

Division of Drinking Water Public Hearing

North City Pure Water Project Title 22 Engineering Report
August 14 and 15, 2018



Good (afternoon) (evening). It is (time), and we can begin the Public Hearing for the City of San Diego North City Pure Water Project. My name is Sean McCarthy, and I am the South Coast Section Chief for the State Water Resources Control Board, Division of Drinking Water. I will be the Hearing Officer for today's proceedings. I would like to welcome everyone and thank you for your attendance and interest in this project, which if permitted, will purify San Diego's recycled water to augment drinking water supplies in Miramar Reservoir.

Topics and Speakers

- *Sean McCarthy, PE, South Coast Section Chief, Division of Drinking Water*
 - Opening and Closing Remarks
- *Erica Wolski, PE, Associate Sanitary Engineer, Division of Drinking Water*
 - Regulatory Overview and Recommended Permit Conditions
- *Amy Dorman, PE, Program Manager, City of San Diego*
 - North City Pure Water Project Overview and Facilities, and Source Management
- *Shane Trussell, Ph.D., PE, BCEE, Regulatory and Advanced Treatment Specialist, Trussell Technologies*
 - Pathogenic Microorganism Control, Purified Water Quality, and Reliability
- *Jeff Pasek, Project Officer, City of San Diego*
 - Miramar Reservoir, and Drinking Water Treatment and Distribution

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This is our agenda for this meeting. We will begin the Hearing with a few presentations about the project, that should last about an hour. Our presenters tonight include Erica Wolski with the Division of Drinking Water (DDW), Amy Dorman, and Jeff Pasek with the City of San Diego, and Shane Trussell, Pure Water Program consultant. Following the presentations, we will open the Hearing to receive public comment.

Hearing Ground Rules

- **Silence phones**
- **Hold comments until after presentation**
- **During public comment, please:**
 - *Fill out comment card*
 - *State your name for the record*
 - *Limit oral comments to 3 minutes per speaker*
- **Written comments are due by August 24, 2018 at 5 pm**

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Before we begin the presentations. I ask that you please silence your cell phones and hold all comments until after the presentations. At the (back) of the room, we have copies of the Hearing notice, tonight's agenda, and also one copy of the full Engineering Report for you to look at. The full Engineering Report is also able to be viewed at the City's offices and at the website shown on the Hearing notice.

For the public comment portion of the Hearing, we have comment cards available for you to fill out. If you wish to speak publicly at the end of the Hearing, please turn in your comment card or you may submit written comments on the comment card, if you prefer. Please state your name for the record and limit your comment to 3 minutes per speaker. A court reporter will record the comments given publicly, but we encourage you to follow up your oral comment with a written comment to ensure it is properly recorded. Groups of individuals may choose to have a single representative speak on their behalf, and their individual time allotted may be combined. All comments are due by August 24, 2018 at 5 pm.

Lastly, should there be an emergency, please evacuate....(describe evacuation instructions per facility) ...

Purpose for Public Hearing

- **Required by Surface Water Augmentation regulation**
- **Provide information to the public on the public health-related portions of the project**
- **To receive public testimony on the Title 22 Engineering Report for the proposed project**
- **Public comments will be included in DDW recommendations to Regional Board, and for DDW drinking water permit**

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I will begin the presentation portion with some opening remarks. We are here to provide you with information about this new source of water that will become part of the City's drinking water system in 2021.

This Hearing is required by the Surface Water Augmentation regulations. State law requires the City to complete a Title 22 Engineering Report that evaluates the proposed treatment technology and finds that the treatment will ensure the water will meet all drinking water standards and poses no significant threat to public health.

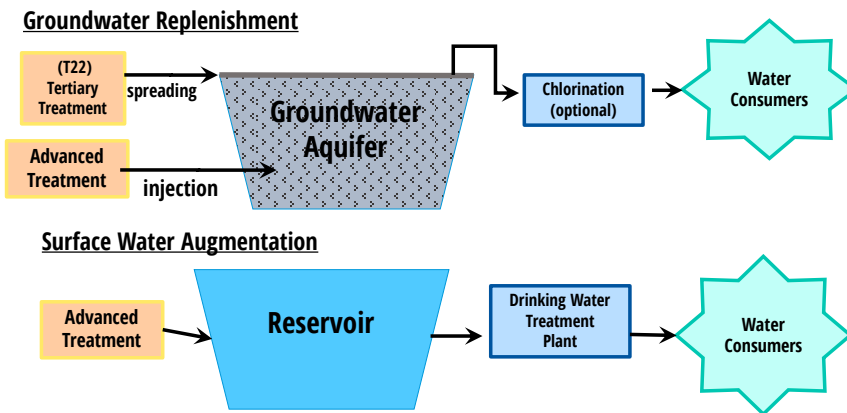
The Division of Drinking Water cannot issue a permit for the use of a reservoir augmented with recycled water unless three Public Hearings are held in the area where the water is to be served for human consumption. The purpose of these Hearings is to inform the public in the area where this drinking water will be served and to receive public testimony on the Title 22 Engineering Report and the public health impacts for the City's drinking water. At the end of the public comment period next week, the City will review all comments received, including the testimony given tonight, and provide responses to those within the scope of our review for the public health impacts of this proposed drinking water supply and treatment. The City will provide written responses to the comments received. DDW will also incorporate the comments when appropriate in its recommendations given to the Regional Board for the NPDES permit to discharge to the reservoir, and later when the Division of Drinking Water considers conditions for the Water Supply Permit in 2021.

Surface Water Augmentation Regulations
Erica Wolski, PE, Associate Sanitary Engineer
Division of Drinking Water

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Now I would like to introduce Erica Wolski, who will be providing an overview of the regulations and the permitting process for the project.

SD Indirect Potable Reuse



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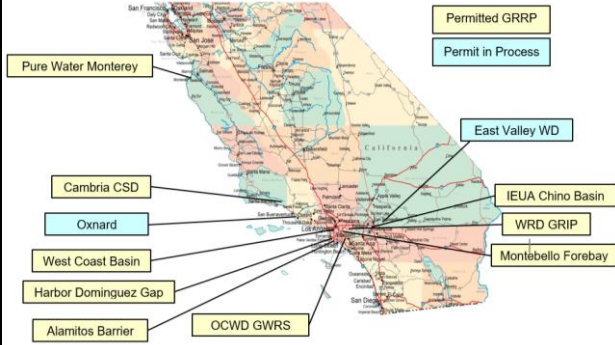
Indirect potable reuse is the planned placement of recycled municipal wastewater in an environmental buffer, such as a groundwater basin or surface water reservoir. The use of an environmental buffer enhances system reliability by providing storage, dilution and response and retention time for the treated wastewater. The environmental buffer also offers some treatment benefits. For example, in a reservoir, photolysis or sunlight can reduce or convert some chemical compounds to less harmful compounds. You may have also heard about direct potable reuse, which does not include an environmental buffer. California has not yet developed regulations for direct potable reuse.

Groundwater recharge projects have a long history of operation in California, particularly in Los Angeles and Orange Counties and the state of California adopted uniform criteria for these projects in 2014. Prior to 2014, projects were evaluated on a case by case basis.

The State Water Board has adopted a regulation to provide uniform criteria for surface water augmentation that will become effective in October 2018.

Groundwater Recharge Projects Across California

July 23, 2018



Surface Water Augmentation Projects

August 1, 2018



There are currently nine permitted groundwater recharge projects in the state of California, two projects that are close to finishing the permitting process and approximately 20 other proposed projects. No surface water augmentation projects have yet been permitted; however, there are two other projects besides the City of San Diego that have started the permitting process.

Permitting Process

- **May 2018 – Draft Title 22 Report approved by DDW**
- **August 2018 – Public Hearings and Public Comment Period**
- **September 2018 (tentative) – Final Title 22 report submitted**
- **TBD 2018 – DDW issues conditional approval letter if report is accepted**
- **TBD 2019 – Regional Board issues NPDES permit for project**
 - *Additional opportunity for public comment*
- **2019-2021 – City constructs facilities, commissions plant and submits operations plan and other required items**
- **2021 – DDW inspects facilities and issues amended Drinking Water Supply Permit to City for use of reservoir**

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In May 2018, the City submitted the final draft of the Title 22 Engineering Report for the project. In June 2018, DDW authorized the City to proceed with the Public Hearings, and the City issued the public notice. Currently, we are holding the Public Hearings.

In September, the City intends to summarize the comments received and revise the final draft of the report (if necessary) and submit these items to DDW. If DDW concurs with the changes made to the report and the City's response to comments, DDW will issue a conditional approval letter which will include recommended public health-related permit conditions for the sewer collection system, the wastewater treatment plant, the advanced water treatment plant and reservoir.

In 2019, the Regional Board will consider adoption of the NPDES permit for the project to discharge to the reservoir. Their permit will contain requirements to ensure protection of beneficial uses and water quality of the reservoir, in addition to DDW's recommended drinking water related requirements. The NPDES permit includes a public comment period and a Regional Board Hearing.

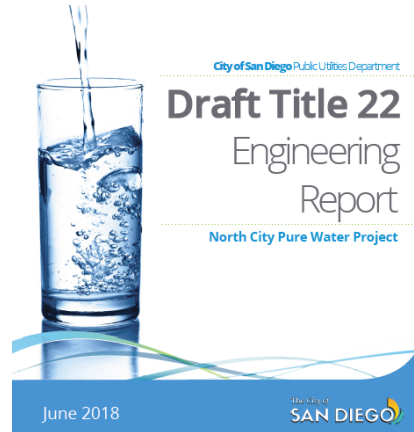
The City will construct the project facilities, commission the new advanced water treatment plant and other facilities, submit additional required items to DDW and the Regional Board, such as an operations plan for the advanced water treatment plant. In 2021, when the plant is scheduled to

start up, DDW will complete a final inspection of the wastewater treatment plant, the advanced water treatment plant, the reservoir and the drinking water treatment plant. While the Regional Board permit allows the project to discharge to the reservoir, the City cannot withdraw water from the augmented reservoir until DDW issues an amended Drinking Water Supply Permit in 2021.

SD Title 22 Engineering Report

■ Purpose:

- *Demonstrates how the project plans to comply with the Surface Water Augmentation regulations*
- *Forms basis for public health-related conditions that DDW will recommend that the Regional Board include in the NPDES permit*



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The City submitted the final draft of the Title 22 Engineering Report in May 2018. The purpose of this report is to demonstrate how the project plans to comply with the draft Surface Water Augmentation regulation. The report forms the basis for public health related conditions that DDW will recommend to the Regional Water Quality Control Board for its NPDES permit.

- **Water Code Section 13562 required the State Water Board to adopt uniform water recycling criteria for surface water augmentation**
- **A 12-person Expert Panel was required to review the criteria and determine if the criteria were protective of public health**
- **As required by the Health and Safety Code, the regulation was also peer reviewed by four additional independent experts**



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Water Code Section 13562 required the State Water Board to adopt uniform water recycling criteria for surface water augmentation. The section required an Expert Panel consisting of at least a toxicologist, a wastewater treatment engineer, drinking water treatment engineer, an epidemiologist, a limnologist or reservoir specialist, a microbiologist and a chemist. The purpose of the Expert Panel was to review the proposed criteria and adopt a finding as to whether, in its expert opinion, the proposed criteria would adequately protect public health. In 2017, the Panel did make the determination that the regulation is protective of public health.

Board regulations are also subject to external peer review to determine if the regulation is based on sound scientific knowledge, methods and practices. The Board requested the following expert types to review the regulation in 2016:

- An Engineer with experience with drinking water standards and chemical control treatment
- A public health scientist specializing in microbiological risk assessment
- An Engineer with experience in drinking water treatment facilities
- And a Limnologist with experience in reservoir hydrodynamic modeling

The peer reviewers found that the regulation was based on sound science.

