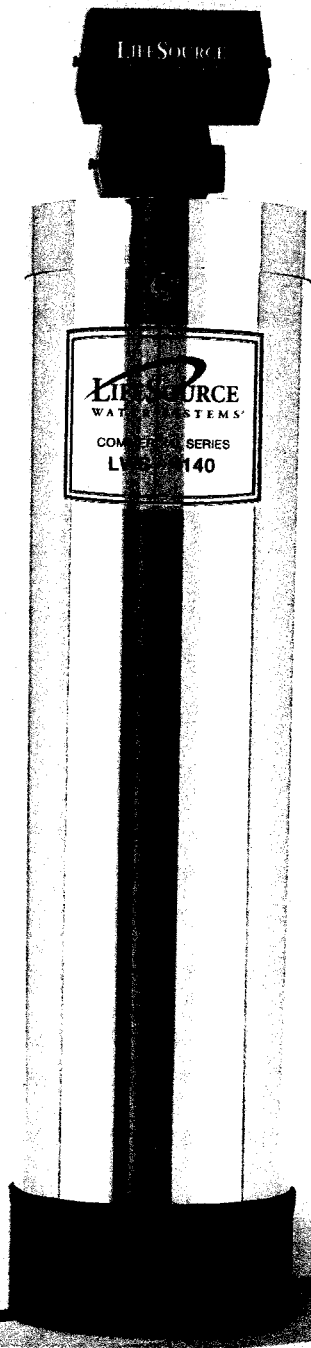
GREEN SPECIFICATIONS

- ◆ Uses No Salt or Potassium Chloride
- ◆ Eliminates the Need for Bottled Water
- ◆ Conserves Water
- ◆ Uses a Natural Filter Media
- ◆ A Sustainable Product Design

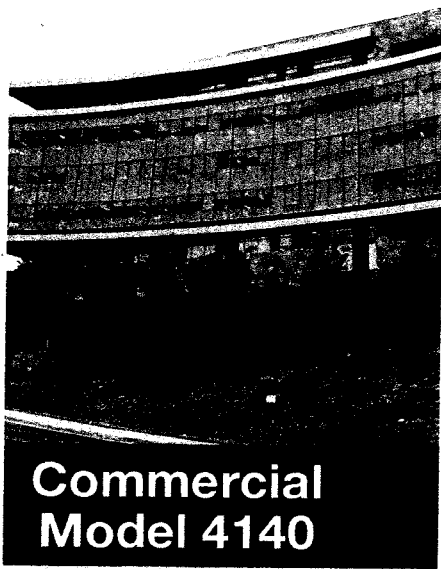
COMMERCIAL APPLICATIONS

- ◆ Office Buildings
- ◆ Hospitality/Lodging
- ◆ Educational/Sport Facilities
- ◆ Light Manufacturing Processes
- ◆ Grocery/Retail
- ◆ Multi-Unit Housing
- ◆ Food Service/Restaurants
- ◆ Food and Beverage Production
- ◆ Agriculture
- ◆ Vehicle Washes

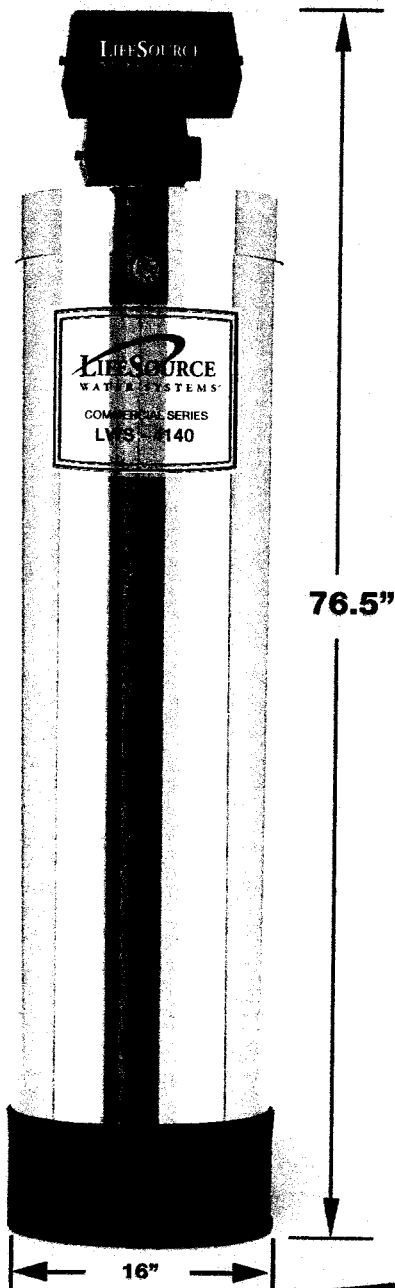
Commercial 4140 Series



COMMERCIAL FILTRATION SYSTEMS



**Commercial
Model 4140**



LWS-4140 2" SYSTEM SPECIFICATIONS

Certified Service Cycle: 5,704,000 Gallons

Flow Rate: Tested 15 gpm- Max 106 gpm

Dimensions: Diameter: 16" X Height: 76 1/2"

Power Requirements: 1 Standard 110v Electrical Outlet Within 5' of System.

Backwash/Rinse Line: 3/4" Copper or PVC Pipe to Drain/Irrigation at 15 gpm

Installation Space Required: 36" Width X 86" Height

Note:

1. Regulated water pressure: minimum 40 psi, maximum 100 psi.
2. Protect from freezing if installed outdoors in cold weather areas.
3. Requires 3-way bypass valve.

Pressure Tank Specifications

NSF Certified

Material: Seamless fiber glass filament wound inner liner polyethylene

Safety Factor: 4:1, Minimum burst at 600 psi, tested to 250,000 cycles

2" CONTROL VALVE SPECIFICATIONS

Valve Material: Lead-free brass*

Inlet/Outlet: 2"

Cycles: 5

Flow Rate: Tested, 15 gpm- Max Continuous, 106 gpm

Drain Line: 3/4" NPTM

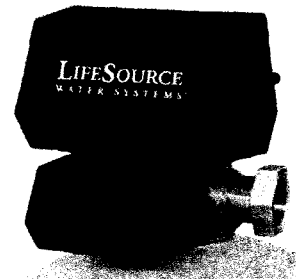
Dimensions: Height From Top of Tank - 12"

