The Definition of “Waters of the United States”
Federalism Consultation

Within the Ohio Department of Natural Resources (ODNR), Division of Oil and Gas Resources Management (DOGRM), we operate an Orphan Well Program that plugs abandoned (no owner) oil and gas wells. Many of the wells have been around since the early 1900’s. During their existence, some of the wells have been leaking gas, oil, and brine on the surrounding landscape. Some of these form brine “scalds” where brine leaks out and evaporates (leaving salt deposits), pools and concentrates, or runs into ditches or creeks. Over time, the continued exposure to salt kills the vegetation leaving an area surrounding the abandoned well barren. When salt deposits are present, wildlife congregate and ingests the dirt to obtain the salt. Over time, the area where the brine is leaking out is dug down by the wildlife and a depression forms that collects precipitation.

After an executive order by the president, the Clean Water Rule (33 CFR part 328; 40 CFR Parts 110, 112, 116, et al. / Final Rule published Vol. 80 No. 124 FR) is undergoing federalism review and accepting comments from state and local agencies regarding the proposed rule. In the discussion of exemptions on page 37096 of the Clean Water Rule, the authors state:

“The agencies add exclusions for groundwater and erosional features, as well as exclusions for some waters that were identified in public comments as possibly being found jurisdictional under proposed rule language where this was never the agencies’ intent. These exclusions are reflective of current agencies’ practice, and their inclusion in the rule furthers the agencies’ goal of providing greater clarity over what waters are and are not protected under the CWA.”

I have reviewed the language of the proposed “Clean Water Rule” and I am concerned that the discharge leaking from the wells could be interpreted as “waters of the U.S.” under the proposed “Clean Water Rule”. Designated as such imposes potential waste of financial resources through additional time and monies spent on complying with a feature that under 502(14)* of the Clean Water Act (CWA) could be argued to be “point source pollution”.

*CWA 502 (14) – “The term "point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.”

It is my argument that ground water discharges resulting from the abandonment of oil and gas wells be exempted from the definition of “Waters of the United States” even if a “significant nexus” exists to non-exempted “Waters of the United States”.

The following is the definitions for the proposed “Clean Water Rule”. My comments are highlighted.

§230.3 Definitions.

For purposes of this part, the following terms shall have the meanings indicated:

(a) The term *Act* means the Clean Water Act (also known as the Federal Water Pollution Control Act or FWPCA) Pub. L. 92-500, as amended by Pub. L. 95-217, 33 U.S.C. 1251, *et seq.*

(b) The terms *aquatic environment* and *aquatic ecosystem* mean waters of the United States, including wetlands, that serve as habitat for interrelated and interacting communities and populations of plants and animals.

(c) The term *carrier of contaminant* means dredged or fill material that contains contaminants.

(d) The term *contaminant* means a chemical or biological substance in a form that can be incorporated into, onto or be ingested by and that harms aquatic organisms, consumers of aquatic organisms, or users of the aquatic environment, and includes but is not limited to the substances on the 307(a)(1) list of toxic pollutants promulgated on January 31, 1978 (43 FR 4109).

(e) The term *discharge point* means the point within the disposal site at which the dredged or fill material is released.

(f) The term *disposal site* means that portion of the "waters of the United States" where specific disposal activities are permitted and consist of a bottom surface area and any overlying volume of water. In the case of wetlands on which surface water is not present, the disposal site consists of the wetland surface area.

(g) The term *extraction site* means the place from which the dredged or fill material proposed for discharge is to be removed.

(h) The term *mixing zone* means a limited volume of water serving as a zone of initial dilution in the immediate vicinity of a discharge point where receiving water quality may not meet quality standards or other requirements otherwise applicable to the receiving water. The mixing zone should be considered as a place where wastes and water mix and not as a place where effluents are treated.

(i) The term *permitting authority* means the District Engineer of the U.S. Army Corps of Engineers or such other individual as may be designated by the Secretary of the Army to issue or deny permits under section 404 of the Act; or the State Director of a permit program approved by EPA under section 404(g) and section 404(h) or his delegated representative.

(j) The term *pollutant* means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials not covered by the Atomic Energy Act, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water. The legislative history of the Act reflects that "radioactive materials" as included within the definition of "pollutant" in section 502 of the Act means only radioactive materials which are not encompassed in the definition of source, byproduct, or special nuclear materials as defined by the Atomic Energy Act of 1954, as amended, and regulated under the Atomic Energy Act. Examples of radioactive materials not covered by the Atomic Energy Act and, therefore, included within the term "pollutant", are radium and accelerator produced isotopes. See *Train* v. *Colorado Public Interest Research Group, Inc.,* 426 U.S. 1 (1976).

