

**REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

**EXECUTIVE OFFICER SUMMARY REPORT
SEPTEMBER 11, 2019**

ITEM 4

SUBJECT

Modern monitoring project update. *(Sarah Mearon)*

STAFF RECOMMENDATION

Information item only; no recommendation.

KEY ISSUES

Modern monitoring technologies enhance the Board's ability to efficiently prevent, reduce, treat, and avoid pollution, in keeping with our overall mission of restoring and protecting water quality and beneficial uses within the San Diego Region. These technologies can extend the Board's reach in space and time to monitor compliance, collect water quality and other environmental data, and perform compliance oversight. Storm Water Unit staff are currently working with the City of San Diego to pilot-test the use of CCTV cameras to monitor compliance with the Construction General Permit (CGP).

PRACTICAL VISION

This item is consistent with the mission of the Monitoring and Assessment chapter of the Practical Vision, which calls for accurate and efficient monitoring and assessment programs that assess the status and trends of conditions in San Diego Region waters, identify sources of impairment, assess the effectiveness of management actions, and effectively communicate key findings to the public, stakeholders, and decision-makers.

DISCUSSION

The overarching goal of the San Diego Water Board's Next Generation Monitoring Project is to evaluate and pilot-test the use of modern monitoring methods, including remote sensing tools, to support the mission of the Water Boards and assist with compliance, monitoring, and enforcement work across California. Staff from the San Diego, Lahontan, and San Francisco Bay Water Boards have been working collaboratively since 2018 to screen available technologies, identify opportunities for local pilot projects, and develop creative solutions for the challenges associated with implementation of a state-wide next generation monitoring tools program.

Traditional monitoring methods typically require a substantial amount of staff time. These methods necessitate expenditure of a large number of person-hours in the deployment of sampling devices and the collection of field data, with additional time spent on travel to and from field sites. Accordingly, traditional methods can limit the reach of environmental agencies, responsible parties, and dischargers because decisions must be made regarding prioritization of monitoring activities. Modern monitoring methods have the potential to require fewer human resources in the long term. Technologies such as satellite imagery and surveillance cameras that use machine learning require initial field efforts for "ground truthing" but greatly increase in efficiency over time.

Regionally, the San Diego Water Board is collaborating with the City of San Diego to pilot-test the use of CCTV cameras to monitor compliance with the CGP during expansion of the North City Pure Water plant. Storm Water staff have access to live feeds and imagery

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archives for two cameras that are positioned on different areas of the construction site. Board staff also are working with Descartes Labs to evaluate the feasibility of using machine learning to screen video for CGP compliance issues and identify illegal grading operations using satellite imagery. Descartes is a technology services company based in Santa Fe, New Mexico, that uses multiple data sources to solve complex problems related to the physical environment. Descartes collects data from public and commercial sources, processes it, and stores it for use in scientific analyses. As more data sensors come online, Descartes's data refinery becomes increasingly efficient at modeling and analysis through the process of machine learning.

The San Diego Water Board is optimistic that collaboration with Descartes, in addition to the progress made in other aspects of the Next Generation Monitoring Project, will provide the information necessary to approach the State Water Board with a proposal to use modern technologies in various capacities across the State. Specifically, the results of this project will be used to assess the effectiveness of using next generation monitoring technologies to monitor permit compliance and maximize efficiency of staff resources. Adding next generation monitoring technologies to the Water Boards' toolbox will enhance the ability of staff to prevent, reduce, treat, and avoid pollution in real time or near real time.

LEGAL CONCERNS

None.

PUBLIC NOTICE

The Meeting Notice and Agenda for today's meeting was posted on the Board's website and sent to those who subscribe to the email list for Board meetings.

SUPPORTING DOCUMENTS

None.