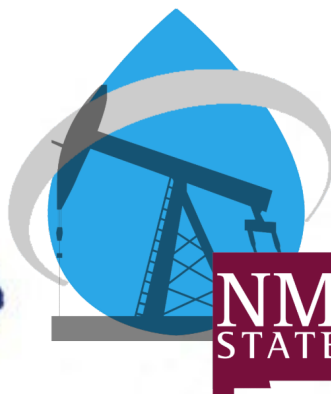


A dynamic splash of clear blue water against a white background, with various sized droplets and bubbles scattered throughout. The water is captured in mid-air, creating a sense of movement and freshness.

OPERATION PLAN



NM STATE NEW MEXICO
PRODUCED WATER
RESEARCH CONSORTIUM

Operation Plan

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Background

The New Mexico Environment Department (“*NMED*”) and the Regents of New Mexico State University (“*NMSU*”) entered into a Memorandum of Understanding (MOU 20 667 12200003, dated September 9, 2019) to create a produced water research consortium to support NMED’s implementation of New Mexico House Bill 546.

Goals

The New Mexico Produced Water Research Consortium (Consortium) is organized under that MOU to develop a research framework to fill scientific and technical knowledge gaps necessary to establish regulations and policies for the treatment of produced water. NMED requires any future regulation and policy for produced water management to be protective of public health and the environment, rooted in sound science and consistent with all applicable law. The Consortium is designed to strengthen and accelerate the development of public-private partnerships to build and grow future sustainable economic development opportunities in the State.

Value Proposition

Through the Consortium, New Mexico intends to continue to lead the country in advancing scientific and technological solutions related to the treatment and reuse of produced water generated by the oil and gas industry. The MOU is also intended to stimulate economic investment opportunities in New Mexico under the leadership of NMSU, which will rely on public and private funding to carry out this research.

Participation

The Consortium is an association of universities, industrial companies, organizations, and government agencies, with the objective of participating in common activities and pooling of resources to achieve a common goal in research and public service. Participant categories include, without limitation, the following:

- “*Academic Institutional Member*,” comprising any public or private institution, including higher education and K-12;
- “*Corporate Member*,” comprising any legally incorporated business or industry;
- “*Member*,” as defined in Article I of the NM-PWRC Membership Agreement;
- “*Non-Governmental Organization*,” comprising any nonprofit organization that operates independently of any government -- typically one whose purpose is to address a social or political issue;

- “*Sponsor*,” as defined in Article I of the NM-PWRC Membership Agreement
- “*Government Agency*” comprising interested government agencies

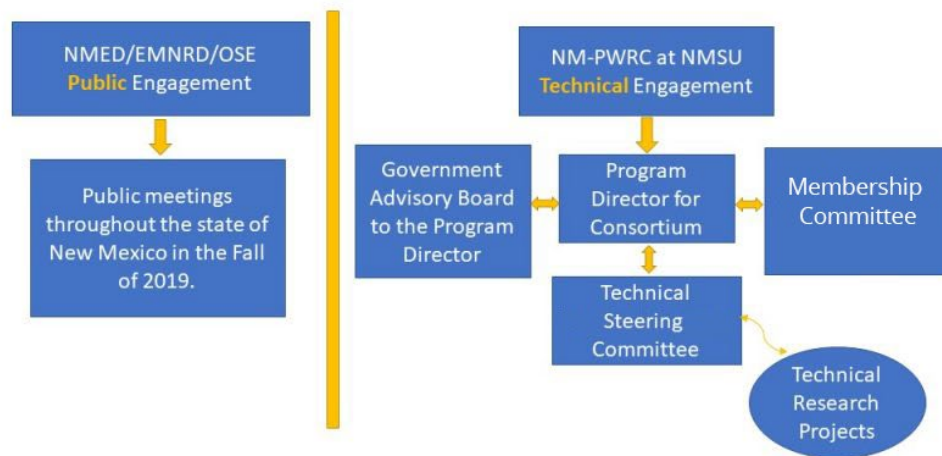
Article I: Consortium Organizational Structure

NMSU will manage the Consortium membership and process, operated under the umbrella of NMSU’s Office of Strategic Initiatives within the Office of the Chancellor. Membership status is established upon signature by both parties on the NM-PWRC Membership Agreement and payment of applicable membership fee. NMSU reserves discretion whether to accept a party as a member to ensure the integrity of the Consortium mission according to established research consortium practices.

