

Occidental Petroleum partners with New Mexico State University on produced water research

Adrian Hedden

A major oil and gas operator in the Permian Basin of southeast New Mexico is joining the State's produced water research efforts, providing facilities for field testing in the region.

Occidental Petroleum, the Permian's largest acreage holder, will facilitate evaluation of pilot and large-scale technology developed during the work of the New Mexico Produced Water Research Consortium – a joint venture between the New Mexico Environment Department and New Mexico State University (NMSU).

The Consortium was formed last year by Gov. Michelle Lujan Grisham to study the potential treatment and reuse of produced water outside of oil and gas operations.

Produced water is waste water generated during hydraulic fracturing activities – a combination of flowback from drilling and formation water brought to the surface along with crude oil and natural gas from underground shale.

It is traditionally pumped back underground or recycled for future fracking operations.

For every barrel of oil, companies can generate up to 10 barrels of produced water.

Pilot projects will generate the technology needed to see produced water applied to other industries such as agriculture, and represent a new water resource among New Mexico's increasingly scarce supplies.

The pilots will develop costs associated with the water treatment and application, along with performance data for various tested technologies.

Occidental will allow the Consortium access to oil production and produced water storage sites for field demonstrations, and will maintain its responsibility that the sites are safe and regulatory compliant for the use of future research groups.

Mike Hightower, program director for the Consortium said Occidental's partnership would support research operations and provide capacity for storage of the experimental fluids.

"We are pleased to partner with Occidental to support the important work of the consortium to fill science and technology gaps associated with the treatment and use of produced water," Hightower said.

"This partnership will provide opportunities for technology testing while handling and keeping the treated produced water within currently approved and permitted impoundments."

NMSU Chancellor Dan Arvizu said the partnership would advance NMSU's efforts to research new applications for produced water, and improving the industry's sustainability.

"With support from Occidental, we're continuing to put in place the groundwork needed to evaluate new technologies and advance toward sustainable solutions," Arvizu said. "We're grateful for their partnership."

Occidental Director of Water Strategy and Technology Joseph de Almeida said the company's partnership with NMSU could aid the industry's ability to turn produced water into a resource for other sectors.

"This project is a valuable opportunity to learn about the unique characteristics of water co-produced in oil and gas operations and determination of how we may do something good with it," he said.

"We believe the consortium's work will help determine how technology can transform produced water into a social beneficial use, including irrigation for non-edible crops, like cotton, golf courses or range management purposes."

Dan Mueller, senior manager with the Environmental Defense Fund said involving the oil and gas industry in NMSU's research could help apply experiments to "real-world" scenarios.

"We are pleased that Occidental is helping the consortium effort," Mueller said. "It is important to evaluate water treatment technologies under real-world conditions to narrow knowledge gaps pertaining to the possible use of treated produced water."

The University previously signed a deal in June with ExxonMobil to collaborate on produced water research with students from NMSU's College Engineering, College of Arts and Sciences, and College of Agricultural, Consumer and Environmental Sciences.

Monte Dobson, technology development manager at ExxonMobil said the joint effort would use the company's technological assets to increase the university's capabilities for the research.

"Our collaboration with New Mexico State University builds on ExxonMobil's commitment to meet energy demand while reducing environmental impacts through innovative research programs with academic institutions," he said.

"The project leverages New Mexico State's leading expertise in produced water research with ExxonMobil's resources and strong technological capabilities to find beneficial ways to re-use produced water."

Upon forming the Produced Water Consortium in September 2019, Lujan Grisham said the work will help the state address water shortages and drought through one of its biggest economic drivers: the extraction industry.



Michelle Lujan Grisham

"Turning this waste product into a commodity is good for preserving fresh water resources, good for compact requirements with other states, good for conservation purposes, good for local and county governments; it's good

for small and large producers, it's good for agriculture," Lujan Grisham said in an announcement of the Consortium's formation.

"It's good for New Mexico, and it represents an exciting leap forward."

NMED Cabinet Secretary James Kenney said the research done on produced water by the Consortium will not only develop new technologies, but guide future regulations.

The Produced Water Act, passed last year, clarified the State's definition of produced water and that NMED would regulate its use outside of oil and gas while industry uses would be overseen by the Energy, Minerals and Natural Resources Department (EMNRD).

Both agencies continued to work on developing their own produced water rules.

"Our state is continuing to take unprecedented steps forward to spur economic investment in furthering the science and technology associated with produced water and its potential treatment and reuse," Kenney said. "Through this partnership, science will guide our regulatory decision-making with respect to produced water treatment."

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