Electrical Rating: 24 v, 110 v, 220 v - 50 Hz, 60 Hz

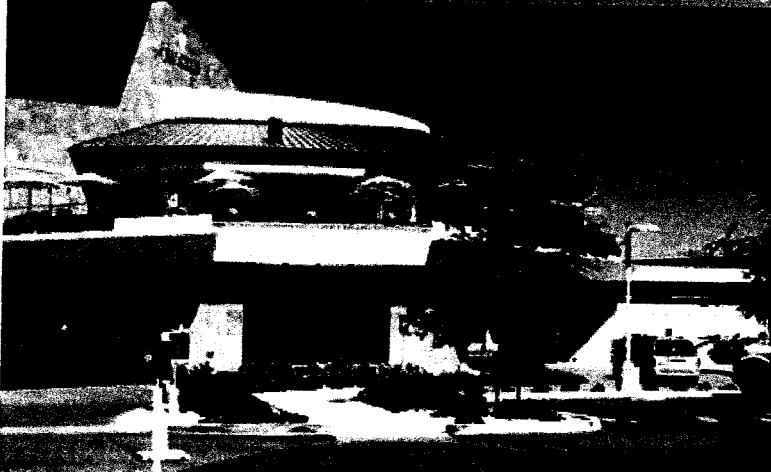
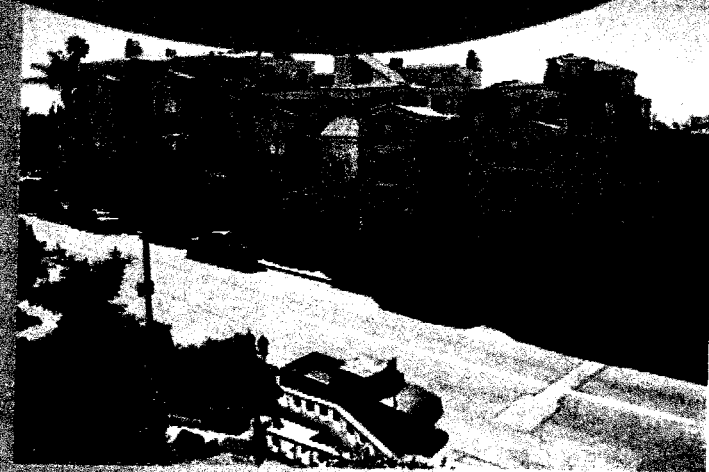
Pressure: Hydrostatic: 300 psi Working: 20 - 125 psi

Temperature: 34° - 110° F

*As defined in the Federal Safe Drinking Water Act; the product also meets California Proposition 65 Standards.



Commercial Applications and Projects



LIFESOURCE
WATER SYSTEMS®

LifeSource Commercial Applications

A variety of different businesses have seen the reality of a more modern approach to water treatment for their facilities and business practices. This modern approach is a move away from antiquated water softeners, water-wasting systems like reverse osmosis, and bottled water.

LifeSource Water Systems has been a leader in providing commercial treatment systems for the past 25 years. As the leader in water treatment, LifeSource has been the top choice for businesses looking for a more modern approach to water treatment. Many businesses are starting to see the benefits of having clean, filtered water in the workplace. LifeSource Systems provides its clients with the highest quality water at an affordable price.

Our portfolio of select case studies highlights just a few of the companies that love their LifeSource Water.

LifeSource Commercial Benefits

Zero Maintenance -

Replaces Water Softeners -

Clean Drinking Water -

Replaces Bottled Water -

Eco-Friendly -



LIFESOURCE
WATER SYSTEMS®



Poli-Oaks Condominiums

436 Poli St. Ventura, California

Prior to starting construction, Ray Mulokas, architect, builder and developer of the Poli-Oaks Condominiums, knew the tap water in the City of Ventura was very hard. He also felt that water softeners were out of the question due to their environmental harm. Ray wanted to provide a quality of life benefit to his discerning tenants and reduce liability issues with water appliances. He decided on a LifeSource Water System based on the recommendation from his wife who had earlier installed a LifeSource System in her assisted care facility.

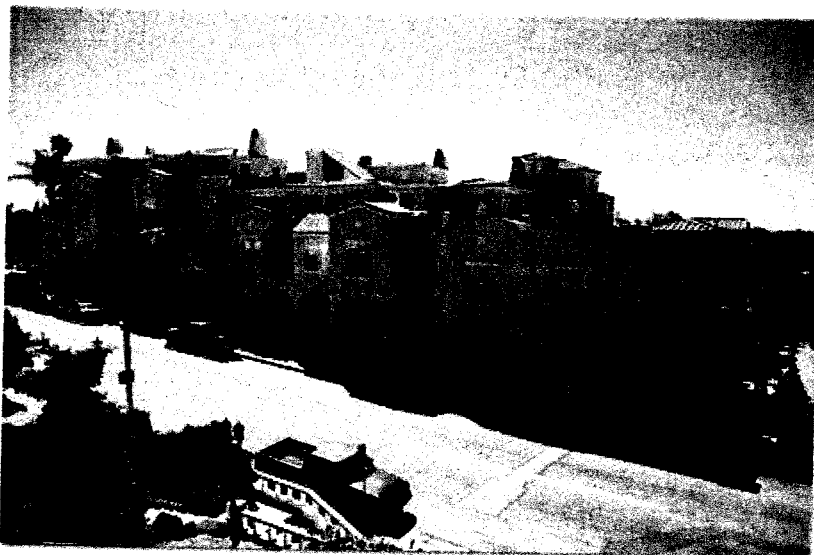
The LifeSource System saves money for the condo tenants and employees since the building manager no longer needs to deal with maintenance issues related to plumbing and water appliances. Ray reports that all his commercial and residential tenants truly love their water.



Ray Mulokas (left) with LifeSource Factory Rep Ernie Bravo

"We've had this system for six years now with hardly any maintenance whatsoever. It just works, we're very satisfied, everybody is... money well spent in our case."

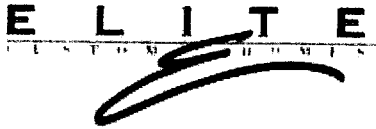
Ray Mulokas - President, MNM Construction



The Poli-Oaks 47 Unit Condo Building, Ventura, CA

Built in 2003, the Poli-Oaks Condominiums are a mixed use building with 47 units total. 33 condos are residential and 14 are for commercial use. Current commercial tenants benefiting from the clean water include; Coastal Skin Care, Pickart Plastic Surgery, DeSoto Salon & Spa and Johnson Family Dental

LIFESOURCE
WATER SYSTEMS



Fresno, CA www.EliteFresno.com

Elite Custom Homes of Fresno, California believes that the keys to buyer satisfaction are builder performance and providing the highest quality in all areas of the building process. Gary recognized the harshness in the highly chlorinated Fresno tap water and decided to provide their homebuyers with the best possible water treatment system. Elite has installed over 20 LifeSource Water Systems in their custom homes since 2003. They give their homebuyers an option to either pre-plumb for the system or install it. Most clients install the system prior to their move-in-date. Their clients have noticed that laundry is softer, fluffier, and noticeably different. They also report that taste of the water is good and clean with no chemical taste.



