



# Protecting the Quality of the Rockflower Reservoir



## The Interests of Many Versus the Interest of a Few

### Introduction and Background

The Rockflower Reservoir is a fictitious water supply reservoir located in southern California. It is concrete lined, moderately large (covering 55 surface acres), and it holds about one billion gallons of water. Most important, it is a significant link in the water supply chain for about 500,000 people living in southern California. Specifically, the reservoir supplies some of the drinking water to southern California, and it provides all the water for Newport Beach.

When first built, the reservoir complied with every water quality regulation. But over the years, some of the regulations have become stricter, and the reservoir must continually be upgraded. In addition, several local water districts rely on the Metropolitan Water District to operate the reservoir. Their ability to provide safe and affordable water to the customers depends upon the Metropolitan Water District's ability to operate the reservoir in a cost-effective manner while continuing to meet all the environmental and health regulation.

The problem with the reservoir has to do with water chemistry and other things, such as bird droppings. To be drinkable and safe, water must be disinfected, a process that kills unwanted bacteria. The water in the Reservoir is disinfected with chlorine, one of the most effective and well understood disinfectants. When natural organic materials, such as leaves, sticks, or soil, interact with chlorine in water, however, chemical by-products result. Some of these by-products are trihalomethanes, or THMs, a suspected carcinogen. In response to this problem, the U.S. Environmental Protection Agency (EPA) limits the level of THMs allowed in drinking water.

### Possible Solutions

There are three ways to limit the amount of THMs in the water of the reservoir; each solution has problems:

#### 1. Build a Treatment Plant

A treatment plant would require building a new facility. While the facility would not be visible to

the homes overlooking the reservoir, it would be visible to some homeowners nearby. In addition, siting a facility such as a treatment plant can present other problems, such as chemical storage and wildlife protection. Furthermore, the water entering the reservoir has already been treated; building an additional treatment plant would result in the water being treated twice, and double treatment could present an additional financial burden on water customers, raising their monthly bills as much as \$8.75. Lastly, the treatment plant is by far the most expensive of the three options.

**Cost:** \$100 million for construction, \$12 million annually for maintenance.

#### 2. Cover the Reservoir with a Floating Plastic Cover

Covering the reservoir with a floating plastic cover would prevent the formation of THMs, but it would also eliminate the water view from nearby homes, an important benefit to some homeowners. Covering the reservoir is the least expensive option. This would also have an impact on the wildlife that use the reservoir.

**Cost:** \$17 million to install, \$2.5 million for annual maintenance

#### 3. Close the Reservoir

Closing the reservoir would solve the THM problem, but it would strain the existing water delivery system in a number of ways. Reservoirs store water when it is available so there is an adequate water supply during dry periods. The reservoir stores water so the families within its service area can be confident there will be water every time they turn on the faucet. The water supply system to that region does not have excess water, so taking the reservoir out of service could reduce the reliability of the water supplies for about one-half million people. Excess water storage is also particularly important in the event of an



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emergency, such as an earthquake. Taking the reservoir out of service is simply not practical.

**Cost:** Unknown. If the reservoir were closed, it would still require maintenance. It is unclear who would pay for this maintenance if the reservoir were no longer part of the water delivery system.

The problem is complicated by the fact that a subdivision of high-priced homes has been built along one side of the reservoir, and those homes have a water view. The land around the other three sides of is totally undeveloped. The homes with the water view command a premium price, as much as 20% more than a comparable home without a view. The residents want the reservoir to remain as it is. In addition, when the homeowners bought their homes, they specifically bought homes with “water views”; removing the water view (by covering the reservoir) could pose legal problems.

For the purpose of this activity, you will try to decide what to do with the reservoir. Assume that the local water agencies responsible for distributing the water from the reservoir have established a “Blue Ribbon Commission.” This Commission has been charged with the task of finding a solution to the problem of what to do with the reservoir and THMs. Thus, as in real life, local interests will explore and discuss the options in a public forum and make a decision.

## Review Questions

1. Why is the reservoir important to the supply system?
2. Why are the trihalomethanes (THMs) become an issue related to the reservoir?
3. What are the three options to limit the THMs in the reservoir, and what are the benefits and drawbacks of each?
4. Why are the homeowners near the reservoir concerned about this issue?

## The Activity

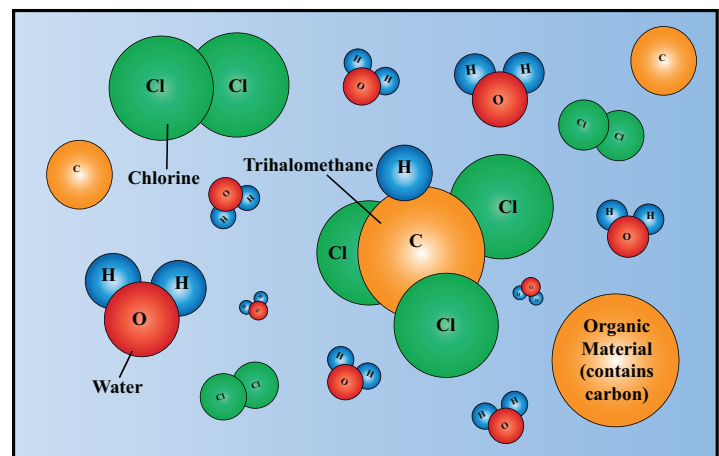
The “Blue Ribbon Commission” must decide whether or not to cover the Reservoir. They will make the decision by majority vote, and they will base their vote on information they receive from three different groups: homeowners near the reservoir, other water users in the immediate area, and the water utility company.

