EDF
ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

December 9, 2020 Transmitted via email: jennifer.fullam@state.nm.us

Ms. Jennifer Fullam,
Water Quality Standards Coordinator
Surface Water Quality Bureau
New Mexico Environment Department
PO Box 5469
Santa Fe, NM 87502-5469

Re: Public Comment on NMED's proposed amendments to the State's Standards for Interstate and Intrastate Surface Waters, 20.6.4 New Mexico Administrative Code (NMAC).

Ms. Fullam:

The Environmental Defense Fund (EDF) appreciates the opportunity to submit comments regarding the New Mexico Environment Department's (NMED's) Surface Water Quality Bureau (SWQB) Triennial Review (TR) of New Mexico's Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC). EDF is an international organization with over 2,000,000 members and activists worldwide, with more than 18,000 residing in New Mexico, many of whom care deeply about the potential health and environmental impacts of oil and gas development.

New Mexico's surface water quality standards (WQS), codified at 20.6.4 NMAC, define water quality goals by designating uses for rivers, streams, lakes and other surface waters; setting criteria to protect those uses; and establishing antidegradation provisions to preserve water quality. These WQS, after an opportunity for public review and comment, are adopted by the Water Quality Control Commission (WQCC), then approved by the United States Environmental Protection Agency (US EPA) under the authority of the federal Clean Water Act (CWA). They are then available for use by NMED in permitting discharges to surface waters, assessing whether its surface waters are impaired, and establishing restoration goals.

In its effort to implement House Bill 546, New Mexico will need to carefully assess whether these standards adequately address the potential pollutants in oil and gas produced waters, given that the bill contemplates the treatment and release of this wastewater in ways that may impact surface waters of the state. NMED itself has rightfully acknowledged this duty, sharing

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with the public that the Produced Water Act presents the agency with a research question to assess "what changes are needed to our state water quality standards to protect water resources and human health?"[1]

EDF recognizes the knowledge, time and resource challenges at play in revisiting and improving regulatory programs and standards in order to appropriately address the complexities of produced water. With this in mind, we can appreciate the potential reasons why NMED has chosen not to include or address produced water chemicals in its November 2020 draft proposed amendments to 20.6.4 NMAC. Nevertheless, EDF—as we did in informal commentary during the public involvement stage—would like to respectfully emphasize again the importance of beginning to address these constituents in the near-term by utilizing currently available information and eventually building on those initial efforts as science and technology allows.

EDF acknowledges that NMED will not be able to consider and develop individual standards for all of the many compounds in produced water at any one time, including during this TR, due to time and research constraints. However, EDF remains concerned that the current standards are not adequate to protect surface water quality or human health and the environment from permitted discharges of treated produced water should they occur in the future. Timely action to begin addressing gaps in existing standards is vital to ensure the proper baseline regulatory protections are in place *prior to* considering actual permitting programs. Given the time needed to modify standards and the research requirements necessary to gather supporting data and develop necessary analytical tools, an effort to consider new or modified standards to address produced water constituents should be launched as soon as reasonably practicable, if not within this TR.

Furthermore, a phased approach to comprehensively address produced water constituents makes sense, focusing first on improvements to the NMED water quality standards that can be made with existing knowledge and tools and next on improvements that prove necessary following research advancements. Research conducted by EDF has shown that there are known chemicals in produced waters that have existing surface water quality standards, or enough toxicity information to begin considering development of human health and/or aquatic life water quality criteria that could be incorporated into the New Mexico water quality standards in the near-term. Although criteria and standards based solely on this existing body of knowledge would only be a first step, action on these constituents presents a practical "phase one" effort toward developing a baseline (such as for initial pilot projects) that could then be supplemented and strengthened by ongoing research identified by the Produced Water Research Consortium toward the development of more substantial pilot testing conditions or broader permit conditions if the scientific research supports that outcome. This 'process of continuous improvement' approach to the establishment of guidelines or standards applicable to the reuse or discharge of treated produced water is vital to advance protection of the health and safety of New Mexico's surface waters and its citizens as NMED contemplates various pathways for implementing HB546.

