



CASE STUDY: WATER TREATMENT

Yardney Filters Reduce Arsenic Levels
at City of Lakewood, CA Well

PROJECT DETAILS ::

City of Lakewood, CA Well

Project Location	Lakewood, California
Project Type	City Well Water Treatment
Project Time Frame	Installed in 2021
End User/Customer	City of Lakewood, CA
Engineering Firm/ Consultant	Conсор
Product Name	IMA-65
Model Number	MM-5460-8AS
Targeted Contaminants	Iron, Manganese, Arsenic
Flow Rate	900 GPM
Pressure	80 PSI
ASME Code or Non-Code	Non-Code
Quantity of Systems	1
Vessels Per System	8
Size	54" diameter, 60" side shell
Filtration Media Type	IMA-65

CHALLENGES

The City of Lakewood, California, is a suburban community of approximately 80,000 residents located immediately east of Long Beach in Los Angeles County. Incorporated in 1954, the post-World War II boomtown derives 100% of its drinking water locally from groundwater, and specifically from wells within the city limits that tap the Central Groundwater Basin.

Lakewood's water system includes about 20,000 service connections and eleven total operating wells. One of them is Well 13A, which the city re-drilled in late 2003 and brought back online to bolster the long-term reliability of its potable water supply. In 2019, the well tested for high levels of arsenic at 15 parts per billion (ppb), exceeding the federal maximum contaminant level (MCL) of 10 ppb for arsenic in drinking water. As a result, Lakewood shut down the well, taking it offline.

With the intent to bring the well back into production, the city in 2021 issued a notice for bids to design and build a new water treatment facility to remove arsenic. *"Well 13A has a production capacity of about 900 gallons per minute and is a valuable contributor to the city's water portfolio,"* said Anthony Manzano, Assistant Director of Water Resources with the City of Lakewood. *"It's in our best interest to keep it operational for meeting future water demands."*

SOLUTIONS

Revitalizing Well 13A

The city retained engineering consulting firm Conсор to provide design and project engineering support for the new treatment plant. *"The primary goal of the project was to reduce arsenic to a concentration significantly below the 10 ppb federal limit, producing a high quality water,"* said Conсор Project Engineer Shanna Myers.

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ABOUT YARNEY WATER FILTRATION SYSTEMS

Founded in 1965, Yardney Water Filtration Systems is a recognized leader in water filtration solutions for agriculture, golf, turf, landscape, industrial, commercial, and municipal markets worldwide. Featuring built-to-last fabrication and Made in USA quality, Yardney filters deliver reliable, long-term performance and extended product lifecycles. Yardney's offerings include filtration systems in either ASME code or non-code construction utilizing technologies such as manual and automatic screen filters, centrifugal sand separators, sand media, multimedia, granular activated carbon (GAC), and specialized media to address contaminants such as iron, manganese, arsenic, and PFAS. The company supports a sales network spanning the United States, Mexico, and Europe, bolstered by strategic dealer alliances that ensure a robust global presence.

A secondary goal was to lower manganese levels. *"According to the city's water quality data, manganese concentrations were below health advisory criteria but sometimes above the aesthetic guideline of 0.05 ppm,"* Myers explained. *"The city wanted to reduce manganese concentrations below that guideline to ensure the taste and color of the water would be acceptable."*

From previous research and project use cases, the design and project engineers were aware of the merits of dosing ferric chloride to oxidize arsenic to its less soluble form, thus facilitating its adsorption to a manganese dioxide media, according to Myers. *"They also knew that a manganese dioxide media could be used to remove iron and manganese from drinking water,"* she said. With these characteristics in mind, a pilot trailer system with a manganese dioxide media was tested at Well 13A, demonstrating excellent results at removing both arsenic and manganese.

During the project bidding period, Yardney and another vendor submitted proposals for filtration systems containing approximately the same manganese dioxide media. Ultimately, the city selected Yardney, which presented an equally effective system at a lower cost. The specific Yardney solution includes two multi-media systems, each with four vessels (**eight total vessels**) and an upgraded Pyrolox Advantage 42-inch manganese dioxide filter.

The Yardney multi-media filters were installed during the first phase of the project. The city is currently in the plant commissioning stage, but initial results have been very positive. *"From a test period between April 16 and May 7 of 2024, the Yardney filters reduced arsenic levels in the well water from 15 ppb down to 2.32 ppb,"* Manzano said. *"That's a substantial reduction, significantly below the 10 ppb federal threshold. It provides us with a water quality that is both safe and manageable."*



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