The Government Advisory Board (“Board”), the Membership Committee (“Members”) and the Technical Steering Committee (“TSC”) will support the NMPWRC.

The diagram below illustrates the NMPWRC organizational structure.

Produced Water Engagement



The organizational structure is designed to ensure broad engagement while leveraging the technical and regulatory resources and knowledge within and external to New Mexico.

Article II: Consortium Management and Operations Structure

Each **Member** is entitled to participation in the Consortium and to share equally in the results of any research funded by the Consortium.

The **Program Director** is the administrative head of the Consortium, and is responsible for coordination and oversight of the fiscal, personnel, research, reporting, and outreach efforts. The Program Director works closely with the Board, the Council and TSC, and program and research managers to ensure that:

- the research projects are focused on efficiently and cost-effectively facilitating the adoption of produced water treatment, reuse and reapplication technologies; and
- science-based regulations are protective of human health and the environment.

Program and Research Managers manage the alignment and coordination of research projects for the Consortium with the goal of conducting “fit-for-purpose” water treatment research that provides guidance on policy, regulations, and the cost and performance associated to enhance each use or reuse of produced water. Those managers ensure outreach to the public, industry, regulatory agencies, and other stakeholder groups of developed technology improvements to ensure timely implementation and adoption of produced water treatment and reuse that will protect the environment and human health.

The **Board** will provide oversight of the Consortium research and outreach efforts by reviewing and approving major program strategies and directions, verification of key resource budgets and allocations, and schedules and progress. Each year, the Board will report its findings to NMED and NMSU leadership, and the Members. The Board will be comprised of a senior-level representative from state and federal agencies including:

- New Mexico State University;
- NM Environment Department;
- NM Energy Minerals and Natural Resources;
- NM Department of Agriculture;
- NM Water Resources Research Institute;
- NM Office of the State Engineer;
- NM Department of Health;
- NM Game and Fish; and
- Other state and federal environmental, land and water management, and ecological resource protection agencies.

Sponsors are those groups who provide funding support to advance research in treatment and reuse of produced water generated by the oil and gas

industry, with a commitment of 3-5 years. This multi-year commitment will ensure a robust research effort required to effectively address scientific and technical knowledge gaps necessary to establish regulations and policies for the treatment of produced water. Pooled Sponsor funding will be used to support operational and research needs of the Consortium. Each Sponsor entity will be granted automatic annual membership.

Sponsorship levels noted below are reflective of cumulative (calculated annually) financial commitment to the Consortium as follows:

- Platinum Sponsor \$2 million
- Gold Sponsor \$1 million
- Silver Sponsor \$500,000
- Bronze Sponsor \$250,000
- Affiliate Sponsor \$50,000

Financial commitments for Sponsorship may include cash and may also include any other resource specifically receiving approval as Sponsor support (e.g. in-kind resources such as vehicles, site equipment, and laboratory equipment).

The **Members** will serve to advise the Program Director on research roadmap priorities, including current research and technology gaps and emerging health and safety issues, opportunities for collaborative demonstration sites, environmental and regulatory considerations, and other relevant issues that impact the work of the Consortium. The Members will be supported by Faculty Fellows and student Interns, who will provide administrative and technical support at public meetings, workshops, and will help compile and record Consortium findings as needed, as well as help coordinate efforts with NMED.

Each Faculty **Fellow** is an individual with technical subject matter expertise who serves as liaison between the Member, researchers, NMED, and mentor university student interns working on behalf of the NM-PWRC.

Student Interns are invited from the three New Mexico research universities to assist in various aspects of the Consortium as determined by the Program Director. The Interns can be paid directly by Consortium or involved through other means to be determined by each of the respective institutions.