Gary & Robyn Gomes of Elite Custom Homes

"We like offering the best quality products to our customers. We explain to them why we chose the LifeSource System over other products that are out there in the market".

Gary Gomes Jr. - Elite Custom Homes



Custom Kitchen by Elite Custom Homes



A home designed and built by Elite Custom Homes

Established in 1984, Elite Custom Homes is a full service designer and has built over 300 homes in the Fresno area. The company is owned and operated by Gary Gomes, Jr. and LeRoy Goossen, Jr. Gary Gomes, Jr. is a 1984 graduate of Cal Poly, San Luis Obispo where he received his Bachelor of Architecture Degree. LeRoy Goossen, Jr. is a 1985 graduate of Cal State University of Fresno where he received his BA Degree in Construction Management.



Evaluation of Alternatives to Domestic Ion Exchange Water Softeners

Mara Wiest

Dr. Peter Fox

Dr. Lee Wontae, HDR

Tim Thomure, HDR



April 26, 2011

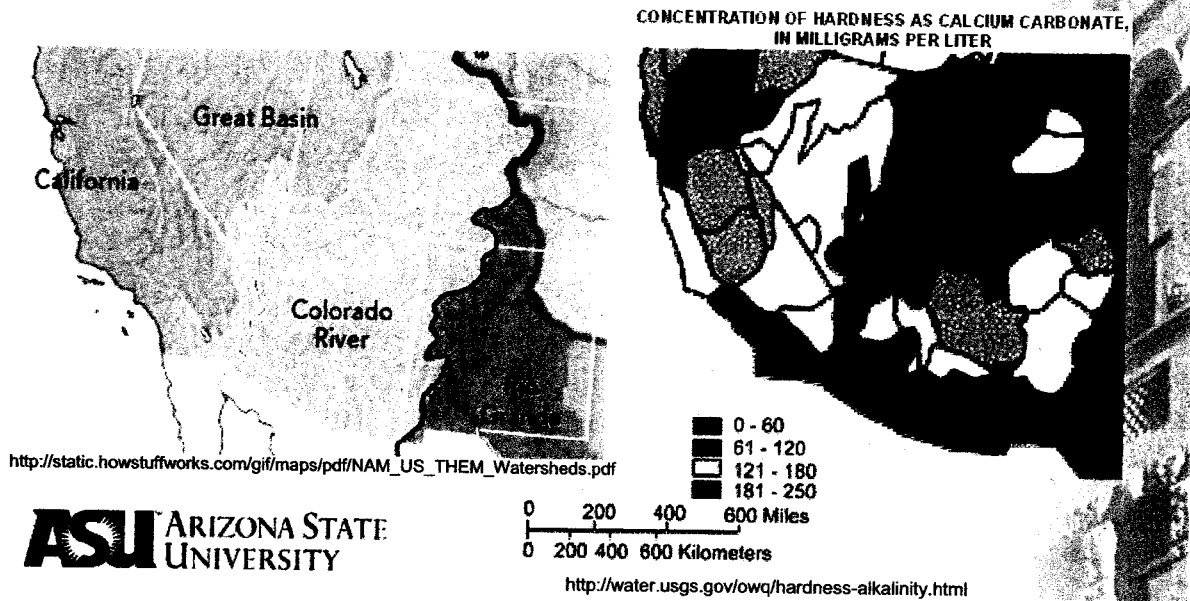
OUTLINE

- **Water Quality and reuse in the Southwest US**
- Ion exchange water softening system process and effects on remediated water quality
- No-salt alternatives to ion exchange and the mechanisms by which they reduce scale formation
- Experimental procedure
- Results
- Future Work



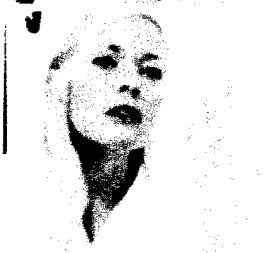
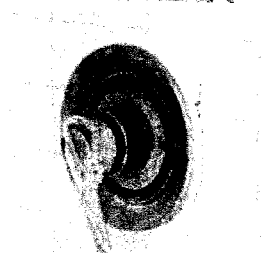
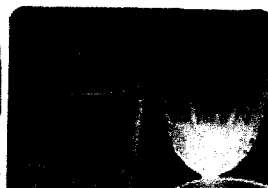
Water Quality and Reuse in the Southwest US

- Freshwater sources in the Southwest US are considered very hard ranging from 80 to 280 mg/L



Water Quality and Reuse in the Southwest US

Hard Water Effects in the Home



- Spotted dishes from the dishwasher
- An inability for soap to lather and soap scum deposits
- Scale formation on faucets and showerheads
- Scale accumulation in pipes
- Scale fouling in water heaters increasing energy usage by up to 24%
- Scale formation on appliances

Calcium carbonate becomes less soluble at higher temperatures.

Water Quality and Reuse in the Southwest US

- Consumers try to mitigate the effects of hard water by using water softening devices in their homes.
- The most common domestic water softening device uses ion exchange technology which releases additional salts to the waste stream.
- Consumers are reducing hardness in their homes but increasing TDS levels in reclaimed wastewater! (Not a sustainable practice)



Water Quality and Reuse in the Southwest US

- TDS (salinity) is a measurement of total dissolved solids in water including inorganic (hardness, salts) and organic substances (pesticides, herbicides, etc.).