Goal of SWA Regulations

- **Source of water supply that is “pure, wholesome, potable, and does not endanger health of consumers” (H&SC §116540)**
- **As safe as the high quality conventional drinking water sources**
- **Unregulated chemicals of concern kept below levels found in the high quality conventional sources**
- **Low tolerable risk (Surface Water Treatment Rule)**
 - *1/10,000 annual risk from pathogenic microorganisms*
 - *Appropriate monitoring*
 - *Multiple barriers for contaminants*

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The goal of the regulations is to ensure that this project supplies water that is pure, wholesome and potable and does not endanger the health of consumers. It is intended to ensure that the water produced is as safe as, and has unregulated chemicals of concern less than the high quality drinking water source that the City is already providing to its customers. The City is already complying with the Surface Water Treatment Rule at the Miramar Water Treatment Plant and the regulation uses the same risk management guidelines: a one in 10,000 annual risk of infection from pathogens, monitoring for indicators and surrogates to ensure the treatment processes are continuously meeting the requirements and providing multiple barriers for pathogens and chemicals in the event that one barrier fails to operate properly.

Content of Regulations

- **Pathogen Control**
 - *Log Removal Targets*
 - *Multiple Barrier Requirements*
- **Chemical Control**
 - *Source Control*
 - *Advanced Treatment Criteria (RO and Advanced Oxidation)*
 - *Drinking Water Standards – Regulated and Unregulated Chemicals*
- **Reservoir Requirements**
 - *Monitoring, Dilution, Retention Time*
- **Technical, Managerial, Financial Capacity (TMF)**
 - *Operations Plan, Staffing, Emergency Response, Budget, Reporting, etc.*

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The City is going to provide a detailed look at how the City is proposing to meet the regulations; however, in general the regulations require:

That pathogens be controlled to the one in 10,000 risk of infection by setting log removal targets for reference pathogens and that multiple treatment barriers are used to reduce pathogens in case of the failure of one barrier.

Chemicals are controlled by source control, which includes regulating what industries can discharge to the sewer collection system, and programs for residential connections including prescription take back programs and household hazardous waste programs. Every chemical that you can prevent going into the sewer collection system is a contaminant that you don't have to treat.

For chemicals that do enter the sewer collection system, the minimum standards are to provide reverse osmosis, which provides very good removal for the majority of contaminants and to also provide an advanced oxidation process for those remaining contaminants that are not as well removed by reverse osmosis. The City is also providing additional advanced treatment processes in addition to the minimum requirements in the regulation which will be discussed later.

The City is required to complete extensive monitoring for both regulated and unregulated chemicals. Monitoring is required at locations through the process, from the sewershed, to the wastewater plant influent and effluent, to the advanced water treatment plant effluent, from within the reservoir and at the influent and effluent of the Miramar Water Treatment Plant.

The regulations also specify requirements for the reservoir itself including a minimum dilution of water entering the reservoir and a minimum retention time to ensure that the reservoir can be considered an effective environmental buffer.

The City also has to demonstrate that it has what we refer to as Technical, Managerial and Financial or TMF Capacity. Requirements include properly staffing the plant, properly training the plant operators, developing a comprehensive operations plan that covers all operating scenarios, the project's emergency response and notification protocols, and maintaining sufficient funds to properly maintain the plant for the life of the project.

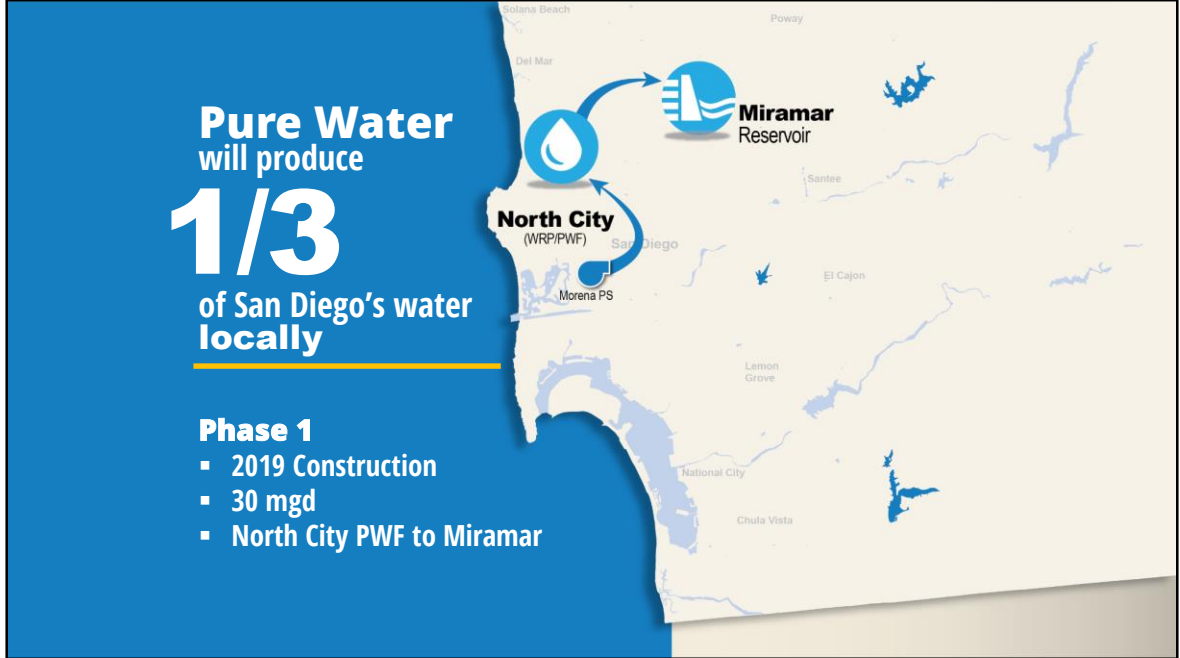
The City will now present details of the proposed project and how the City intends to comply with the regulations.

North City Pure Water Project Overview, and Facilities

Amy Dorman, PE, Program Manager
City of San Diego

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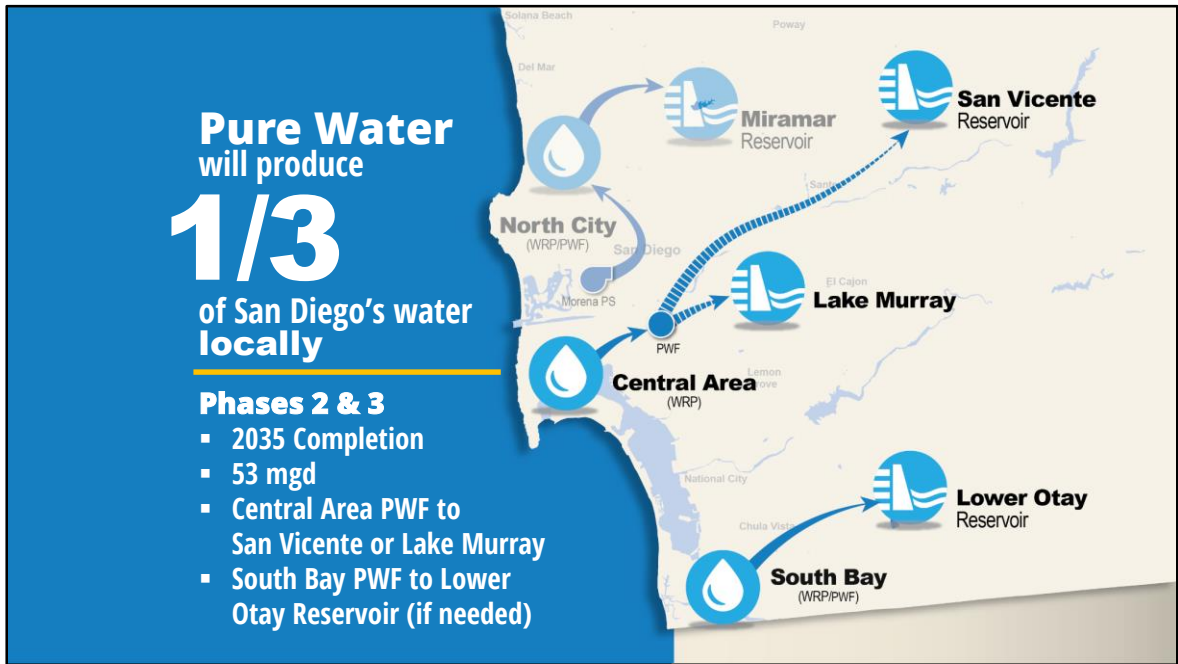
Now I would like to introduce Amy Dorman, who will be providing an overview of the North City Pure Water project and facilities.



The North City Pure Water Project is the first phase in an ultimate plan to produce 1/3 of our water locally. At full buildout, Pure Water will produce 83 million gallons per day.

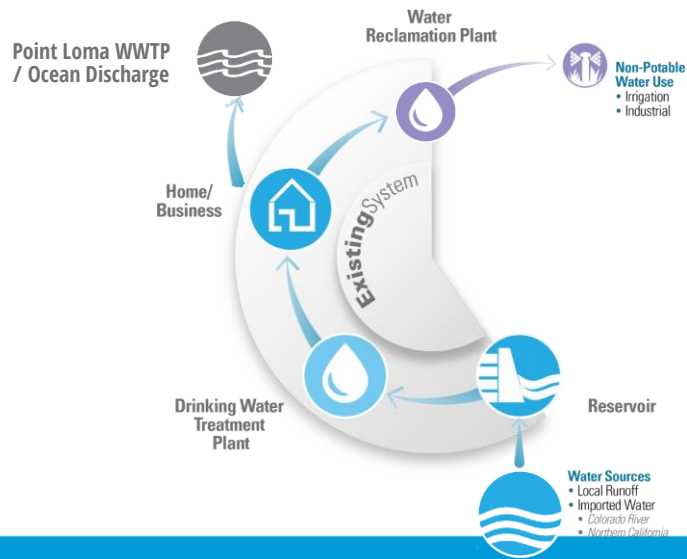
In Phase 1, we will convey wastewater from the west end of Mission Valley, to North City, where it will be purified to a very high level. After it is purified, it will be conveyed to the City's Miramar Reservoir, and treated again at our Miramar Drinking Water Treatment Plant, before it is distributed to our customers.

These Phase 1 facilities will deliver the first 30 mgd.



The rest of the 83 mgd will be delivered by similar facilities located in the central and southern parts of the City. These will be built in future phases of the program and will be completed by 2035.

Existing System...
Primarily a Single-Use System

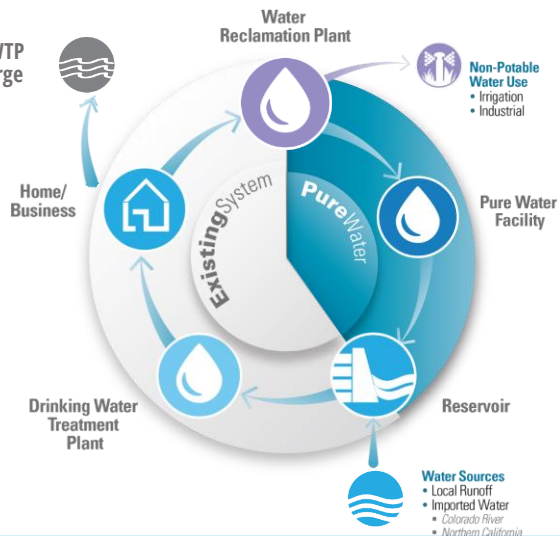


For the most part, our existing system is a single-use system. Water stored in our supply reservoirs is treated, used by our customers in their homes and businesses, and then most of the wastewater is treated at our Point Loma Plant before it's discharged 4 miles off the coast.

Since the late 90s, we've been able to recycle a small portion of the wastewater and provide it to customers for non-drinking uses like landscape and golf course irrigation and for some industrial purposes. This system is also referred to as our "purple pipe" system.