Comment: Brine has been shown to contain radium, so does that mean it can be classified as a pollutant and if so, does that mean that brine leaking out of a wellbore, regardless of "stream-like" characteristics (bed, bank, ordinary high water mark – see below) is exempt from being considered a "Waters of the United States"?

(k) The term *pollution* means the man-made or man-induced alteration of the chemical, physical, biological or radiological integrity of an aquatic ecosystem.

Comment: Brine being released from an abandoned oil and gas wellbore is an involuntary man-induced release of groundwater from below normal groundwater levels. It would never have occurred if the well

had not been drilled and given access to the surface. Brine routinely kills vegetation and aquatic organisms, which by the above definition means it alters (negatively) the chemical, biological, and radiological integrity of the creek. Therefore, by this definition, brine flowing from an abandoned wellbore should would be a pollutant and exempt from being considered a “Waters of the United States”.

(l) The term *practicable* means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

(m) *Special aquatic sites* means those sites identified in subpart E. They are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. (See §230.10(a)(3))

(n) The term *territorial sea* means the belt of the sea measured from the baseline as determined in accordance with the Convention on the Territorial Sea and the Contiguous Zone and extending seaward a distance of three miles.

(o) The term *waters of the United States* means:

(1) For purposes of the Clean Water Act, 33 U.S.C. 1251 *et seq.* and its implementing regulations, subject to the exclusions in paragraph (o)(2) of this section, the term “waters of the United States” means:

(i) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(ii) All interstate waters, including interstate wetlands;

(iii) The territorial seas;

(iv) All impoundments of waters otherwise identified as waters of the United States under this section;

(v) All tributaries, as defined in paragraph (o)(3)(iii) of this section, of waters identified in paragraphs (o)(1)(i) through (iii) of this section;

(vi) All waters adjacent to a water identified in paragraphs (o)(1)(i) through (v) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;

Comment: See next comment

(vii) All waters in paragraphs (o)(1)(vii)(A) through (E) of this section where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (o)(1)(i) through (iii) of this section. The waters identified in each of paragraphs (o)(1)(vii)(A) through (E) of this section are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (o)(1)(i) through (iii) of this section. Waters identified in this paragraph shall not be combined with waters identified in paragraph (o)(1)(vi) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (o)(1)(vi), they are an adjacent water and no case-specific significant nexus analysis is required.

Comment: A well with a brine pond (if not exempted) could be considered an adjacent body of water based on the criteria in (o)(1)(vi).

(A) *Prairie potholes.* Prairie potholes are a complex of glacially formed wetlands, usually occurring in depressions that lack permanent natural outlets, located in the upper Midwest.

(B) *Carolina bays and Delmarva bays.* Carolina bays and Delmarva bays are ponded, depressional wetlands that occur along the Atlantic coastal plain.

(C) *Pocosins.* Pocosins are evergreen shrub and tree dominated wetlands found predominantly along the Central Atlantic coastal plain.

(D) *Western vernal pools.* Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.

(E) *Texas coastal prairie wetlands.* Texas coastal prairie wetlands are freshwater wetlands that occur as a mosaic of depressions, ridges, intermound flats, and mima mound wetlands located along the Texas Gulf Coast.

(viii) All waters located within the 100-year floodplain of a water identified in paragraphs (o)(1)(i) through (iii) of this section and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (o)(1)(i) through (v) of this section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (o)(1)(i) through (iii) of this section. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs (o)(1)(i) through (iii) of this section or within 4,000 feet of the high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (o)(1)(vi) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (o)(1)(vi), they are an adjacent water and no case-specific significant nexus analysis is required.

(2) The following are not “waters of the United States” even where they otherwise meet the terms of paragraphs (o)(1)(iv) through (viii) of this section.

(i) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act are not waters of the United States.

(ii) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(iii) The following ditches:

(A) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.

(B) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.

(C) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (o)(1)(i) through (iii) of this section.

(iv) The following features:

(A) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(B) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(C) Artificial reflecting pools or swimming pools created in dry land;

(D) Small ornamental waters created in dry land;

(E) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;

(F) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and

(G) Puddles.

(v) Groundwater, including groundwater drained through subsurface drainage systems.

(vi) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(vii) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

Comments: Many of the above listed exceptions have a common theme of situations that happen to be on “Dry Land”. The majority of our abandoned wells that are leaking brine are on “dry land” and have created basically a combination of incidental depressions, puddles, erosional features, and groundwater.

