dlm

Decision No. 85940

ORIGINAL

FILED
PUBLIC UTILITIES COMMISSION
JUN 8 1978
SAN FRANCISCO OFFICE

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's own motion into the operations, practices, service, equipment, facilities, rules, regulations and contracts relating to WATER CONSERVATION in existing and new residential, commercial, industrial, public authority, and agricultural classes of service.	Case No. 10114

ORDER INSTITUTING INVESTIGATION AND OPINION

It is the policy of the State of California to put its water resources to beneficial use to the fullest extent of which they are capable. It is also the policy of the State of California to prevent waste or unreasonable use, method of use or method of diversion of its water resources. This policy is embodied in Article XIV, Section 3 of the California Constitution adopted by the people on November 6, 1928.

Water-saving opportunities exist throughout the State. The greatest potential savings are found in areas where significant quantities of return flow from excess water applications are disposed to saline waters without serving further beneficial use. Even in areas where water conservation measures will not save large quantities of water, they may result in energy savings and offer opportunities for environmental improvement through changes in water management.

The Department of Water Resources of the State of California has recommended that in all new construction the following be required as water conservation devices: low-flow toilets, low-flow faucets, low-flow showers, pressure reducing valves where line pressure is above 50 psi, and insulated hot water lines.

The Department of Water Resources of the State of California has further recommended that state and local agencies encourage the following water-saving devices to be installed in existing housing: weighted plastic bottles or other devices in toilet

reservoirs to reduce flush-flows, low-flow showerheads or flow restrictors in the shower line, low-flow aerators on faucets, and pressure reducing valves where line pressure is greater than 50 psi.

All public utility water companies in the State of California are hereby named as respondents.

THEREFORE, IT IS ORDERED that an investigation on the Commission's own motion is instituted into the operations, practices, service, equipment, facilities, rules, regulations and contracts of respondent utilities relating to water conservation for the purpose of determining whether respondent utilities should be required, with expenses subsequently recoverable, to provide and distribute to their customers the following water-saving devices: weighted, 1-quart plastic toilet tank displacement bottles; plastic shower inserts for flow restriction; and non-toxic vegetable dye tablets to locate toilet tank leaks.

DISCUSSION

Total residential water use in California during 1972 was about 3.4 million acre-feet; of this, 1.9 million acre-feet was for interior use. Approximately 74%, or 1.4 million acre-feet, was used in the bathroom; 22%, or 420,000 acre-feet was used for washing dishes and laundry; and only 4% was used for cooking. Accordingly, the greatest potential for interior residential water savings will result from lower water use in the bathroom and from reduced water use for dish and clothes washing. Substantial water conservation can be realized in new homes, or in replacement construction, by the installation of low-flow or water-saving devices. In existing homes, similar savings are possible through retrofitting, i.e., the modification of existing fixtures.

Toilets. Conventional toilets use from 5 to 7 gallons (20 to 30 litres) to remove material from the bowl, wash down the sides of the bowl, and provide a 3-inch deep water seal in the trap to prevent sewer gas from entering the bowl. Most conventional toilets use more water than is needed to perform the three essential functions.

To remove wastes effectively, a siphon action must be started in the bowl and trap. To achieve this, the water entering the bowl from the tank must have sufficient velocity and volume. However, most toilet tanks have excess volume, and the flush volume can be reduced or controlled by placing plastic bottles or "water dams" in the tank, or by other modifications. Bottles and water dams maintain the static head and the velocity of the water, while reducing the volume. In a number of field tests, conventional toilets were fitted with volume-reducing devices: the results show reductions in water use of up to 25%. However, because not all toilets can be retrofitted and most devices tested saved less than 25%, 10-18% is judged a reasonable range of expected savings.

After the Federal General Services Administration established a water conservation standard of 3.5 gallons (13 litres) per flush for tank toilets, manufacturers designed and marketed toilets to meet the standard. Many toilets available today successfully use 3.5 gallons or less per flush through modified bowl and trap designs and lower volume tanks.

