



west virginia department of environmental protection

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Danny Webb Construction, Inc. **UIC Permits 2D0190460 and 2D0190508** Comments and Response to Comments and Final UIC Permit.

On March 10, 2015, the Draft Underground Injection Control Permit Nos. **UIC2D0190460** and **2D0190508** were presented to the public for a 30 day review and comment period as required by Legislative Rule 47-13. The following is a summary of written and verbal comment received during the comment period.

1. How does the WVDEP methods of injecting Technologically Enhanced Naturally Occurring Radioactive Material TENORM chemicals compare with EPA methods of injecting TENORM chemicals?

DEP Response: The WVDEP addresses TENORM in the same manner as our USEPA counterpart. Class II injection fluids are defined as those "brought to surface in the connection with conventional oil or natural gas plants and may be comingled with waste waters from gas plants which are an integral part of production operations," Class II fluids are exempt from chemical concentration limitations, as long their fluid origin can be defined as above. The USEPA addresses TENORM in the same manner, allowing for the safe disposal of TENORM bearing fluids in Class II disposal wells.

2. How does the WVDEP definition of these pathways of endangerment vary from Environmental Protection Agency (EPA)?

DEP Response: The WVDEP does not recognize "pathways of endangerment" as a review term, however we address all features in the Area of Review that may cause fluids to migrate outside of the permitted injection zone(s) in the same as manner as our USEPA counterparts.

3. Are those pathways of endangerment present in the case of the Weir Sandstone? If not, I am requesting the information upon which you base this claim. Is there a satisfactory confining layer to hold TENORM chemicals, volatile organic compounds (VOCs), and all other materials that pose a risk to human health associated with oil and gas production? Define the confining layer(s) that the West Virginia Department of Environmental Protection is depending on isolating the Weir Sandstone from other above and below geology. Define the confining layers also in terms of depositional environment. Is there a possibility of stratigraphically connected porous facies that shorten the distance between injected waste in the Weir Sandstone and underground source drinking waters?

Can the WVDEP define the confining layers responsible for isolating fluids in the Weir sandstone from above geologic units in terms of permeability and porosity, more specifically total porosity, naturally occurring fracture zone porosity, and artificially produced fracture zone porosity?

DEP Response: It is the Office of Oil and Gas's position that the permitted injection zone (Weir Sandstone) has adequate well construction and geological features to safely accept and contain Class II injection fluids. It is the applicant's responsibility to provide the supporting information, which is reviewed and confirmed by the Office of Oil and Gas, the presence of adequate injection zone with supporting confining layer(s).

The confining layers responsible for isolating the injection fluids in the Weir Sandstone are the MacCrady Shale (50') and Greenbrier Limestone – Big Lime (470') according to WVGES well records. OOG measured ~77' of MacCrady Shale (gamma-density-neutron logs) and 307' of "tight" (average density ~2.71 g/cm³) Big Lime (Greenbrier Limestone). Both formations work conjunctively and conformably overlying the Weir Sandstone, adequately preventing upward migration of Class II injection fluids. The lower confining layer is a thick shale sequence with minor silt interbedding that extends ~370' below the Weir Sandstone. The applicant recognized this as the Sunbury Shale, then confirmed by the UIC permitting staff upon review of gamma-neutron-density well log data. The inherent characteristics of both "tight" limestone and shale formations have extremely low permeabilities and effective porosities. The permeability differential between the Weir Sandstone injection zone and confining layers supports the injection fluid travel into the targeted Weir Sandstone formation.

The geological parameter values (porosity and permeability) for the Weir Sandstone used in the injection wells were based on 47-019-00460 measurements from well logs and qualified reservoir analyses. Office of Oil and Gas verified the porosity using density and neutron porosity logs. The data used in the porosity assessments are interpreted as total porosity, which includes primary and secondary naturally fractured porosity in the injection zone. The Weir Sandstone pore availability is likely to be higher because well log data was collected prior to well stimulation, targeted into the Weir Sandstone.

*Note: A bulk limestone density of ~2.71 g/cm³ reflects pure calcite/limestone formation with no primary porosity, and shale's inherent characteristics of extremely low effective porosity and permeability, all of which support their confining capabilities.

4. If there is any naturally occurring or manmade (well bore, abandoned mines) fracture zone porosity values available? Where are these areas with fracture zone porosity and do they pose a threat to surface and groundwater drinking sources?

DEP Response: No fracture zone porosity values are available. It is important to note the increased fracture porosity commonly provides only small increases to the overall reservoir storage capability, but affects permeability within the reservoir to a more pronounced degree. Based on the geological information provided and available, it is the Office of Oil and Gas's view that underground sources of drinking are adequately protected.

5. If there is question as to whether the waste in the Weir Sandstone is isolated from underground source drinking waters or surface waters; how does this line up with the definition of an Underground Injection Control? If there is question of isolation of the waste associated with Danny Webb Construction North Hills Plant; a more appropriate title would be Underground Injection Dump rather than Underground Injection Control.

DEP Response: Using the provided and available information, the Weir Sandstone and proposed injection wells possess all required components to adequately accept and control Class II injection fluids.

6. Given that Dr. Avner Vengosh has reported contamination consistent with oil and gas production in surface waters in Fayette County, has the WVDEP made any efforts to replicate his tests the New River watershed? Not only would I expect the WVDEP to replicate the tests in Wolf Creek, but also in abandoned mines and other easily accessible sampling locations to rule out the possibility of contaminant migration. Given that sampling that took place in the soils on Bradley Keenan's property showed evidence of contamination consistent with oil and gas wastewater; is there a soil sampling survey taking place along the stretch of Wolf Creek testing for traces of oil and gas wastewater? It is necessary to protect people from health effects associated with exposure to TENORM chemicals, VOC's, and the other myriad of chemicals associated with oil and gas production in the region. Soil sampling would be a good start.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

7. Why is it that the WVDEP denied Duke University and the USGS access to sample on the property of Danny Webb Construction, preferring self-reporting data over data collected from nationally accredited scientists?

DEP Response: The WVDEP has not denied either of these parties the right to sample the Danny Webb Construction property, nor do we have the authority. The WVDEP requires that all sampling follow proper protocols, including appropriate quality control and quality assurance measures in accordance with 47 CSR 32.

8. Since damages to waters in wolf creek and soils of adjacent property owners have occurred, would the WVDEP kindly invite the USGS to collect soil and water samples on a monthly basis for at least five years on the property of Danny Webb Construction and in the New River Watershed in an effort to accurately assess damages to waters and soils belonging to the state and private property owners?

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

9. Since it is known that the pits on the Danny Webb Construction site have been removed but not fully remediated; are there any proposed plans of a full remediation of the pits and surrounding property on behalf of the property owner or the WVDEP? A continuous USGS water and soil sampling survey could be useful in providing feedback on remediation techniques.

DEP Response: The Danny Webb Construction pits have been removed and the surface reclaimed. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

10. What does contamination in Wolf Creek mean for the Riparian Rights of property owners along Wolf Creek?

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

11. What would be the impact of the damages recorded in Dr. Vengosh's sampling have upon shallow wells used as private drinking sources by property owners along Wolf Creek? More specifically, what would be the impacts on well water associated with the level of radiation observed at the location of sampling?

DEP Response: In respect to the sample submitted by Dr. Vengosh, these samples were not submitted to WVDEP/Office of Oil and Gas. Upon receiving public comments, the Office of Oil and Gas requested a copy of the data from the Environmental Quality Board (EQB) and then evaluated the data. It should be noted, the data submitted to the EQB identifies Radium 226 and 228 were analyzed from sediment sample not surface water. The WVDEP/Office of Oil and Gas is and historically has been concerned with potential impacts to the waters of the state and subsequently to drinking water wells. As part of the permitting process, the operator has a requirement to sample all water wells within a quarter mile (area of review) of the proposed Class II injection well. The area of review can be extended either through a complaint or if modeling of the injection operations indicates that the area of review is insufficient. However, due to an abundance of caution in this matter, the Office has obtained numerous samples and has had them analyzed.

12. I have heard testimony from Peter Halverson, former employee of Danny Webb Construction Inc. that multiple forms of open-dumping of wastewater and sludge from the waste carrying trucks and pits had occurred while he was an employee. Would his testimony be a good enough testimony to consider sampling at different locations on the property? Peter Halverson is suffering from a terminal illness as a result of working for Danny Webb Construction. Does the WVDEP have any suggestions as to how the negative health impacts of exposure to chemicals associated with oil and gas production could be minimized from an environmental perspective?

DEP Response: The Office of Oil and Gas contacted Mr. Halvorson to verify the alleged dumping. According to Mr. Halvorson he was referring to the material contained in the former pits. Mr. Halverson stated, the material was left in the pits and a liner was placed on top of the old liner and material. This material and liners have since been removed and legally disposed of.

13. Have the unfulfilled compliance orders been fulfilled by the property owner? Is it legal to grant a permit to a site at which the owner has failed to recognize past compliance orders?

DEP Response: All compliance issues have been abated. Currently the operator is in compliance with the regulations governing underground injection control operations. The Office of Oil and Gas is required as a regulatory entity to objectively assess an applicant's proposed plan, ensuring it fulfills all operational, facility and well construction requirements in accordance with current UIC regulatory standards.

14. Has the property owner of the Danny Webb Construction Inc., North Hills Plant presented any plans to achieve compliance with past orders as a part of the request for new permits? If so what are these plans and have they been carried out?

DEP Response: All compliance issues have been abated.

15. What are the GPS coordinates for all class II UICs in the state of West Virginia?

DEP Response: The Office of Oil and Gas acknowledges your comment. Please submit a Freedom of Information Act request and this information can be reviewed.

16. How many Class II Underground injection controls in the state of West Virginia have fully complied with every order of their permit and followed state and federal guidelines to perfection? If there are any, I ask that you name their GPS coordinates.

DEP Response: The Office of Oil and Gas acknowledges your comment. Please submit a Freedom of Information Act request and this information can be reviewed.

17. What was the WVDEPs line of thought when they revoked a permit for an Underground Injection Control and did so in a way that allowed injection at the North Hills Plant to continue? What is the WVDEPs views on how the decision to revoke a permit and allow injection to continue on a revoked permit means in terms of state and federal law?

DEP Response: At this time of these actions, it was the belief of the Office of Oil and Gas that the administrative process for permit renewal was not contrary to the requirements.

18. In what ways does the WVDEP enforce the West Virginia Groundwater Protection Act at the site of the Danny Webb Inc. North Hills Plant?

DEP Response: The UIC program was implemented as a component of the Safe Drinking Water Act. However, West Virginia as a Class II UIC primacy state, has included regulations from 47 CSR 58 (Groundwater Protection Plan) and 35 CSR 1 supporting the West Virginia Groundwater Protection Act under its Class II UIC regulatory authority.

19. In what ways has the WVDEP failed to enforce state and federal law? Does the WVDEP consider the failure to enforce these laws is a result of an understaffed office of oil and gas? If so, would the WVDEP consider asking for EPA oversight of Class II Underground Injection Controls given that hydraulic fracturing produced water and sediment is by far the most hazardous material generated in the hydraulic fracturing process?

The reason I am requesting that my questions be answered in full before the issuance of a new permit is because the EPA oversight of Class II Underground Injection Controls would take a load off of the office of oil and gas. Given the nature of the material to be injected, there is no room for lax oversight. The perception of lax oversight on behalf of the WVDEP in the case of Class II UICs is not unwarranted.

DEP Response: The USEPA Region III UIC program receives a copy of the draft UIC Class II permits and are afforded the opportunity to comment and express concerns as well as US Fish and Wildlife, The Bureau for Public Health, WV Department of Natural Resources, the State Historic Preservation Unit of the Department of Culture and History. The WVDEP Class II UIC Program coordinates with USEPA Region 3 on permitting and other enforcement matters.

20. It is public information that:

- The WVDEP office of oil and gas is understaffed. Compare amount of permits and inspections that are associated with oil and gas production in the state to the number of staff in the wvdep office of oil and gas.
- The WVDEP has not appropriately delegated fines as a condition of violating compliance orders associated with Class II Underground Injection Control permits.
- The WVDEP has failed to enforce state and federal law concerning Class II UICs.
- The WVDEP revoked permit for a Class II UIC and allowed injection to occur on a revoked permit.
- There has been damages done to the waters and soils of the state and private property during times of WVDEP oversight.

DEP Response: The Office of Oil and Gas acknowledges your comment.

21. It has been made public knowledge that the WVDEP denied the United States Geological Survey, an unbiased agency, access to the North Hills Plant location. Why, as a government agency, would you deny another government agency access to one of your permitted locations?

DEP Response: The WVDEP has not denied United States Geological Survey access to sample the North Hills Plant, nor do we have the authority. It is important to note that the USGS has sampled near the North Hills Plant location, however due to pending publication restrictions the USGS have not disclosed their analytical results to the DEP.

22. The state of Pennsylvania gave up their authority to regulate their UIC program to the EPA. I personally don't think any of the states DEPs in the Marcellus shale region were prepared to handle not only the drilling boom but especially the radioactive waste that is inevitable with the hydraulic fracturing process. Have you considered giving up your authority? The WVDEP is already an underfunded government agency don't you think giving up your authority would relieve some pressure on your already stretched thin staff?

DEP Response: We are not aware that Pennsylvania ever had UIC primacy. The WVDEP has UIC primacy in West Virginia in full support of the USEPA.

23. What is the capacity of the Weir sandstone to hold waste compared to the past injected volume combined with the permitted volume in the new permit for the Danny Webb Construction North Hills plant? If the injected volume of waste exceeds the capacity of the Weir sandstone this poses a risk of increased seismic activity or contaminant migration.

DEP Response: Under the UIC program, capacities are not specifically established. Neither 2D0190460 nor 2D0190508 are permitted for a maximum injection volume. Reservoir capacity is assumed to be reached if and when maximum injection pressure is reached.

24. With Fayette County's history in coal mining, has the area's abandoned mines been mapped to ensure there is no contaminant migration? If so, I would like a copy of these maps.

