



Public Education and Outreach WG Accomplishments and 2022 Goals ^t

**NM Produced Water Research Consortium - Year-end Meeting
December 2, 2021**

Public Education and Outreach Panel Members

- Deborah Dixon, P.E.,
NMPWRC Fellow
- Rose Galbraith, NM
Dept. of Health
- Dr. Stephen Hightower,
M.D.
- Randy Shaw, P.E.,
NMPWRC Operations
Manager



Consortium Communication, Outreach, and Education Plan Overview

To “inform” membership, participants and the public through:

- Internal interactions and communications including GAB, General Membership, & TSC
- External interactions and communications
- Public Outreach

2021 Public Outreach

- WG Strategic Planning
 - Representatives from Technical WG's, State of NM, & PWRC
- Message:
 - NMED/OCD 2019 Summary of Initial Public Input on Produced Water
 - Regulation and Research
 - Certainty of Chemicals (Unknowns) in PW
 - Transparency of Results
 - Water Quality and Risks of Using Treated PW
 - <https://www.env.nm.gov/new-mexico-produced-water/public-participation-2/>
- Scouting for *Community Perceptions*: Permian Basin, San Juan Basin, and Matagorda County, TX
 - *welcome new technology that would provide supplemental usable water and economic development, if it's "safe"*
- Input and Experience from Health Care Community and DOH

2021 Public Outreach

Format:

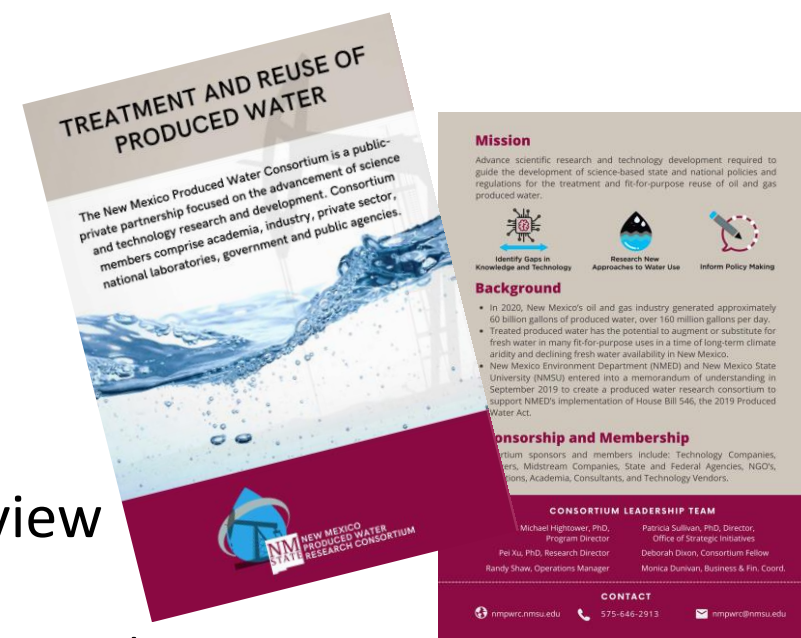
- Similar to NMSU Ag and Engineering extension services
- Terminology for event = “Workshop”
- In-person
- Breakout Sessions
- No hired facilitator
- Share technical information
- Pre-registration on Website

TRANSPARENCY

2021 Public Outreach

- Workshop Locations
 - (NMOGA Presentation)
 - Farmington
 - Carlsbad
 - Hobbs – delayed until 2022
- Agenda for Breakout Sessions following Consortium Overview
 - NM Produced Water Data Portal (Mike Hightower)
 - Consortium Produced Water Treatment Projects (Deborah Dixon)
 - PW Reuse Health & Toxicology Studies & Results (Steve Hightower & Rose Galbraith)
 - Permian Basin Socio-economic and Ecological Cost/Benefit Model (Vince Tidwell)
 - Bench Scale Demonstration of Produced Water Treatment Approaches (Randy Shaw)
- Handouts: FACT Sheets and Flyer
- Press Release, Webpage announcement & pre-registration + co-branding, tribal and pueblo contacts, and other listservs from local area organizations

* Questionnaires for Feedback



Public Education Workshops



Farmington: San Juan College,
Center for Energy
November 3, 2021



NM State University - Carlsbad
November 9, 2021



*Listserv created for future
correspondence & updates*

Effective Public Engagement

Role of NM Department of Health and Public Health Communication

Rose Galbraith, New Mexico Department of Health

rose.galbraith@state.nm.us



Environmental Health Considerations

- Environmental epidemiology is the study of the relationship between environmental exposures and human health.
 - What are the potential hazards? **Water Quality WG**
 - **Groundwater constituents**
 - What are the related health outcomes? **Risk and Toxicology WG**
 - What are the possible exposures routes? **Risk and Toxicology WG**
 - **Groundwater, crops, livestock, other?**