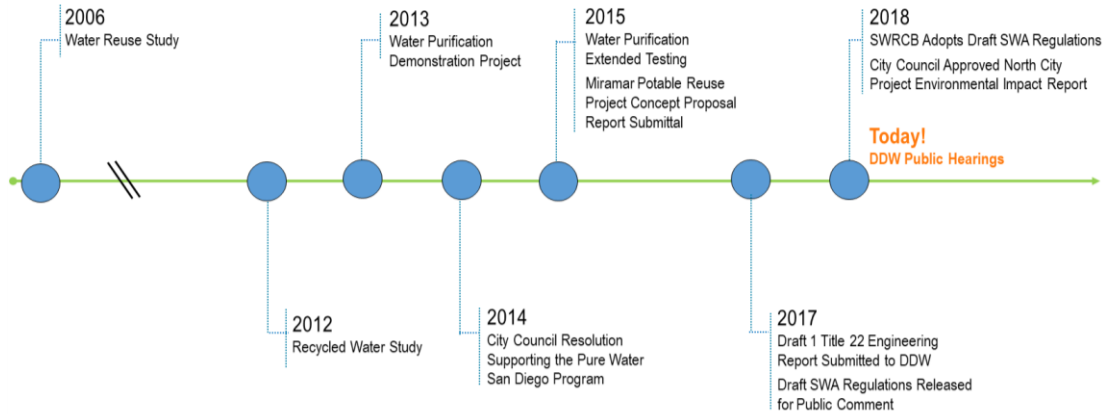
Some of our largest recycled water customers include Qualcomm, HOAs, and golf courses including Torrey Pines.

Pure Water... Completes Our Water Cycle



With Pure Water, we'll be able to complete this cycle - recycled water will be purified so it can be safely used in our water supply system, purified water will first be stored in our reservoir, along with imported water, and another round of treatment before it's distributed to our customers to begin the cycle again.

SD Pure Water Program Timeline



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The City evaluated, developed, vetted, and planned the Pure Water concept through multiple studies dating back to 2006. These include the 2006 Water Reuse Study, the 2013 Demonstration Project, and Extended Testing of the purification process we're building in the North City Phase 1 Project. Along the way, the City Council adopted a resolution in support of the Program – this was in 2014, and this year, the State Water Resources Control Board finalized the regulatory requirements for this type of project.

SD Pure Water Runs a Successful Demonstration Facility



- **30,000** lab tests: **Met all standards**
- Water quality: **Exceptional**
- Energy use: **Renewable**

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The City built a demonstration facility to test the purification technology and prove that it can produce Pure Water. We've been operating the facility for over 8 years (since June 2011). We've sampled the water before and after each treatment step – which amounts to more than 30,000 samples, and lab results show that the water is exceptional and meets all drinking water standards.

Independent Advisory Panel



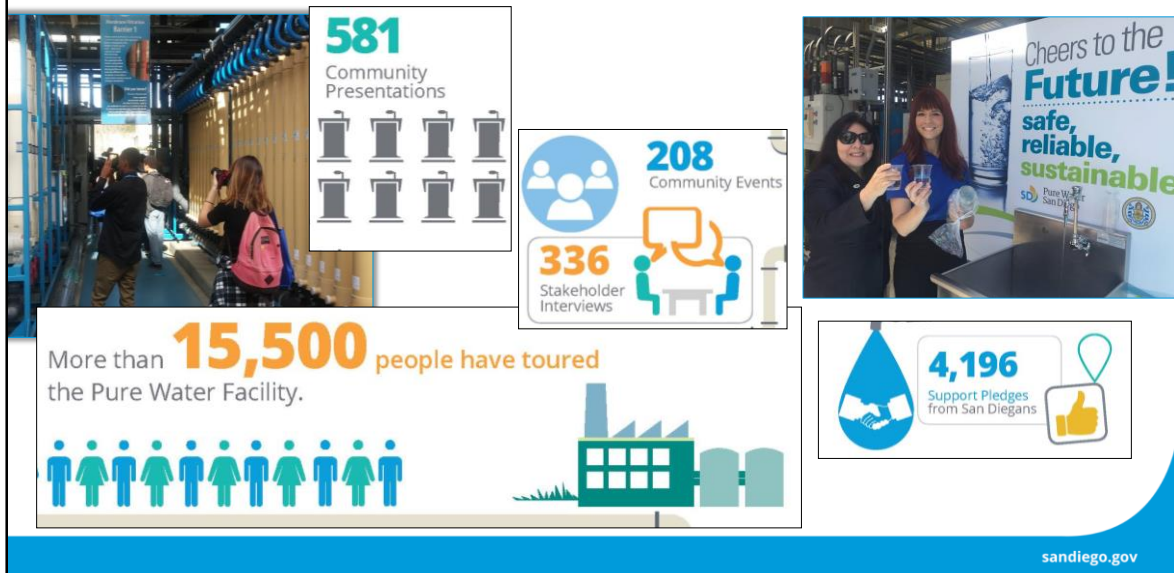
- **22 IAP Meetings Held** from 2004 to 2017
- **10 member Panel** comprised of specialists in limnology, toxicology, membrane processes, chemistry, regulatory compliance, public and environmental health, and water quality.
- **Topics included** water reuse study, demonstration project, Miramar Reservoir, modeling and pathogen study.

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In addition to the experts that reviewed the regulation, the City also convened a Panel of 10 experts in various subjects to vet all of our technical studies of the Pure Water Concept. Our studies focused on the treatment technology and water quality produced, as well as what happens when the water enters the reservoir and how it mixes with other supplies stored in the reservoir. These will be discussed in further detail later in this presentation. Fields of expertise among the experts are listed on the slide, and the Independent Advisory Panel unanimously supports Pure Water San Diego.

SD Outreach Efforts



In 2010, we launched our public outreach and education program to inform the public about San Diego's water supplies and Pure Water. We've given numerous presentations to a broad range of audiences, including:

- community planning groups
- business organizations
- elementary through college students
- and professional societies

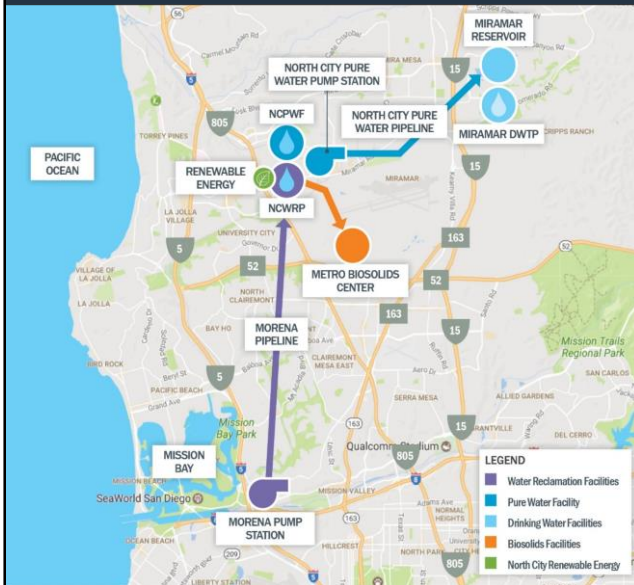
Aside from the 100s of presentations at community events we've given and participated in, we also give tours of our test facility where attendees can see the equipment in operation and taste the water. Over 15,000 people have toured the facility in the last 7 years.

North City Pure Water Facilities

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The following slides describe the individual facilities in the North City Pure Water Project.

SD North City Pure Water Project Schematic



- Wastewater is conveyed, purified and pumped to Miramar Reservoir
- 30 mgd of purified water produced at North City as a drinking water source
- Water from Miramar Reservoir blended with imported water and treated at the Miramar Water Treatment Plant

These next few slides provide information about the facilities being built as part of the North City Pure Water Project:

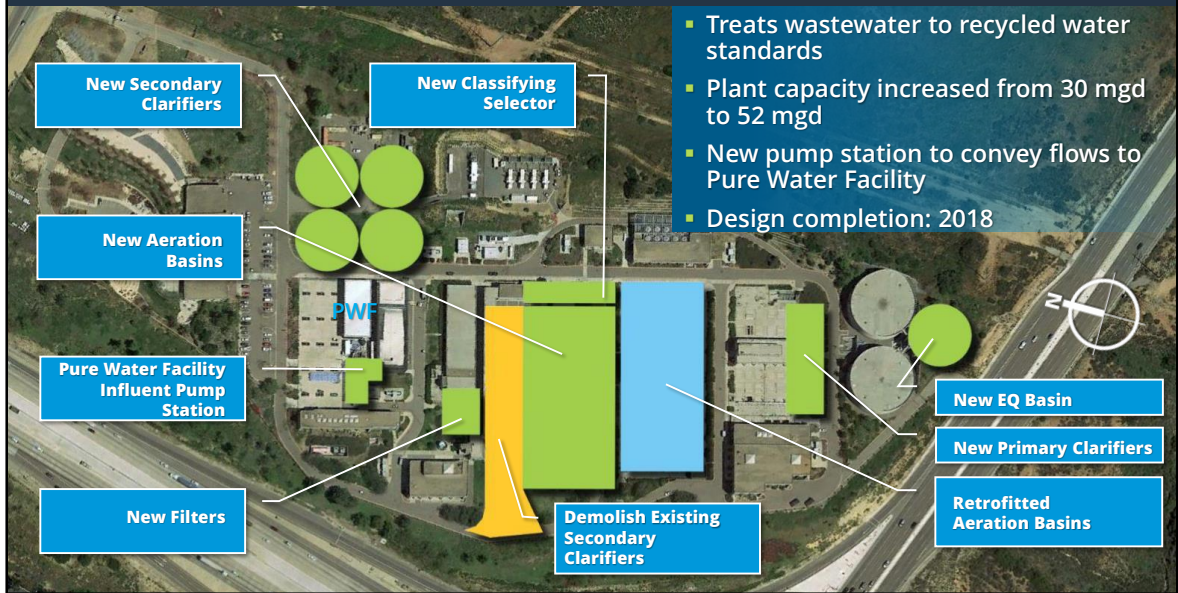
- Starting with the Morena Pump Station, it will be located at the west end of Mission Valley. It will pump wastewater to our North City Water Reclamation Plant, located on Eastgate Mall, near the 805 and Miramar Rd.
- The North City Water Reclamation Plant is an existing facility that currently treats the water so it can be recycled and used for nondrinking uses. We're expanding it to continue serving our recycled water customers and support the production of Pure Water.
- After the water is treated at the North City Water Reclamation Plant, it will be pumped across Eastgate Mall to our future purification facility, where it will be purified through a very advanced treatment process.
- Finally, a new Pump Station and Pipeline will deliver the purified water to the City's Miramar Reservoir.
- These facilities are all currently in design, to be completed this year. Construction will start next year.

SD Morena Pump Station and Pipelines



As I mentioned, the Morena Pump Station will be located at the west end of Mission Valley, on Sherman Street near Morena Blvd. In addition to the Pump Station, the City will construct two 11-mile pipelines up Morena Blvd, through Clairemont and University City, and across the 805 to our North City Water Reclamation Plant. One will be a 48-inch wastewater pipeline and the other will be a 30-inch pipeline carrying the waste product from our reverse osmosis units at the new purification facility and from our solids processing facility.

SD North City WRP Expansion



This is the North City Water Reclamation Plant site. *[point out I-805, Miramar Rd, Eastgate Mall]*

The Plant will be expanded from a capacity to treat 30 million gallons per day of water, to 52 million gallons per day. This is needed to meet the needs of both the new purification facility and the existing recycled water system.

In addition to building new basins and filters throughout the site, the project also includes a new 42-million gallon per day pump station and pipeline that will convey the treated water to the purification facility across Eastgate Mall.