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[1] NMED Public engagement meeting presentation: Produced Water Management in New Mexico (Nov. 14, 2019), https://www.env.nm.gov/new-mexico-produced-water/wp-content/uploads/sites/16/2019/11/Produced-Water-Public-Meeting-Presentation_ENGLISH_FINAL-191114.pdf

To summarize, EDF strongly believes that an initial phase of near-term action, either during this TR or outside of the review but before the next TR, should be taken on as many as possible chemicals potentially found in New Mexico produced water that:

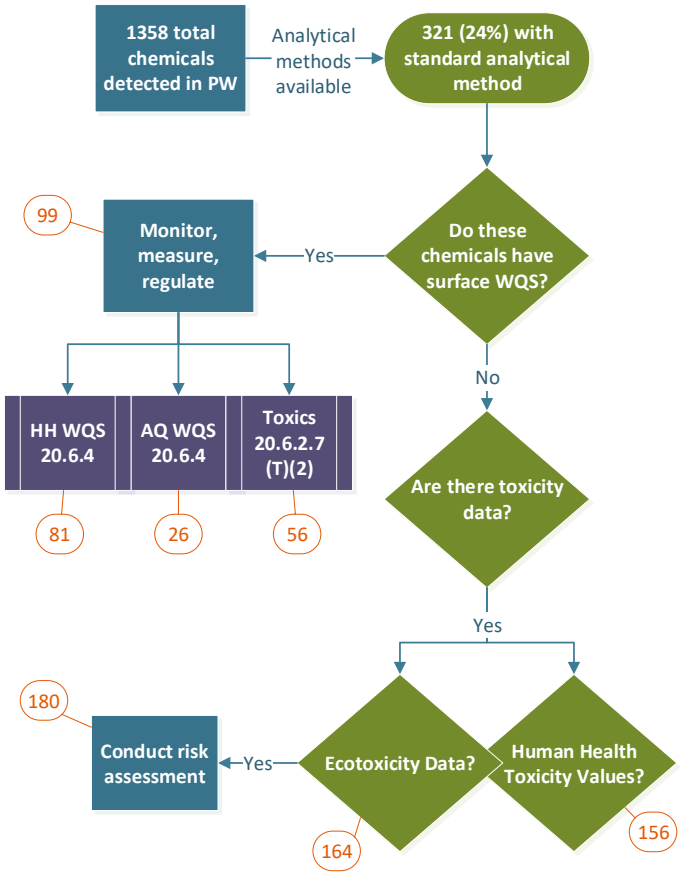
(i) have a standard, approved analytical method currently available;

(ii) are not covered by existing numeric standards; and

(iii) have the toxicity values that are necessary to assess risk and consider regulatory modification.

EDF has initiated an effort to elucidate the produced water chemicals that may meet this initial threshold. Through an extensive literature review, EDF has identified approximately 1,360 chemicals that can be found in produced water nationally and therefore have the potential to be found in New Mexico produced waters. An estimated 88 of those already have New Mexico surface water quality standards that could be immediately applied in a potential pilot testing or preliminary permitting program. Of the remainder, about 180 chemicals—which are not already considered under NMAC 20.6.2.7(T)(2), as discussed below—have an approved standard method associated with them, and toxicity values that could be used to conduct human health or aquatic life risk assessments that are the prelude to developing water quality criteria to adopt into a WQS. In other words, EDF estimates that at least 180 potential produced water chemicals have the type of tools and data necessary to begin a process of considering associated water quality criteria and standard updates *today*.

In addition to considering water quality numeric criteria improvements, there are other aspects of the holistic standards that deserve consideration in addressing produced water. For example, there are important protections related to "toxic pollutants," as defined in NMAC 20.6.2.7(T)(2) to include a list of 104 chemicals; of those, 56 have been identified in produced water and are potentially present in New Mexico produced water. While 45 of the 56 defined toxic pollutants found in produced water already have numeric surface water standards in New Mexico, there are 11 additional toxic pollutants that should be considered for a numeric standard. Importantly, toxic pollutants are also associated with a narrative requirement in the Surface Water General Criteria, which states “[e]xcept as provided in 20.6.4.16 NMAC, surface waters of the state shall be free of toxic pollutants from other than natural causes in amounts, concentrations or combinations that affect the propagation of fish or that are toxic to humans, livestock or other animals, fish or other aquatic organisms, wildlife using aquatic environments for habitation or aquatic organisms for food, or that will or can reasonably be expected to bioaccumulate in tissues of fish, shellfish and other aquatic organisms to levels that will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors or health risks to human consumers of aquatic organisms” (see NMAC Section 20.6.4.12(F)(1)). This narrative standard could be translated into numerical limits for toxics identified in produced water where pilot or other eventual permits are issued for the potential discharge of treated produced water to surface water bodies.