Interventions/Health Promotion

- What are the approaches to reduce potential public health hazards?
 - Treatment technologies
 - Toxicology studies
- Develop and share audience focused educational resources
 - Fact sheets, online materials
- Stakeholder engagement
 - Who are the key stakeholders? Do overly burdened communities have a seat at the table?
 - Meetings, workshops, feedback mechanisms (questionnaire)

Health Communication

- **What is the main objective of public outreach efforts?**
 - Improve public understanding of consortium activities/research in terms of fit-for-purpose reuse of treated produced water. Communicating the potential impacts to public and environmental health and the work of the consortium to address these concerns.
 - Are we promoting a behavior change?
Acceptance of PW reuse
 - What benefits are we offering?
Environmental (water conservation), economic
- **Who is the audience?**
 - Do messages account for cultural/linguistic preferences of impacted communities?
 - Different audience segments, one size does not fit all
Consortium members, industry, communities in Permian and San Juan basins, general public

Health Communication continued

- **What's the strategy for reaching the target audience(s)?**
 - Community workshops, print materials, online resources
- **Evaluation**
 - Are we reaching who we want? Workshop participation, online metrics
 - Are we developing the message we want to? Workshop questionnaire
 - What adjustments can be made? Workshop questionnaire, other stakeholder engagement opportunities, other?
 - How do we continually evaluate and improve? Public Education and Outreach WG, Consortium Communication Plan

FACT Sheet Handouts

- Purpose of Fact Sheets
- 7 Fact Sheets Developed in 2021
 1. Oil and Gas Operation Impacts on Public Health
 2. Hydraulic Fracking Impacts and Public and Environmental Protection
 3. Fit-for-Purpose Use of Produced Water
 4. New Mexico Produced Water Data Portal
 5. Identifying and Quantifying Hazardous Chemicals in Produced Water
 6. Whole Effluent Toxicity (WET) Testing Of Produced Water
 7. Produced Water Fate, Transport, and Risk Modeling and Analysis
- Fact Sheets to be Developed in 2022



Workshop Audience Demographics

Represented in Audience	San Juan College	NMSU – Carlsbad	Total
Treatment Technology Companies	2	5	7
County and U.S. Elected Officials/Staff	2	0	2
Testing Labs	1	1	2
Oil and Gas Companies	3	1	4
Non-Governmental Org's (NGO's)	3	2	5
Government Agency (BLM, Navajo Nation etc)	3	0	3
Industry (i.e. Potash Mining)	0	1	1
Other (Press, Water Rights, Interested etc.)	4	8	12
Totals:	18	18	36

Workshop Questionnaire Results Summary

- Questionnaire Scoring: 1 (Strongly Disagree) to 5 (Strongly Agree)
- Completed Questionnaires:
 - NMOGA: 25 out of ~60 Attendees
 - San Juan College (SJC): 11 out of 18 Attendees
 - NMSU Carlsbad: 16 out of 18 Attendees

Category (SJC and NMSU Carlsbad Only)	Summary Score
Information Presented in Understandable Way	4.5
Information Relevant to Audience Needs	4.6
Desire Treated PW to Supplement Water Supplies	4.5*

*4.6 if NMOGA responses included.

Workshop Questionnaire Results Summary

- “Of the information presented, what was most valuable to you?”

Topics	Comments
Everything	6
Treatment Technologies, Processes, and Projects	6
Economic Impacts of Produced Water Reuse	5
Data Portal	4
Consortium	3
Q&A Session	2
Toxicology and Human Health	1

Workshop Questionnaire Comments Summary

- “What additional information would you like for future workshops?”
- “What information should be discussed in more detail?”

Category	Future Workshops	More Detail	Total
Treatment Technologies, Processes, Projects: Details, Updates & Opportunities	10	10	20

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More Studies, Information, Analysis, Handouts, Resources etc.	9	10	19

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Economics	2	4	6

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Economics	2	4	6
Health and Environmental Impacts	2	4	6

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Economics	2	4	6
Health and Environmental Impacts	2	4	6
Future Including Timelines, Use of Treated PW, Regulatory Process and Outcomes	3	1	4

Public Education Continuous Improvement

- Update the nmpwrc Website for easier public access
- Develop FAQ's
- Create additional FACT Sheets?
- Incorporate Education Workshop Questionnaire Feedback
- Treatment Projects - Tours on Site
- Distribute Additional Workshop Questionnaires
- General email for Additional Input: nmpwrc@nmsu.edu
- Expand and Use listserv for Updates and Communications

What's Next in 2022?

- **Workshops and Events:**

- On-going Posting of Presentations and Research Results on Website
- Public Education Webinars and Podcasts
- Additional In-person Workshops
 - ABQ, Santa Fe, Las Cruces
 - San Juan Basin
 - Permian Basin

Questions?

Where to get more info:

Access our resources and learn more at:
<https://nmpwrc.nmsu.edu/> (or search
NMPWRC)

Email: NMPWRC@nmsu.edu