Your teacher will assign you to either the Commission or one of the three interest groups.

The homeowners group will argue that the utility should select an option that does not affect their views and possibly cause the property values to drop, regardless of the cost to the whole system. The other water customers group will try to convince the Commission to select the most cost-effective option, that is, the one that will keep their water clean, safe, and affordable.

The water utility group will want a clear decision on the part of the Commission so they can proceed with correcting the situation. Ideally, they will want the most cost-effective option that will require the least amount of time to license and build.

**Instructions for the Commissioners:** Become familiar with the background of the situation and the position of each of the interest groups by carefully reviewing the Introduction and Background section of this activity and the information contained in each group’s information packet. Once you are familiar with the situation, prepare 6 to 10 questions to pose to the groups during the meeting of the Commission.



When water containing carbon in the form of organic materials is chlorinated, all the elements necessary for the formation of THMs are present.



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**Instructions for the interest groups:** The information that follows contains the issues pertinent to the three groups as well as several letters about the project, both for it and against it. (These letters, incidentally, were excerpted and paraphrased from public record about this project; they are part of the Environmental Impact Report.) You will have about 10 minutes to examine and study the information and prepare a presentation for a mock meeting of the Commission. (in some cases, group members may have differing opinions; it is okay for you to disagree with members of your own group.)

Each group will present its position to the Commission, and once the Commissioners have listened to all the arguments, they will vote on what to do. Each of you will then write an essay on the long-term impact of that decision on you.

## Interest Group Positions

### Homeowners

1. Installing a cover will eliminate views.
2. Houses in this area may not sell until this problem is resolved, so you are being hurt and the utility should make decision as quickly as possible.
3. Wind blowing across the cover could create noise problems for the community.
4. The Environmental Protection Agency constantly changes the regulations for the trihalomethanes, so a cover for the reservoir for trihalomethanes, so a cover for the reservoir may not have a useful life for more than 10 or 15 years.
5. The seams of the plastic sections will probably fail eventually. In addition, the cover will require a great deal of maintenance.
6. The cover will completely cover the reservoir and it will become full of debris, soot, dead animals, etc. It will be an eyesore and it will be dangerous.
7. A water treatment plant may cost more in the short term, but it makes a lot more sense for the long term, and each water user's investment will only amount to a few dollars. In addition, a water treatment plant will definitely create the least environmental impact.
8. When you bought the property, the realtor advertised it as having a water view. If "they" allow the water view to be removed, you'll sue.

### Other Water Customers

1. Closing the reservoir is just too risky. It will reduce your water storage capacity, which you need during dry periods and in case of emergencies.  
(Note: 2 and 3 disagree with each other; there is often disagreement within any group, and water users are certainly not a unified body.)
2. You already pay too much money for water. You don't want to have to pay more for a treatment plant, because all you will be doing is paying more money to protect the property values of people who live in expensive homes.
3. It's just not fair for a large water utility to run roughshod over homeowners, destroying their investments and their quality of life. It's worth a few extra dollars each year to build a treatment plant; it's the right thing to do.

### The Water Utility

1. The reservoir must be properly chlorinated to stay within legal regulations, to prevent disease, and to keep the reservoir healthy and clean. As long as this reservoir remains operational and uncovered, we will have problems with THMs.
2. Covering the reservoir is by far the most cost-effective option.
3. Your job is to provide water that meets all water quality standards at a price that everyone can afford.

Suggestion: If there is a stalemate and you cannot make any progress, or if the landowners specifically request compensation for the loss of a water view, you may negotiate for some compensation.





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## Comments from people **OPPOSED TO** covering the reservoir

### **A Homeowner**

We purchased our home 10 years ago at a high price with confidence that we could enjoy the water view. Now we are faced with the threat of an unsightly cover that will substantially destroy our view and significantly reduce the resale value of our property...The anticipated regulatory demands for improvement in water quality in future years justify building a new water treatment facility...

### **A Coalition of Homeowners**

Most of our homes were originally sold as “waterfront.” We, the undersigned, pledge to keep our community as it was marketed to us by the builders and lenders. As an alternative, we support the construction of a water treatment plant on an appropriate site.

### **A Local Homeowner**

If we are going to use cost as the final basis for all these hearings, then there is no point in this meeting, and there is no point in having a democracy.



## Comments from people **IN FAVOR OF** covering the reservoir

### **The City of Orange**

A new treatment plant makes no sense when there are less expensive and less troublesome solutions at hand. We support the covered reservoir alternative as the most cost-effective solution which addresses and resolves the important water quality and supply issues. While we are sensitive to the aesthetic needs of those whose homes overlook the reservoir, we believe that the health and well-being of the many outweigh the aesthetic benefit provided to a few.

### **A Water-user from a Nearby Community**

I cannot see that it is reasonable to ask 100,000 people to pay for someone else’s reservoir view...We in southern California have our views, too, but we don’t think that others should pay for them. I ask that you consider the most cost-effective solution to the Rockflower Reservoir, not the most costly.