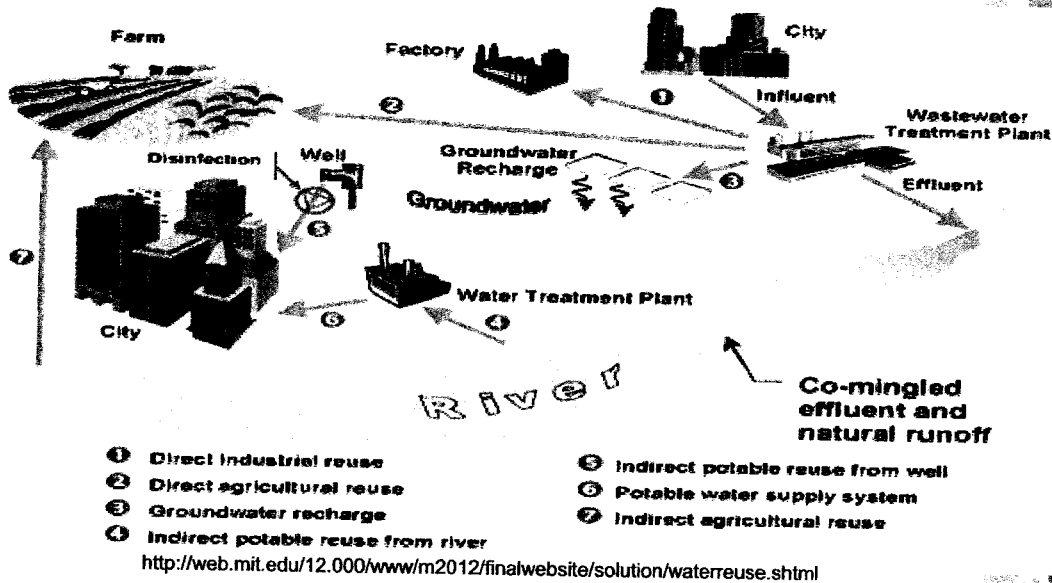
Sources of Salinity
• Natural minerals in rocks found in lakes, rivers, streams and aquifers
• Water from natural salt springs that enters into rivers, lakes and streams
• Agricultural fertilizers that drain from fields into rivers, lakes, streams and aquifers
• Water treatment chemicals such as chlorine that make water safe for human consumption
• Home water treatment systems, like water softeners, that treat water for hardness
• Cleaning chemicals
• Foods

Water Source	TDS in milligrams per liter
Salt River	580 mg/L
Verde river	270 mg/L
Central Arizona Project (CAP)	650 mg/L
Groundwater	200 - 5,000 mg/L
Reclaimed Water	Typically 300 - 500 mg/L higher than source water

Water Quality and Reuse in the Southwest US

Water Reuse

- A water conservation practice in which reclaimed water is used for a direct beneficial purpose.



Water Quality and Reuse in the Southwest US

TDS effects on water reuse (examples)

- Agriculture
 - Crop salt tolerance, reduction of crop yields
 - Additional water may be needed to flush salts from root zone
- Cooling Tower
 - Increased water usage
 - Possible equipment damage due to scaling

Study Objective

Provide technical data to identify credible **alternatives** to ion exchange water softeners that would provide consumers with the ability to reduce the impacts of hard water without creating the negative salinity impacts.



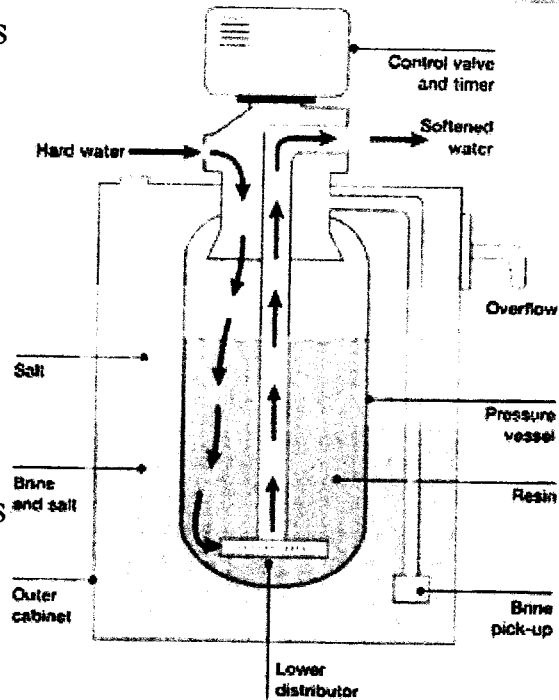
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- **Ion exchange water softening system process and effects on remediated water quality**
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Ion Exchange Water Softening System

- The ion exchange unit removes hardness by exchanging sodium ions for the calcium and magnesium ions present in the water.
- It does this using resin beads that periodically need to be regenerated with a highly concentrated salt solution.
- There are two basic types of self-regenerating water softeners (SRWS): Timer Based and Demand Based.



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<http://www.sterlingsofteners.co.uk/index.asp?mid=49>

Ion Exchange Water Softener Systems

- Discharge brine into wastewater systems
- These unnatural quantity of salts find their way into the environment and affect reuse applications.
- The use of no-salt water conditioning devices to reduce scale formation on domestic water heaters and other home appliances is one way society can improve the quality of remediated water.

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No-Salt Alternatives to Ion Exchange

- Capacitive Deionization
- Electrically Induced Precipitation
- Template Assisted Crystallization
- Electromagnetic Water Treatment

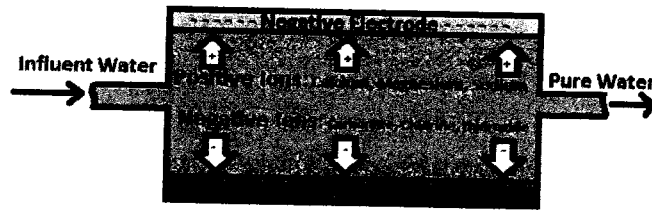
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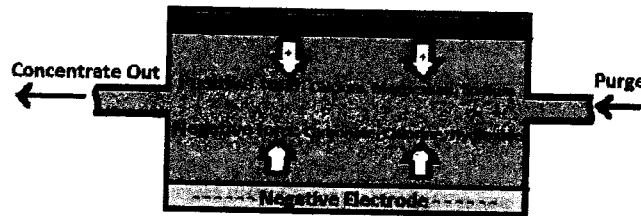
No-Salt Alternatives to Ion Exchange

Capacitive Deionization

Regeneration. Voltage potential turned on



Backwash. Voltage potential turned off or reversed



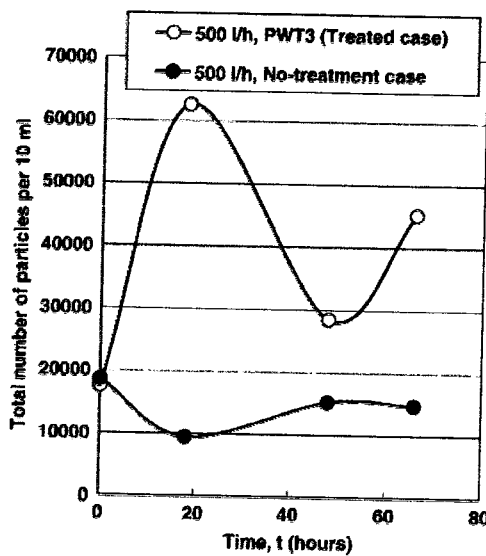
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Electro-chemical Treatment