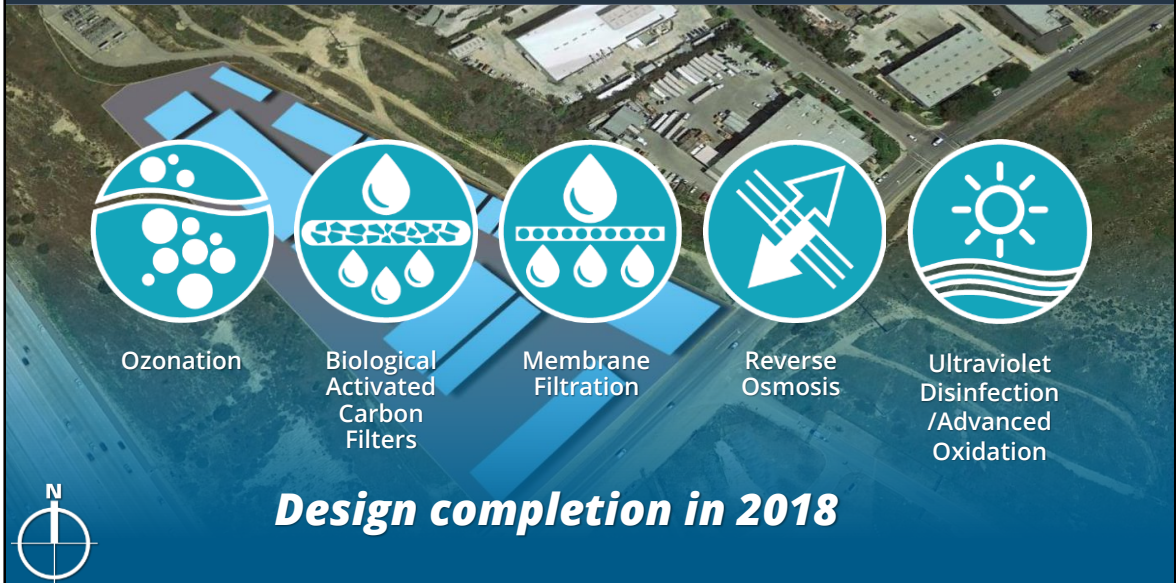
North City Pure Water Facility



Here is a view of the future North City Pure Water Facility site. *[point out Eastgate Mall, NCWRP, I-805]*

The Pure Water Facility will take in water that's already been treated at our reclamation plant and use the 5-step advanced purification process that we've tested and proven, to produce 30 million gallons per day of purified water.

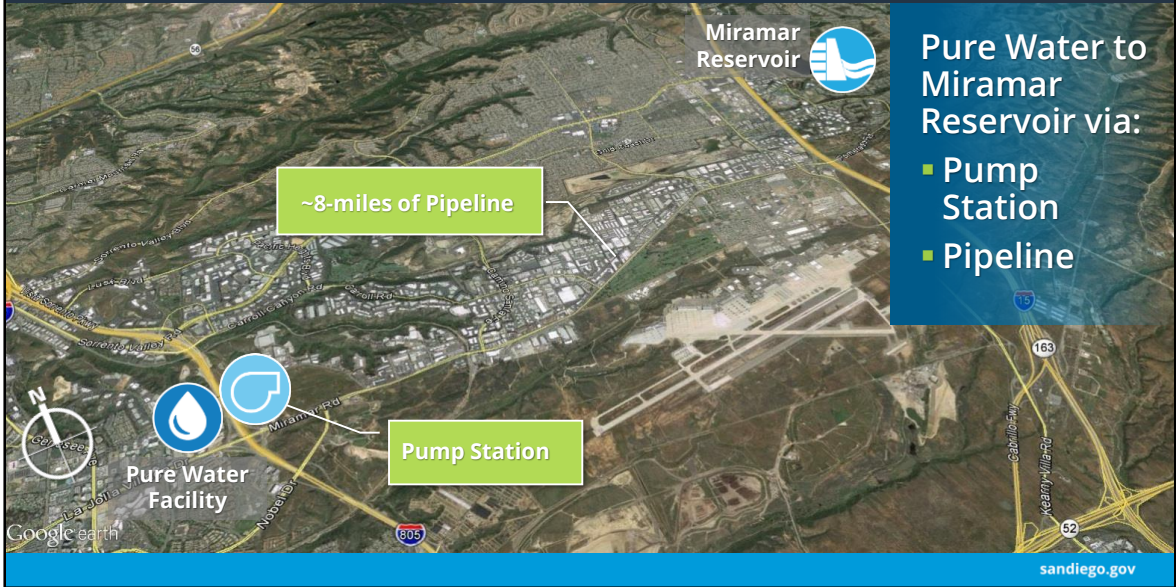
SD North City Pure Water Facility



After the water has been treated across the street, it will undergo the purification process that's comprised of these 5 steps: ozonation, biological activated carbon and membrane filtration, reverse osmosis, and UV disinfection/advanced oxidation. Contaminants will be removed at each step. When the water reaches the end of the 5th step, it will be a very high quality drinking water supply.

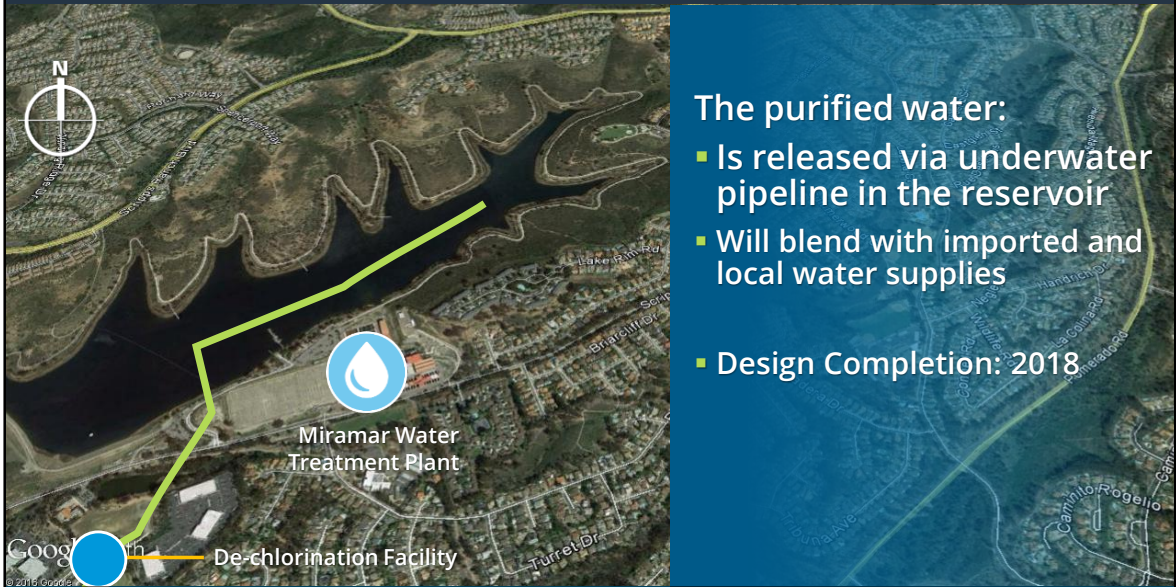


North City Pure Water Pump Station and Pipeline



The purified water produced at the North City Pure Water Facility will be stored in Miramar Reservoir. A new pump station and 8-mile, 48-inch, pipeline will be constructed to transport the purified water to Miramar Reservoir. The pipeline will start on Eastgate Mall, follow Miramar Road, cross the 15, and continue through Scripps Ranch and end in Miramar Reservoir.

SD Miramar Reservoir



The purified water will be released into Miramar Reservoir through a 1-mile underwater pipeline. The purified water will blend with imported and local water supplies and will then be treated again, at the City's Miramar Drinking Water Treatment Plant before it's delivered to our customers.



Miramar Drinking Water Treatment Plant

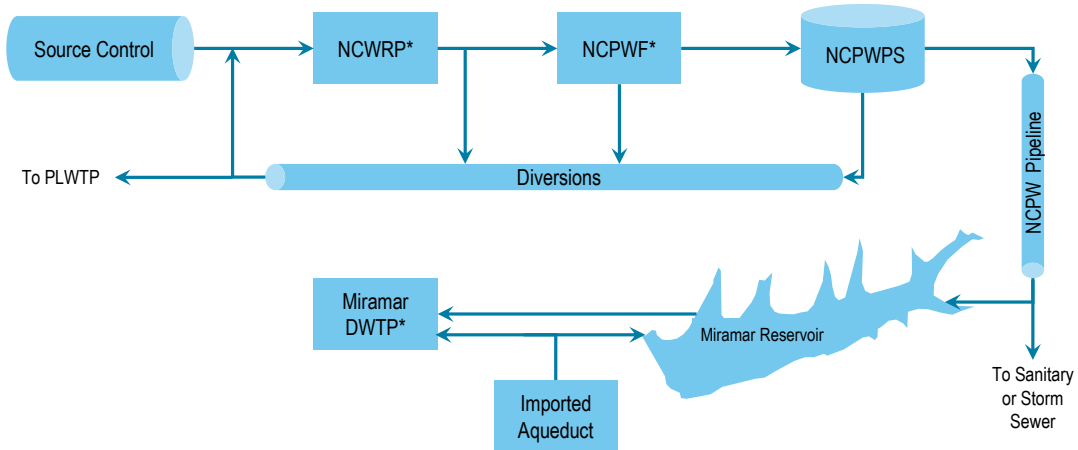


- Provides drinking water to your service area
- Source water is imported from Northern California and the Colorado River
- The treated water meets all regulatory requirements
- President's Award from the Partnership for Safe Water

Water treated at the Miramar Drinking Water Treatment Plant serves customers the northern part of the City and as far south as Mission Valley. The water it treats is imported from Northern California and the Colorado River. The water produced at the Drinking Water Treatment Plant meets all drinking water standards, and it recently won the Presidents Award from the Partnership for Safe Water. This award recognizes utilities who demonstrate outstanding commitment to delivering superior quality drinking water to customers, even beyond regulatory requirements.



Reliability Features of the North City Project



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In summary, as we think of the project facilities as a whole, the North City Project is highly reliable. There are a large number of treatment steps, as shown in the boxes at the top of the slide, through the reservoir and the Miramar Drinking Water Treatment Plant, significant redundancy, and the ability to divert water at several locations if it does not meet performance requirements. We are now going to go through these features step-by-step to more fully explain how each process contributes to the reliability and safety of the purified water system, starting with source control.

**Source Management, Pathogenic Microorganism
Control and Purified Water Quality**

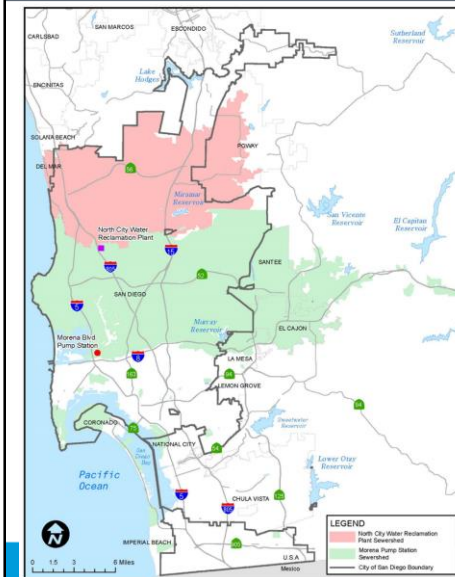
**Shane Trussell, Ph.D., PE, BCEE
Regulatory and Advanced Treatment Specialist
Consultant**

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Now I would like to introduce Shane Trussell, who will be providing an overview of the North City Pure Water Project's source management, pathogenic microorganism control, and purified water quality.