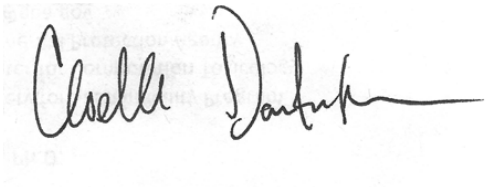
Initial comparison of chemicals identified in produced water (as reported nationally in the literature) to NM surface water quality standards, toxic pollutants, and available ecotoxicity and human health data. Chemicals, citations, and associated data are reported in the attachment to this letter. This represents ongoing work by EDF and partners that is expected to be presented in future peer-reviewed publications. Preliminary outputs are current as of November 2020.

EDF strongly encourages, at a minimum and as part of the 2020 TR or another near-term action prior to the next TR, that NMED conduct an assessment of the New Mexico surface water quality standards in relation to what is already known regarding the chemical character and toxicity of produced water. Based on that assessment, NMED should identify the suite of surface water quality standards already in place that may be utilized to address produced water in the nearer term, alongside the gaps that exist in coverage for the remaining potential chemicals. NMED should also identify and consider opportunities for an adaptive management approach to future actions on new standards as data and analytical tools allow – as represented by the EDF analysis here showcasing constituents with data currently available to conduct risk assessments toward the establishment of new criteria.

Finally, it is important to emphasize that even such an effort only scratches the surface of changes that would need to be in place before considering a move to implement any treatment and discharge of produced water into surface waters of the state. Pointedly, 76% of the potential chemicals in produced water were removed from EDF's analysis altogether simply because a standard analytical method does not exist for their detection and quantification in the regulatory context. This fact underscores why the recommendations for near-term action included here do not obviate the need for additional research but rather emphasize the importance of that research, while highlighting opportunities to—at a minimum—use available tools and

information to inform pilot studies, assess risk, and begin to strengthen regulatory programs in advance of real-world permitting scenarios.

Sincerely,



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Attachment

cc (via email);
Rebecca Roose, Rebecca.Roose@state.nm.us
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NM surface water quality standards, toxic pollutants, and available ecotoxicity and human health data and produced water chemicals

Produced water chemicals identified in literature with standard analytical method (Part 136, SW-846, or NEMI)
Chemical constituents identified in produced water as reported in the literature (181 peer-reviewed and grey; citations available upon request)
Toxicity value and ecotoxicity data sourced from Chemistry Dashboard database of toxicity values (ToxValDB, https://comptox.epa.gov/dashboard/)