DEP Response: Upon review of each well casing construction and geological units used during injection we conclude that the Class II injection fluids are adequately contained/controlled within the targeted Weir Sandstone injection zone, not allowing fluids to enter subsurface abandoned mining operations. Further detail, both wells are cement cased through the mined Sewell Coal seam as well as adequate geological confining separating the injection zone from abandoned mining operations. To obtain abandoned mine information a Freedom of Information Act request can be submitted to the WVDEP and the appropriate department will review your request.

25. The state of Oklahoma has identified the states influx of earthquakes to UICs throughout the state of Oklahoma. They had over 500 in 2014 alone, more in one year than in all of the state's previous history of earthquakes. How is WVDEP preparing to deal with increased seismic activity related to UICs? What would the impact of increased seismic activity have on the already existing slope stability issues that face the state of WV?

DEP Response: We acknowledge the possible relationship between injection wells (Class II disposal) and seismic events, as well as are actively engaged with the Groundwater Protection Council, a nationwide non-profit group consisting of state and federal level regulatory entities, as a proactive approach to address issues within this dynamic field associated with underground injection operations. Lastly, if increased seismic events occur that are associated with injection well operations the Office Oil and Gas will take necessary steps to ensure USDWs remain protected.

26. As a citizen I expect all of these questions be addressed with the up most professionalism and timely manner, as mentioned in the first paragraph. While answering these questions I want you to remember who the WVDEP is charged with protecting. My last question is please tell me exactly what WV CODE 22-1-1 reads? How is the WVDEP demonstrating their ability to employ the conditions of WV CODE 22-1-1 in the case of the UIC operated by Danny Webb Construction in Lochgelly, WV?

DEP Response: §22-1-6. Secretary of the Department of Environmental Protection, establishes the authority to issue permits and §22-1-7. Offices within the division, establishes the minimum charge of the Office.

27. That this permit would allow this activity for another five years is unacceptable. This company should only be allowed time to close their open pits and cap their wells.

DEP Response: Both storage pits have been removed and surface.

28. I cannot believe that any agency charged with protecting West Virginia's water would propose a water monitoring regimen of ONCE EVERY 9 MONTHS for Wolf Creek! Self monitoring, no less! Of course recent events and prosecutions in WV have proven that an "outside" agency monitoring our water isn't necessarily to be trusted either. A reasonable regimen for water monitoring would be at least weekly!

DEP Response: The 9 month sample cycle has been successfully utilized in Superfund remediation, in the DEP Division of Land Restoration and USEPA, for long term monitoring. This style of sampling will provide four seasons of sampling that provide for seasonal effects on natural and occurring constituents. This monitoring program does not preclude random sampling from the agency to ensure compliance.

29. I just moved from Shepherdstown, WV, to Fayetteville with my wife and 4-month old daughter. We were brought to attention that the water in town owned by American Water is not safe to drink. My friend is head of the Wolf Creek Watershed and advised us not to drink from the tap and to filter our shower. We now buy water from Tyler Mountain monthly. I have seen several documentary films made on the Lochgelly site and work for the local newspaper and am informed that the well that Danny Webb operates is in countless violations reaching thousands of dollars and has not paid a single dime. This is so sad. What is worse is that this is the sentiment that the majority of citizens in the area feel and those that can afford to buy water to drink do so, but at the same time those that cannot must drink from the tap. The new water treatment pump that pulls from the New is downstream from Wolf Creek, which several toxic chemicals have been found in it that are coming from the Lochgelly injection site. Fayette County has the highest rate of leukemia in the state and this contamination has been going on for nearly a decade. My wife and I are the exception to West Virginia. We are young and have moved back from an area with a great economy and jobs in order to help turn the curve of the plight of the state: the youth exodus. This is what WV has been touting for years now: keeping young, educated people here. This injection site for a town flying a flag on tourism - especially water tourism - is disgusting and this is an insult to West Virginians. But, our motto seems to be: profits before people here in the Mountain State. I hope this renewal is struck down.

DEP Response: The public water system (West Virginia American Water) is regulated by the Bureau for Public Health. There is a monthly sample and monitoring program for all public water supply systems. The analytical data can be requested by calling (304) 558-2971.

30. While DEP has not determined if the injection wells are causing ground or surface water contamination, the National Park Service and others are gathering evidence through soil and water tests to establish that public water resources have been polluted from these two sites. In 2014 Duke University scientists found elevated levels of chloride, bromide, sodium, manganese, strontium, and barium; a chemical composition emblematic of oil and gas wastewater in WV. Water testing of the stream detected high levels of diesel, oil, chloride, and iron. Soil collected from an adjacent property adjacent Petroleum Hydrocarbons and acetone.

DEP Response: The National Park Service samples were collected approximately thirteen (13) miles from the Webb facility. The single sample did not indicate there was a water quality issue that could have been associated with or from the Webb injection facility. As a state regulatory entity we must strictly adhere to proper sample procedures and protocol in accordance with 47 CSR 32 to be legally admissible, should legal action be required. There are multiple issues with the sampling results arise with Duke University sampling results, both legally and interpretatively. Sample results showed extreme variation between duplicate analyses, arising suspicion on sample validity, where there may have been improper collection, preparation and/or analysis.

31. I am a resident of Fayette county and i am appalled by the fact WV has been allowing fracking waste to be injected in our local abandoned mine sites. It should be obvious if Pennsylvania will not allow this in there state that we should not either for obvious Health risks. We should have learned our lesson with what happened at the Minden mine with PCBs. Or have we forgotten? Please be an advocate for our children that play in the new river gorge and drink the public water. Please stop this. You are the only one with the political power.

DEP Response: The Office of Oil and Gas (OOG) is unaware of any "fracking" waste being allowed to be injected into any mine.

32. I'm not being very legal or scientific, but this just seems to be a matter of common sense. I am from Fayette County. My parents - Pat & Helen Hamilton - fought hard to protect the New River. They had the good sense to know that the New River Gorge was Fayette County's future. Don't do what is good for Danny Webb. **Think about the common good keeping Fayette County clean and green.** It is an uncommon place, recognized as worthy of a national park, a camp for the Boy Scout World Jubilee, and a place for all of us to enjoy. Don't let Danny Webb keep injecting God-knows-what into wells from which they could contaminate the New River. Deny this permit.

DEP Response: The Office of Oil and Gas (OOG) acknowledges the comment.

33. We the commissioners are not chemists, but an advanced degree is not required to understand that "fluids that are brought to the surface in connection with conventional oil or natural gas production" have the potential to ignite and are therefore a threat to public health. By failing to require disclosure of the possible constituents of these waste fluids as part of the permitting process, the WVDEP puts the health and safety of Fayette County citizens at risk. Without the necessary Material Safety Data Sheets about the chemicals being hauled through our communities, emergency workers are placed at a disadvantage. First responders and healthcare providers cannot effectively prepare to mitigate, or protect themselves from, a disaster involving these fluids. The threat to public safety engendered by the transportation of obscure industrial waste fluids through our communities is alone enough to warrant further examination. Even more significantly, Danny Webb Construction Inc.'s underground injection wells are adjacent to Wolf Creek- a major tributary of the Lower New River whose mouth is only one mile upstream from the drinking water intake that serves 40% of Fayette County residents. The potential threat to our vital drinking water is unacceptable.

DEP Response: During the permitting process the applicant is required to provide analysis of the fluid that is to be injected.

34. Beyond the threats to public health, we must also consider the impact that an industrial spill would have on our local tourism economy. Tourism generates almost \$6 million per year in spending for our local economy and is dependent on clean, vibrant communities.

DEP Response: The operator is required to meet the requirements for spill prevention as are other industrial facilities, including requirements under the Aboveground Storage Tank Act.

35. Allowing fluids produced in association with oil and gas production to be exempt from the regulatory structures designed for hazardous substances protects industry profits and not West Virginians. The burden of proving that these waste materials do not pose a hazardous risk to our citizens is the responsibility of the WVDEP. To that end, and by allowing Danny Webb Construction Inc. to operate without a permit, the WVDEP Office of Oil and Gas has demonstrated inadequate oversight and the Fayette County Commission opposes the renewal of UIC Permits UIC2D0190460 and UIC2D0190508.

DEP Response: Class II fluids are defined as fluids “which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection” by the USEPA under 40 CFR 146.5, which was then adopted by West Virginia after state primacy was granted.

36. Below is the form letter I found online and totally agree with. The letter is formally written and was well done. However, I would love to add that that well educated families like mine are contemplating leaving the area from things like this happening in WV. It has shook my family upside down and we are now in fear of drinking, let alone showering in, the water here. We are scared to live here because the state is not keeping water safe. What can I do to make the DEP protect the water my family drinks? Issuing permits to someone that has disregard the law should stop. How can we get you to help us? Someone that has worked for Danny Webb, literally told the Fayette County Commission that he has witnessed Danny Webb employees dumping barrels of the waste DIRECTLY into the river.

DEP Response: The public water system (West Virginia American Water) is regulated by the Bureau for Public Health. There is a monthly sample and monitoring program for all public water supply systems. The analytical data can be requested by calling (304) 558-2971. The Danny Webb Construction Inc. facility is operating within West Virginia regulatory guidelines as it relates to Class II disposal UIC facilities. Also, the Office of Oil and Gas has no evidence to substantiate “dumping barrels of the waste DIRECTLY into the river” allegations and if such activities were proven valid the WVDEP would take appropriate measures.

37. Please help. Please do your job. Please make WV charge the same fees other states do to dispose of such waste. Protect the state. Let's not be a dumping ground anymore. Don't issue permits to someone that isn't capable of disposing of wastes within the guidelines of the law.

DEP Response: The Danny Webb Construction Inc. facility is operating within West Virginia regulatory guidelines as it relates to Class II disposal UIC facilities.

38. I work at the Fayette Community Corrections Day Report Center that is located in front of the injection well site, named North Hill Plant that is being considered for permit renewal. I have witnessed the runoff from that property for 4 years. The water leaving that site is a horrible rust color. The water then flows into Wolfe Creek and is the source for Fayetteville's water.

I ask that the West Virginia Department of Environmental Protection's Office of Oil and Gas deny this permit due to the potential health hazard that it creates for the public water system. Further environmental impact studies are warranted before consideration for renewal of this company's permit. If the studies show that the company has adversely affected public water and the environment, then Danny E. Webb Construction Inc should be held accountable for their actions. Attached are photos of the water runoff that is coming from this site. It is like this every day and can be seen any day if the DEP drives by on the road between Lochgelly Road and Summerlee Road in Oak Hill.

DEP Response: After considering water sample analyses as well as historic coal mining activity in the area of Wolf Creek, the WVDEP has concluded that the "rust color runoff" was acid mine drainage (AMD) related. The Danny Webb Construction Inc. facility is closely monitored and has been sampled by the WVDEP to determine if underground injection control related activities have impacted the environment. The public water system (West Virginia American Water) is regulated by the Bureau for Public Health. There is a monthly sample and monitoring program for all public water supply systems. The analytical data can be requested by calling (304) 558-2971).

39. Like Freedom Industries, Danny Web Construction (DWC), operates a business above Fayette County's municipal water source, which services over 30,000 users. It will also affect the tourism industry and dozens of businesses, which depend on the New River Gorge National River. DWC injects wastewater from the fracking industry into two UIC wells. The contaminated wastewater contains hazardous materials with the majority of the shipments coming from out of State. Like Freedom Industry, DWC has a long list of violations, many of which have yet to be resolved or rectified. If this wastewater is allowed to seep out, it will endanger the environment, public health, Fayette County's drinking water, and the New River Gorge National River. Despite all of the violations, it appears DEP may not have the authority to shut down DWC's operation or deny a renewal permit. Why? Perhaps, we need stronger legislation to insure that operators, who violate regulations, are closed down! Perhaps we need legislation to insure UIC wells, which accept hazardous wastes, are not located upstream of municipal water supplies or in watersheds, which drain into State and National Parks. Perhaps West Virginia should not accept hazardous materials or wastewater that other States will not accept themselves. I urge our State Legislators to strengthen our laws by passing legislation to protect our water instead of waiting for another disaster.

DEP Response: Danny Webb Construction Inc. permits 2D0190460 and 2D0190508 both allow the operator to inject Class II fluids into their associated wells. The definition of Class II fluids, as defined by the USEPA, ". . . fluids which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection." Danny Webb Construction Inc., 2D0190460 and 2D0190508, facility is currently operating within all regulatory requirements for Class II disposal UIC facilities. While out-of-state fluids could be disposed of at this facility, we are not aware of that occurring.

40. An increase in underground fluid injection wells only adds to the threats to those watersheds. Any contamination resulting from a spill or other infiltration could pose serious harm to the water quality in downstream national parks, threatening the very attributes that spurred Congress to set aside these rivers as national parks.

DEP Response: The operator is required to meet the requirements for spill prevention as are other industrial facilities including the Aboveground Storage Tank regulation. The public water system (West Virginia American Water) is regulated by the Bureau for Public Health. There is a monthly sample and monitoring program for all public water supply systems. The analytical data can be requested by calling (304) 558-2971.

41. Even before the report submitted by Dr. Avner Vengosh a professor from Duke University, which shows that the applicant's "fracking" has already contaminated Wolf Creek, I was prepared to protest this "fracking" process, or any "fracking" process in Fayette County! We as citizens of Fayette County, should not have to worry about our water supply, and whether or not it's safe for our children and grandchildren to drink or bathe in. It has been proven that the dangerous chemicals included in the wastewater, once they have been used for the purpose of "fracking", have to go somewhere. So, they go into the ground and through the ground into the nearest water source! I, as a mother and grandmother, will protest anyway I have to against Danny Webb's application to perform "fracking" where I, and my family, live!

DEP Response: The UIC operations associated with 2D0190460 and 2D0190508 operate beneath the fracture pressure of the Weir Sandstone, ensuring that no "fracking" will occur. The injection fluids are targeted into an approved zone ~2,650' beneath the surface which is not hydraulically connected to a USDW or other waters of the state.

