

Exhibit NG-14

December 23, 2022

Subject: New Mexico Produced Water Research Consortium External Review

Dear Dr. Cifuentes,

The purpose of this letter is to provide you with recommendations from the requested External Review of the New Mexico Produced Water Research Consortium (NMPWRC), which was formed because of the NM State Legislature's directive to NMED in House Bill 546 to regulated produced water. In summary, the External Review found that the NMPWRC is a very valuable forum for addressing the Produced Water challenges, but in order to be successful moving forward NMSU will need to address the organizational structure and leadership of the Consortium, secure adequate funding for operations and research, and address communications and expectations on timelines, technologies, and results.

Beginning in early December 2022 the team began reviewing Consortium documentation and interviewing key Consortium Stakeholders. Per the Review Charter, "the Committee's review will assess the organizational structure, operations, results, and recommendations to be used by NMSU for renewal decision and future strategic planning."

The External Review team consisted of:

Jim Chavez, Sr. Advisor, NMSU, Sandia VP Retired.

Dr. Kerry Howe, Howe Water Science LLC, UNM Professor, Retired

Dr. Duncan McBranch, LANL

The review team appreciates the effort put forth by Consortium Leadership, Dr. Patricia Sullivan, Mr. Mike Hightower, and Dr. Pei Xu, in providing documentation for the review, talking with the Review Committee and facilitating interviews with key Stakeholders. We also appreciate the honesty and candor of the Consortium Leadership and all the Stakeholders and their comments about the Consortium and challenges to moving forward.

The External Review Team "report" is in the form of a Power Point Presentation, attached. The Presentation includes the list of deliverables requested in the Charter, a list of the Stakeholders that were interviewed, and the External Review Team's observations and recommendation. A summary of a few of the key observations and recommendations are listed below.

Observations

- There is consensus across stakeholder groups that NMPWRC is serving an important and unique public function, and that NM is ahead of other states with produced water challenges.
- There is consensus that Dr. Pei Xu is doing important research on Produced Water and in support of NMPWRC.

- Stakeholders have differing expectations of the consortium and opinions of its progress to date. Industry seems to be generally satisfied with the Consortium (dialogue and research); NMED is not. The research resulting from the RFP has focused on technology development and thus far has not generated the data that is necessary for developing regulations.
- There is not sufficient funding to support the Consortium operations or the research required. There is not a current detailed budget. Industry has provided some funding for some of the research; there does not appear to be any funding for operations and it appears that not all funding commitments have been met. NMED has not provided financial support to the Consortium or advocacy to secure ongoing state funding for operations or research.
- The current Program Director and Research Director are not compensated positions, which limits their ability to effectively manage operations and meet diverse expectations.
- The organizational structure is not clearly defined, which leads to issues in reporting, accountability and operations. This contributes to mismatches in expectations on research outcomes.
- It was noted that significant progress was demonstrated at the recent (Dec. '22) annual review meeting across all stakeholder groups. Substantive engagement from NMED was noted as a positive, and a requirement for effectiveness going forward.

Recommendations.


1. We strongly recommend that the Consortium be continued. However, the Consortium needs a budget with adequate funding to meet expectations: paid staff, research defined and funded consistent with Consortium goals, and sustained funding for treated produced water analytical sampling and data reporting.
2. A strong organizational structure should be developed, with a (minimum) half-time position for Operations Director, an Executive Director (with an outward-facing role, setting expectations, communicating with stakeholders and State leadership), a Research Director, and support staff.
3. Strengthen and clarify documentation and communications internally and externally. A key component for this will be listening, setting, and managing expectations across diverse stakeholder groups.
4. Recommend that NMSU/the Consortium solicit NMED input on potential beneficial uses, priorities, and what data will be needed to evaluate and inform rulemaking process for each potential beneficial use.
5. We recommend that you increase external sponsorship (with clear expectations) and seek to secure State Funding to support research for at least the next three years.
6. We recommend that there should a review board, oversight board or at least an annual review (like this one) to provide input to NMSU to ensure that the PWRC stays on task.