Total		Counts				
279		81	26	56	250	255
Descriptor		HH WQS (20.6.4)	AQ WQS (20.6.4)	Toxics (20.6.2.7, T2)	Toxicity Values	Ecotoxicity Data
CAS	Name					
309-00-2	Aldrin	✓	✓	✓	✓	✓
60-57-1	Dieldrin	✓	✓	✓	✓	✓
72-20-8	Endrin	✓	✓	✓	✓	✓
76-44-8	Heptachlor	✓	✓	✓	✓	✓
58-89-9	Lindane	✓	✓	✓	✓	✓
12672-29-6	Aroclor 1248	✓	✓		✓	✓
7440-38-2	Arsenic	✓	✓		✓	✓
7440-43-9	Cadmium	✓	✓		✓	✓
7440-50-8	Copper	✓	✓		✓	✓
57-12-5	Cyanide	✓	✓		✓	✓
959-98-8	Endosulfan I	✓	✓		✓	✓
33213-65-9	Endosulfan II	✓	✓		✓	✓
1024-57-3	Heptachlor epoxide B	✓	✓		✓	✓
7439-92-1	Lead	✓	✓		✓	✓
7439-97-6	Mercury	✓	✓		✓	✓
7440-02-0	Nickel	✓	✓		✓	✓
72-55-9	p,p'-DDE	✓	✓		✓	✓
7782-49-2	Selenium	✓	✓		✓	✓
7440-66-6	Zinc	✓	✓		✓	✓
7429-90-5	Aluminum		✓		✓	✓
7782-50-5	Chlorine		✓		✓	✓
16065-83-1	Chromium (III)		✓		✓	
18540-29-9	Chromium (VI) ion		✓		✓	✓
7439-96-5	Manganese		✓		✓	✓
7439-98-7	Molybdenum		✓		✓	✓
7440-22-4	Silver		✓		✓	✓
156-60-5	(E)-1,2-Dichloroethylene	✓		✓	✓	✓
79-34-5	1,1,2,2-Tetrachloroethane	✓		✓	✓	✓
120-82-1	1,2,4-Trichlorobenzene	✓		✓	✓	✓
95-50-1	1,2-Dichlorobenzene	✓		✓	✓	✓
107-06-2	1,2-Dichloroethane	✓		✓	✓	✓
122-66-7	1,2-Diphenylhydrazine	✓		✓	✓	✓
106-46-7	1,4-Dichlorobenzene	✓		✓	✓	✓
120-83-2	2,4-Dichlorophenol	✓		✓	✓	✓
107-13-1	Acrylonitrile	✓		✓	✓	✓
319-84-6	alpha-1,2,3,4,5,6-Hexachlorocyclohexane	✓		✓	✓	✓
120-12-7	Anthracene	✓		✓	✓	✓
71-43-2	Benzene	✓		✓	✓	✓
92-87-5	Benzidine	✓		✓	✓	✓
50-32-8	Benzo(a)pyrene	✓		✓	✓	✓
205-99-2	Benzo(b)fluoranthene	✓		✓	✓	✓
207-08-9	Benzo(k)fluoranthene	✓		✓	✓	✓
319-85-7	beta-Hexachlorocyclohexane	✓		✓	✓	✓
111-44-4	bis(2-Chloroethyl) ether	✓		✓	✓	✓
117-81-7	bis(2-Ethylhexyl) phthalate	✓		✓	✓	✓
75-27-4	Bromodichloromethane	✓		✓	✓	
75-25-2	Bromoform	✓		✓	✓	✓
108-90-7	Chlorobenzene	✓		✓	✓	✓
67-66-3	Chloroform	✓		✓	✓	✓
84-74-2	Dibutyl phthalate	✓		✓	✓	✓
75-09-2	Dichloromethane	✓		✓	✓	✓
84-66-2	Diethyl phthalate	✓		✓	✓	✓
131-11-3	Dimethyl phthalate	✓		✓	✓	✓
100-41-4	Ethylbenzene	✓		✓	✓	✓
206-44-0	Fluoranthene	✓		✓	✓	✓
86-73-7	Fluorene	✓		✓	✓	✓
118-74-1	Hexachlorobenzene	✓		✓	✓	✓
78-59-1	Isophorone	✓		✓	✓	✓
74-83-9	Methyl bromide	✓		✓	✓	✓
98-95-3	Nitrobenzene	✓		✓	✓	✓
86-30-6	N-Nitrosodiphenylamine	✓		✓	✓	✓
108-95-2	Phenol	✓		✓	✓	✓
129-00-0	Pyrene	✓		✓	✓	✓
127-18-4	Tetrachloroethylene	✓		✓	✓	✓
108-88-3	Toluene	✓		✓	✓	✓
79-01-6	Trichloroethylene	✓		✓	✓	✓
541-73-1	1,3-Dichlorobenzene	✓			✓	✓
105-67-9	2,4-Dimethylphenol	✓			✓	✓
83-32-9	Acenaphthene	✓			✓	✓
12587-46-1	Alpha particle	✓				
7440-36-0	Antimony	✓			✓	✓
7440-39-3	Barium	✓			✓	✓
56-55-3	Benz(a)anthracene	✓			✓	✓
85-68-7	Benzyl butyl phthalate	✓			✓	✓
7440-41-7	Beryllium	✓			✓	✓
124-48-1	Chlorodibromomethane	✓			✓	✓
7440-47-3	Chromium	✓			✓	✓
218-01-9	Chrysene	✓			✓	✓
53-70-3	Dibenz(a,h)anthracene	✓			✓	
1031-07-8	Endosulfan sulfate	✓			✓	✓
7421-93-4	Endrin aldehyde	✓				
193-39-5	Indeno(1,2,3-cd)pyrene	✓			✓	✓
14797-55-8	Nitrate	✓			✓	✓
13982-63-3	Radium-226	✓				