Wastewater from NCWRP and Morena Pump Station Sewersheds



- **Regional wastewater collection areas in the northern part of the Metropolitan Sewerage System will provide source wastewater for the Project**

- *NCWRP sewershed – 26 mgd*
 - *Cities of San Diego, Del Mar & Poway*
- *Morena Pump Station sewershed – 26 mgd*
 - *Cities of San Diego, El Cajon & La Mesa*
 - *Padre Dam Municipal Water District*
 - *Alpine & Winter Gardens Sanitation Districts (County of San Diego)*

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The source for the purified water will come from two locations or “sewersheds.” A total of 52 million gallons per day will be required to produce an annual average of 30 million gallons per day of purified water and to meet non-potable reuse (irrigation) demands. Wastewater collected in the sewershed for the North City Water Reclamation Plant will provide half of the wastewater required. It serves portions of the City of San Diego, Del Mar, and Poway. The other half will come from a sewershed further south, which serves the cities of San Diego, El Cajon, and La Mesa, as well as Padre Dam and portions of San Diego County. The Morena pump station will pump wastewater from that sewershed to the North City Water Reclamation Plant.

Enhanced Source Control Program

- **City's Industrial Wastewater Control Program administers and enforces source control requirements for the entire Metropolitan Sewerage System**
- **City's existing Enhanced Source Control Program has been effective for over 20 years**
 - *Required for the Point Loma Wastewater Plant permit*
- **Program Upgrades for the Project include:**
 - *Assessment of fate of specified chemicals through the treatment systems*
 - *Additional water quality monitoring*
 - *Source wastewater quality monitoring for targeted chemicals*
 - *Outreach program to minimize discharges of chemicals to the sewer*
 - *Inventory of chemicals that may be discharged to the sewer*

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Just like we protect the water quality in a watershed, the City has a strong source control program for the sewersheds. The City administers and enforces a control program for the entire wastewater system to protect the system and wastewater treatment plants from unwanted discharges. This program was enhanced beyond federal and state requirements to meet specific needs of the ocean discharge permit for the Point Loma Wastewater treatment plant.

The control program includes an extensive monitoring program, an assessment of the fate of specific chemicals in the collection system and through treatment, an inventory of constituents that may be discharged into the collection system, and an outreach and enforcement program to minimize chemical discharges.

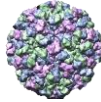
Pathogenic Microorganism Control

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Now I would like to discuss the Pathogenic Microorganism Control system.

SD Required Pathogen Reduction

Enteric virus



10-log reduction

99.99999999% reduction

Giardia cyst



9-log reduction

99.9999999% reduction

Cryptosporidium oocyst



10-log reduction

99.99999999% reduction

- **1-log reduction = 90% removal**
- **2-log reduction = 99% removal**
- **3-log reduction = 99.9% removal....and so on**

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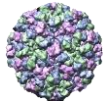
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Pathogen microorganisms can make people sick. Pathogen protection is a regulatory requirement for the North City project and the regulations require that 10-log virus, 9-log of *Giardia* and 10-log of *Cryptosporidium* reduction be provided prior to delivering any treated water to Miramar Reservoir. This is a significant amount of public health protection as 1-log is equivalent to 90% removal, 2-log is 99% removal, 3-log is 99.9% removal and so on. With this context, it is clear that significant reduction is required by the regulation to deliver purified water into Miramar Reservoir.



North City Project Pathogen Reduction

Enteric virus



21.2-log reduction

>99.999999999999999999999999% reduction

Giardia cyst



22.7-log reduction

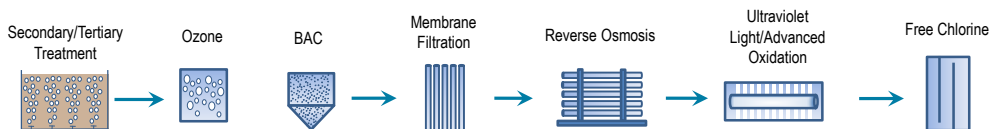
>99.999999999999999999999999% reduction

Cryptosporidium oocyst



14.4-log reduction

>99.999999999999999999999999% reduction



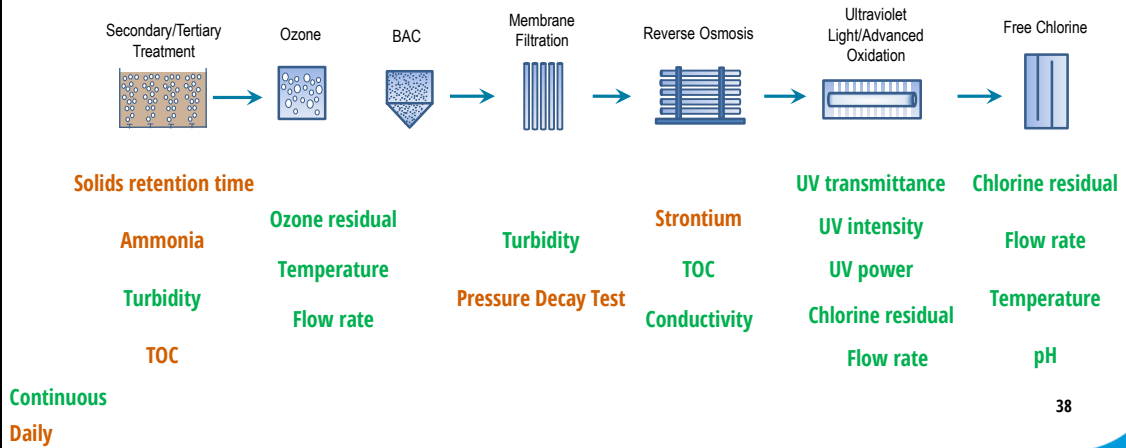
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The treatment provided in the Engineering Report that describes the barriers in place for the North City Project illustrates that the pathogen reduction provided will be much greater than the regulatory requirements with more than 21 log of virus reduction, 22 log of *Giardia* reduction, and 14 log of *Cryptosporidium* reduction. This is accomplished through treatment at the North City Water Reclamation Plant, Advanced Treatment Plant and chlorination in the pipeline. This is the amount of reduction before the water goes to Miramar Reservoir. Additional removal will be provided after the reservoir by the Miramar Drinking Water Treatment Plant.

Quantifying Pathogen Reduction

- Surrogate parameters monitored **continuously** or **daily** to confirm pathogen removal



To ensure that these pathogen barriers remain effective, water quality parameters are tracked for each process, with some information monitored continuously while others are assessed daily. Using these proven surrogates, the City can ensure that the treatment barriers are performing as designed and any deviations from desired performance can be identified quickly.

▪ **Pathogen Log Reduction Expectations and Requirements**

Pathogen	NCWRP	Ozone/BAC	MF	RO	UV/ AOP	Pipeline Cl ₂	Total Prior to Discharge to Reservoir	Required Prior to Discharge to Reservoir
Virus	0.7	6	0	2.5	6	6	21.2	10
<i>Giardia</i>	3.2	6	4	2.5	6	1	22.7	9
<i>Cryptosporidium</i>	0.9	1	4	2.5	6	0	14.4	10

This table summarizes the log removal provided by each treatment process and for each pathogen. It is important to note that while research may demonstrate higher log removals, the project is awarded only those credits that can be demonstrated with regulatory certainty for a given surrogate. On the far right, you can compare the more than 21-log removal for virus, 22-log removal for *Giardia*, and 14-log removal provided for *Cryptosporidium* to the regulatory requirements of 10/9/10. All of this treatment is provided prior to discharging any purified water to Miramar Reservoir.

Purified Water Quality

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The following slides describe the North City Project's purified water quality.

SD Research Initiatives at the NCDPWF

- **2013 NCDPWF Study (2011-2013)**
 - *MF-RO-UV/AOP*
- **Extended Testing (2013-2015)**
 - *Installation and testing of O3/BAC*
- **WRRF 14-12 (2015-2016)**
 - *New failsafe measures implemented*
- **Design Pilot Studies (2016-present)**
 - *Optimizing design of operations*



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Extensive testing at the City's 1 million gallon per day demonstration facility has been ongoing since 2011. The first project concluded in 2013 and the second project concluded in 2015. In 2016, the City concluded a project that was sponsored by the State of California and WaterReuse to evaluate the failsafe features. The City continues to perform studies that have been used to optimize the design and will be used for operations of the full-scale facility.

SD Research Initiatives at the NCDPWF

- **2013 NCDPWF Study (2011-2013)**

- *MF-RO-UV/AOP*

- **Extended Testing (2013-2015)**

- *Installation and testing of O3/BAC*

- **WRRF 14-12 (2015-2016)**

- *New failsafe measures implemented*

- **Design Pilot Studies (2016-present)**

- *Optimizing design of operations*

Going on
8 years of
testing



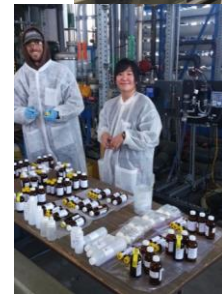
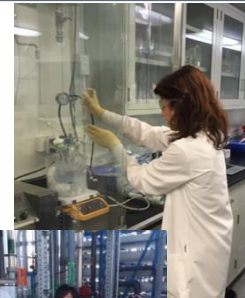
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In all, this is a total of 8 years of testing that has been performed and work is ongoing at the demonstration facility.

SD Analysis of Purified Water Quality

	<u>Number of Samples</u>
▪ Primary and Secondary MCLs	1,003
▪ Disinfection Byproducts	984
▪ Notification Levels	197
▪ 1,4-dioxane	42
▪ NDMA	57
▪ Constituents of Emerging Concern	1,788
▪ UCMR4	207
▪ PFOA/PFOS	10
▪ TOTAL	4,288



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Benefiting from years of testing and multiple projects, extensive water quality analysis have been performed and this table summarizes the product water quality sampling. The primary and secondary maximum contaminant levels for drinking water, along with disinfection byproducts, have been sampled nearly two thousand times and the product water quality has always met drinking water standards. The product water has also been sampled for contaminants with notification levels in California, which were always below the concentrations specified by regulations. The chemicals, 1,4-Dioxane and NDMA, are regulated under the potable reuse requirements. CECs were also sampled, such as pharmaceuticals and personal care products. Sampling was conducted for unregulated contaminants in addition to perflourinated compounds, such as PFOA and PFOS. The vast majority of all samples were non-detect and any detections were well below concentrations of health concern.

Miramar Reservoir
Jeff Pasek, Project Officer
City of San Diego

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Now I would like to introduce Jeff Pasek, who will be presenting information on Miramar Reservoir.

SD Miramar Dam and Reservoir



- **Constructed in 1960**
- **Reservoir surface area - 170 acres**
- **Catchment - 650 acres**
- **Runoff**
 - *almost none*
 - *Runoff from developed area diverted away*
- **Inflow: Imported water only (currently)**
- **Outflow: to Miramar DWTP only**

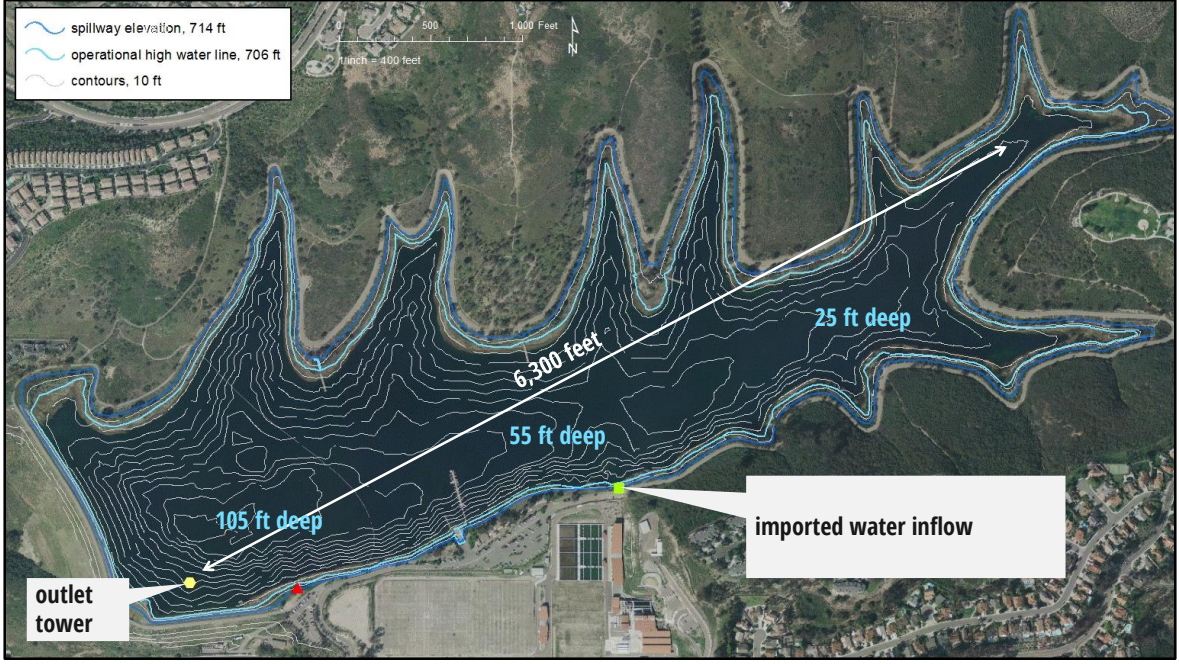
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After the purified water has passed through many steps of advanced treatment it is then released into Miramar Reservoir, where it augments the sources of water for the City's system. Retention and dilution in the reservoir are regulatory requirements for the North City Project.