There is some concern that modifying conventional toilets for a lower volume flush will not completely remove wastes and thus result in additional flushings, or that the reduced volume of water will not carry the wastes to the sewer sublaterals and thus cause stoppages. Computations show that, theoretically, a flush of about 2 gallons will satisfactorily carry waste from the toilet, through the collection lines, sublaterals, laterals, and sewers. The computations are based on the slope of collection specified in the Uniform Plumbing Code 1/4 inch per foot. If variances from the recommended slope are permitted, the probability of stoppages is increased.

Whereas retrofit devices may not operate satisfactorily in all conventional toilets, most will operate with a lower volume of water. In California, assuming statewide retrofitting and use of low-flush toilets in new and replacement construction, up to 531,000 acre-feet less urban water would be required in the year 2000 (than if current practices are continued).

Shower Heads and Faucets. The ordinary faucet and shower head deliver more water than is actually needed. The flow could be controlled by use of a low-flow fixture, an attachment to the existing fixture, or a flow restrictor in the water line.

A question still to be answered is, "what are minimum acceptance flows?" The answer depends in part on the appearance of the flow from the faucet or shower head. Some commercial buildings have satisfactorily used 0.5-gallon per-minute lavatory spray taps for years. A spray tap operates like an aerator to break up a small-diameter solid stream of water into a larger diameter spray flow.

Tests indicate that the use of low-flow and flow-restricted shower heads would result in a water savings of 9 to 12%. No similar data on low-flow and flow-restricted faucets is available. However, in California, with a complete theoretical changeover to 3.0-gallon per-minute shower heads and 1.5-gallon per-minute faucets, up to 413,000 acre-feet of water could be saved statewide in 2000.

FINDINGS

1. It is the policy of the State of California to prevent waste or unreasonable use, inefficient methods of use or methods of diversion of its water resources.
2. Significant water-saving opportunities exist in the area of interior residential water usage.
3. Conventional toilets utilize from 5 to 7 gallons in operation. The Federal General Services Administration has established a standard of 3.5 gallons per flush for tank toilets as necessary to perform its essential functions.
4. Ordinary faucet and shower heads deliver more water than is needed.
5. Non-toxic vegetable dye tablets can effectively be employed to conserve water by identifying leaks in toilet tanks.

CONCLUSIONS

1. Water conservation should be instituted in conformity with the discussion and findings above.

O R D E R

IT IS ORDERED that:

1. Respondent water utilities are hereby ordered to procure, provide and distribute to their customers, free of initial charge, water conservation kits (note Appendix A), consisting of plastic toilet tank displacement bottles, plastic shower flow restrictors, and non-toxic vegetable dye tablets to locate toilet tank leaks or in the alternative to notify the Commission within 30 days of the effective date of this order of the utility's equally cost-effective water conservation program, its inability to institute such measures, or its desire to be heard on the matter. Such notification will serve to exempt the utility from immediate compliance with this order, pending hearing on the matter.

2. Respondent water utilities are hereby ordered to notify their customers, through bill inserts (note Appendix C) or other suitable means, that water conservation kits will be distributed to the customers unless the customer indicates to the utility a desire not to receive the conservation kit.

3. Respondent water utilities are hereby ordered to distribute the water conservation kits in an efficient manner most suitable to the particular needs of each individual utility. It is suggested that the water conservation devices also be made available at the utilities' offices and that utility personnel, such as meter readers, in conjunction with civic groups and public service organizations be utilized for purposes of effectively distributing the devices to utility customers.

4. Respondent water utilities are hereby ordered to provide and distribute the above-mentioned water conservation kits to their customers within 60 days of the effective date of this order and thereafter to report to this Commission within 30 days the progress and status of their distribution efforts.

5. Respondent water utilities are hereby authorized to recover any reasonable expenses incurred in providing and distributing water conservation kits to their customers by means of an appropriate advice letter filing before this Commission pursuant to General Order 96-A.