42. I am aware that Class II injection wells, like those at Danny Webb Construction Co ("DWCC") at Lochgelly are not designed for unconventional drilling wastes because they are highly toxic and Class II wells are permeable. I am further aware that the Fayette County wells have accepted much more of this material than permitted. Where is the excess fluid going and what is in it?

DEP Response: The 2D0190460 and 2D0190508 injection wells and their associated geological formations are able to accept Class II injection fluids. Reservoir capacity is assumed to be reached when the maximum injection pressure is utilized. It is important to note that Class II UIC operations provide both "permeable" injection zones (Weir Sandstone) and "impermeable" confining layers ("Big Lime" Greenbrier Limestone and MacCraday Shale) that work in conjunction to control injectate within targeted geological units, commonly called "reservoirs". Unconventional drilling fluids/waste are very similar in composition to conventional oil and gas wells and do not compromise an injection reservoir's ability to contain injection fluids.

43. It's not just that the DEP isn't requiring proper characterization by DWCC of waste that is more than likely hazardous, but that the EQB appears to be a co-conspirator.

DEP Response: The Office of Oil and Gas (OOG) acknowledges the comment.

44. Moreover, thanks to upstream toxic pollutants from the DWC Lochgelly site, the Lower New watershed is being made unsafe for drinking, fishing, swimming, rafting and other activities that the area tourism industry depends on. And the New is a source of drinking water for the American Water Co.

DEP Response: The public water system (West Virginia American Water) is regulated by the Bureau for Public Health. There is a monthly sample and monitoring program for all public water supply systems. The analytical data can be requested if you are concerned by calling (304) 558-2971).

45. If the DEP does decide to go forward with permit issuance, no permits may be legally issued until and unless DEP can (1) identify and address current contamination at the site, (2) include permit conditions to ensure that continued operations do not pose a risk to human health or state water resources, (3) modify the permits to bring them into compliance with other requirements of state and federal law and the DEP permit application package, and (4) institute measures to assure the public that the site will be actually managed in accordance with all applicable requirements.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements. The UIC permit is conditioned to protect human health and the environment. The Office of Oil and Gas will monitor compliance with the requirements.

46. Dr. Larson also reviewed soil samples collected from the DEWCI site during the pit closure process on May 22, 2014.¹² According to the pit closure plan submitted by DEWCI, these samples were taken after the removal of all wastewater, the pit liner, and all soil that was being disposed of off-site. One of these samples was designated "1-Pit Composite." This composite sample was required by a Letter of Gene Smith dated April 4, 2014, and involved a representative sample of soil remaining on-site after the removal and disposal of "[a]ny visually impacted soil." This soil sample should thus provide a reasonably representative sample of soil remaining at the site after pit closure.

DEP Response: Pursuant to the requirements of the approved pit closure plan soil samples were collected and analyzed.

47. Dr. Larson compared the soil samples to EPA Ecological Screening Values. These values were developed by EPA "to determine if there is a need to conduct further investigations at the site" and exceedances of the values "may indicate the need for further evaluation of the potential ecological risks posed by the site." Dr. Larson noted that, when compared to the ecological screen values, the concentration of iron and manganese in all three samples exceeded EPA's screen values. Additionally, the composite sample demonstrated "evidence of BTEX contamination," showing elevated levels of ethylbenzene, toluene, and xylene (total). Sample "2-Upper Pit" also showed elevated xylene (total). These values indicate that elevated contaminant levels in the soil remained after pit closure and that "further sampling and investigation into the contamination source, other reasonably expected contaminants not previously measured, and risk pathways" should be undertaken.

DEP Response: Although Fe and Mn concentrations may exceed EPA ecological screening values, it must be noted that the samples were obtained from the floor of the pits at the time of their excavation, and are now covered by approximately 6 feet of soil. Because ecological receptors are unlikely to encounter soil at this depth, the applicability of these screening concentrations is unclear. It is correct there are trace elements of BETX in the soil as well. However, it should be noted the concentration is well below the leaching to groundwater value as well as residential risk screening values identified in the agency's DeMinimis tables.

48. The draft permits, as currently written, are inadequate to prevent damage to state water resources and risks to human health. The DEP has a duty under the West Virginia Water Pollution Control Act and the federal Clean Water Act to prevent discharges to surface waters except in compliance with a permit.

DEP Response: The Office of Oil and Gas is not permitting any surface discharge pursuant to these permits. Safeguards such as spill containment are required in the permit.

49. As part of every permit, the Director must identify and protect all aquifers or parts of aquifers which meet the definition of an "underground source of drinking water." 47 CSR 13-13.22.a. An aquifer or portion of an aquifer is an underground source of drinking water (USDW) if it supplies any public water system, or if it contains a sufficient quantity of water to supply such a system and either currently supplies drinking water or contains fewer than 10,000 mg/L total dissolved solids (TDS). If an aquifer qualifies as a USDW and is not exempted under procedures in the federal Safe Drinking Water Act, it must be protected by DEP. Identification of USDWs is the first step in ensuring their protection. This is one reason why the DEP's UIC Permit Application Package for Class II & 3 Wells ("UIC Application") requires a detailed well schematic listing the depths of all known USDWs.¹⁷ Unfortunately, this basic requirement was not fulfilled and the permits fail to list all sources of drinking water, in violation of 47 CSR 13-13.22.a.

The well schematic provided in the 2D0190460 permit application lists USDWs at 20, 50, 60, and 206 feet. No information is provided concerning whether the depths reported are the top or bottom of the interval at which water is present. Notably, the well schematic in the 2D0190508 permit application lists USDWs at precisely the same depths. This is an indication that DEWCI has not taken care in its duty to identify all USDWs and has not provided well-specific information with each permit application.

Additionally, other available information indicates that additional USDWs were not included on the application. The completion report for the North Hills #1 well (2D0190460) lists water at 1022 feet. No information is included to indicate why this aquifer was not included as a USDW. Appendix A in the application lists water at this depth as "Salt" with no reason to believe that this is the case, given that nothing in the completion report or other records is provided to substantiate this claim. The North Hills #1-A (2D0190508) completion report lists water at a depth of 500 feet. While this water is listed as "salt" in the completion report, no indication is given to indicate its salt content. Excluding this stratum from a list of USDWs would only be acceptable based on evidence showing that the TDS content exceeds 10,000 mg/L. None has been provided.

DEP Response: The Office of Oil and Gas acknowledges that the USDW delineation does not provide TDS concentrations for the water zone intersected during drilling operations. This has been identified as a concern with historic well construction, by the WVDEP UIC program. USDW determination has been incorporated into the permitting application. In regard to the construction of these wells the following conclusions were drawn as to the acceptance of the previous standard on USDWs determination:

1. Both wells, 47-019-00460 and 47-019-00508, possess adequate cemented casing protecting all water zones, fresh and salt, to a depth of 1,853' and 2,776' below surface, respectively. These depths are below the encountered water at 1,022', according to the 47-019-00460 completion report.
 2. No documented conduits exist within the Area of Review that would hydraulically connect the Weir Sandstone injection zone to a USDW aquifer. The Office of Oil and Gas also evaluated the surrounding 2.65 mile from each injection well, "Prescone" pressure model radius, and located no other problem wells (i.e. abandoned, inactive or improperly plugged) or mapped geological features that may allow fluids to migrate into zones above the Weir Sandstone injection zone.
 3. The USDW of 206' was established using a recently drilled fresh water well located approximately 0.462 mi and 0.952 mi from the 47-019-00460 and 47-019-00508 injection wells, respectively. Both wells have more than adequate cemented casing strings to protect the USDW's.
50. The North Hills #1 completion report notes that the drillers "Hit an abandoned coal mine" between 600 and 650 feet. Likewise, the completion reports for the #1-A well notes "open mines" from 635-637 feet. These open coal mines almost certainly correspond with the Sewell coal seam, part of the New River Formation. Using the WV Geological & Economic Survey's online tool, "Coal Bed Mapping Project" (CBMP), the overburden above the Sewell Coal seam is listed as 634.9 feet with a 3.9 foot thickness at the approximate location of the North Hills #1 well (2D0190460) and 644.7 feet with a 3.5 foot thickness at the approximate location of the North Hills #1-A well (2D0190508). Using the CBMP's mapping of coal mines in the area, it is also clear that the North Hills #1-A well passes through the Summerlee underground mine, which targeted the Sewell seam. While the CBMP shows the North Hills #1 well as being just outside the boundaries of the Summerlee mine, it is likely that this is either due to imprecisions in the mapping of the mine or to the well shaft not being perfectly vertical or a combination of these factors, given that a mine was noted on the completion report at this depth. There is strong evidence that these coal mines qualify as USDWs. The West Virginia Mine Pool Atlas, developed by the West Virginia Geological and Economic Survey, was the result of "a two-year study funded by the West Virginia Department of Environmental Protection (WVDEP) to evaluate abandoned coal mines as potential groundwater sources." The Atlas "addressed the potential for large volumes of groundwater storage based on mine void volume, was designed to facilitate prospecting for large volumes of water by identifying underground coal mines that have the potential to store large quantities of groundwater, especially those mines that are located below or near drainage." In regards to the Sewell coal seam, the Mine Pool Atlas notes: "This seam has been mined by underground methods in McDowell, Wyoming, Raleigh, Fayette, Nicholas, Greenbrier, and Webster counties. The large mines in the Sewell, especially the ones below drainage, offer high potential for supplying water resources." The Mine Pool Atlas lists the Summerlee mine as potentially storing 3.79 billion gallons of groundwater and the connected Lochgelly mine as potentially storing another 3.69 billion gallons. Both mines are listed as being below drainage. However, these probable USDWs are not listed on either application nor in the permits.

DEP Response: The Office of Oil and Gas acknowledges the presence of coal seams as well as abandoned mine that could be used as potential water sources. However, 47 CSR 13:3 outlines aquifer exemption criteria. One of the conditions that pertains to the Lochgelly Mine and Sewell Coal Seam as an exempted aquifer is 47CSR13-3.1.b.1 describing any zone that “is a mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible” as exempt. Under this definition outlined under the West Virginia Code of State Regulations this zone, overlying the Weir Sandstone, would be classified as “exempt” in relation to all Class II UIC regulations.

It is important to note that each well has cemented casing through this zone providing isolation.

51. In addition to the likelihood that they constitute USDWs which were not included in the application or permit, the coal mine voids raise larger questions. The well schematic for the North Hills #1 well (2D0190460) indicates that the bottom of the 9 5/8” casing is set at 648 feet. The end of the casing is therefore very close to, or even potentially in, a coal mine void and could compromise well integrity. This matter should be investigated to determine if the casing is protective of groundwater. Coal mine voids also provide potential pathways to shallower groundwater strata and the surface that could potentially provide a route for contamination of other USDWs or surface water.

The mine voids also raise questions about whether the cementing of the well was adequate. The completion reports provide no indication whether returns to surface were actually observed or if they were assumed based on volume of cement used. It is possible that significant volumes of cement could have been lost in the mine voids during the cementing process and that the cement may not be present at higher strata to protect groundwater.

DEP Response: The Office of Oil and Gas acknowledges that the 9 5/8” was set within the coal mine void, according to the original WR-35 Well Completion Report. While drilling well 47-019-00460 a “basket” was installed which is a common practice in the oil and gas industry to cement casing through intersected voids in subsurface strata.

It is important note that both wells, 47-019-00460 and 47-019-00508, provide two additional cemented casing strings (7” and 4 1/2”) which add additional protection to the Sewell Coal and mine voids that were intersected drilling the process. Lastly, the 4 1/2” is constructed with a 2 3/8” tubing, used for injection which is set on a “packer.” This requirement for Class II disposal wells acts as a built-in safety mechanism that monitors the injection well integrity daily under the required monthly WR-40 Reports for Waste Disposal Wells. The Office of Oil and Gas believes that each wells construction is adequate to protecting the mine voids of concern.

52. The DEP Application Package requires a list of wells serviced by the injection well. The application package also requires the applicant to provide information on the “physical and chemical characteristics of the injection fluid,” including information on a range of analytes. The applications both include a list of the same 26 wells that the applicant claims is the full list of wells from which fluids originate.

While it is impossible to say for sure because many of the lab reports in the applications do not provide a clear, unambiguous indication of what has been sampled, it appears that full laboratory data (including analysis for all required parameters, including NORM) has only been provided in the UIC applications for the brine from a single production well. This is a clear failure to comply with the requirements of the Application Package. Clearly, data on the fluid from one well does not provide representative information about the likely injectate as a whole.

The data that is provided is from the Armstrong-Reynolds 4HM, a well listed in the DEP Office of Oil and Gas public database as having API# 091-01280 and being operated by PDC Mountaineer, LLC. Tellingly, however, this well does not appear on the list of wells from which fluids originate provided in each permit as Appendix G, indicating that it was likely omitted from the list. The absence from the list of the one well for which full fluid analysis is provided raises serious questions about whether there are many wells from which DEWCI is accepting brine but which are not included in the applications. Alternatively, if DEWCI is not actually accepting fluid from the Armstrong-Reynolds 4HM well, it raises further questions about why the only data on injectate provided for all required parameters is from an unrelated well.

DEP Response: DEWCI is permitted as a “commercial” brine disposal facility, which allows the permittee to accept fluids outside of the original servicing well list however the fluid source must be recorded on a manifest sheet required by the Office of Oil and Gas. Injectate analysis is available.

53. Moreover, the levels of radium present in the fluids from the Armstrong-Reynolds 4HM well are extremely high. The lab report provided by DEWCI indicates that Radium-226 and Radium-228 levels were measured to be $3,148.2 \pm 546.8$ pCi/L and 179.3 ± 44.5 pCi/L respectively. These levels compare to a maximum contaminant level (MCL) for drinking water of 5 pCi/L for combined Radium-226/-228. Likewise, barium levels in the fluids from the Armstrong-Reynolds 4HM well are very high at 684 mg/L. These fluids clearly pose a risk if handled improperly or if the integrity of either of the injection wells (or other associated equipment, including the pipeline at the site, tanks, etc.) is compromised. The DEP must not issue the permits while questions remain about whether these fluids could contaminate state surface or groundwater resources.