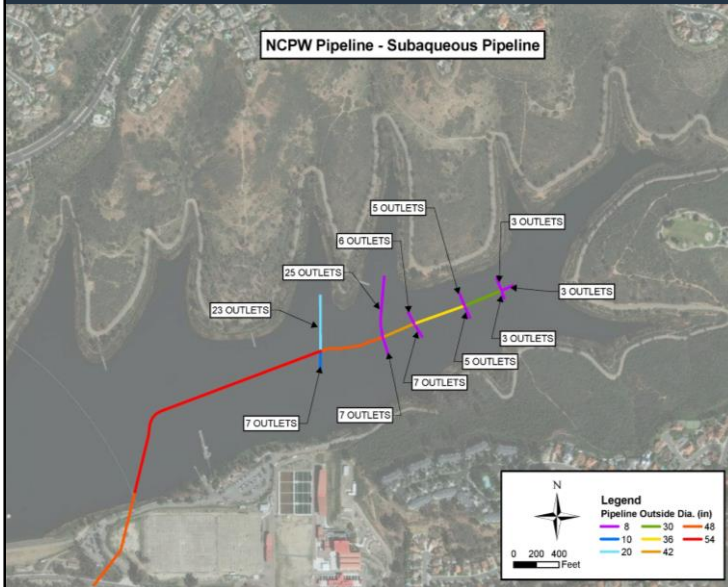
Miramar Dam and Reservoir were constructed in 1960 by the City of San Diego. The reservoir has a surface area of one hundred seventy acres, and typically holds five thousand five hundred acre feet of water. The land area that slopes to the reservoir – the Catchment - is small, only six hundred fifty acres. In the portions of the Catchment that have residential development, the storm drains are diverted away from the reservoir. The only areas that drain to the reservoir are the open undeveloped land shown here. There is almost no runoff into the reservoir.

Since it was constructed in 1960, and continuing today, the only inflows into the reservoir are imported water from the Colorado River and northern California; and the only outflows are to the adjacent drinking water treatment plant.



This is a map of the reservoir basin. The normal water line is shown light blue line. The outlet structure, where water is taken out and sent to the drinking water plant is here. The imported water inflow is here. The reservoir is sixty-three hundred feet from end-to-end, which is a little more than a mile. The depth of the reservoir ranges from twenty-five feet in its upstream end to one hundred five feet near the dam.

SD Subaqueous Pipeline and Diffuser



- Positioned on the bottom
- Branched, with outlet ports
 - 4,700 feet total length
 - 94 ports
- Mixes purified water into large volume of reservoir water
- Distant from the outlet

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The purified water will be released into the reservoir through a pipeline laid on the bottom. The pipeline will have branches, and along these branches will be ports for the water to flow out of. This diffuser will be forty-seven hundred feet long overall, with ninety-four ports. This diffuser will mix the inflowing purified water into a large volume of the reservoir, and at locations distant from the reservoir's outlet.

Miramar Reservoir Regulatory Criteria



- **Retention:** At least 60 days of overall retention time
- **Dilution:** Any one-day inflow must be diluted 10:1 at the outlet
- **Tracer Studies:** Regulatory requirement when project is on-line

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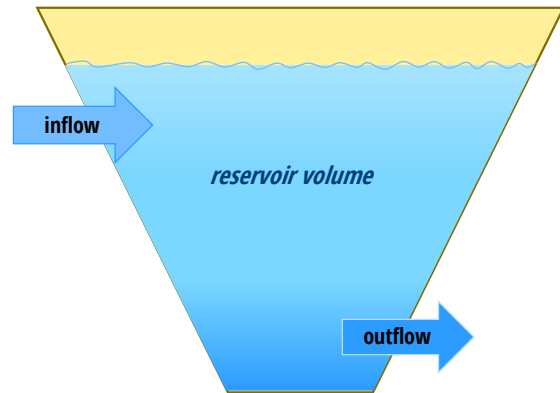
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The regulatory criteria for the reservoir are retention, dilution, and tracer studies. The average retention time for water in the reservoir must be at least sixty days. A twenty-four hour inflow of purified water must be diluted at least ten to one at the outlet. And tracer studies must be done in the reservoir to show these criteria are achieved.



Reservoir Provides At Least 60 Days Retention

- Retention is calculated each month based on:
 - *total outflow from the reservoir during the month*
 - *reservoir volume at the end of the month*
- On balance, the outflow from the reservoir will match the purified water inflow



At normal reservoir operating levels and with the expected purified water inflow, the retention time will be at least 60 days.

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Retention time is calculated each month based on the total outflow from the reservoir during the month and the volume of the reservoir at the end of that month. For the North City Project at Miramar Reservoir, the outflow from the reservoir will match the purified water inflow; this will keep the reservoir level stable. At normal reservoir operating levels and with the project's expected purified water inflow of thirty million gallons per day, the retention time in the reservoir will always be greater than sixty days.



Reservoir Provides More Than 10:1 Dilution

- **Normal reservoir level and normal outflow (30 mgd)**
 - *model predicted lowest dilution is 33:1*
- **Low reservoir level and normal outflow (30 mgd)**
 - *model predicted lowest dilution is 24:1*
- **Normal reservoir level and high outflow (75 mgd)**
 - *model predicted lowest dilution is 35:1*

Under any condition of reservoir level and outflow rate, there is always an outlet port available that provides greater than the required 10:1 dilution.

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Dilution of the purified water in the reservoir has been assessed using a sophisticated three-dimensional computer model.

The regulatory requirement is that any twenty-four-hour inflow of purified water must be mixed into the water in the reservoir such that it is diluted at least ten to one before it reaches the outlet.

Many different operating scenarios were modeled: full reservoir, lowered water reservoir level, high outflow, and normal outflow. At normal reservoir levels and normal purified water inflow of thirty million gallons per day, the modeling showed a dilution of thirty-three to one. At low reservoir level and normal inflow, the dilution is twenty-four to one. And when the outflow from the reservoir is at a very high rate of seventy-five million gallons per day – which is two and one-half times the purified water inflow - the dilution is thirty-five to one. The computer modeling shows that under any condition of reservoir level and outflow rate, the dilution is always greater than the required ten-to-one.

When the North City Project goes into operation, we will perform tracer studies in the reservoir to verify the computer modeling of dilution is valid and correct.



Raw Water Is Pumped From Miramar Reservoir



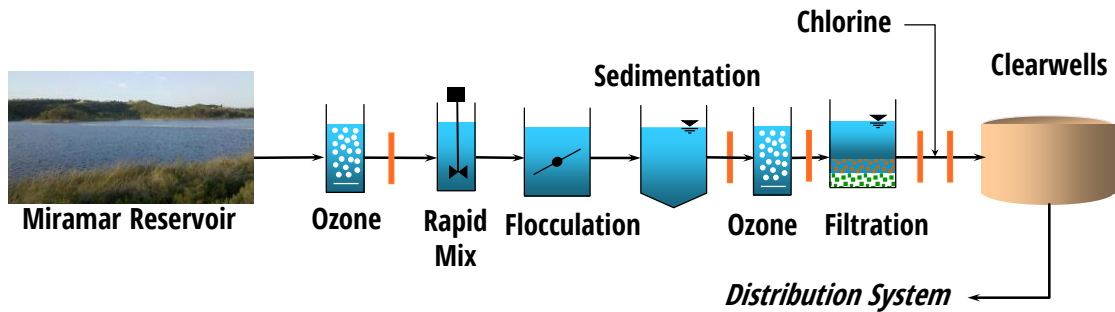
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Water from the reservoir is pumped from the outlet tower to the Miramar Drinking Water Treatment Plant by way of six pumps located just downstream of the dam. The pumps are shown on the photograph.



Miramar DWTP Provides Additional Treatment Barriers



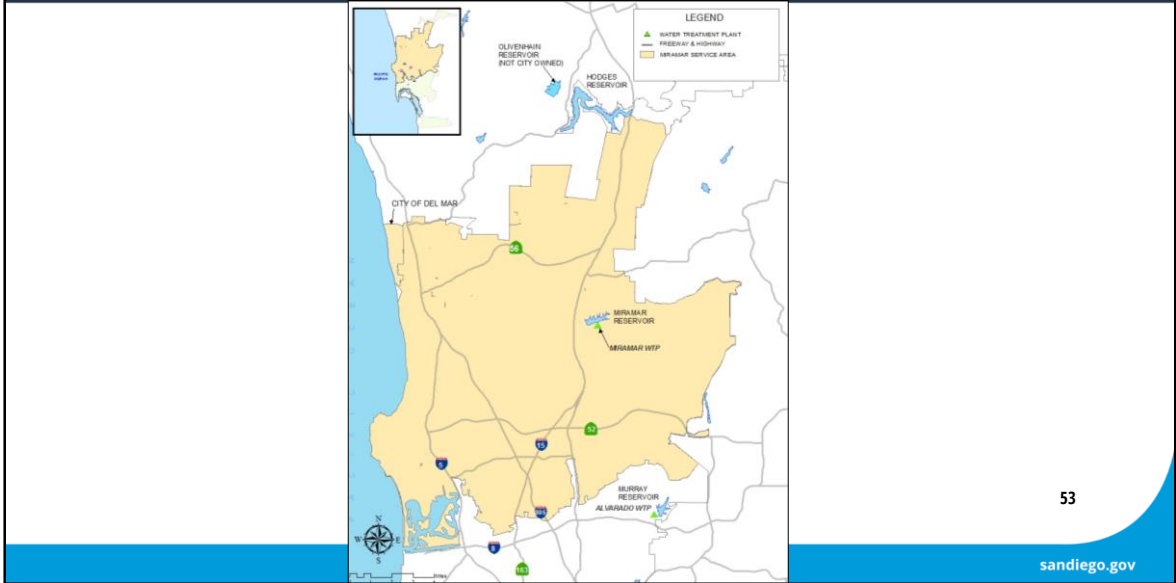
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As I said earlier, when purified water is put into the reservoir, it becomes a source water for the City's water system. "Source water" means that the water will have full conventional treatment before is released into the drinking water system. The purified water from the reservoir will be blended with other source waters, specifically imported water, at the Miramar Drinking Water Treatment Plant. The Plant provides additional treatment barriers, including ozone disinfection in both the raw water and settled water, particle removal through chemical addition and settling, granular media filtration, and final chlorine disinfection. The orange vertical bars on this graphic show the five additional treatment barriers that the Miramar Plant provides.