NM surface water quality standards, toxic pollutants, and available ecotoxicity and human health data and produced water chemicals

Produced water chemicals identified in literature with standard analytical method (Part 136, SW-846, or NEMI)
Chemical constituents identified in produced water as reported in the literature (181 peer-reviewed and grey; citations available upon request)
Toxicity value and ecotoxicity data sourced from Chemistry Dashboard database of toxicity values (ToxValDB, https://comptox.epa.gov/dashboard/)

Total		Counts				
279		81	26	56	250	255
Descriptor		HH WQS (20.6.4)	AQ WQS (20.6.4)	Toxics (20.6.2.7, T2)	Toxicity Values	Ecotoxicity Data
CAS	Name					
15262-20-1	Radium-228	✓				
10098-97-2	Strontium-90	✓				
7440-28-0	Thallium	✓			✓	✓
7440-61-1	Uranium	✓			✓	✓
75-34-3	1,1-Dichloroethane			✓	✓	✓
123-91-1	1,4-Dioxane			✓	✓	✓
90-12-0	1-methylnaphthalene			✓	✓	✓
91-57-6	2-Methylnaphthalene			✓	✓	✓
74-87-3	Chloromethane			✓	✓	✓
108-38-3	m-xylene			✓	✓	✓
91-20-3	Naphthalene			✓	✓	✓
95-47-6	o-Xylene			✓	✓	✓
85-01-8	Phenanthrene			✓	✓	✓
106-42-3	p-xylene			✓	✓	✓
100-42-5	Styrene			✓	✓	✓
87-61-6	1,2,3-Trichlorobenzene				✓	✓
526-73-8	1,2,3-trimethylbenzene				✓	
95-63-6	1,2,4-Trimethylbenzene				✓	✓
84-69-5	1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester					✓
573-98-8	1,2-dimethylnaphthalene					✓
57-55-6	1,2-Propylene glycol				✓	✓
108-67-8	1,3,5-Trimethylbenzene				✓	✓
106-51-4	1,4-Benzoquinone				✓	✓
2245-38-7	1,6,7-Trimethylnaphthalene					✓
575-43-9	1,6-dimethylnaphthalene					✓
71-36-3	1-Butanol				✓	✓
611-14-3	1-Ethyl-2-methylbenzene				✓	
832-69-9	1-Methyl phenanthrene					✓
2381-21-7	1-Methylpyrene					✓
90-15-3	1-Naphthol				✓	✓
71-23-8	1-Propanol				✓	✓
829-26-5	2,3,6-Trimethylnaphthalene					✓
118-79-6	2,4,6-Tribromophenol				✓	✓
95-87-4	2,5-dimethylphenol					✓
581-42-0	2,6-dimethylnaphthalene					✓
576-26-1	2,6-dimethylphenol				✓	✓
111-76-2	2-Butoxyethanol				✓	✓
110-75-8	2-Chloroethyl vinyl ether				✓	✓
104-76-7	2-Ethyl-1-hexanol				✓	✓
591-78-6	2-Hexanone				✓	✓
149-30-4	2-Mercaptobenzothiazole				✓	✓
109-06-8	2-Methylpyridine				✓	✓
88-74-4	2-Nitroaniline				✓	✓
122-99-6	2-Phenoxyethanol				✓	✓
95-65-8	3,4-dimethylphenol				✓	✓
108-68-9	3,5-dimethylphenol					✓
140-66-9	4-(1,1,3,3-tetramethylbutyl)-Phenol					✓
7005-72-3	4-Chlorodiphenyl ether				✓	✓
622-96-8	4-Ethyltoluene				✓	
108-10-1	4-Methyl-2-pentanone				✓	✓
100-01-6	4-Nitroaniline				✓	✓
56-57-5	4-Nitroquinoline-1-oxide					✓
57-97-6	7,12-Dimethylbenz(a)anthracene				✓	✓
208-96-8	Acenaphthylene				✓	✓
75-07-0	Acetaldehyde				✓	✓
64-19-7	Acetic acid				✓	✓
67-64-1	Acetone				✓	✓
98-86-2	Acetophenone				✓	✓
79-06-1	Acrylamide				✓	✓
7664-41-7	Ammonia				✓	✓
14798-03-9	Ammonium					✓
62-53-3	Aniline				✓	✓
100-52-7	Benzaldehyde				✓	✓
191-24-2	Benzo(g,h,i)perylene				✓	✓
205-82-3	Benzo(j)fluoranthene				✓	
65-85-0	Benzoic Acid				✓	✓
119-61-9	Benzophenone				✓	✓
95-16-9	Benzothiazole				✓	✓
100-51-6	Benzyl alcohol				✓	✓
100-44-7	Benzyl Chloride				✓	✓
92-52-4	Biphenyl				✓	✓
7440-69-9	Bismuth				✓	✓
80-05-7	Bisphenol A				✓	✓
7440-42-8	Boron				✓	✓
123-86-4	Butyl acetate				✓	✓
104-51-8	Butylbenzene				✓	
58-08-2	Caffeine					✓
7440-70-2	Calcium				✓	
471-34-1	Calcium Carbonate				✓	✓
105-60-2	Caprolactam				✓	✓
7440-44-0	Carbon				✓	✓
124-38-9	Carbon Dioxide				✓	✓
75-15-0	Carbon disulfide				✓	✓
7440-45-1	Cerium				✓	✓