DEP Response: Under both Federal and state law, Class II fluids do not have specific Radium-226 or Radium-228 concentration limitations. The required injection fluid laboratory analysis is performed to establish a composite chemical signature that may be used in the event of a release.

54. The November 6, 2008 order also requires DEWCI to sample (1) the stream adjacent to the pits twice a year, (2) the stream downgrade of the pits twice a year, and (3) the fluid in the pits simultaneously with the stream sampling. The order provides a list of parameters for which each sample must be analyzed. The order provides for a \$2,500 per day stipulated penalty if any action remains incomplete. However, according to evidence in the record, DEWCI has not complied with the sampling requirements of the order in any year since the issuance of the order.

Contrary to statements of DEP staff, these failures are not merely due to variations in the time between sampling which result in the failure to have taken samples twice during each calendar year. For instance, no sampling appears to have taken place in any of the three locations between December 2010 and December 2011. Additionally, sampling in the pits appears not to have occurred in 2010 or 2011. Nor have we found any evidence in the record that DEWCI took any samples in accordance with the order in 2013, and only a single sample appears to have been taken at each location in 2014. Additionally, the sampling that was conducted is frequently missing analysis of one or more parameters that DEP required to be reported under the order. Problems with the sample collection and preservation techniques are also apparent, calling the integrity of the results into question. For instance, multiple samples failed to meet the arrival temperature range required by the certified lab during the exchange of the samples as verified on the chain of custody.

Unfortunately, there is no evidence that DEP has taken any action to enforce the testing requirements or ensure that the sampling procedures provide valid and reliable data. This runs contrary to the DEP's statement, in its February 2014 response to comments on permit 2D0190460 that "failure to properly monitor or sample would be a violation of the order that would be addressed by the agency."

DEP Response: The DEWCI storage pits have been removed and the surface reclaimed. The operator has no outstanding violations and is in compliance with the requirements under their current administrative order.

55. On September 23, 2010, DEP issued another notice of violation to DEWCI, this time because used oil not associated with produced fluids was observed within the pits. DEWCI was ordered to replace the pit liners. It is not clear if this was ever done.

DEP Response: The DEWCI storage pits, previously used to store injection fluid, have been removed and the surface reclaimed. The operator has no outstanding violations.

56. Almost two and a half years later, on March 29, 2013 staff members from the Office of Oil and Gas conducted an inspection and found that the "primary liner within the pit system has been compromised" noting "small holes" and "some tears" were observed in the liner. In addition, it was noted that DEWCI representatives were improperly loading and unloading fluids at a location next to the pits rather than using the concrete unloading pad which was designed for that purpose. It was also found that a pipe ran to the pits from the catch pans below the injection pumps and other equipment at the site. Thus, oil and grease drippings were being routed to the pit system and eventually to the injection well, indicating that DEWCI had been injecting unauthorized fluids. The inspector also found that secondary containment for the used oil tank at the site was inadequate and that multiple containment structures had holes or cracking in them and needed to be resealed. Each of these issues constitutes a serious violation which could endanger water resources. Yet, despite these numerous issues, there is no evidence that a notice of violation was issued for any of the problems found during the inspection.

DEP Response: The DEWCI storage pits have been removed and the surface reclaimed. The secondary containment issues have been addressed.

57. There have also been very serious allegations by Peter Halverson, who has stated that when he was an employee of DEWCI, (1) he was ordered to bypass the filters and pump material directly into the well, (2) that rather than properly replacing an old pit liner, the company simply put a new one on top, without removing the sludge contained in the original, and (3) he was ordered to bury waste sludge from the facility onsite, as discussed in Section I of these comments. If these allegations are true, the actions of DEWCI would likely constitute criminal activity and would certainly endanger state surface and groundwater sources. The DEP should properly investigate these allegations and use the full extent of its authority to impose civil and criminal penalties if it finds the allegations to be true.

DEP Response: The Office of Oil and Gas contacted Mr. Halvorson to verify the alleged dumping. According to Mr. Halvorson he was referring to the material contained in the former pits. Mr. Halverson stated, the material was left in the pits and a liner was placed on top of the old liner and material. This material and liners have since been removed and legally disposed of.

58. Finally, DEWCI has been operating the two wells without permits since the expiration of the previous permits. While DEP purported to authorize injection activities at the North Hills #1 well (2D0190460) by rule, the Environmental Quality Board recently ruled that the regulations were "not enacted to allow operations to fluctuate into and out of permit cycles and operate 'by rule' during the unpermitted times." Final Order, EQB Appeal No. 14-04-EQB at 6 (Apr. 8, 2015). Therefore the EQB found that "permitting Danny Webb Construction to operate with a permit under these facts is inconsistent with the law." *Id.* at 5. However, even before the illegal order and before a permit was issued for the North Hills #1 well on February 6, 2014, injection was occurring without a permit at the well. Injection without a permit also occurred at the North Hills #1-A well (2D0190508). The permit for that well expired on November 7, 2013. Injection also occurred at this well after the permit's expiration and before the DEP purported to authorize injection by rule. Such injection is a violation of state and federal law and the DEP should have issued violations for this. These violations are clearly demonstrated by injection records in DEP files and certified by Danny E. Webb as true and correct.

DEP Response: At this time of these actions, it was the belief of the Office of Oil and Gas that the administrative process for permit renewal was not contrary to the requirements.

59. Why does the DEP not state what they are allowing to be put into the ground and potentially into our water supply? There are Professors at WVU and Duke and researchers who have conducted extensive research on tracing fracking fluids and fingerprinting such fluids. Why is there not a requirement that the applicant be required, as part of any permit, to provide certification and monitoring by such experts?

DEP Response: The Injectate is considered a Class II fluid under federal law, and chemical analysis is included with the application.

60. Fayette County does not have shale drilling. It isn't benefiting economically from the gas industry activity. It is of no economic benefit to become a dumping site. Fayette is one of our "cool," progressive counties with a healthy outdoor lifestyle image. Becoming a dumping site for real or perceived toxins will destroy that image.

DEP Response: The Office of Oil and Gas acknowledges your comment.

61. Truck traffic: DEP has not analyzed the risks to health and safety from any increased truck traffic at the site. The new permit would allow much more waste to be disposed at this site, and the waste is transported by large trucks. This heavy traffic is dangerous, generates harmful air pollution, is very noisy, and destroys rural roads. This traffic could be 24/7. The roads are not designed for increased heavy industrial truck traffic, and the risk of serious traffic accidents could escalate at all times of the day and night. The level of traffic is not appropriate for the rural nature of the area and the community may not have the capacity to deal with major accidents involving hazardous materials.

DEP Response: While the Office of Oil and Gas has no regulatory authority over truck traffic, language in the draft permits do not expand authorization for waste disposal.

62. Oil and gas wastewater is known to be toxic: Oil and gas exploration and production wastes have been shown to meet the criteria for hazardous waste and to contain toxic substances which endanger both human health and the environment, including materials that can cause cancer. They may contain volatile organic compounds, radioactive material, or heavy metals and should be treated with special precautions to ensure safe disposal. However, these materials are exempt from federal hazardous waste laws and, therefore, current state standards are not adequate to protect the public. A company managing these wastes should be held to the highest standards. This waste will be transported through the community on rural roads. The community may not have the capacity to deal with major accidents involving hazardous materials.

DEP Response: The injectate is considered a Class II fluid under federal law and therefore allowed to be disposed if at this facility. Waste transportation will be subject to all applicable laws. The draft permit does contain requirements for secondary containment and a groundwater protection plan.

63. Please add my name to those opposed to the renewal of both permits. The fluids they want to pump back into the earth are full of toxins and chemicals. If they came from the Marcellus Shale formations they are also most probably radioactive. Add in the fact that there is now a high probability that forcing the fluids deep into the ground creates minor earthquakes. Since the Northstar1 disposal well went online near Youngstown, Ohio it has suffered a large number of earthquakes.

Not only is there immediate impact of the earthquake, but the earthquake itself will expedite the dispersal of the toxic fluids into other layers of the earth, and eventually our precious clean drinking water.

DEP Response: These fluids are classified as a Class II fluid under federal law and acceptable for injection into Class II UIC wells. The WVDEP Office of Oil and Gas is unaware of any seismic events associated with this facility. Should such events begin to occur, the Office Oil and Gas will take all necessary steps to ensure USDWs remain protected.

64. The Fayette County Solid Waste Authority believes that the same considerations that govern the siting of the six approved West Virginia Commercial Solid Waste Facilities in order to protect the health and well-being of West Virginians, should apply to the siting of Class II underground injection control well facilities. For this reason, The Fayette County SWA opposes the renewal of UIC Permits UIC2D0190460 and UIC0190508.

DEP Response: UIC permitting is authorized under various federal and state laws specific to this type of activity.

65. The radioactivity going into that well is many times higher than what's allowed by law. There is a law against them permitting it without coordinating it with either the Nuclear Regularity Commission or the Department of Health and Human Recourses.

DEP Response: These fluids are considered to be Class II fluids under federal law and are legally allowed to be injected under the subject permits.

66. Other problems I have with the draft permit is the mechanical integrity test that was done back in 2012 was inconclusive.

DEP Response: The mechanical integrity test (MIT) for injection well 47-019-00460 completed on 5/11/2012 passed the annulus pressure test at a pressure of 1,350 psi. The annulus pressure test increases the pressure between the 2^{3/8}" x 4^{1/2}", which tests the integrity of the injection tubing (2^{3/8}"), production casing (4^{1/2}"), packer and injection related fittings/connections at the wellhead.

67. Hello, my name is Aiden Hodge. I am a chemistry and an environmental student at Concord University. I do not have any official affiliation. I've been investigating this creek since the beginning of the year. Intentionally, I did not contact other organizations for today except for the PAN Network throughout my investigation to kind of rid myself of any bias that may form. I have lived in this town for several years. I have -- you have probably seen me deliver as a pizza delivery guy to your house every once in a while, but now with my introductions out of the way, as you all may know in September 2013, Dr. Vengosh at Duke University determined that the Wolf Creek watershed near the injection well plate was contaminated by frack and waste water. From his affidavit it was revealed through various official affiliation. I've been investigating this creek since the beginning of the year. Intentionally, I did not contact other organizations for today except for the PAN Network throughout my investigation to kind of rid myself of any bias that may form. I have lived in this town for several years. I have -- you have probably seen me deliver as a pizza delivery guy to your house every once in a while, but now with my introductions out of the way, as you all may know in September 2013, Dr. Vengosh at Duke University determined that the Wolf Creek watershed near the injection well plate was contaminated by frack and ICP instruments that there was contamination such as Iron, Barium, and Strontium on the orders to magnitude of 113 parts per million iron and 2000 parts per million Barium and Strontium. This storage pits since that report have been dug up at the injection site, however, Dr. Vengosh's report could not differentiate whether the storage pits were leaking or the injection well itself was leaking. So, I begin my project and I hope to determine to see if the injection wells are leaking or not. My findings have determined that the injection well itself is not leaking and the concentration of barium has gone from concentration of over 2000 parts per million to below the detectable limits of the ICP instrument at Marshall University. However, the Iron content at the head waters was still elevated above the DEP water quality standard of 1.5 parts per million since the creek was at 2.32 parts per million and that seems also kind of match with other data that I've seen in regards to the iron. The organics that were once visible at the site are no longer visible and any visible quantity and compared to that Summerlee acid mine drainage that also flows into Wolf Creek from the Summerlee area it has 3.88 parts per million iron and detectable amounts of barium and strontium at .026 parts per million and 0.149 parts per million respectively.

DEP Response: The Office of Oil and Gas (OOG) acknowledges the comment. It should be noted that the barium and strontium concentration are actually in parts per billion.

68. We know that Danny Webb has violated the rules and the terms of his permit. We know that the DEP has failed to enforce the rules in terms of that permit. The DEP has failed this community. They have favored the corporation interests over this community's interest time and time again. It's outrageous, it's immoral, and the DEP should be ashamed of itself. Now, I know there are DEP here who are good people, many people at DEP are good, honest people, and they have to do what they are told, much like people who work for coal mines they have to do what they are told.

DEP Response: The DEP has issued notices of violations to the operator.

69. I worked at the well when it first opened up. I set the well up, not knowing exactly what everything was going in there. I don't know if Danny even knew what was going in there at that time, but the thing that happened there to me was in 2004 I had my first seizure. And then I got sicker and I left on voluntarily layoff and it took five years for doctors to find out what was wrong with me. And I'll tell you when the liners in the pits were leaking, which he put another liner in, but we didn't remove the whole other liner. I know that for a fact, I was there, so it is still in the ground.

DEP Response: The Danny Webb Construction pits have been removed and surface reclaimed. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

70. First of all, Aiden back here says they were not -- those wells are not leaking. I can tell you I have a copy of a letter to Senator Rockefeller from the DEP assuring him that those ponds -- those settling ponds were not leaking. They did dye test, it says right in it. It is on their letter head. Senator Rockefeller those ponds are not leaking. So where are the fracking waste coming from. I'm going to tell you they punched those wells down through the Saul Coal Mine, that's not documented in that draft report. When they punched down through an abandon mine there's void there and that void cannot -- it opens up the ability of that stuff to travel through and another thing that they don't talk about and it's not included in there is the fact that when they shut those mines -- those injection wells down for a while because they had to -- they were under pressure and he needs to be thinking about this, but they shut it down for a while and then he goes out and tests and suddenly there is no more stuff coming up in the creek. Well the injection pressure is what pumping it back up the outside channel of the bore hole back up into that creek and it is bubbling up and you can see stuff bubbling up into that creek when you are out there.