Distribution System Comprises North San Diego



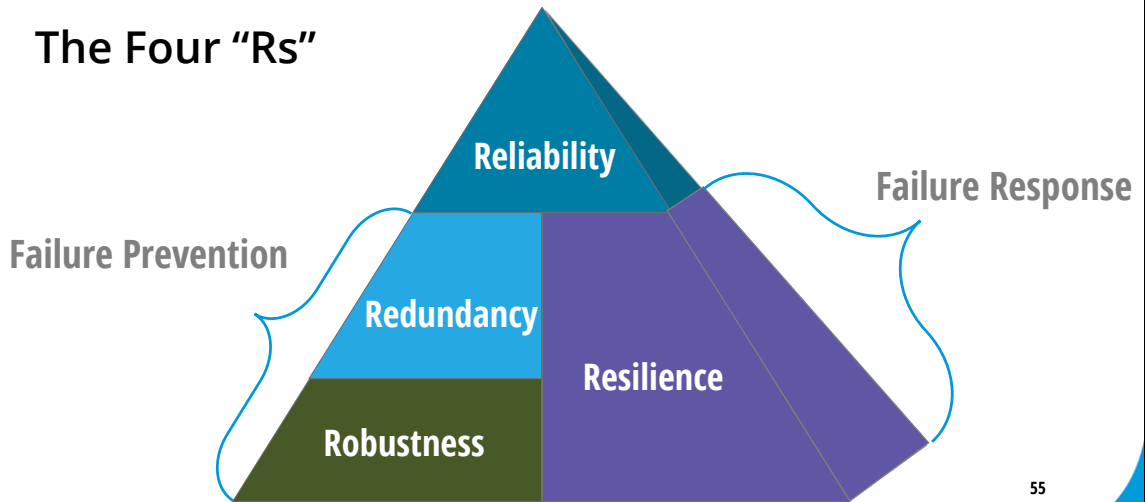
After blending with other water sources and treatment at the drinking water plant, the purified water is distributed throughout the Miramar Distribution Area, which extends west to the coast, south to near Mission Valley, and north to the City limits. The distribution area includes the City of Del Mar. This map shows the overall area that will receive at least some purified water.

Reliability
Shane Trussell, Ph.D., PE, BCEE
Regulatory and Advanced Treatment Specialist
Consultant

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Now I would like to reintroduce Shane Trussell, who will be presenting information on the North City Project's reliability features.

The Four "Rs"



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The reliability of the North City Pure Water project is supported by components that focus on failure prevention, redundancy and robustness, as well as failure response to address scenarios that are unlikely to occur, also known as resiliency. Now, let's take a moment to explain the reliability features of this project in greater detail.

Redundancy

- **Concept:** “the use of measures beyond the minimum requirements to ensure that treatment goals are more reliably met or performance can be more reliably demonstrated”
- **Benefits of redundancy:**
 - *Excursions and failures do not jeopardize public health protection*
 - *Treatment redundancy is protective against multiple types of failures*
 - *Treatment redundancy provides a high degree of operational flexibility*

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Redundancy is “the use of measures beyond the minimum requirements to ensure that treatment goals are more reliably met or performance can be more reliably demonstrated”. The benefit of the redundant treatment is that treatment excursions and failures can be managed while ensuring public health protection. The redundancy also ensures that the facility is protective against multiple types of failures and the treatment redundancy provides a high degree of operational flexibility.



Redundancy of the North City Pure Water Project

	<u>Required</u>	<u>Provided</u>
▪ Pathogen control	10-log Virus 9-log <i>Giardia</i> 10-log <i>Cryptosporidium</i>	21.2-log Virus 22.7-log <i>Giardia</i> 14.4-log <i>Cryptosporidium</i>
▪ Number of treatment processes	3	6+
▪ Standby capacity	n/a	All processes and monitors have standby capacity

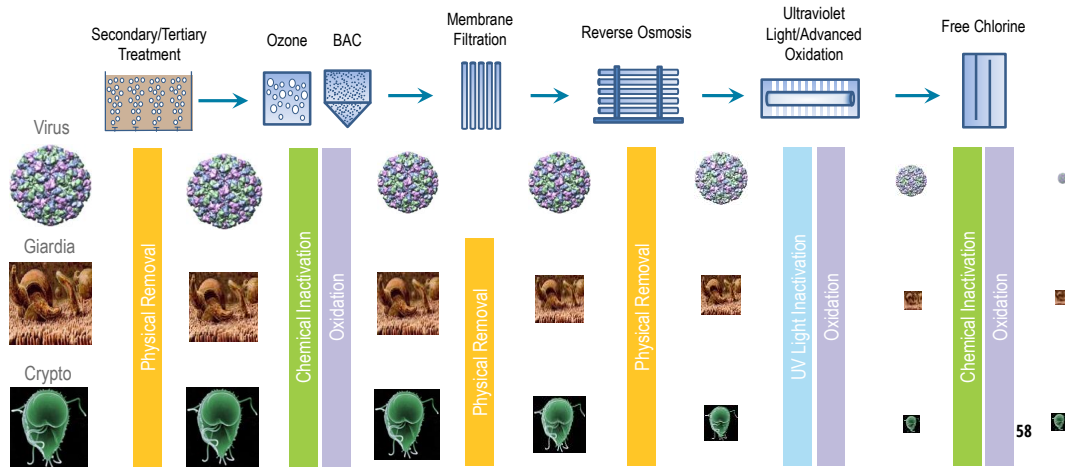
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This table summarizes the key redundancy features and contrasts these features with what is required in the surface water augmentation regulations. For pathogen control, treatment is required for 10-log virus, 9-log *Giardia*, and 10-log *Cryptosporidium*, but the North City Project provides more than 21-log virus, 22-log *Giardia*, 14-log *Cryptosporidium*, well beyond the log removals required by the regulations. Additionally, the regulations require a minimum of 3 treatment processes to provide the advanced treatment while the North City Pure Water Facility provides more than 6 treatment processes. Additionally, the facility has standby units so that if maintenance is needed, a unit can be taken offline while another is put in service to provide the necessary capacity. Similar standby online monitors are supplied for analyzers that are critical to the successful operation.

SD Robustness: Pathogen Control

Multiple and diverse barriers protect against spectrum of pathogen types

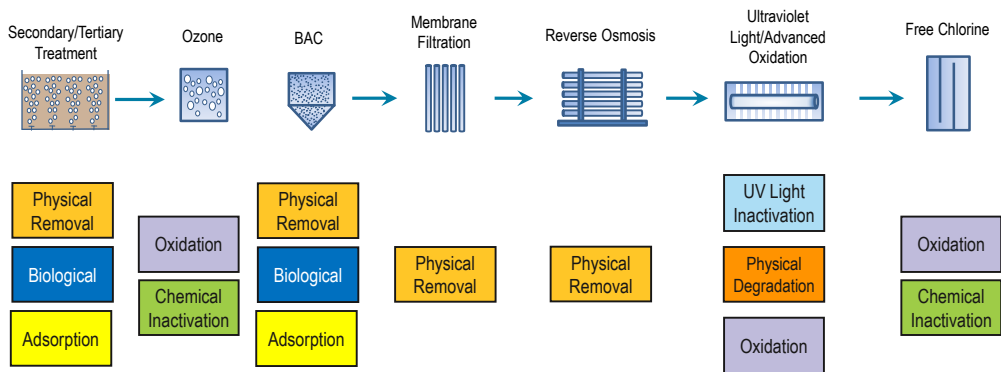


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Robustness is the concept of multiple and diverse barriers providing additional pathogen protection. As the recycled water is processed through the water reclamation plant and through the advanced water purification facility, it is exposed to wide range of attenuation processes as indicated by the various colors presented here. There is physical removal, chemical inactivation, oxidation, size exclusion physical removal through advanced membrane processes (ultrafiltration and reverse osmosis), inactivation with high intensity UV light and oxidation, followed by chemical inactivation and oxidation with free chlorine. The combination of various attenuation mechanisms and treatment processes ensures that this project will not only address all pathogens we know of today, but those that we may become aware of in the future.

SD Robustness: Chemical Control

▪ Diversity of removal mechanisms provides effective control for a wide variety of chemicals

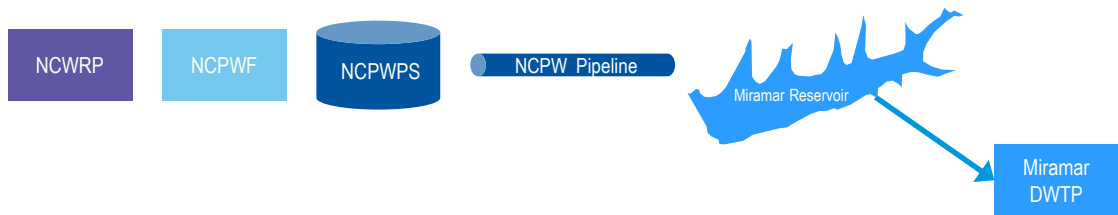


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The same theory of robustness that applies to pathogens applies to chemical control. The figure above illustrates the various mechanisms by which chemicals are removed through treatment in the water reclamation plant and advanced treatment facility. There is physical removal, biological degradation, adsorption, oxidation, and physical degradation through photolysis. This robust design ensures that chemicals, including pharmaceuticals and other constituents of emerging concern, are effectively removed through the treatment process.

SD Resilience: Failure Response

- In the event of a treatment excursion or failure...
- Ability to quickly divert off-spec water within the NCPWF



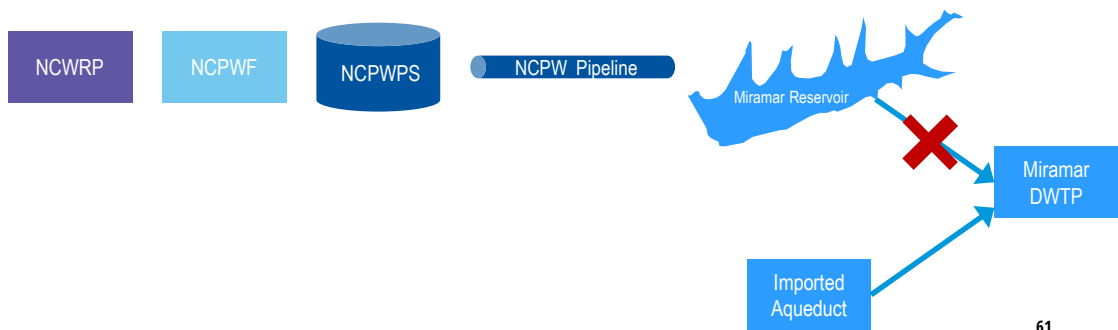
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Beyond the failure prevention strategies of redundancy and robustness, the North City project is prepared to address an unforeseen treatment excursion or failure. If the quality of water becomes a concern for any reason, the Miramar Drinking Water Treatment Plant is readily able to cease withdrawing from Miramar Reservoir and return to its routine operation on imported water from Colorado River and Northern California.