It was clear from the review that the Consortium provides a valuable service to all parties in providing a forum for dialogue and a venue for research. The Consortium is exactly the type of work that a Land Grant University should be doing to address the challenge of produced water in New Mexico. However, the significant staffing, funding, research and communication challenges will need to be addressed to ensure the effectiveness of and success of the Consortium. To ensure that the Consortium continues to move forward and addresses the challenges of produced water, NMSU leadership will need to take immediate action on staffing, funding and communications.

In summary: The New Mexico State Legislature directed the NMED to develop regulations for the use of produced water outside the oil and gas industry, and the Consortium is an essential contributor to that rule-making process. It is unlikely that the Consortium can accomplish its stated mission of generating the data needed to support the development of regulations if it has inadequate funding, an unclear organization structure and lack of clarity in expectations in research and outcomes. The recommendations of the Committee or some similar actions are needed if the Consortium is to continue.

The External Review Team applaud you for your initiative in asking for this review. We appreciate the opportunity to participate in this review and help NMSU, the State, producers, and industry in addressing the challenges and opportunities of Produced water.

Sincerely,



James Chavez, (Signing on behalf of the External Review Team)
Kerry Howe
Duncan McBranch

Attachment: As stated

Final Report of the External
Review of the New Mexico
Produced Water Research
Consortium

December 23, 2022

External Review Committee

Jim Chavez, Kerry Howe, and Duncan McBranch

External Review Charter Objective and Purpose

- NMSU will convene an External Review Committee to conduct an independent, in-depth review and assessment of the NM Produced Water Consortium.
- The specific purpose of the review is to provide input to NMSU on the current structure, operations, programs, and results produced by the Consortium and provide recommendations for moving forward.
- The Committee's review will assess the organizational structure, operations, results, and recommendations to be used by NMSU for renewal decision and future strategic planning.
- The Committee will provide an out brief to NMSU at the conclusion of the meeting and a summary report.

Committee and Process

- The External Review Committee Consists of:
 - James Chavez, Consultant, Sr. Advisor at NMSU and Retired VP SNL
 - Kerry Howe, Howe Water Science LLC, UNM Professor, Retired
 - Duncan McBranch, LANL Program Director
- The Committee held an initial meeting in late November 2022 and began the process of reviewing initial documentation and setting up interviews with key Stakeholders.
- The Committee reviewed both public and private documents related to the Consortium and Produced Water.
- The Committee completed its Review on the date of this document.

Key Stakeholders were interviewed

(All interviews were done by Teams video and many were conducted in group sessions)

- Dr. Patricia Sullivan, NMSU
- Mr. Mike Hightower, NMPWRC Director
- Dr. Pei Xu, NMSU, NMPWRC Research Director
- John Smitherman, NIM Oil and Gas
- Fredrick Verner, Chevron
- Joseph De Amerda, OXY
- Rick McCurdy, Select Energy Services
- Mathis Sayer, NGL
- Ron Hoffman, NGL
- Rebecca Roose, NMED
- Taimur Shaikh, EPA, Region 6
- Dan Muller, Environmental Defense Fund
- Tara Gross, Ground Water Protection Council
- Mark Lane, GWPC
- Cloelle Danforth, EDF
- John Rhoderick, NMED
- Jason Herman, NMED

Observations

- Consensus across stakeholder groups that NMPWRC is serving an important and unique public function, and that NM is currently ahead of related efforts in TX and CO.
 - Other States are looking to the NM Consortium to learn what works.
 - The Risk and Toxicology Working Group has been particularly effective.
 - Several people voiced that the PWRC is on the cusp of making great strides; 2023 could be a year of great progress.
- Consensus that Dr. Pei Xu is doing important research in support of NMPWRC
 - Dr. Pei is a strong asset to the Consortium, her group has done the bulk of the peer-reviewed research cited by the Consortium, and her contributions need to be made sustainable in the future structure of the organization.
 - Not clear if this research is funded by the consortium or leveraging funding from other sources.
- There is a difference of expectations from stakeholder groups and opinions of its progress to date.
 - Industry seems to be generally satisfied with the Consortium; while feedback from NMED is that they are not.
 - Not everyone is in agreement about what the Consortium should be doing.
 - All groups noted the valuable role as a “public square” for civil discussion of contentious issues.
 - The research resulting from the RFP has been focused on technology development, has not generated the data needed for developing regulations.
 - Industry is adept at seeking/developing new technologies... does not need the consortium to do that. The need is to demonstrate that the product water is safe for the intended use.
 - Some don't appreciate the difficulty that NMED will have regulating this. PW is a contentious issue. The public will complain no matter what NMED does, so they (NMED) have to have air-tight science with chain-of-custody, peer-review, no conflicts of interest, etc., to back up the regulatory process.