(3) In this paragraph (o), the following definitions apply:

(i) *Adjacent.* The term *adjacent* means bordering, contiguous, or neighboring a water identified in paragraphs (o)(1)(i) through (v) of this section, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like. For purposes of adjacency, an open water such as a pond or lake includes any wetlands within or abutting its ordinary high water mark. Adjacency is not limited to waters located laterally to a water identified in paragraphs (o)(1)(i) through (v) of this section. Adjacent waters also include all waters that connect segments of a water identified in paragraphs (o)(1)(i) through (v) or are located at the head of a water identified in paragraphs (o)(1)(i) through (v) of this section and are bordering, contiguous, or neighboring such water. Waters being used for established normal farming, ranching, and silviculture activities (33 U.S.C. 1344(f)) are not adjacent.

(ii) *Neighboring.* The term *neighboring* means:

(A) All waters located within 100 feet of the ordinary high water mark of a water identified in paragraphs (o)(1)(i) through (v) of this section. The entire water is neighboring if a portion is located within 100 feet of the ordinary high water mark;

(B) All waters located within the 100-year floodplain of a water identified in paragraphs (o)(1)(i) through (v) of this section and not more than 1,500 feet from the ordinary high water mark of such water. The entire water is neighboring if a portion is located within 1,500 feet of the ordinary high water mark and within the 100-year floodplain;

(C) All waters located within 1,500 feet of the high tide line of a water identified in paragraphs (o)(1)(i) or (iii) of this section, and all waters within 1,500 feet of the ordinary high water mark of the Great Lakes. The entire water is neighboring if a portion is located within 1,500 feet of the high tide line or within 1,500 feet of the ordinary high water mark of the Great Lakes.

Comments: Seems excessive. According to the US Army Corps of Engineers, the ordinary high water mark for Lake Erie is 573.4' and a portion of lake erie is a cliff. Why should a body of water a quarter mile up a cliff be considered "Neighboring"?

(iii) *Tributary* and *tributaries.* The terms *tributary* and *tributaries* each mean a water that contributes flow, either directly or through another water (including an impoundment identified in paragraph (o)(1)(iv) of this section), to a water identified in paragraphs (o)(1)(i) through (iii) of this section that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark. These physical indicators demonstrate there is volume, frequency, and duration of flow sufficient to create a bed and banks and an ordinary high water mark, and thus to qualify as a tributary. A tributary can be a natural, man-altered, or man-made water and includes waters such as rivers, streams, canals, and ditches not excluded under paragraph (o)(2) of this section. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if, for any length, there are one or more constructed breaks (such as bridges, culverts, pipes, or dams), or one or more natural breaks (such as wetlands along the run of a stream, debris piles, boulder fields, or a stream that flows underground) so long as a bed and banks and an ordinary high water mark can be identified upstream of the break. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if it contributes flow through a water of the United States that does not meet the definition of tributary or through a non-jurisdictional water to a water identified in paragraphs (o)(1)(i) through (iii) of this section.

Comment: Does this mean that a water is considered a tributary if it is contributing flow TO a water with the bed, bank, and ordinary high water mark and doesn't need to possess the characteristics itself, or does it is mean that the water contributing the flow must have the bed, bank, and ordinary high water mark? In the case of the former, does this mean all it has to do is contribute flow? I can't imagine protecting flowing brine into fresh water is goal of the CWA. In the case of the latter, sometimes the areas of brine kills exhibit characteristics of bed, bank, and ordinary high water mark through erosional features and the nature of brine itself.

(iv) *Wetlands.* The term *wetlands* means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

(v) *Significant nexus.* The term *significant nexus* means that a water, including wetlands, either alone or in combination with other similarly situated waters in the region, significantly affects the chemical, physical, or biological integrity of a water identified in paragraphs (o)(1)(i) through (iii) of this section. The term "in the region" means the watershed that drains to the nearest water identified in paragraphs (o)(1)(i) through (iii) of this section. For an effect to be significant, it must be more than speculative or insubstantial. Waters are similarly situated when they function alike and are sufficiently close to function together in affecting downstream waters. For purposes of determining whether or not a water has a significant nexus, the water's effect on downstream (o)(1)(i) through (iii) waters shall be assessed by evaluating the aquatic functions identified in paragraphs (o)(3)(v)(A) through (I) of this section. A water has a significant nexus when any single function or combination of functions performed by the water, alone or together with similarly situated waters in the region, contributes significantly to the chemical, physical, or biological integrity of the nearest water identified in paragraphs (o)(1)(i) through (iii) of this section. Functions relevant to the significant nexus evaluation are the following:

(A) Sediment trapping,
(B) Nutrient recycling,

(C) Pollutant trapping, transformation, filtering, and transport,
(D) Retention and attenuation of flood waters,
(E) Runoff storage,
(F) Contribution of flow,
(G) Export of organic matter,
(H) Export of food resources, and
(I) Provision of life cycle dependent aquatic habitat (such as foraging, feeding, nesting, breeding, spawning, or use as a nursery area) for species located in a water identified in paragraphs (o)(1) through (3) of this section.