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6. The Executive Director is directed to mail a copy of this order to all respondents.

The effective date of this order shall be 20 days after the date hereof.

Dated at San Francisco, California, this 4th day of JUNE 1, 1976.

President

Leonard Ross

Robert Batinovich

Commissioners

I will file a written dissent
William Symons Jr.

I will file a written dissent
Vernon L. Sturgeon

APPENDIX A

(Water Conservation Kit Installation Information)

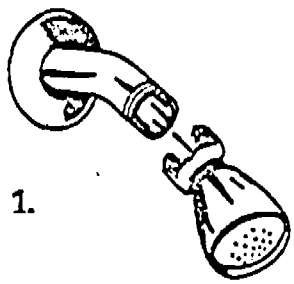
Displacement Bottles: Carefully remove the toilet tank cover. Plastic bottles should contain a few small rocks to keep them weighted in place. Fill the plastic bottles with water and set them upright in tank where they do not interfere with flushing mechanism. Check for a satisfactory flush. Also check water level achieved as tank is refilled. Make sure water is at level of line marked on tank wall(usually back wall). Adjust water level if necessary by bending float arm. Be sure water level is not so high as to continuously waste water down the overflow standpipe.

Shower Flow Control Insert: Remove shower head from shower arm. Insert the small plastic unit into the shower arm as far as possible, with the small portion toward the wall. Reinstall shower head and tighten joint.

Toilet Leak Test: Drop the blue non-toxic tablet into the toilet tank(not bowl). (DO NOT FLUSH). Stir the water slightly to spread the color throughout the tank. Observe the toilet bowl for a few minutes. If any of the color comes through into the toilet bowl, there is a wasteful leak. If you can't spot the trouble and fix it yourself, it is best to get maintenance help.

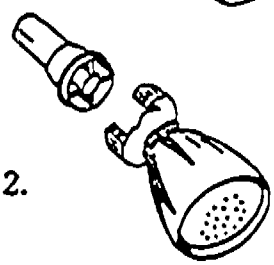
ADDITIONAL INSTALLATION TIPS

● SHOWER INSERTS CONVENTIONAL TYPE INSTALLATION



1.

1. Using an adjustable end wrench (with smooth jaws - not a pipe wrench) carefully remove the entire shower head from the shower arm.

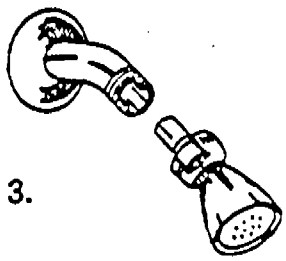


2.

2. Insert SHOWER FLOW CONTROL into the shower arm (in direction shown in the drawing) until the control's flange fits snugly against the shower arm. If unit is not straight and snug, some vibration or "whistling" noise may occur. We recommend a 1/2-inch Rubber "O" Ring Washer, if necessary, to obtain a snug fit. These may be obtained at _____.
office address

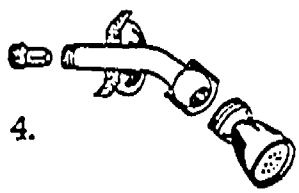
3. Re-install the shower and tighten it snugly with the wrench. The shower with control is now ready to operate.

BALL-JOINT & VANDAL-PROOF TYPE INSTALLATIONS



3.

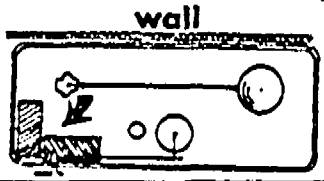
4. Some shower heads have a vandal-proof design and cannot be removed from the shower arm, and some are made with a ball-joint on the arm rather than on the shower head. With these types of installations, the SHOWER FLOW CONTROL must be inserted in the shower's pipe-arm behind the wall (as illustrated). The installation has to be handled carefully because it usually involves unscrewing the shower arm from its in-wall connection. We therefore suggest you seek the help of a qualified handyman or plumber for this type of installation.