No-Salt Alternatives to Ion Exchange

Electronically Induced Precipitation



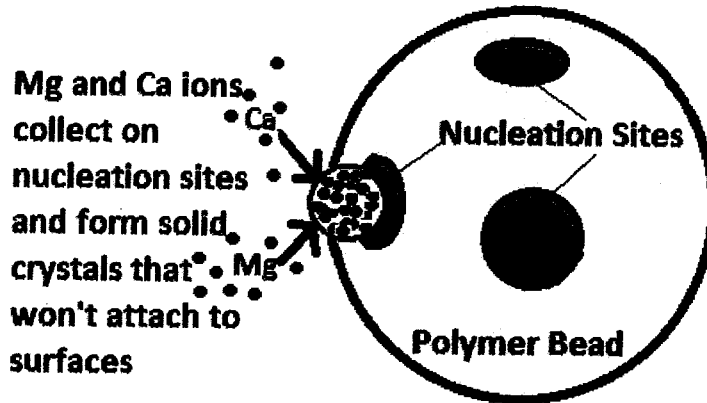
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Tijing et al, 2007
Physical Water Treatment



No-Salt Alternatives to Ion Exchange

Template Assisted Crystallization

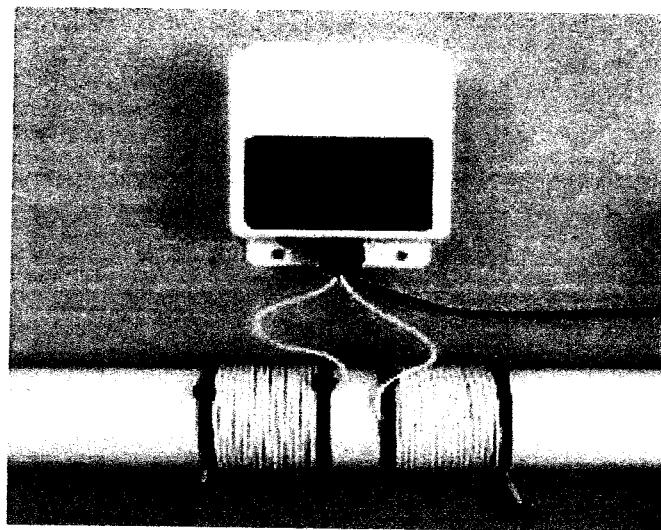


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No-Salt Alternatives to Ion Exchange

Electromagnetic Water Treatment



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Physical Water Treatment



No-Salt Alternatives to Ion Exchange

Other possible mechanisms for magnetic treatment

- Reduction of the effect of the double layer
 - When the electrical double layer is reduced, more suspended coagulation can occur resulting in a light sludge that is easily wiped off of the surface.
 - This can be tested by measuring the zeta potential of a particle before and after treatment.

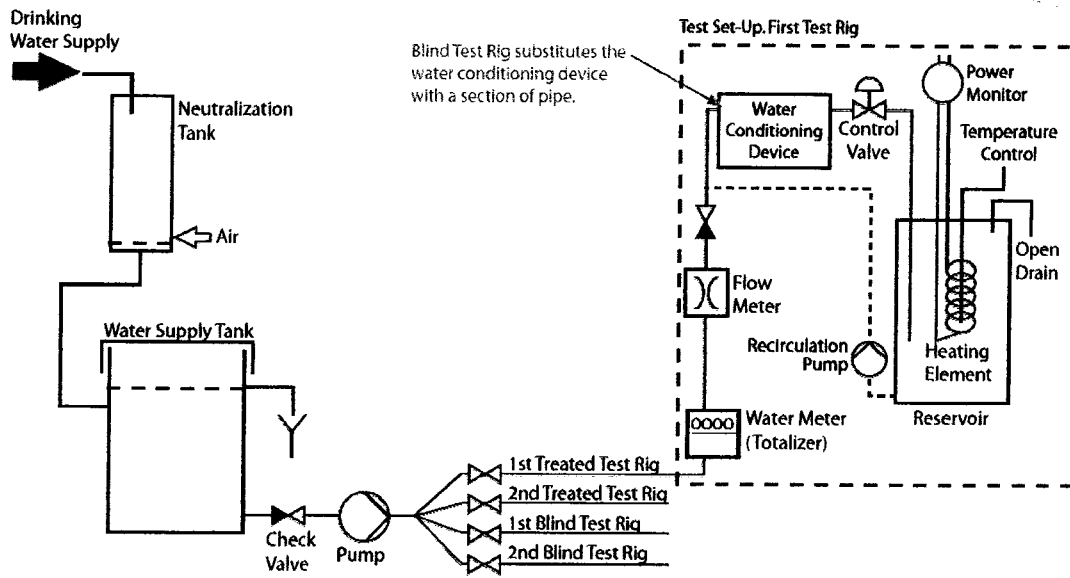


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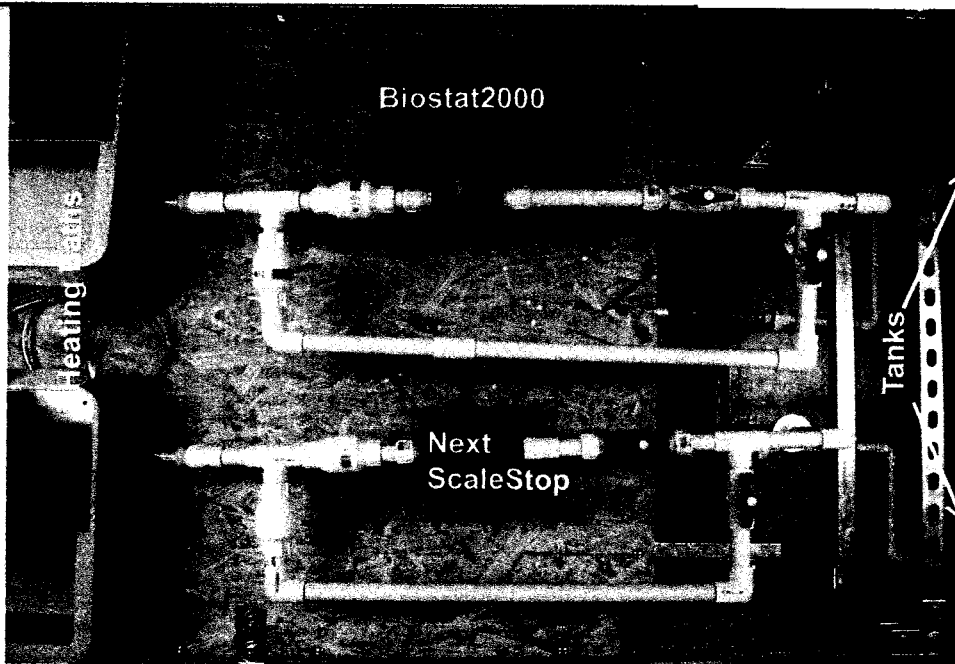
Experimental Procedure