Comment: Any contribution of flow (many of the brine flows from abandoned wells) travel into a creek or river and therefore a "significant nexus" could be considered to exist? Again, brine routinely kills vegetation and aquatic organisms, which by the above definition means it contributes (negatively) to the chemical, biological, and radiological integrity of the creek. Therefore, by this definition, brine flowing from an abandoned wellbore should would have a "significant nexus" and be considered a "Waters of the United States". I don't think the intended purpose of the CWA was to protect brine water flowing into actual "Waters of the United States".

(vi) *Ordinary high water mark.* The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Comment: With brine releases and spills we are trying to clean up, the vegetation is usually killed and absent. This does not represent an indicator of water fluctuation, it means the salt killed the vegetation. This could be misconstrued as signs of an ordinary high water mark.

(vii) *High tide line.* The term *high tide line* means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

[45 FR 85344, Dec. 24, 1980, as amended at 58 FR 45037, Aug. 25, 1993; 80 FR 37115, June 29, 2015]

Discussion:

The current exemptions within the new rule are:

"The following features are not ''waters of the United States'':
– Artificially irrigated areas that would revert to dry land should application of irrigation water to that area cease
– Artificial, constructed lakes or ponds created by excavating and/or diking dry land such as farm and stock watering ponds, irrigation ponds, settling basins, log cleaning ponds, cooling ponds, or fields flooded for rice growing
– Artificial reflecting pools or swimming pools created by excavating and/or diking dry land
– Small ornamental waters created by excavating and/or diking dry land for primarily aesthetic reasons

– Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand or gravel that fill with water
– Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways
– Puddles"

Groundwater is already exempted:
"The agencies include an exclusion for groundwater, including groundwater drained through subsurface drainage systems. As discussed in the preamble to the proposed rule, the agencies have never interpreted ''waters of the United States'' to include groundwater. The exclusion does not apply to surface expressions of groundwater, as some commenters requested, such as where
groundwater emerges on the surface and becomes baseflow in streams or spring fed ponds."

Comment: Groundwater is already exempted, but not groundwater "expressed" at the surface. I would argue that the brine "ground water" flowing from an abandoned oil and gas well is not traditional naturally expressed groundwater like a spring or a seep and is only made possible from the actions of man and therefore is more like a pollution (by definition) than traditional ground water resources.

With all the exemptions afforded to other bodies of water, it makes sense that brine water leaking out of the ground via an abandoned oil and gas wells should be exempted as well.

It is my argument that ground water discharges resulting from the abandonment of oil and gas wells be exempted from the definition of "Waters of the United States" even if a "significant nexus" exists to non-exempted "Waters of the United States".

Scenario #1 – Brine leaks from a well onto surrounding area causing scald and ponding, animals erode pathway to water.

Example: Pearl Johnson (RAY) 1-226 (34-079-60186-0000) (Figures 1 and 2)
Background: The Pearl Johnson well is located in Jackson County, OH and consists of a bubbling pool of brine water that is on dry land and has been eroded by animal activity to the point where when a nearby pond outflow increases, the two connect. Under current definitions of "Waters of the U.S." and "Nexus", this discharge would be considered jurisdictional waters and possibly require mitigation upon plugging of the well.

Figure 1: Pearl Johnson well brine pool

Figure 2: Pearl Johnson well brine pool possible “Significant Nexus” created by cattle and wildlife

Scenario #2 – Brine leaks from well into ditch, stream, river.
Example: Wynn WA #1 (34-131-60048-0000) (Figure 3 and 4)
Background: The Wynn well is located in Pike County, OH and consists of a large basin of water that continually flows brine (6,000+ ppm chlorides) into sunfish creek. Under current definitions of "Waters of the U.S." and "Nexus", this discharge would be considered jurisdictional waters and possibly require mitigation upon plugging of the well.

Figure 3: Brine pool at the Wynn #1 in Pike County

Figure 4: Brine water flowing into sunfish creek near Piketon, Ohio.