NM surface water quality standards, toxic pollutants, and available ecotoxicity and human health data and produced water chemicals

Produced water chemicals identified in literature with standard analytical method (Part 136, SW-846, or NEMI)
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Total		Counts				
279		81	26	56	250	255
	Descriptor	HH WQS (20.6.4)	AQ WQS (20.6.4)	Toxics (20.6.2.7, T2)	Toxicity Values	Ecotoxicity Data
CAS	Name					
7440-46-2	Cesium				✓	✓
16887-00-6	Chloride				✓	✓
7440-48-4	Cobalt				✓	✓
98-82-8	Cumene				✓	✓
110-82-7	Cyclohexane				✓	✓
108-94-1	Cyclohexanone				✓	✓
108-91-8	Cyclohexylamine				✓	✓
556-67-2	Cyclotetrasiloxane, octamethyl-				✓	✓
112-31-2	Decanal				✓	
124-18-5	Decane				✓	✓
134-62-3	DEET				✓	✓
319-86-8	Delta-Hexachlorocyclohexane					✓
132-64-9	Dibenzofuran				✓	✓
132-65-0	Dibenzothiophene				✓	✓
3252-43-5	Dibromoacetonitrile					✓
117-84-0	Di-n-octyl phthalate				✓	✓
122-39-4	Diphenylamine				✓	✓
298-04-4	Disulfoton				✓	✓
5989-27-5	D-Limonene				✓	✓
629-97-0	Docosane					✓
112-40-3	Dodecane				✓	
64-17-5	Ethanol				✓	✓
141-78-6	Ethyl Acetate				✓	✓
62-50-0	Ethyl methanesulfonate				✓	✓
107-21-1	Ethylene glycol				✓	✓
16984-48-8	Fluoride				✓	✓
50-00-0	Formaldehyde				✓	✓
68334-30-5	Fuels, diesel				✓	
7440-55-3	Gallium				✓	✓
7440-56-4	Germanium				✓	✓
7440-57-5	Gold				✓	✓
7440-58-6	Hafnium				✓	✓
142-82-5	Heptane				✓	✓
544-76-3	Hexadecane				✓	✓
66-25-1	Hexanal				✓	✓
142-62-1	Hexanoic acid				✓	✓
7647-01-0	Hydrochloric acid				✓	✓
7783-06-4	Hydrogen sulfide				✓	✓
7440-74-6	Indium				✓	✓
7553-56-2	Iodine				✓	✓
7439-89-6	Iron				✓	✓
67-63-0	Isopropanol				✓	✓
119-65-3	Isoquinoline					✓
8008-20-6	Kerosine				✓	
7439-91-0	Lanthanum				✓	✓
7439-93-2	Lithium				✓	✓
7439-95-4	Magnesium				✓	✓
108-39-4	m-Cresol				✓	✓
74-82-8	Methane				✓	
67-56-1	Methanol				✓	✓
78-93-3	Methyl Ethyl Ketone				✓	✓
80-62-6	Methyl methacrylate				✓	✓
66-27-3	Methyl methanesulfonate				✓	✓
108-87-2	Methylcyclohexane				✓	✓
68-12-2	N,N-Dimethylformamide				✓	✓
110-54-3	n-Hexane				✓	✓
14797-65-0	Nitrite				✓	✓
7727-37-9	Nitrogen				✓	✓
10595-95-6	N-Nitroso-N-methylethylamine				✓	
95-48-7	o-Cresol				✓	✓
630-02-4	Octacosane				✓	✓
593-45-3	Octadecane				✓	
7440-04-2	Osmium				✓	✓
7440-05-3	Palladium				✓	✓
106-44-5	p-Cresol				✓	✓
99-87-6	p-Cymene				✓	✓
307-55-1	Perfluorododecanoic acid					✓
198-55-0	Perylene					✓
7723-14-0	Phosphorus				✓	✓
85-44-9	Phthalic anhydride				✓	✓
7440-06-4	Platinum				✓	✓
25322-68-3	Polyethylene glycol				✓	✓
25322-69-4	polypropylene glycol				✓	✓
7440-09-7	Potassium				✓	✓
50-24-8	Prednisolone					✓
107-19-7	Propargyl alcohol				✓	✓
79-09-4	Propionic acid				✓	✓
103-65-1	Propylbenzene				✓	✓
110-86-1	Pyridine				✓	✓
91-22-5	Quinoline				✓	✓
7440-15-5	Rhenium					✓
7440-16-6	Rhodium				✓	✓
7440-17-7	Rubidium				✓	✓
7440-18-8	Ruthenium				✓	✓