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DVGW-W512 Protocol

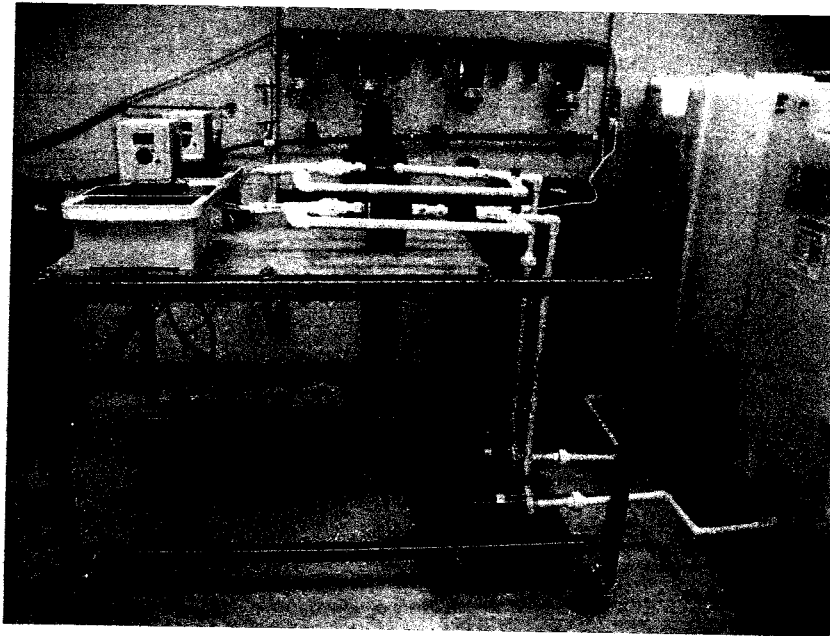
Experimental Procedure



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Plan View

Experimental Procedure



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SideView



Experimental Procedure

- Once the 21 days of testing is over, the bath and heating element are cleaned using a 1N HCl solution.
- The solid scale is weighed and the scale dissolved by the HCl solution is measured using a Hach kit which utilizes the EDTA complexing method.
- This procedure will be repeated for all alternative devices using 3 different water qualities.

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Experimental Procedure

Water Qualities Included

- Salt River water (Tempe tap water)
- Central Arizona Project (CAP) canal water
- Scottsdale groundwater

	TDS (mg/L)	Hardness (mg/L as CaCO ₃)
Salt River water (Tempe tap water)	479	180
Central Arizona Project (CAP) canal water	666	150 - 220
Scottsdale groundwater	465	200 - 250








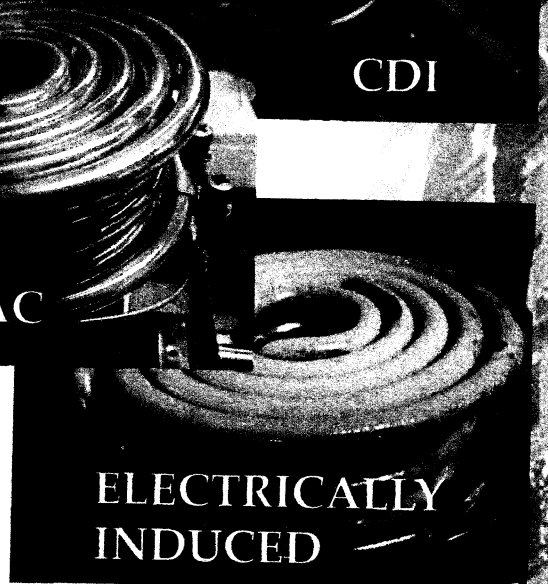
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Results

Water Type	Treatment device used	Scale scraped off of heating element (g)	% Ca in scale formed	Ca formed in solid scale precipitate (g Ca)	Scale from bath and heating element dissolved with HCl (g Ca as CaCO ₃)	Total calcium formed during test (g Ca as CaCO ₃)	Photo of heating element with scale
Tempe tap water	No Treatment	-	NA	0.00	8.36	8.36	
	TAC	0.00	NA	0.00	0.12	0.12	
	EIP	0.68	34.88	0.24	3.60	3.84	
	MAG	1.44	34.88	0.50	3.47	3.97	
	CDI	0.00	NA	0.00	1.41	1.41	



Results





Mass Balance

Treatment Device	Total Initial Ca as CaCO ₃ (g) Before Treatment*	Ca as CaCO ₃ Found on Heating Element and Bath (g)	Total effluent Ca as CaCO ₃ exiting the system (g)	% Scale Formed on Heating Element and Bath
No Treatment	294	8.36	285.64	2.84%
TAC	294	0.31	293.69	0.11%
EIP	294	4.07	289.93	1.38%
MWT	294	4.86	289.14	1.65%
CDI	294	1.41	292.59	0.48%

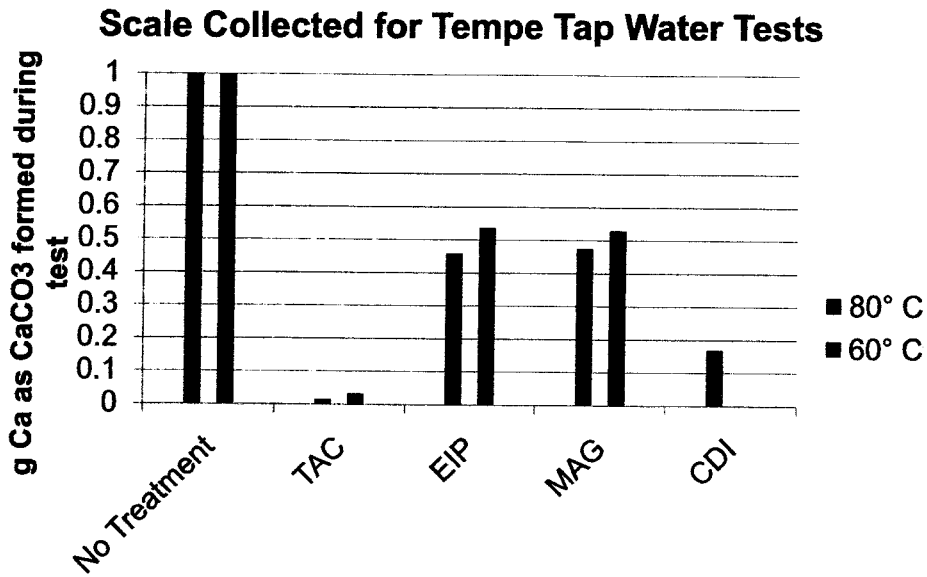
*Initial Ca indicates the average calcium content in 700gal Tempe tap water