The **TSC** will serve as an independent set of technical representatives of the Consortium Members to help establish Requests for Proposals (RFP), evaluate responses to submitted RFPs for funding, and review research and technology cost and performance data, and help prepare findings. The role of the TSC is to oversee the integrity and fairness of research opportunities, assess the quality

and validation of the research results, and ensure a quality and focused research portfolio. Proposed TSC participants will be considered by the Programs Director, Research and Programs Managers, the Faculty Fellows, in consultation with the Board to select appropriate participants based on recognized technical expertise in areas such as:

- produced water issues and management;
- produced water treatment and testing;
- produced water public safety and health issues; and
- relevant alternative use research challenges, applications, costs, and impacts on water supply security and resiliency.

Funding

Research can result from funding from any combination of membership dues, sponsorships, or as a part of externally funded research. Externally funded research leveraged by NM-PWRC funding must be approved by the Board prior to acceptance of an award, if and only if, NM- PWRC funding is included as a cost-share or in-kind requirement in the respective research grant award.

Participation

TSC membership will include a minimum of twenty-five technical representatives selected from the major Member sectors to ensure broad input and oversight of the research program and research projects. This will include representatives from :

- Academia:
 - New Mexico and surrounding universities
- Oil and Gas sector;
- Midstream oil and gas water companies;
- State and federal health and natural resource agencies and laboratories; and
- Non-governmental organizations involved in natural resource and environmental issues.

Any TSC member is expected to recuse itself from review of any proposal that originates in whole or in part from that TSC member or its Affiliate (as defined in the Membership Agreement).

Article III: Consortium Research Program

The Consortium research program will consist of a portfolio of research projects evaluated and approved by the TSC with the intent of facilitating treatment technology research and technology development that can:

- accelerate the implementation and acceptance of policies and regulations for the use of treated produced water in New Mexico;
- support policies and regulations that protect the environment and human health; and
- be used as models nationwide.

Funded Core research projects are subject to compliance with terms outlined in the Membership Agreement and the directions identified by the TSC and Board.

Research projects consist of Core projects and Enhancement projects. Core projects are funded from pooled membership dues paid by Consortium members and pooled Sponsor funds. The TSC is responsible for evaluating and selecting Core projects based on research roadmap priorities recommended by the members and approved by the Board.

Enhancement projects are funded through additional financial means (but not membership dues or Sponsor pooled funding), specifically to enhance or accelerate a currently-funded Core project. In order to be included by the Consortium, an Enhancement project must contribute to the knowledge development of the Consortium and is subject to advance approval by the Program Director and the Board. The funding could come through proposals to other federal agencies, or directed funds from other private organizations.

Article IV: Financial Management of Consortium

Pooled membership funding is used to support operational and research needs of the Consortium. Annual membership dues are established as follows, depending on annual assessment :

- Corporate Member \$500 - 1,000
- Academic Institutional Member \$500
- Non-governmental Organization Member \$500

NMSU has an interest in ensuring that faculty participants in the Consortium obtain recognition from their Deans and Department Heads for Consortium-related research, public service and/or instructional activities. Consequently, each Core project proposal awarded by the Consortium – and any resulting award or applicable rejection is subject to normal University

procedures for processing that submission.

The annual period for paying membership is based on calendar (January 1 – December 31), and is the same for each Member. The Program Director is responsible to ensure the timely payment of membership dues, as authorization to undertake work within the Consortium is dependent on their collection. Each Member must pay its dues annually as a lump sum. The

Annual membership dues and pooled sponsorship funding will be deposited in a pooled (termed “public service”) account at NMSU. This prime account is used as a “holding” account for membership dues and sponsorship funds. Membership dues and pooled sponsorship funds are then utilized to fund research projects, the Consortium’s administrative budget, and future encumbrances (e.g., planned procurement of large-scale instrumentation for the benefit of membership projects, etc.). A clear breakdown of how membership dues is allocated will be provided annually.

Research projects will be funded in an amount not to exceed **\$200,000** per year, not to exceed twenty-four months duration, and not to be granted any no-cost extension requests unless approved by the Board. Funded research project awards are limited to a twenty percent indirect cost rate, including Core and Enhancement research projects.