DEP Response: The Office of Oil and Gas did perform a dye test on the previous storage pits. The test did not indicate that the pits were leaking. Furthermore, the Weir Sandstone has shown no evidence of being hydraulically connected to USDWs or surface water features. The Office Oil and Gas acknowledges the presence of the Sewell Coal and abandoned mine beneath the DEWCI injection facility. Wells 47-019-00460 and 47-019-00508 have three strings of cemented well casing (4 1/2", 7", 9 5/8") which adequately isolates the Weir Sandstone injection from the coal zones. The Office of Oil and Gas has no evidence to substantiate allegations regarding DEWCI injection fluid traveling "up the outside channel of the bore hole back into the creek" or any other interaction with waters of the state.

71. I spent a lot of money on Freedom of Information Act request and lied on them and they did not supply the right documents and they are still stonewalling me and the EPA is too. So anyway don't trust them, don't even trust me, double check. Don't trust Aiden, because he's wrong. Thank you.

DEP Response: The Office of Oil and Gas (OOG) acknowledges the comment.

72. For three years he was been doing baselines water samples in Doddridge County, before the drill bit hits the ground. We've had Cornell come an interest in doing surveys of cattle where they are going to hand air monitors on cattle and their compressor stations and so forth.

DEP Response: The Office of Oil and Gas (OOG) acknowledges the comment.

73. I started receiving reports from concerned citizens that Danny Webb's operations might be contaminating headwater tributaries of Wolf Creek. I decided to investigate these claims, and that I would like to share with you my findings and the research by others investigating the site. Last summer on June 12th, 2014, Tom Rist represented the appellants Bradley Keenan, Natural Resources Defendants Counsel, West Virginia Surface Owners Right Origination, and the Plateau Action Network in the appeal to the DEP regarding the reassurance of an underground injection control. Several deficiencies with the permit were brought to the environmental quality board and we asked the board to reverse or vacate this permit altogether as legal and factual errors cannot possibly be remedied in order to bring this permit into compliance with state and federal law. Fast forward 10 months to April 8th, the environmental quality board finally issued a decision from our appeal. Four key issues were litigated and a final written brief and oral argument by Tom Rist, the board found that allowing Danny Webb Construction to operate without a permit was inconsistent with the law and ordered the DEP to regulate Danny Webb Construction's underground injection control well by permit and not by rule. And I quote, "The West Virginia Department of Environmental Protection has 30 days from entry of this order to bring Danny Webb Construction into compliance or otherwise require the operations to cease. They have until May 8th to do so." However, the final order issued by the EQB only addressed three of the four issues, failing to even mention water quality impacts that were central to the appeal and that's what I would like to spend my remaining time talking about.

DEP Response: The Office of Oil and Gas (OOG) acknowledges the comment.

74. We have also consulted with other experts including Dr. Lance Larson. Dr. Larson earned a dual Doctorate in Environmental Engineering and Bio Geo Chemistry from the Pennsylvania State University in 2013. His PhD research was on the environmental impact of acid mine drainage throughout western Pennsylvania and West Virginia, which included the Summerlee site. On January 6th of this year I collected samples from the Summerlee site and samples from Danny Webb's operations to compare the chemical composition. Based on Dr. Larson's expert opinion the results collected downstream of Danny Webb's operation do not exhibit a chemical composition consistent with the elevated contaminate levels due to an acid mine drainage source. Instead elevated contaminate levels are consistent with previous samples taken at this location by Duke University researchers which concluded that contaminants were likely due to an oil and gas waste water source. Based upon the overall overwhelming evidence the science clearly indicates this site possess a hazard to human health and the environment.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

75. The organics that were once visible at the site are no longer visible and any visible quantity and compared to that Summerlee acid mine drainage that also flows into Wolf Creek from the Summerlee area it has 3.88 parts per million iron and detectable amounts of barium and strontium at .026 parts per million and 0.149 parts per million respectively.

DEP Response: The Office of Oil and Gas (OOG) acknowledges the comment.

76. There is not a plugging and abandonment plan conforming to the requirements in 40CFR146.10 attached to the permit as a permit condition (47CSR13-13.7.f).

DEP Response: The Office of Oil and Gas required Danny E. Webb Construction Inc. to submit a plugging and abandonment plan for both disposal wells as part of 2D0190460 and 2D0190508 Class II UIC application packages. The UIC plugging and abandonment is a proposal and is subject to change at the time plugging activities are conducted. The Office of Oil and Gas requires an approved plugging and abandonment permit to be issued prior to such activities, which are in accordance with the most recent requirements.

77. There is not a financial responsibility condition in the permit as required by law (47CSR13-13.7.g).

DEP Response: The Office of Oil and Gas required Danny E. Webb Construction Inc. to submit a financial responsibility for both disposal wells as part of 2D0190460 and 2D0190508 Class II UIC application packages displayed in APPENDIX I. This form satisfies the 47CSR13-13.7.g requirement that "permittee must show evidence of financial responsibility to the Director by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Director".

78. The Office has worded a condition in the permit so that it does not conform to the intent or language of the law (I H.1 Duty to Comply).

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit.

79. The Office has worded a condition in the permit using language not found in cited state law (I H.9.d Certification).

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit.

80. The Office in II A dealing with record retention has a period of retention that is in conflict with the law for injection fluid records (47CSR13-13.6.b).

DEP Response: The draft and subsequently final permits requirement for record keeping is more stringent than the EPA. "*The permittee shall retain all records concerning the permitted underground injection well until three (3) years after completion of any plugging and abandonment. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period*" (Emphasis added)

81. The Office in II B.6 has a table of lab analysis parameters for fluid which do not meet the requirements in its own Permit Application Package Instructions and Guidance, and is not protective.

DEP Response: The permittee had originally submitted a UIC permit application prior to the Office's parameter list change. Consequently we will accept previous analytical data as well as previous analytical parameter requirements from the original UIC permit application.

82. The Office in II B.7 uses a period of monitoring not recognized in EPA Region 3 commercial UIC IID permits.

DEP Response: The 9 month sample cycle has been successfully utilized in Superfund remediation, in the DEP Division of Land Restoration and USEPA, to monitor long term monitoring various projects. This style of sampling will provide four seasons of sampling that provide for seasonal effects on natural and occurring constituents. This monitoring program does not preclude random sampling from the agency to ensure compliance.

83. The operator failed to properly inventory all the tanks at both facilities.

DEP Response: At the time the UIC permit application was submitted the tanks identified were correct. The injection facility, tank battery, injection pump, etc. services both UIC wells. The operator has also coordinated with the Division of Water and Waste Management for compliance with above ground storage tank regulations WVa Code § 22-30.

84. The operator failed to provide any information about a pipeline that connects both facilities.

DEP Response: The 2D01905460 permit application package provided a map showing the location of the pipeline, which runs parallel to the 47-019-00508 service road. All pipelines connecting the injection wells have been inspected and pressure tested.

85. The operator failed to provide a facility plan for UIC2D0190508.

DEP Response: A facility drawing, aerial photos, secondary containment calculation verification and groundwater protection plan can be identified in the complete UIC application for UIC2D0190508. The Office of Oil and Gas acknowledges that the 2D0190508 application does contain the "North Hills Facility" schematic included in the 2D0190460 Permit Application Package, however adequate information was provided that allowed the permitting staff to reference relevant material during review.

86. The operator's well schematics in the applications improperly identify and locate USDWs.

DEP Response: The fresh and salt water request in Appendix A is primarily used to satisfy the casing/cementing requirements in Legislative Rule 35-4. The Office of Oil and Gas acknowledges that the USDW delineation does not provide TDS concentrations for the water zone intersected during drilling operations. This has been identified as a concern with historic well construction, by the WVDEP UIC program. USDW determination has been incorporated into the permitting application.

In regard to the construction of these wells the following conclusions were drawn as to the acceptance of the previous standard on USDWs determination:

1. Both wells, 47-019-00460 and 47-019-00508, possess adequate cemented casing protecting all water zones, fresh and salt, to a depth of 1,853' and 2,776' below surface, respectively. These depths are below the encountered water at 1,022', according to the 47-019-00460 completion report.

2. No documented conduits exist within the Area of Review that would hydraulically connect the Weir Sandstone injection zone to a USDW aquifer. The Office of Oil and Gas also evaluated the surrounding 2.65 mile from each injection well, "Prescone" pressure model radius, and located no other problem wells (i.e. abandoned, inactive or improperly plugged) or mapped geological features that may allow fluids to migrate into zones above the Weir Sandstone injection zone.
3. The USDW of 206' was established using a recently drilled fresh water well located approximately 0.462 mi and 0.952 mi from the 47-019-00460 and 47-019-00508 injection wells, respectively. Both wells have more than adequate cemented casing strings to protect the USDW's.

87. The operator provided a Groundwater Protection Plan for only one facility, UIC2D0190460. That Plan is grossly deficient.

DEP Response: The operator provided a groundwater protection plan (GPP) for both UIC permit applications UIC2D0190460 and UIC2D0190508. The GPPs are similar since they cover the same facility. However, this redundancy is required in the case one of the UIC wells are taken out of service.

88. The operator provided a Spill Prevention Control and Countermeasure Plan for only one facility, UIC2D0190460. That Plan is grossly inadequate and misleading.

DEP Response: The Office Oil and Gas acknowledges your comment, and a "Spill Prevention Control and Countermeasure Plan" is not a requirement within the Class II disposal UIC program.

89. The operator has a long history of noncompliance and violations.

DEP Response: The operator currently is in compliance with the requirements regulating Class II disposal UIC operations.

90. The operator has submitted erroneous WR-40 monitoring reports. Some of the errors are significant noncompliance.

DEP Response: The operator is in compliance with WR-40 Report for Waste Disposal Wells submittals. The Office of Oil and Gas will continue to strive to review the WR-40's for noncompliance issues.

91. The operator received a violation in 2010 for injecting improper waste in UIC2D0190460. This is a significant violation. There are indications that improper waste has been injected at this facility at other times since then.

DEP Response: The violation was for used oil observed within storage of Class II fluids. The oil was removed for abatement.

92. The operator has been injecting waste at UIC2D0190460 without proper permits for years. The operator began injecting waste in 2008 at UIC2D0190508 before submitting a permit application. The operator did not comply with Consent Order 2008-15 for over 5 years. This noncompliance is easy to verify.

DEP Response: UIC2D0190460 permit was originally issued on May 20, 2002 and UIC2D0190508 permit was issued on November 7, 2008.

93. The operator's facility has contaminated the stream adjoining UIC2D0190460 since at least 2007 with produced water/flowback. This contamination is ongoing.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

94. Unfortunately, the Office of Oil and Gas has its own poor compliance enforcement record and most noncompliances by the operator have been ignored.

DEP Response: The Office of Oil and Gas will continue to strive to enforce non-compliance issue.

95. The pipeline between UIC2D0190460 and UIC2D0190508 has never had a Mechanical Integrity Test. The draft permits do not have a condition for tests.

DEP Response: A Mechanical Integrity (MIT) test has been performed on the pipelines. Pipeline testing is in the draft permits. Please refer to Part II section B paragraph 10. "*All pipeline(s) associated with the approved injection activity shall be tested for integrity at least once every five (5) years and the results reported on Form WR-37 to the Office of Oil and Gas.*"

96. There are factors related to well construction for both wells which cast doubt on external mechanical integrity.

DEP Response: Both wells, 47-019-00460 and 47-019-00508, are constructed in a manner according to each respective archived well records, that meet or exceed the requirements of a Class II disposal UIC well.

97. Lab results from soil samples collected during the closure of the two pits show that the pits were leaking. Lab tests of water samples from the seeps below the pits and the stream next to the pits showed slightly elevated chloride levels. Lab tests of water samples 500 feet away from UIC2D0190460 show high chloride and provide evidence of oil and gas produced water contamination. These samples were collected approximately 20 feet lower in elevation from the well.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

98. The operator's well schematic for UIC2D0190460 shows groundwater at 20 feet below the surface at the well. At the very least groundwater monitoring wells should be created to determine the wells' effects on USDWs.

DEP Response: The Office of Oil and Gas acknowledges that the USDW delineation does not provide TDS concentrations for the water zone intersected during drilling operations. This has been identified as a concern with historic well construction, by the WVDEP UIC program. USDW determination has been incorporated into the permitting application. In regard to the construction of these wells the following conclusions were drawn as to the acceptance of the previous standard on USDWs determination:

1. Both wells, 47-019-00460 and 47-019-00508, possess adequate cemented casing protecting all water zones, fresh and salt, to a depth of 1,853' and 2,776' below surface, respectively. These depths are below the encountered water at 1,022', according to the 47-019-00460 completion report.
2. No documented conduits exist within the Area of Review that would hydraulically connect the Weir Sandstone injection zone to a USDW aquifer. The Office of Oil and Gas also evaluated the surrounding 2.65 mile from each injection well, "Prescone" pressure model radius, and located no other problem wells (i.e. abandoned, inactive or improperly plugged) or mapped geological features that may allow fluids to migrate into zones above the Weir Sandstone injection zone.
3. The USDW of 206' was established using a recently drilled fresh water well located approximately 0.462 mi and 0.952 mi from the 47-019-00460 and 47-019-00508 injection wells, respectively. Both wells have more than adequate cemented casing strings to protect the USDW's.

99. No permits should be issued until the source of the contamination of the stream has been identified and remediated.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

100. In conducting research for these permits we examined the Office's online UIC databases. The database shows, for UIC2D0190460, Mechanical Integrity Tests (MIT) in 2002 (2001), 2007 (witnessed), and 2012. The 2007 test was not within five years of the previous test as required by law. Mechanical Integrity Tests for UIC2D0190508 were held in 2008 and 2014 (witnessed). The 2014 test was not within five years of the previous test as required by law. Inspections were held at UIC2D0190460 in 2007 (6), 2008 (2), 2010, 2013, and 2014. At UIC2D0190508 inspections were held in 2010, 2013, and 2014 (2). We believe injection wells require annual inspections, commercial injection wells require an enhanced inspection program of several times a year. The databases show the operator received violations for UIC2D0190460 in 2008 (pits), 2010 (injecting improper fluid), 2014 (inadequate secondary containment) and 2014 (pits). Violations for UIC2D0190508 were issued in 2008 (injecting without a permit), 2014 (no MIT), 2014 (inadequate secondary containment), 2014 (pits), and 2014 (inadequate secondary containment). Injecting without a permit and injecting improper waste are significant noncompliance requiring more than a mere slap on the wrist. The only financial penalty the operator incurred was for \$5100 in 2008 for injection of waste without a permit.