Observations (Cont.)

- There is not sufficient funding to support the Consortium operations or the research required.
 - There was not evidence of a recent detailed budget.
 - Industry has provided some funding for some of the research; there does not appear to be any funding for operations. It appears that not all funding commitments have been met.
 - NIMED has not provided financial support to the Consortium and has been reticent to support efforts to secure state funding for operations or research.
 - It was noted that New Mexico receives substantial tax revenue from the oil and gas industry but that the PWRC is unfunded.
 - Industry is interested in technology and can fund pilot studies. The gap is the funding needed to determine the quality of the product water. This analysis can be very expensive.
- The current Program Director and Research Director are not compensated positions. This is a risk which could and does raise significant concerns.

Observations (Cont.)

- The organizational structure is not clear which leads to issues in reporting, accountability and operations. (this could be the source of issues on expectations and research validation)
 - The Technical Steering Committee and the Working Groups seem to be the same both comprised of consortium Members. Is one supposed to have oversight over the other?
 - The 2021 Summary Report lists 190 participants. Are these all Members, on the TSC, or in working groups?
 - The relationship between the Working Groups and RFP-solicited research is not clear.
 - All peer-reviewed literature generated by the consortium has been generated by Dr. Pei Xu and her team; it is not clear if she is the “Research Director” or the “Chief Researcher.” “Research Director” implies oversight of research being done by others.
 - Who provides oversight to the industry-funded research to ensure that protocols are followed and the results are defensible? Is the Research Director supposed to do this? Is there a panel or advisory committee?
- Significant progress was demonstrated at the recent (Dec. '22) annual review meeting
 - Someone needs to capture the dialogue and discussion in this annual review to help set the research and sampling agenda for 2023. This should be an ongoing exercise repeated annually by the Executive Director and/or Operations Director.

Recommendations

- We strongly recommend that the Consortium be continued, however...
 - Consortium needs to adequately funded—needs paid staff and researchers
 - Consortium leadership should develop an operational and research budget for approval by NMSU
 - NMSU should seek funds from NIM State Legislature and/or NMED to ensure a sustainable Consortium budget for the next 3 years.
 - Regular engagement from NMED is critical to success moving forward.
- A strong organizational structure should be developed (See additional suggestion on the last slide)
 - An Operations Director (at least half-time) to oversee day to day operations
 - An Executive Director (paid, at least quarter time)—Outward-facing role, setting expectations, communicating with stakeholders and State leadership (should not be the same person as the Operations Director)
 - A dedicated Research Director (funded)
 - Sampling/Analysis of treated Produced Water
 - Broaden research base to be a true Consortium
 - Research Structure: need more consistent operational oversight and documentation of results
 - Sampling: Need process and oversight to ensure that appropriate QA/QC procedures are followed to meet public expectations for data used in support of regulatory rule-making
 - Research results and sampling data should be available to NMPWRC members and ultimately to the public
 - Need dedicated Admin support (plan for in budget).
 - Simplify and clarify working group structure, duties, and how accomplishments/results are documented and shared. Currently there is significant overlap and duplication across NMPWRC members, technical/industry oversight, and working groups.
 - Consensus that the risk and toxicology working group is the most successful working group and could serve as a model of what is working well.