Results

Water Type	Treatment device used	Solid calcium collected from element (g Ca)	Scale from bath and heating element dissolved with 0.18N HCl (g Ca as CaCO ₃)	Scale from bath dissolved with 1N HCl (g Ca as CaCO ₃)	Total calcium formed during test (g Ca as CaCO ₃)	Photo of heating element after 21 days of testing
Tempe tap water 60°C	No Treatment		5.92	19.00	24.92	
	TAC		0.83		0.83	
	EIP	0.33	5.88	7.19	13.40	
	MAG		6.20	7.00	13.20	

Results



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Results

Percent Removal Compared to Untreated Case		
	Tempe Tap	
	80°C	60°C
No Treatment	0	0
TAC	99	97
EIP	54	46
MAG	53	47
CDI	83	

To "pass" the DVGW-W512 test, a percentage of 80 or higher is required.

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Results

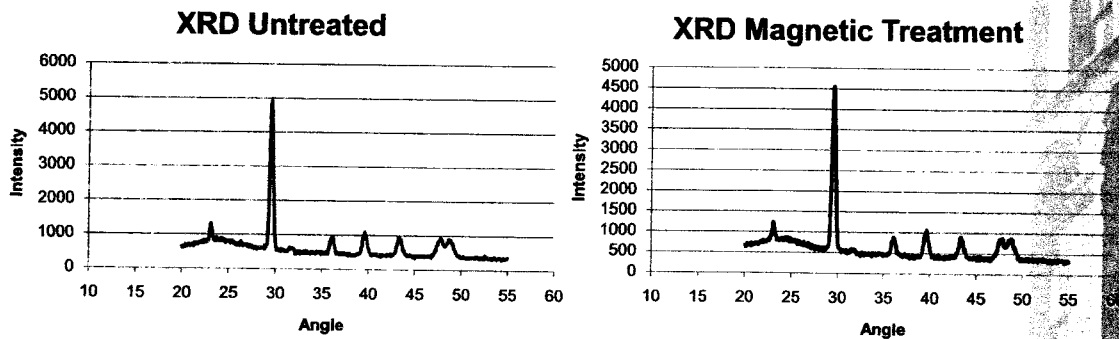
Rapid Test

- Due to the length of time and volume of water needed for the DVGW-W512 protocol, a more rapid testing protocol would be highly desirable.
- Some routes were explored in order to develop a more rapid testing protocol for the scale inducing technologies.

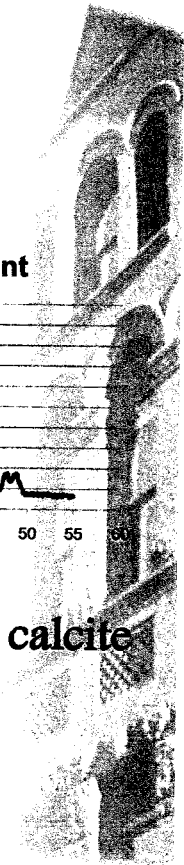


Results

X-Ray Diffraction

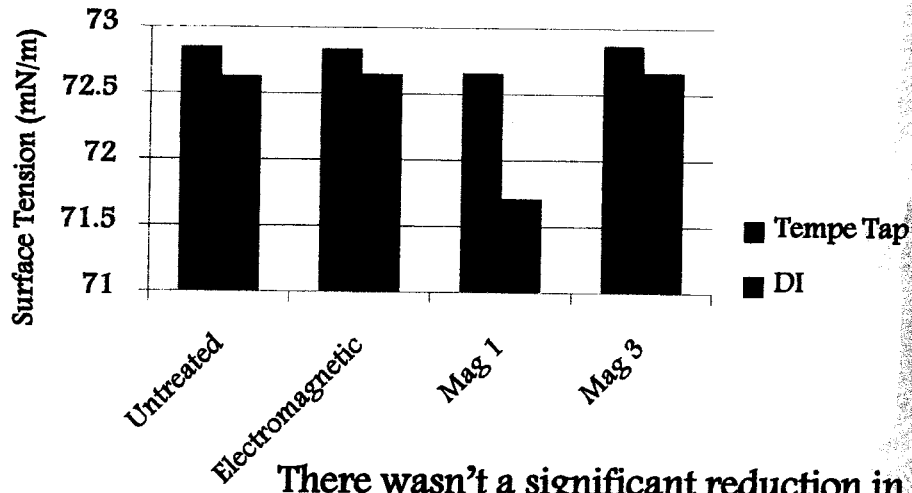


Both untreated and magnetically treated cases have calcite patterned peaks



Results

Surface Tension

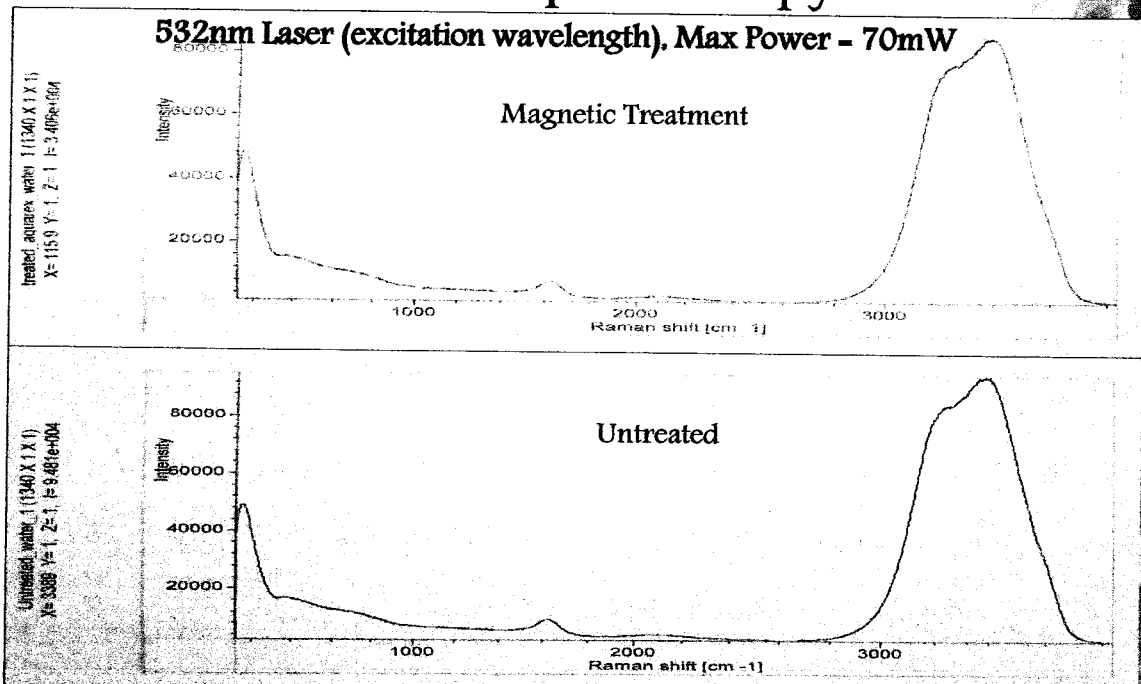


There wasn't a significant reduction in surface tension for any of the magnetic devices.