DEP Response: The Office of Oil and Gas strives to perform annual inspections and witness all mechanical integrity tests (MIT). We acknowledge that not all MITs are witnessed however witnessing is not a requirement for operators to perform said tests.

101. A series of 2013 inspections (the first since 2010) showed a host of problems including that improper waste was still being injected, years after the 2010 violation. The inspections were part of the permit renewal process and focused on stream monitoring, six years after the Office's attention was brought to the problem. Lab results, for some reason, caused the Office to determine that the contamination was due to Acid Mine Drainage rather than due to activities on the site. Samples were collected from the stream on 14 September 2013 and analyzed by Dr Avner Vengosh of Duke University's Nicholas School of Environment. According to Dr Vengosh, "the chemical profile of the water samples downstream of Danny Webb UIC leads me to the conclusion that the stream is impacted by contamination of oil and gas wastewater, and that any assertion that contamination is due to Acid Mine Drainage is contrary to actual scientific evidence."

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

102. The authorization page for the UIC2D0190460 draft permit locates the permitted injection in the Weir sandstone at a depth whose figures come from some source we have been unable to identify, 2624 to 2698 feet. The UIC well preliminary application materials and the 2002 permit application WW-3(b) place the Weir at 2634 to 2692 feet. This depth was used for permit renewal applications since then, until the most recent permit application.

DEP Response: The Office of Oil and Gas incorporated the Weir Sandstone depth interval supplied in the Class II UIC Permit Application APPENDIX A by the applicant. Previous records indicate varying depth intervals for the Weir Sandstone with ~10' difference amongst the logs. Such depth variations are most likely attributed to each log analyst's interpretation and the geophysical log type used. The Office of Oil and Gas conducted their own assessment of the Weir Sandstone and developed a depth interval of 2,616' to 2,694'. This agrees with the submitted 2,624' to 2,698' found in the UIC permit application which was incorporated into the 2D0190460 Draft Permit.

The 47-019-00460 well perforations (2,636' to 2,646' and 2,672' to 2,686') are located with all recorded Weir Sandstone formation depth intervals. Also, the well's packer is seated at a depth of 2,575'.

103. There is a substantial error made by the Office in requiring operators to locate the depths of fresh and salt water in Appendix A. What the Office of Oil and Gas is doing with the permit application/draft permit is to allow operators to determine if an aquifer is protected under the Safe Drinking Water Act by arbitrary means not allowed by state (47CSR13-13.22) or federal law. The aquifer at 1022 feet depth in the UIC2D0190460 permit application Appendix A is termed "salt" and doesn't appear in the well schematic as an Underground Source of Drinking Water (USDW).¹⁹ Water according to the well's 1982 completion report was found at 60, 180, 705 and 1022 feet below the surface. The driller did not differentiate types of water, yet the Office is allowing the operator to do just that, without justification and using a criteria not allowed by law. The application notes, on the well schematic USDWs at 20, 50, 60, and 206 feet below the surface. The aquifers at 180 and 705 feet noted by the driller are also absent. We suppose the 206 foot USDW is the water well source used in the application. We discuss below what needs to be done to improve the Office's application instructions so that USDW and possible USDW be better differentiated from non- USDW (page 21). All USDW should be listed in Appendix A of the application. The driller encountered an open mine ("hit aband coal mine" in the completion report well log) between 600 and 650 feet, not 700 feet as in Appendix A. The completion report well log also places another coal seam at 840 to 860 feet.

DEP Response: The Office of Oil and Gas acknowledges the previous issues regarding the approach to assessing "fresh" water and "salt" water bearing zones. The Office of Oil and Gas proceeded with the draft permit issuance because all water zones encountered during drilling of the 47-019-00460 well are adequately protected. The current well has top-hole construction with 3 cemented casing "strings" (13 $\frac{3}{8}$ ", 9 $\frac{7}{8}$ " and 7") that work conjunctively to protect ALL water zones to a depth of ~1,753'. Lastly, the 4 $\frac{1}{2}$ " is constructed with an internal 2 $\frac{3}{8}$ " tubing and packer arrangement. This requirement for all Class II disposal wells acts as a built-in safety mechanism which monitors daily the injection well integrity using the monthly submitted WR-40 Report for Waste Disposal Wells. The Office of Oil and Gas acknowledges that the USDW delineation does not provide TDS concentrations for the water zone intersected during drilling operations. This has been an identified as a concern with historic well construction, by the WVDEP UIC program. USDW determination has been incorporated into the permitting application. In regard to the construction of these wells the following conclusions were drawn as to the acceptance of the previous standard on USDWs determination:

1. Both wells, 47-019-00460 and 47-019-00508, possess adequate cemented casing protecting all water zones, fresh and salt, to a depth of 1,853' and 2,776 below surface, respectively. These depths are below the encountered water at 1,022', according to the 47-019-00460 completion report.
2. No documented conduits exist within the Area of Review that would hydraulically connect the Weir Sandstone injection zone to a USDW aquifer. The Office of Oil and Gas also evaluated the surrounding 2.65 mile from each injection well, "Prescone" pressure model radius, and located no other problem wells (i.e. abandoned, inactive or improperly plugged) or mapped geological features that may allow fluids to migrate into zones above the Weir Sandstone injection zone.
3. The USDW of 206' was established using a recently drilled fresh water well located approximately 0.462 mi and 0.952 mi from the 47-019-00460 and 47-019-00508 injection wells, respectively. Both wells have more than adequate cemented casing strings to protect the USDW's.

104. There are issues with the casing and cementing plan in Appendix A. The conductor string goes to 140 feet, not 145, below the surface according to the 1982 completion report. The driller set the surface casing in or near the coal seam in approximately the same location as the open mine (casing depth 648 feet, open mine is 600-650 feet depth). What this means is that the cementing for the casing is most likely insufficient or will fail. This is a critical issue for a Underground Injection Control (UIC) well. Documentation substantiating the packer depth was not present in the application. The 1982 completion report shows no tubing or packer. The 2001 Schlumberger/Dowell internal Mechanical Integrity Test (MIT) report shows tubing set at 2586 feet and the packer set at 2421 feet.²² Appendix A's casing report shows the tubing set at 2592 feet with the packer at 2575 feet. Documentation showing this change should be available in the application. Any change in tubing or packer requires a MIT. There are other issues with the cementing and casing plan which are discussed in Attachment A dealing with external mechanical integrity.

DEP Response: The 47-019-00460 was originally drilled as a production well which does not require a tubing and packer construction. When the well was converted to a Class II UIC well the tubing and packer arrangement was installed. The 1/26/1982 WR-35 Completion Report for the 47-019-00460 shows a conductor casing (13^{3/8}") depth of 140' however the 5/11/2012 WR-37 Pre-Operation Certificate for Liquid Injection or Waste Disposal Well submitted depths conductor casing depths to 145'. The 5 foot variation does not affect the overall performance of the 47-019-00460 injection well. This casing is cemented to surface which adequately protects freshwater zones over the entire interval.

The Office of Oil and Gas acknowledges that the 9^{5/8}" was set through the coal mine void, according to the original WR-35 Well Completion Report. While drilling well 47-019-00460 a "basket" was used which is common practice in the oil and gas industry to set cement casing above intersected voids in subsurface strata. Both wells, 47-019-00460 and 47-019-00508, provide two additional casings well strings (7" and 4^{1/2}") which add additional protection to the coal seams and mine void that were intersected during the drilling process. The Office of Oil and Gas believes that the 47-019-00460 well's construction is more than adequate for the protection all USDWs. The Office of Oil and Gas's latest WR-37 Pre-Operation Certificate for Liquid Injection or Waste Disposal Well records are in agreement with the information submitted in the Class II UIC permit application. The packer is seated at a depth 2,575' which is "immediately above" the injection zone and any well perforations. It is important to note that either packer depth satisfies the "immediately above" the injection zone requirement as well as being above all well perforations. Any changes in tubing or packer would require an MIT.

105. Appendix A of the application for UIC2D0190508 is used as a site specific condition for the draft permit. This has a number of errors, all substantial. Water depths shown on the Appendix reproduce those in the 1986 well completion report 50 feet (fresh) and 500 feet (salt). The driller did not note any other water in the log. Above (page 9) we discuss the error of terming water salt in a UIC permit. Having only the information provided by the driller in 1986, both aquifers would have to be termed USDW or possible USDW. Salt is meaningless as a USDW criteria according to the Safe Drinking Water Act. The application's schematic shows USDW depths at 20, 50, 60 and 206 feet below the surface, similar to the schematic for UIC2D0190460.

DEP Response: The fresh and salt water request in Appendix A is primarily used to satisfy the casing/cementing requirements in Legislative Rule 35-4. The 47-019-00508 injection well has 3 strings of cement casing (13 $\frac{3}{8}$ "", 9 $\frac{5}{8}$ " and 7") that are cemented in a manner that protects any and all water bearing zones over the entire wellbore depth of 2,776'. The Office of Oil and Gas acknowledges that the USDW delineation does not provide TDS concentrations for the water zone intersected during drilling operations. This has been identified as a concern with historic well construction, by the WVDEP UIC program. USDW determination has been incorporated into the permitting application.

In regard to the construction of these wells the following conclusions were drawn as to the acceptance of the previous standard on USDWs determination:

1. Both wells, 47-019-00460 and 47-019-00508, possess adequate cemented casing protecting all water zones, fresh and salt, to a depth of 1,853' and 2,776' below surface, respectively. These depths are below the encountered water at 1,022', according to the 47-019-00460 completion report.
 2. No documented conduits exist within the Area of Review that would hydraulically connect the Weir Sandstone injection zone to a USDW aquifer. The Office of Oil and Gas also evaluated the surrounding 2.65 mile from each injection well, "Prescone" pressure model radius, and located no other problem wells (i.e. abandoned, inactive or improperly plugged) or mapped geological features that may allow fluids to migrate into zones above the Weir Sandstone injection zone.
 3. The USDW of 206' was established using a recently drilled fresh water well located approximately 0.462 mi and 0.952 mi from the 47-019-00460 and 47-019-00508 injection wells, respectively. Both wells have more than adequate cemented casing strings to protect the USDW's.
106. Completion reports for other wells drilled nearby show water depths in their logs. 47-019-00713 has water at 55 and 140 feet (fresh according to the driller) and 460 feet (salt according to the driller). 47-019-00617 has water at 139 feet (fresh according to the driller), 265 feet (fresh), and 655 feet (fresh). 47-019-00159 has water at 100 feet (fresh according to the driller). UIC2D0190460 has undifferentiated water at 60, 180, 705, and 1022 feet. Drillers, if they differentiate, tend to label deepest water aquifers as salt. Others might label the same aquifer as fresh.

DEP Response: The applicant is not required to review wells outside of the Area of Review as to depths of freshwater bearing zones. No other wells exist within a $\frac{1}{4}$ mile radius around either 47-019-00460 or 47-019-00508. It is important to note that both wells are constructed in a manner that do protect all above mentioned freshwater intervals. Also, no conduits exist within the Area Review that would hydraulically connect the Weir Sandstone injection zone with any of the above mentioned water bearing zones.

107. The 1986 completion report has an open coal mine at 635 to 637 feet below the surface. Appendix A has no coal reported, an error. Open mines are a fast pathway for contaminants to USDW. Seams themselves can contain USDWs, and mine vents, often unrecorded, provide vertical pathways for contamination to aquifers above a coal seam. The casing and tubing program in Appendix A shows tubing and packer set at different depths than the 2008 completion report after the well was reworked in preparation for conversion to a UIC well. That report has the tubing and packer set at 2600 feet. Appendix A has tubing set at 2685 feet with packer at 2690 feet. Documentation showing this change should be available in the application. Any change in tubing or packer requires a MIT. This well was originally drilled in 1982. Unproductive, it was plugged in 1986. When the well was plugged in 1986 perforations into the Ravencliff formation (above the Weir) were cemented and the 4 ½ inch casing was Correct packer location is important. See more about internal and external mechanical integrity in Attachment A. cut off at a depth of 1111 feet below the surface and the upper portion of the casing was removed. A cement plug was put there and on the surface. The 2008 reworking involved drilling through the plugs, replacing the missing portion of the production casing and cementing to surface the annulus for that casing. The tubing and packer were then set at 2600 feet below the surface. We are concerned that fractures in the Weir and also in the Ravencliff above compromised the Weir's confining zone. We are also concerned that the production casing patch job above the confining zone, just below the Pennsylvanian subsystem which contains USDWs, places those aquifers at risk. In our opinion this is not an appropriate well configuration for UIC injection.

DEP Response: The Office of Oil and Gas is aware of the coal mine void as well as Sewell Coal seam present in the area. The 47-019-00460 and 47-019-00508 will have adequate cemented casing which prevents injection fluid from entering open mine voids or coal seams of concern. In regards to USDWs present in coal seams, West Virginia Code of State Regulations 47-13 classifies mineable seams as exempted aquifers. This is outlined in 47-13-3.1.b.1 describing any zone that "is a mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible" as exempted under state regulations. The latest WR-37 Pre-Operation Certificate for Liquid Injection or Waste Disposal Wells (Mechanical Integrity Test) for 47-019-00508 shows adequate well construction with packer set "immediately above" the injection zone and all well perforations. This approved documentation on 1/24/2014 is believed to be the current construction of this injection well. A packer depth of either 2,600' or 2,690' would satisfy the injection well construction requirements. It has been the policy of the Office of Oil and Gas to address the removal and reinstallation ("reseating") of a tubing and packer as standard well maintenance. When such tasks are performed, they must complete a mechanical integrity test and be issued an approved WR-37 before underground injection operations may continue. This document is then used as the most accurate well construction information for the UIC well. After review of the all submitted and all available geological documentation, the Office of Oil and Gas did not find evidence of fractures hydraulically connecting the Weir Sandstone to a USDW exist within a 2.65 mile radius (EPA Prescone Model AOR radius) around each injection well.