Recommendations (Cont)

- Strengthen and clarify documentation and communication.
 - Provide guidelines for research documentation and validation (RFP, research contracts). Was research completed and documented? How should it be communicated to NMED so it can be used in rule-making?
 - There are several tiers of potential beneficial use of treated produced water. The Consortium should delineate these and set appropriate expectations for path/timing for use at scale.
 - Consortium should prioritize research and data sampling in the area(s) most likely to be evaluated and approved for use first.
 - Clear guidance from NMED: pilot-scale technology demonstrations must be closed-cycle with zero net discharge of treated produced water for the foreseeable future. Consequently, the Consortium should aim toward demonstrations that meet these criteria.
 - Data Portal is a good start and needs to be continued. Need to make available for public access and transparency.
 - Review process is needed for release of written communications regarding Consortium data and results.
- Recommend that NMSU/the Consortium solicit NMED input on potential beneficial uses, priorities, and what data will be needed to evaluate and inform rulemaking process for each potential beneficial use.
- Recommendations for increasing external sponsorship
 - Membership costs should be standardized by category (industry, NGO) and membership dues need to be paid to participate.
 - Clearly communicate and manage expectations for what industry will get out of membership in the Consortium: access to data across industry; participation in design of research and sampling protocols; forum for discussion of potential use cases
 - Industry role should be to develop and validate technologies and economic models for treating produced water. No guarantees on timing and path to approval for different tiers of use outside of oil/gas.

Recommendation (Cont.)

- We recommend that NMSU convene an external review board, oversight board or at least an annual review (like this one) to provide input to NMSU to ensure that the PWRC stays on task.

Summary

- The NM State Legislature directed NMED to develop regulations for Produced Water, and the Consortium is an important part of that process. It is unlikely that the Consortium can accomplish its stated mission of generating the data needed to support the development of regulations if it has inadequate funding, an unclear organization structure and lack of clarity in expectations in research and outcomes. The recommendations of the Committee or some similar actions are needed if the Consortium is to continue.

Additional Thoughts/Suggestions on Organizational Structure

- The executive director should set the overall direction for the consortium, serve as the “public face” of the consortium, manage communications with stakeholder groups and the public, solicit funding for the consortium (from both public and private sources), and manage expectations for the Consortium both internally and externally. It is essential that the executive director view the NMED as the primary “client” for the consortium and to maintain focus on developing information to assist the rule making process.
- The operations director should oversee day-to-day operations of the Consortium, manage the Consortium budget, set the schedule for Consortium activities, control Consortium membership and participation, coordinate the activities of the working groups, manage the research RFP process, administer external research projects, ensure that external participants are following protocols and submitting the necessary documentation, maintain files and documentation, ensure that the Consortium website is up-to-date, and other day-to-day functions.
- The research director should oversee the development (already completed) and annual revision of the research plan, sampling protocols, quality assurance plan, and other procedures to ensure that the research is of sufficient quality to withstand scrutiny for regulatory development.
- The Consortium management described above needs to be supported by sufficient administrative staff.
- The consortium should have an external advisory board (EAB) that meets periodically to review and provide oversight the consortium activities. This EAB should consist of 4 to 6 members that represent the major stakeholder groups (i.e., a member each from the O&G industry, an NGO, a regulator (perhaps from CO or TX, or EPA), the scientific community, etc.). The EAB members should not be otherwise involved in the day-to-day consortium activities (i.e. not serving on a working group nor participating in the external research projects).
- The Government Advisory Board (GAB) served initially to help development of the research plan and other protocols but has been as active recently. Importantly, it is not serving the oversight function described on the website and in the operating plan. It is recommended that the GAB be eliminated from the Consortium organization chart, the oversight function be replaced by the EAB above, and the other activities of the GAB be adsorbed into the working groups (perhaps by the formation of a new working group focused on government relations).
- Each working group should have a clear mission and be led by a single individual that reports to the operations director.
- The terminology of members, Technical Steering Committee, and working groups is confusing. It is recommended that the Technical Steering Committee term be eliminated (during our interviews, the working groups were frequently mentioned but the technical steering committee was never mentioned).