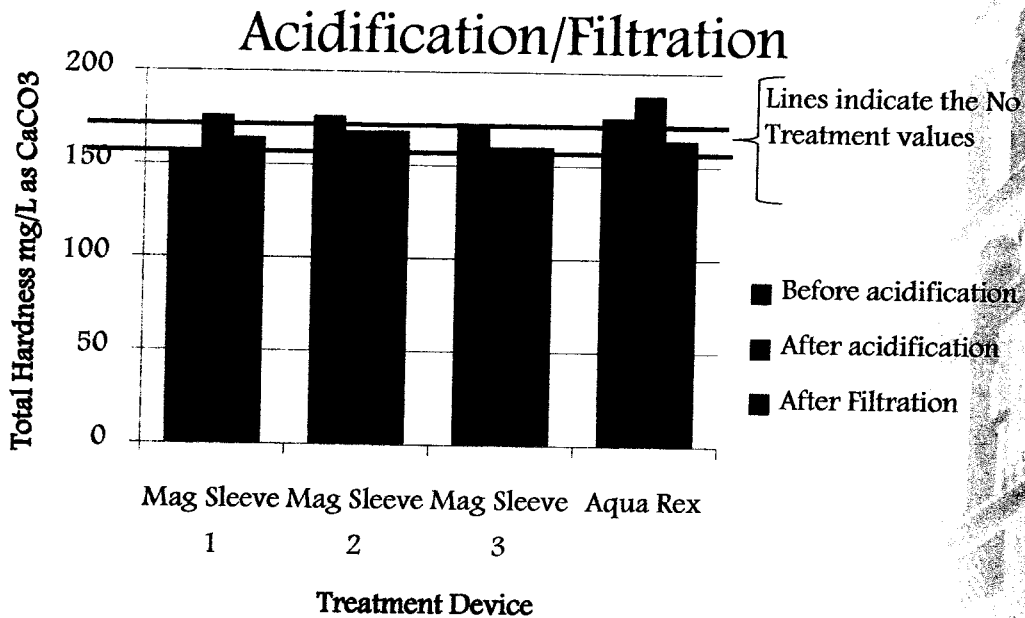
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Results

RAMAN Spectroscopy



Results



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Conclusions

- All alternative devices were effective at reducing scale.
- The most promising technology is the template assisted crystallization with scale reductions of over 90%.
- Further study is needed to look into the mechanisms at work for the magnetic treatment and a rapid testing protocol.

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OUTLINE

- Water Quality and reuse in the Southwest US
- Ion exchange water softening system process and effects on remediated water quality
- No-salt alternatives to ion exchange and the mechanisms by which they reduce scale formation
- Experimental procedure
- Results
- **Future Work**



Future Work

- Complete testing of CAP canal and Scottsdale groundwater
- Continue exploring possibilities for a more rapid testing protocol
- Consider other no-salt water conditioning devices
- Develop guidelines for consumers such as a rating system to compare water conditioning devices



Acknowledgements

- WateReuse Foundation
- HDR, INC.
- Dr. Peter Fox
- Dr. Paul Westerhoff
- Emmanuel Soignard
- Cities of Phoenix, Scottsdale, and Tempe



BACK TO LIST

Add to Shortcuts

Account Details Systems/Orders Calendar Alert Email Referrals Service

Leads ID: 480417 Customer #: 00147183 Factory Rep: Jeremy Stout Source: Web-Site

Serial #: _____

Entered By: Jeremy Stout

Sales Order #: _____

Invoice #: _____

Service Ticket #: _____

CLIENT INFO

Choose Address: 1600 N. Wilmont Rd. ▼

Account Name: Kathrine Trimm Address: 1600 N. Wilmont Rd.
First Name: Kathrine Apt #:
Last Name: Trimm City: Tucson
Home Phone: State: Arizona ▼
Work Phone: Zip: 85712
Cell Phone: (520) 390-2310 Country: United States ▼

GET CORRECT EMAIL ADDRESS

Email: katherine.trimm@cox.net

DELIVERY/INSTALL INFO

Choose Address: 1600 N. Wilmont Rd. ▼

Account Name: Kathrine Trimm Address: 1600 N. Wilmont Rd. **Delivery Type:** Installation ▼
First Name: Kathrine Apt #
Last Name: Trimm City: Tucson
Home Phone: State: Arizona ▼
Work Phone: Zip: 85712 Tax: 8.70%
Cell Phone: (520) 390-2310 Country: United States ▼

INVOICE INFO

Invoice Item	Description	Quantity	Unit Cost	Total Amount
4140LE-110v	▼ Estate Series Water System 2"	1 ▼	\$ 8766.00	\$8766.00
SS-7722LE	▼ Commercial ScaleSolver System - 2"	1 ▼	\$ 4915.00	\$4915.00
4140LE-110v	▼ Estate Series Water System 2"	1 ▼	\$ 8766.00	\$8766.00
SS-7722LE	▼ Commercial ScaleSolver System - 2"	1 ▼	\$ 4915.00	\$4915.00
4140LE-110v	▼ Estate Series Water System 2"	1 ▼	\$ 8766.00	\$8766.00
SS-7722LE	▼ Commercial ScaleSolver System - 2"	1 ▼	\$ 4915.00	\$4915.00

+Add Item

*Services -- No Tax Applied

Msg To Customer:

Internal Notes:

SUBTOTAL: \$41043.00
TAX: \$ 3570.74 8.70%
TAX PROMO: No Yes
GRAND TOTAL: \$44613.74
PAYMENT: \$ 44613.74
REMAINING BALANCE: \$0.00
Payment Due Date: Nov ▼ 11 ▼ 2018 ▼
Payment Type: _____ ▼

BILLING INFO

Choose Address: Enter New Address ▼