Also, the Weir Sandstone is adequately sealed with >380' confining/cap rock of varying composition (shale and "tight" limestone) that are assumed to comfortably overly the injection zone preventing fluid migration into USDW. The Office of Oil and Gas acknowledges the well work activities of sealing ("squeezed") the Ravencliff Sandstone perforations for well 47-019-00508. Following the rework the operator was required to complete a mechanical integrity test and submit a completed WR-37 for approval to the Office of Oil and Gas. On 1/17/2014 the operator completed a MIT annulus pressure test between 2¾" tubing and 4½" production casing, which confirmed the Ravencliff Sandstone perforations were successfully sealed.

108. The permit styles itself as draft. It is not even that. The Office would have done a better service to itself and the concerned community by making the application package and draft permits, not specific to a UIC well, open for comments and holding a public meeting, rather than going down the path it has taken.

DEP Response: The Office of Oil and Gas acknowledges your comment and is following the requirement of Legislative Rule 47 CSR 13-13.24.

Public Participation in Permit Process.

13.24.a. Scope. Public notice shall be given that the following actions have occurred:

13.24.a.1. A draft permit has been prepared; or

13.24.a.2. A hearing time has been scheduled.

109. Part I B -- Immediate Reporting

See our comments below (page 21) for II C.6. I B is a near duplicate of a better condition elsewhere in the permit. Either II C.6 should replace this condition or this condition should be deleted.

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit. Part I Section B has been modified to incorporate the requirements outlined in Part II Section B paragraph 6. Part II Section B paragraph 6 has been changed to address spill requirements.

110. Part I D -- Effect of Permit

This is different from the Region 3's permit condition I A. Region 3 permits are broadly concerned with human health and the environment. The Office's permit beats around the bush, often using language that sidesteps either human health or the environment, sometimes both.

DEP Response: The draft permit contains "endanger health or the environment" based on the regulatory requirement of Legislative Rule 47-13.

111. Region 3's wording is more protective and should be used. The property rights section, "Issuance of this permit does not convey property rights or mineral rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations," is already found in the Office's permit (I H.10) and need not be repeated.

The text for I D should read thusly:

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The permittee shall not allow the underground injection activity, otherwise authorized by this permit, to cause or contribute to the movement of fluid containing any contaminant into any underground source(s) of drinking water (USDW), if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 141, of any water quality standard promulgated by the State Environmental Quality Board, or if it may otherwise adversely affect the health of persons. Any underground injection activity not authorized in this permit or otherwise authorized by permit or rule is prohibited. Compliance with the terms of this permit does not constitute a defense to any action brought under Part C or D of the SDWA, 40 U.S.C. §§ 300f-300j-11, or any other common or statutory law for any breach of any other applicable legal duty.

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit.

112. Part I H.1 -- Duty to Comply

Here the Office has changed the wording adversely and contrary to state and federal law. The wording should conform to that found in 47CSR13-13.12.a: The permittee must comply with all conditions of this permit. Any permit noncompliance may constitute a violation of the SDWA and the State Act and be grounds for enforcement action; for permit suspension or revocation, revocation and reissuance, or modification; or for denial of a permit renewal application. [The rest of the wording in the condition continues without change.]

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit.

113. Part I H.4 -- Duty to Mitigate

The inclusion of "or health of persons" from the Region 3 permit is excellent.

DEP Response: The Office of Oil and Gas acknowledges your comment.

114. Part I H.5 -- Proper Operation and Maintenance

The addition of "adequate security at the facility to prevent unauthorized access" from the Region 3 permit is excellent.

DEP Response: The Office of Oil and Gas acknowledges your comment.

115. Part I H.8 – Penalties

The condition reads: Any person who violates a permit requirement is subject to civil penalties, criminal penalties, fines and other enforcement actions under §22-11 and §22-12. It should read, using the Region 3 as a model: Any person who violates a requirement of this permit is subject to administrative or civil penalties, fines and other enforcement actions under §22-11 and §22-12 or under the SDWA. Any person who willfully violates conditions of this permit is subject to criminal prosecution.

DEP Response: The Office of Oil and Gas acknowledges your comment and believes the draft language is sufficient.

116. The Office is compliance enforcement adverse, which must change. The whole compliance program must be geared I H.8's wording needs to recognize the wide range of potential state and federal enforcement actions. so that its processes (inspections, sample collection and lab analysis, etc.) could support and be used in a criminal prosecution of the offending operator. This is emphasized in law and EPA guidance for UIC state programs. The Office must make a fundamental change in its behavior in order to achieve better compliance.

DEP Response: The Office of Oil and Gas acknowledges your comment.

117. Part I H.9.d -- Signatory requirements

The certification text given in the permit reproduces the Region 3 permit's text, not that found in the cited regulation (47CSR13-13.11.d). It should be removed and replaced with: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit.

118. Part II A -- Record retention

This condition conflates several permit conditions found in 47CSR13 which have different record retention periods. The record retention period in A.1 is therefore illegal. What must be done is to completely revise this section to create permit conditions that follow the law in 47CSR13-13.10.e for application materials, 47CSR13-13.12.j.2 for monitoring information, and 47CSR13-13.6.b for injection fluid records.

The Region 3 model permit is set up to meet the state law's requirements. The 5 year retention period for II A as originally worded violated state law. application materials and monitoring information makes sense since that is also the duration of a permit. State law allows extending the retention period beyond 3 years.

Sections 1 and 2 of this condition should be replaced by this:

1. The permittee shall retain records of all monitoring and other information required by this permit, including the following (if applicable), for a period of at least five years from the date of the sample, measurement, report or application, unless such records are required for a longer period of time under paragraph 2 below. This period may be extended by the Director at any time.

- a. All data required to complete the permit application for this permit and any supplemental information submitted under 47CSR13-13.3;
 - b. Calibrations and maintenance records and all original strip chart recordings for continuous monitoring instrumentation;
 - c. Copies of all reports required by this permit;
2. The permittee shall retain records concerning the nature and composition of all injected fluids, as listed in conditions II B.6 and II B.7 of this permit, until at least three years after the plugging and abandonment procedures are complete. The permittee shall continue to retain these records after the three year retention period unless he or she delivers the records to the Director or obtains written approval from the Director to discard the records.

DEP Response: The draft and subsequently final permits requirement for record keeping is more stringent than the EPA. *"The permittee shall retain all records concerning the permitted underground injection well until three (3) years after completion of any plugging and abandonment. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period"* (Emphasis added)

119. Part II B.4 -- Monitoring Requirements

The addition of the word daily for casing annuli monitoring should be added.³¹ As worded an operator could monitor the annuli pressures only once for the duration of the permit. The permittee shall monitor daily all the casing annuli with pressure sensitive devices or with such a method as approved or required, etc.

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit. Class 2D permittees are required to **complete** and submit monthly WR-40 document, which includes daily annulus pressure readings. The wording contained within the draft permit is consistent with the requirements in Legislative Rule 35-4-7.5. Monitoring by the Operator -- The well owner or well operator of a liquid injection or waste disposal well shall monitor daily and submit to the Office monthly the injection pressures and volumes on Form WR-40 "Report for Liquid Injection, Waste Disposal or Enhanced Recovery." The Chief may require more frequent or continuous monitoring and more frequent reporting if, in his opinion, good reason exists therefore.

120. Part II B.5 -- Monitoring Requirements

There is a typo: wells' should be well's.

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit.

121. Part II B.6 -- Monitoring Requirements

The permit's injection fluid lab analysis parameters (Table 1) is not protective and does not show the range of constituents characteristic of the fluids the operator is injecting. This permit condition requires lab analysis of fluid only once every five years. Region 3's commercial permit requires testing a sample every 2 years which seems reasonable considering the types and ranges of fluid being injected in these wells.

The permittee shall sample, analyze and record the nature of all the injected fluid for the parameters listed in Table 1 below at the initiation of the injection operation, every two years thereafter, and upon the request by the Director, or whenever the operator observes or anticipates a change in the injection fluid.

The permit application package has its own list of parameters which is better suited for the range of fluids injected in this state.

Table 1 therefore should be:

Table 1	
TPH GRO	Aluminum
TPH DRO	Arsenic
TPH ORO	Barium
BTEX	Calcium
pH	Chloride
Sulfate	Iron
MBAS	Manganese
Dissolved Methane	Sodium
Dissolved Ethane	Total Dissolved Solids
Dissolved Butane	Total Suspended Solids
Dissolved Propane	Total Organic Carbon
Specific Gravity	Total Coliform Bacteria
NORM	

DEP Response: The Office of Oil and Gas will continue to require sampling every five years or when there is a change of fluid source or earlier at the Chief's request. These parameters do give a characteristic of the fluid. Table 1 parameters have been changed for future applications by increasing parameters to determine characteristic.

122. Part II B.7 -- Monitoring Requirements

This section should be replaced with that found in Region 3's permit condition II B.5. The Office's draft permits for these wells, like its prior permits, assumes a test of a single sample offers a representative evaluation of the broad range of fluids being injected. For commercial UIC IID wells like this operator's, the fluids are coming from counties across the state and include fluids ranging from coalbed methane produced water to horizontal Marcellus and Utica shale flowback/produced water. In the past the operator has injected fluid from other states. It is impossible in a case like this that a single sample is representative. Nor is the Office acting responsibly given the fact that a fluid with significantly higher specific gravity could cause formation fracturing during injection at maximum permitted pressure.

Region 3's commercial permits' requirement for sampling individual loads from new formations, customers, or regions for specific gravity, TDS, pH and TOC is entirely sensible. These tests could be done in-house with minimal waiting time. Proper record keeping would be essential and should be part of the permit. This operator's lackluster performance history calls all this into question, however. Is it responsible to give a permit to an operator who has in the past shown himself unable to comply with permit or Consent Order conditions?

It should be noted that the sample fluid's laboratory analysis in the permit applications has a TOC almost three times higher than the draft permit's maximum. The Office apparently finds this acceptable.

The permit should replace condition II B.7 with: Samples of injection fluid shall be collected and analyzed from initial loads received from each disposal customer and each type of source (e.g., from different geologic formations, geographic regions, etc.). Minimum analyses of the fluid will include specific gravity, Total Dissolved Solids, pH and Total Organic Carbon (TOC). The permittee shall verbally report to the Director analytical results for specific gravity that are greater than 1.2 and for TOC that are greater than 250 mg/l within twenty-four hours of obtaining the results.

DEP Response: This reporting measure has been included to provide an indicator of a change of injectate to provide this office the ability to evaluate the potential of different fluids being brought into the facility.

123. Part II B.10 Monitoring Requirements

The pipeline monitoring condition needs to be strengthened in some permits to require annual testing for pipeline mechanical integrity. This test should be for a pipeline that connects an injection pump with an injection well some distance away. As worded the condition is appropriate for testing facility piping should be kept. Testing a pipeline which supports a well at some distance from the injection pump is critical to protect ground and surface water. The test needs to be witnessed by an inspector, just like an MIT, and needs to be performed at a pressure at least 1.5 times the normal injection pressure. We have created a new condition, III D below for such a test

DEP Response: The Office of Oil and Gas acknowledges your comment. The Office of Oil and Gas will continue to strive to witness all MITs including pressure tests of lines.

124. Part II B.11 Monitoring Requirements

Region 3 permits allow 5 year MITs for non-commercial UIC IID wells. Commercial wells, because of the volumes and types of fluids being injected, require more frequent tests, "at least once every two (2) years." In some cases the EPA also requires fall off tests in those years without a MIT.

State law requires a MIT within 5 years and a more stringent permit condition would fall within the law's intent (35CSR4-7.7.b). The law also allows permit conditions for special situations.

The other issue with this condition is the 24 hour notice before a MIT.³⁹ Region 3 permits require a 30 day advance notice. A longer notice time means that an inspector can be present to witness the MIT. This is the EPA's desire stated repeatedly in the Region's annual program reviews of West Virginia's UIC program.⁴⁰ Commercial permits should read, therefore: The permittee shall make a demonstration of mechanical integrity in accordance with 35CSR4-7.7.b, after the initial demonstration, at least once every two years.

Subsequent two year demonstrations shall be conducted no more than thirty days prior to the anniversary date of the issuance of this permit. The permittee shall notify the Director in writing at least thirty days prior to such demonstration. The permittee must submit a WR-37 Form with each mechanical integrity test along with a copy of any test chart(s). Upon failure of a mechanical integrity test or expiration of the two-year five- year mechanical integrity test regulatory period, the permittee shall cease operation/injection and shut-in the well immediately until successfully repaired, tested or permanently plugged and abandoned per regulation. Corrective action for repairs shall be completed and approved by the Office of Oil and Gas and shall be conducted within ninety (90) days of the failure date. If repaired, the well must be retested and an updated WR-37 Form must be submitted to the Office of Oil and Gas for approval.

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit.

125. Part II B.12 -- Monitoring Requirements

This condition needs to be revised as follows:

In addition to the above requirement, a mechanical integrity test demonstration shall be conducted whenever protective casing or tubing is removed from the well, the packer is replaced or reseated, or a well failure is evident likely, or as requested by the Director. . . . This change allows MITs whenever the Office feels it is necessary. Region 3 permits have an added sentence to this condition which we feel should be a part of this permit's condition:

The injection well shall be equipped with an automatic shut- off device which would be activated in the event of a mechanical integrity failure.

DEP Response: The Office of Oil and Gas acknowledges your comment in regard to MIT demonstrations and the change has been incorporated into the final permit.

126. Part II B.13 -- Monitoring Requirements

This condition repeats condition I H.1, the Duty to Comply, and is unnecessary.

