Episode 006 - Artificial Intelligence and Advanced Water Treatment

Artificial Intelligence. AI. Skynet. The Matrix. IRobot. The Borg. The complete and utter destruction of humanity as we know it - or - maybe just optimize the performance of water treatment facilities and give the Las Virgenes - Triunfo Joint Powers Authority (JPA) another tool for their highly skilled and state certified operators to use in keeping our communities water safe and reliable. Join host Riki Cark and LVMWD Director of Facilities and Operations John Zhao as they discuss the uses of artificial intelligence in making water treatment more efficient while improving quality.

Definitions and Terms:

Air Gap - A physical, vertical separation where the outlet is higher in elevation that the flood levle and prevents contaminated water from mixing with potable water.

Disc Operating System (DOS) - A computer operating system that resides on and can use a disk storage device, such as a floppy disk, hard disk drive, or optical disc. A disk operating system provides a file system for organizing, reading, and writing files on the storage disk.

Future Supp;ly Actions Program (FSA) - A part of the Metropolitan Water District of Southern California (MWD) long-term One Water resource strategy, this funding program promotes technical advances to better prepare the region to adapt to future water supply uncertainties.

Generative AI - AI system capable of generating text, images, or other media in response to prompts using the patterns and structure of their input training data, and then generating repsonses that have similar characteristics, such as ChatGPT or Bard.

Joint Powers Authority - A partnership between the TWSD and LVMWD to collect and treat the Malibu Creek Watershed region's wastewater at the Tapia Water Reclamation Facility. Areas served include Calabasas, Agoura Hills, Oak Park, Westlake Village and Parts of Thousand Oaks.

Log Removal - t is defined as the common logarithm of the ratio of the levels of contamination before and after the process, so an increment of 1 corresponds to a reduction in concentration by a factor of 10.

Supervisory Control and Data Acquisition (SCADA) - A computer-based system for gathering and analyzing real-time data to monitor and control equipment that deals with the operations in water and wastewater plants and distribution systems.

Semi Autonomous AI - Automation that can make decisions and perform actions without direction.

Tapia Water Reclamation Facility (Tapia) - The JPA's waste water treatment plant. Located along Malibu Creek Watershed, Tapia tertiary treats the JPA's waste water to create high quality recycled water.

Tertiary treatment - An additional level of filtration and disinfection in the wastewater treatment process to create the highest quality recycled water.

Title 22 Tertiary Treated Recycled Water - The recycled water that the JPA provides that due to additional treatment can be used for irrigation including on food crops.

Total Maximum Daily Load (TMDL) - The max amount of something - nitrogen for instance - that is allowed to be discharged into a receiving water - Malibu Creek for the JPA.