4.

● TOILET TANK BOTTLES

Normally fit best when placed in the corner of the tank opposite the float (as illustrated).



For further information please contact:
Utility Name
Office Address

APPENDIX B

(Suppliers of Retrofit Devices)

Plastic Shower Inserts (55¢ to 65¢ each)

Noland Company
National Accounts Department
2700 Warick Blvd.
Newport News, Virginia 23607
Phone: (804) 244-8441

Non-toxic Vegetable Dye Tablet to Check for Toilet Tank Leak (7¢ each)

Formulabs
Fisher Products Division
529 West 4th Avenue
P.O. Box 1056
Escondido, CA 92025
Phone: (714) 741-2345

1-Quart Plastic Toilet Tank Displacement Bottles (15¢ to 20¢ each)

Gen-Can
6221 Hollis
Emeryville, CA 94608
Phone: (415) 655-0070

Owens-Illinois Inc.
1700 S. El Camino
San Mateo, CA 94402
Phone: (415) 349-3131

Acon Plastics
7646 Densmore
Van Nuys, CA 91406
Phone: (213) 989-2611

Monsanto Corporation
611 E. Cerritos
Anaheim, CA 92805
Phone: (213) 628-8191

Riekes Container
6270 Caballero Blvd.
Buena Park, CA 90620
Phone: (213) 921-9602

American Bottle Co.
212 Littlefield Ave.
South San Francisco, CA 94080
Phone: (415) 871-1833

Flexible Plastics Corporation
1250 North McDowell
Petaluma, CA 94952
Phone: (415) 892-1654

APPENDIX C

(Suggested form for bill insert)

WATER SAVING OFFER

Saving water saves energy and saves money too!

Water-saving devices, contained in a plastic bag with appropriate instructions, will be distributed to you. Toilet water saving bottles, shower flow control insert and toilet leak test kits will be hung on your door or you may pick the devices up at the _____ office.

☐ Please check box if you do not want the water conservation kit distributed to you.

Please check box if appropriate, fill in address and return this card with your water bill or bring it to the _____ office.

My street address is: _____

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COMMISSIONER WILLIAM SYMONS, JR., Dissenting

COMMISSIONER VERNON L. STURGEON, Dissenting

If we were business directors spending our own money, we might act in a hasty manner without benefit of pro and con argument. But we are public officials exercising authority over the dollars belonging to private water companies and their customers. The decision affects an estimated 1 to 1.5 million California households. The Commission should not lurch precipitously on this course without benefit of at least hearing about the feasibility of and alternatives to the dye-pill, plastic shower restrictors, and toilet bottles which we are practically foisting on the subject companies serving the citizenry. Hasty action of this type can often result in embarrassed retreat. We are reminded of the State's designation of a particular mandated car air pollution device in the mid 1960's which was withdrawn when it was learned that one large company enjoyed a monopoly on the device.

We would further note that the majority ignores what little input has been received in recorded public hearings on these devices, though in an unrelated case. This particular plastic bag kit was extolled in hearing on May 25, 1976, in Case No. 9530 (our case affecting water service in the Monterey Peninsula). Yet both spokesmen for the affected utility and the community rejected the proposal as undesirable.

This should give us pause for thought. Today's majority is going about this backwards. The Commission should follow time-tested and proper regulatory practice. At the minimum it should propose the devices and should allow a modest hearing time for response from the affected public.

It should not mandate these specific devices and hear objections afterwards.

We do not sanction water companies raising rates without a notice and an opportunity to the public for objection as to their reasonableness. So why should the Commission act so curtly in mandating these expenditures upon 400 water companies where the same result occurs -- increased rates for water customers?

San Francisco, California
June 8, 1976

William Symons Jr.
WILLIAM SYMONS, JR.
Commissioner

Vernon L. Sturgeon
VERNON L. STURGEON
Commissioner