SD Resilience: Failure Response

- The project has the ability to “decouple” from Miramar Reservoir
- There is always an alternative source for the Miramar DWTP

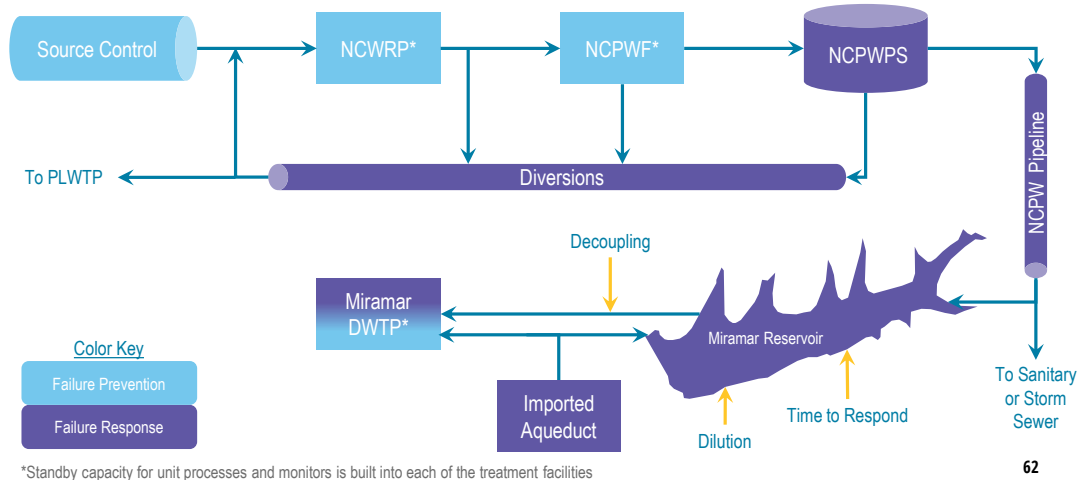


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The value of decoupling is that the City is in the position to provide invaluable time to correct or assess a potential issue while ensuring public health protection. This is a significant component of the City's failure response strategy since there is a long history and understanding of how to treat imported water at the Miramar Drinking Water Treatment Plant, which will continue to flow in the Drinking Water Treatment Plant even though purified water is also being provided via Miramar Reservoir. In fact, the transition with the experienced operations team will be seamless. Once the water in Miramar Reservoir is determined to be safe or the excursion is addressed, the Miramar Drinking Water Treatment Plant could restore operations that draft from Miramar Reservoir for part of its source water after concurrence by the Division of Drinking Water.

SD Reliability Features of the North City Project



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In summary, this slide provides a powerful illustration of all the strategies in place to provide reliability to the North City project. Some of these strategies are there to prevent failure, such as the source control program, and the redundancy and robustness we just discussed. While other features are powerful infrastructure tools that provide public health protection if failure were to occur. All of these reliability features are focused on ensuring that only the highest quality water is delivered to Miramar Reservoir at all times, but if any concern DOES arise, the Miramar DWTP can decouple and continue to treat only the imported water till the problem can be addressed and the project brought back online with DDW consent.

Recommended Permit Conditions
Erica Wolski, PE, Associate Sanitary Engineer
Division of Drinking Water

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Now I would like to reintroduce Erica Wolski, who will be providing an overview on the recommended permit conditions.



DDW Recommendations for NDPES Permit

- **Comply with Surface Water Augmentation Regulations**
 - *Submit Operations Plan for DDW approval prior to start up*
 - *Demonstrate that all treatment processes are installed and can be operated to achieve their intended function (pathogen and/or chemical removal)*
 - *Treatment processes must be optimized to provide optimal reduction of contaminants*
 - *Demonstrate that AWT personnel are properly trained prior to start up*
 - *Requirements for modeling and tracer studies*

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DDW has the following draft recommendations for inclusion in the Regional Board's permit for the project. The project is required to comply with applicable sections of the regulations. Specifically, the project is required to do the following:

- Submit an operations plan to DDW for approval prior to start up. The plan will describe how the plant will be operated and maintained, what monitoring the project is proposing and what laboratory methods will be used. The plan is required to be kept current and any proposed changes to the plan require approval prior to implementation.
- All treatment processes installed must be demonstrated to achieve their intended function of either pathogen and/or chemical removal. This will be accomplished through demonstration testing and sampling for some processes and through the use of surrogates and monitoring for others.
- The project is required to optimize its treatment processes to provide optimal reduction of all contaminants, including pathogens and regulated and unregulated chemicals.
- Prior to operation, the City must demonstrate that the operations personnel are properly

trained in the processes used at the advanced water treatment plant, the California Safe Drinking Water Act and the potential adverse health effects associated with consuming drinking water that does not meet standards. The City is required to provide an ongoing training program that will be detailed in its operations plan.

- In order to demonstrate that the dilution criteria is met, the project is required to complete extensive hydrodynamic modelling and validate the model by conducting tracer studies. A tracer study using added tracer is required prior to project start up and again within six months after initiation of the project. The project is also required to have their independent panel review the model and tracer study protocols and results. Based on the results of the tracer study, the project is required to recalibrate its hydrodynamic model if necessary.
- The results of the model are used to set the conditions under which the reservoir must operate to ensure that a 10:1 dilution is always achieved. This includes the maximum inflow to the reservoir, the maximum withdrawal from the reservoir and the minimum water level in the reservoir.

SD DDW Recommendations for NDPES Permit (cont'd)

- **Pathogen removal reports submitted on a monthly basis**
- **Chemical results submitted on a monthly/quarterly basis**
- **Annual report for the project must include:**
 - *Summary of compliance*
 - *Violations and corrective actions*
 - *Detections of chemicals or contaminants*
 - *Changes in operations and facilities*
 - *Estimated quantity and quality of delivered recycled water*
 - *Measures to comply with wastewater source control*
- **Update the Engineering Report at least every 5 years**



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After the permit is issued, the City's project will be subject to ongoing inspections from the Regional Board and DDW and the regulations require several reports to be submitted on a regular basis. This is in addition to immediate notification in the event of a threat to public health or the environment.

The project is required to submit monthly reports on compliance with the pathogen removal requirements and will submit the chemical monitoring results electronically on a monthly or quarterly basis depending on the contaminant.

The City is also required to complete an annual report for the project discussing the project's compliance, any violations that have occurred and corrective actions that were taken, a review of any chemicals or contaminant detected, whether any changes in operations or facilities occurred, the estimated quantity of recycled water delivered and any updates on the City's source control program.

The City is also required to do a complete update of its Engineering Report, the report that is currently available for public review, every five years. This is to ensure the report is current for any changes to facilities or operations or any changes in regulations.

SD NPDES Permit - Recycled Water Monitoring

▪ Quarterly sampling for:

- *Regulated contaminants:*
 - Inorganics
 - Radionuclides
 - Organics
 - Disinfection byproducts
 - Lead and copper
- *Priority Toxic Pollutants (40 CFR 131.38)*
- *Notification levels (NLs)*
- *Chemicals specified by DDW*

▪ Annual sampling for:

- *Secondary drinking water contaminants*
- *Indicator compounds specified by DDW*



The project is required to complete at least the minimum monitoring specified in the regulation. This slide shows the monitoring required at the effluent of the advanced treatment plant prior to discharge to the reservoir. Generally, constituents with health concerns are required to be sampled quarterly and secondary standards, constituents such as odor and color, are required to be sampled annually. This is in addition to monitoring at the plant that will be completed to demonstrate that processes are properly operating. Those samples will be collected more often, such as continuously or on a daily, weekly or monthly basis.

NPDES/DDW Permit - Reservoir Monitoring

- Project shall identify monitoring locations in the augmented reservoir
- Collect monthly samples at least 24 months before and after delivering recycled water to reservoir for:
 - *Secondary contaminants*
 - *TOC*
 - *Total nitrogen*
 - *E.coli*
 - *Total coliform bacteria*
 - *Temperature*
 - *Dissolved oxygen*
 - *Chlorophyll*
 - *Total and dissolved phosphorus*
 - *DDW-specified chemicals*



There may be some overlap in permit conditions that are included in both the Regional Board's and DDW's permits.

The City will be required to monitor the reservoir to ensure that the project has not negatively affected the reservoir. This monitoring is required to be initiated at least two years prior to start of the project in order to develop a profile of existing conditions in the reservoir. The City has already initiated this monitoring.

At the outlet to the reservoir that feeds the Miramar Water Treatment Plant, the project will also be required to continue collecting at least monthly samples for total coliform and E. Coli and collecting samples for primary and secondary standards on a quarterly or annual basis for most contaminants. Historically, the City has completed monitoring more frequently than the minimum required by regulation at this location.



Recommended DDW Permit Conditions

- **Corrosion Control studies prior to start up**
- **Treatability of AWT water**
- **Update of reservoir and Miramar WTP Operations Plan**
- **Continued compliance existing regulations**
 - *Surface Water Treatment Rule*
 - *Public Notification – annual Consumer Confidence Report*
 - *Corrosion Control – Lead and Copper monitoring, asbestos, etc.*
 - *Secondary standard compliance*

As mentioned previously, the NPDES permit allows the City to discharge advanced treated water to the reservoir. However, in order to use the reservoir as a source of supply to the Miramar Water Treatment Plant, DDW must issue an amended Drinking Water Supply Permit to the City.

The following conditions will be included in the DDW permit:

- The City is required to implement optimum corrosion control at all times by existing regulations. The surface water augmentation regulation also requires the City to submit a plan to maintain chemical and microbial stability in the drinking water distribution system. The City is currently completing studies to evaluate this and to determine if the conditioning proposed for the advanced treated water and for the Miramar Water Treatment Plant will provide optimum control of lead, copper and other contaminants from plant and distribution piping.
- The City is also required to maintain effective treatment at the Miramar Water Treatment Plant as the fraction of advanced treated water increases and the raw water quality changes. The City is currently completing a treatability study to address this topic.
- The City will be required to update its existing operations plans for the reservoir and the water treatment plant to address the change in water source. The City is also required to explain and

test their decoupling process during emergencies when the reservoir must be taken offline and the plant switched solely to imported water.

- The City is required to comply with existing regulations such as the surface water treatment rule, which requires monthly reporting to DDW, public notification rules, corrosion control sampling for lead, copper and asbestos and compliance with secondary standards for constituents such as odor and color.
- The City is currently required to issue annual Consumer Confidence Reports to inform the public of the source, treatment and quality of the water served. After the project begins operating in 2021, you will receive a report in approximately July 2022 informing you of the water quality served and a summary of any violations that occurred in 2021. If there is an immediate public health threat, either acute or chronic, you will be notified immediately or within 30 days, depending on the severity of the violation.

Public Comment Period
Sean McCarthy, PE
Division of Drinking Water

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Now I would like to reintroduce Sean McCarthy, who will be providing closing remarks and opening up the public comment period.

SD Use of and Response to Comments

- **To receive public testimony on the Title 22 Engineering Report and public health impacts for the City's drinking water supply**
- **As appropriate, DDW will incorporate comments into NPDES permitting recommendations to RWQCB and/or later into the DDW Water Supply Permit**
- **Responses to comments will be available at the City website:**
 - <https://www.sandiego.gov/water/purewater/purewatersd/reports>

This concludes the presentation portion of tonight's Hearing. In a few moments, I will open the Hearing for public comments. As a reminder, the purpose of these Hearings is to inform the public in the area who will be served this drinking water and to receive public testimony on the Title 22 Engineering Report and the public health impacts for the City's drinking water. At the end of the public comment period next week, the City will review all comments received, including the testimony given tonight, and provide responses to those within the scope of our review for the public health impacts of this proposed drinking water supply and treatment. The City will provide written responses to the comments received. DDW will also incorporate the comments when appropriate in its recommendations given to the Regional Board for the NPDES permit to discharge to the reservoir and later when the Division of Drinking Water considers conditions for the Water Supply Permit in 2021.



Open Public Comment

- **State your name for the record**
- **Limit oral comments to 3 minutes per speaker**
- **Comment on the project's Engineering Report for Title 22**
- **Comments are due by Friday, August 24 at 5:00pm via email or mail to:**

*R. Petoscia
Pure Water Administrator
City of San Diego
Public Utilities Department
9192 Topaz Way, San Diego, CA 92123
Email: Title22Public@sandiego.gov*

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If you wish to speak publicly, please turn in your comment card, or you may submit written comments on the comment card, if you prefer. Please state your name for the record and limit your comment to 3 minutes per speaker. We have a court reporter present recording the comments given publicly, but we encourage you to follow up with a written comment to ensure it is properly recorded. Groups of individuals may choose to have a single representative speak on their behalf, and their individual time allotted may be combined. All comments are due by August 24, 2018 at 5 pm at the address on the screen and the Hearing notice. We can now begin public comment.