NM surface water quality standards, toxic pollutants, and available ecotoxicity and human health data and produced water chemicals

Produced water chemicals identified in literature with standard analytical method (Part 136, SW-846, or NEMI)
Chemical constituents identified in produced water as reported in the literature (181 peer-reviewed and grey; citations available upon request)
Toxicity value and ecotoxicity data sourced from Chemistry Dashboard database of toxicity values (ToxValDB, https://comptox.epa.gov/dashboard/)

Total		Counts				
279		81	26	56	250	255
	Descriptor	HH WQS (20.6.4)	AQ WQS (20.6.4)	Toxics (20.6.2.7, T2)	Toxicity Values	Ecotoxicity Data
CAS	Name					
7440-20-2	Scandium				✓	✓
135-98-8	sec-Butylbenzene				✓	
7631-86-9	Silica				✓	✓
7440-21-3	Silicon				✓	✓
7440-23-5	Sodium				✓	✓
7440-24-6	Strontium				✓	✓
14808-79-8	Sulfate				✓	✓
18496-25-8	Sulfide					✓
7704-34-9	Sulfur				✓	✓
7446-09-5	Sulfur dioxide				✓	
7440-25-7	Tantalum				✓	✓
13494-80-9	Tellurium				✓	✓
75-65-0	tert-Butyl alcohol				✓	✓
98-06-6	tert-Butylbenzene				✓	✓
629-59-4	Tetradecane				✓	
7440-29-1	Thorium				✓	✓
7440-31-5	Tin				✓	✓
7440-32-6	Titanium				✓	✓
126-73-8	Tributyl phosphate				✓	✓
25167-82-2	Trichlorophenol					✓
115-86-6	Triphenyl phosphate				✓	✓
78-51-3	Tris(2-butoxyethyl) phosphate				✓	✓
115-96-8	Tris(2-chloroethyl) phosphate				✓	✓
7440-33-7	Tungsten				✓	✓
7440-62-2	Vanadium				✓	✓
7440-65-5	Yttrium				✓	✓
7440-67-7	Zirconium				✓	✓