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit.

127. Part II C.6 -- 24 Hour Reporting

We can understand the double appearance of this condition in the permit, but as worded here the condition is more comprehensive. The condition in Part I B is unnecessary.

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit. Part I Section B has been modified to incorporate the required requirements outlined in Part II Section B paragraph 6. Part II Section B paragraph 6 has been changed to address spill requirements.

128. Part III A.3 – Operating Requirements

Wells within the AOR also appears as a condition in III A.5. The latter condition should be removed from the permit. As worded the conditions in the permit require a well that has been shut in more than one week be plugged. We suggest the following wording for III A.3: Any production well within the permitted Area of Review of this disposal well which does not have cemented casing through the injection zone(s) shall be monitored immediately upon becoming inactive. Any well shut-in more than one (1) week shall be considered inactive. Any temporary inactive well shall be monitored at a frequency and by a method prescribed by the Office of Oil and Gas upon notice by the permittee of such activity. Any well shut-in more than one (1) year shall be considered abandoned and shall be plugged immediately.

DEP Response: The Office of Oil and Gas acknowledges your comment and has incorporated the changes into the final permits.

129. Part III A.7 –Facility security

Facility security is a key component of commercial UIC IID compliance. All UIC IID wells, commercial or not, should be securely fenced (non-commercial UIC2D0791452 is a good example of a properly constructed facility with a fence). Having a permit requirement that the site be fenced within 30 days after granting the permit is bizarre. Especially since site security was a supplemental condition for the 2007 permit for UIC2D0190460. Video surveillance (adopted by the operator in 2008) does not prevent someone from entering the site and performing illegal activities, a condition in I H.5. This operator has had 7 years to fence the sites. There's no assurance that after the permit has been granted that fencing will be installed. The following sentence should be removed from this condition: ~~The facility shall be fenced within thirty (30) days of the effective date of this permit.~~ Permits should not be granted to operators whose facilities do not already meet all the permit conditions. If the operator's facilities are not properly fenced, they should not receive a permit.

DEP Response: The Office of Oil and Gas acknowledges your comment. A fence will be required for operation.

130. Part III B -- Plugging and Abandonment

This group of conditions in the draft permit does not meet the requirements of law (47CSR13-13.7.f) which state:

Plugging and abandonment. Any Class 1, 2, or 3 permit shall include, and any Class 5 permit may include, conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall be required to submit a plan for plugging and abandonment. Where the plan meets the requirements of this paragraph, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director shall require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the application. . .

Requirements from the Region 3 permit should be utilized. We discuss below (page 38) federal plugging requirements which must be elements of a plugging form attached to the permit as a condition. The permit should thus read:

1. Any well which is not in use for a period of twelve consecutive months shall be presumed to have been abandoned and shall promptly be plugged by the operator in accordance with the provisions of Chapter 22, Article 6, of the West Virginia Code unless the operator furnishes satisfactory proof to the director that there is a bona fide future use for the well.
2. The permittee shall plug and abandon the injection well as provided in the Office's approved Plugging and Abandonment Plan (WR-Form) (Attachment).
3. The permittee shall plug and abandon the injection well in such a manner that fluids shall not move into or between USDWs.
4. The permittee shall notify the Director in writing at least 45 days before plugging and abandonment of the injection well.
5. The permittee shall submit any revisions to the plugging and abandonment plan attached to and incorporated into this permit (Attachment) to the Director no less than 45 days prior to plugging and abandonment. The permittee shall not commence plugging and abandonment until it receives written approval of the revisions to the Plan from the Director.
6. To the extent that any unforeseen circumstances occur during plugging and abandonment of the injection well that cause the permittee to believe the Plugging and Abandonment Plan should be modified, the permittee shall obtain written approval from the Director of any changes to the Plugging and Abandonment Plan prior to plugging the injection well.
7. Within 60 days after plugging the injection well, the permittee shall submit a Plugging and Abandonment Affidavit to the Director which shall consist of either:
 - a. A statement that the injection well was plugged in accordance with the Office's approved Plugging and Abandonment Plan; or
 - b. Where actual plugging differed from the Plugging and Abandonment Plan previously submitted, the permittee shall provide to the Director an updated version of WR- form specifying the different procedures used.

DEP Response: The plugging and abandonment (P&A) plan is a required component of the permit application. The draft permit would not be considered if such information was not provided. If the permittee must plug the well; he or she must apply for a plugging permit and explain in detail how they will execute such task which meets or exceeds the requirements at that time. The objective of the P&A plan inclusion in the Class II and 3 UIC permit process is to ensure the requirements in Legislative Rule 47-13 are met. The permittee must consider current injection well construction in their ability to meet current and future plugging and abandonment requirements. The permittee's proposed plugging plan will be included in the final permit.

131. Part III C – New Condition in the Permit for Financial Responsibility

An additional section to the permit is required by state law (47CSR13-13.7.g) which states: Financial responsibility. The permit shall require the permittee to maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Director. The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Director.

We suggest that the Office include these slightly revised conditions from Region 3's Bear Lake permit:

1. The permittee shall maintain continuous compliance with the requirement to maintain financial responsibility and resources to close plug and abandon the injection well in accordance with 47CSR13-13.7.g in the amount of at least

\$ _____. The well may not be constructed, reworked or operated if the financial responsibility for that well has not been established. Further, the permittee must provide documentation to the Director that financial responsibility has been established for the injection well prior to construction, rework or operation. The permittee has provided a Letter of Credit assuring the plugging costs for the injection well. The permittee shall not substitute this Letter of Credit with an alternative demonstration of financial responsibility, unless he or she has previously submitted evidence of that alternative demonstration to the Director and the Director notifies he or she that the alternative demonstration of financial responsibility is acceptable. The Director may require the permittee to submit a revised demonstration of financial responsibility if the Director has reason to believe that the original demonstration is no longer adequate to cover the costs of plugging and abandonment.

2. Insolvency of Financial Institution. In the event of the bankruptcy of the trustee or issuing institution of the financial mechanism, or a suspension or revocation of the authority of the trustee institution to act as a trustee or the institution issuing the financial mechanism to issue such an instrument, the permittee must immediately notify the Director and submit an alternative demonstration of financial responsibility acceptable to the Director within sixty days after such an event.

DEP Response: The Office of Oil and Gas acknowledges your comment and has incorporated the changes into the final permits. Appendix I from the UIC permit application has been added to the final permit.

132. Part III D – Pipeline Mechanical Integrity Testing

This condition needs to be strengthened in the permits to require annual testing for pipeline mechanical integrity. This test should be for the pipeline serving UIC2D0190508 which utilizes the tanks and pump at UIC2D0190460. The operator apparently already conducts annual pipeline tests for the piping between the tank and pump (this test is done at 900 psi). What has not been tested is the pipeline between the two wells. Testing this pipeline is critical to protect ground and surface water. The test needs to be witnessed by an inspector, just like an MIT, and needs to be performed at a pressure at least 1.5 times the normal injection pressure. Suggested wording for this condition is as follows:

The permittee shall make a demonstration of mechanical integrity of the pipeline, after the initial demonstration, at least once every year. Subsequent yearly demonstrations shall be conducted no more than thirty days prior to the anniversary date of the issuance of this permit. The permittee shall notify the Director in writing at least thirty days prior to such demonstration. The permittee must submit a WR-37 Form with each mechanical integrity test along with a copy of any test chart(s). Upon failure of a mechanical integrity test or expiration of the one-year mechanical integrity test regulatory period, the permittee shall cease operation/injection and shut-in the well immediately until the pipeline is successfully repaired, tested or permanently plugged and abandoned per regulation.

Corrective action for repairs shall be completed and approved by the Office of Oil and Gas and shall be conducted within ninety days of the failure date. If repaired, the pipeline must be retested and an updated WR-37 Form must be submitted to the Office of Oil and Gas for approval. Any change made to the pipeline fittings or piping will require a mechanical integrity test, witnessed by an inspector, before the pipeline is put into operation.

DEP Response: The Office of Oil and Gas acknowledges your comment and pipeline testing requirements have been clarified in the final permit.

133. Part IV A -- Site Specific Conditions

Site specific conditions related to plugging and abandonment should be added 3. Appendix: Plugging and Abandonment Plan.

DEP Response: The Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit. The plugging and abandonment plan submitted with the UIC permit application has been added to the permit as Attachment 1.

134. Guidance Section 4 -- Form UIC-1

According to the instructions, since the permit for UIC2D019460 expired before the application was submitted, the operator is applying for a new permit, not renewal. See pages 2 and 3, section 4 A and B of the Guidance.

DEP Response: The 2D0190460 application package was submitted as a "renewal" permit application. This is appropriate since the operator has previously been issued a Class II UIC permit for UIC 2D0190460. The UIC Permit Applications 2D0190460 and 2D0190508 like all "renewal" UIC Class II permit applications are held to the same standard as a "new" permit regarding application review requirements.

135. Guidance Section 6 – Construction

Section 6.1 – Site Plan

A facility plan is required as part of the application. The operator provides a plan for UIC2D0190460 in both applications. What is happening and what does not appear anywhere in the applications is the fact that there is a pipeline of undetermined size and material connecting the two facilities. What the instructions require is:

An aerial map or appropriate drawing(s) of the proposed UIC injection well(s) facility/project area. This map focuses on the surface and near surface structures associated with the UIC activities. Included must be all intakes and discharge structures, storage, groundwater supply sources, pipelines, pumps, valves, tank or tank battery, secondary containment, and/or other fluid storage structures. The submitted surface map/drawing should include, but is not limited to: legend/key, scale, and orientation (i.e. north arrow, compass) [our emphasis].

DEP Response: The Office of Oil and Gas acknowledges your comment and the site drawing which includes oil components, will be incorporated into the final permit.

136. There apparently is a pipeline from UIC2D0190460 to UIC2D0190508 (according to Mr Young's, of the Office, report for a 29 March 2013 inspection). This pipeline is not presented in any fashion in the application materials. Engineering details for the pipeline should have been a permit application requirement. The presence of the pipeline requires an additional permit condition for pipeline mechanical integrity testing. Details of the pipeline should be on the wells' facility plans.

DEP Response: The Office of Oil and Gas acknowledges your comment and agrees that not all surface features were included the permit application regarding the pipeline. The review staff did not require further information regarding pipeline construction because the Office of Oil and Gas conducted a pipeline inspection and witnessed the pipeline pressure integrity test which verified the integrity/functionality of all servicing pipelines. An additional permit condition addressing pipeline integrity pressure testing, once every five (5) years, was incorporated into the final permit.

137. The 17 October 2014 inspection by Mr Urban, of the Office, mentions that the largest aboveground storage tank on UIC2D0190508's site is approximately 300 barrels. This tank, and any others at that facility, is not presented in the permit application for UIC2D0190508.

DEP Response: The tank battery located at the Lockgelly facility services both UIC wells. UIC2D0190508s' location does not contain a tank.

138. There should be a facility plan for UIC2D0190508 showing the tank(s) there and secondary containment, along with the pipeline. The pipeline should be shown in its entirety on a separate plan with engineering details (size of pipe, material, depth buried, etc.). The facility plan for UIC2D0190460 should be revised similarly to include all tanks on the site and the pipeline. A proper facility plan for each injection well should be included in its GPP.

DEP Response: The tank battery located at the Lockgelly facility services both UIC wells. The operator has also coordinated with the Division of Water and Waste Management for compliance with above ground storage tank regulations WVa Code § 22-30 and registered all tanks.

139. Section 6.2 – Detailed Schematic

The well schematics for UIC2D0190508 and UIC2D0190460 are haphazard in locating known and possible USDWs as we described earlier (p 9). This confusion, carried over to well form Appendix A, is based on an unclear presentation of what exactly is a known USDW, possible USDW, and non- USDW. The instructions should have a separate section dealing with USDWs. Guidance Section 7.3 describes how to determine a USDW best suited for a situation where a new well is being drilled for underground injection purposes. Unless this type of information is known, operators have to base their determination on local information and the driller's log. Driller's descriptions of water as fresh or salt don't meet the Safe Drinking Water Act's requirements.

An assumption can be made that USDWs fall in the Pennsylvanian subsystem and that water encountered during drilling of an older well in these formations is either a USDW or possible USDW. Appendix A, the requirements for the well schematic, and the section about Area of Review in the Application Package and Guidance should be revised accordingly. All references to fresh and salt water must be removed from the application materials.

DEP Response: The fresh and salt water request in Appendix A is primarily used to satisfy the casing/cementing requirements in Legislative Rule 35-4. The Office of Oil and Gas acknowledges that the USDW delineation does not provide TDS concentrations for the water zone intersected during drilling operations. This has been identified as a concern with historic well construction, by the WVDEP UIC program. USDW determination has been incorporated into the permitting application.

In regard to the construction of these wells the following conclusions were drawn as to the acceptance of the previous standard on USDWs determination:

1. Both wells, 47-019-00460 and 47-019-00508, possess adequate cemented casing protecting all water zones, fresh and salt, to a depth of 1,853' and 2,776' below surface, respectively. These depths are below the encountered water at 1,022', according to the 47-019-00460 completion report.
2. No documented conduits exist within the Area of Review that would hydraulically connect the Weir Sandstone injection zone to a USDW aquifer. The Office of Oil and Gas also evaluated the surrounding 2.65 mile from each injection well, "Prescone" pressure model radius, and located no other problem wells (i.e. abandoned, inactive or improperly plugged) or mapped geological features that may allow fluids to migrate into zones above the Weir Sandstone injection zone.
3. The USDW of 206' was established using a recently drilled fresh water well located approximately 0.462 mi and 0.952 mi from the 47-019-00460 and 47-019-00508 injection wells, respectively. Both wells have more than adequate cemented casing strings to protect the USDW's.

140. Section 6.3 – Well Injection Form and Tank Inventory

The Tank Inventory (Appendix B) should form part of the GPP, along with the facility plan described above. The operator has made a number of errors in the applications for the facilities when it comes to identifying and reporting tanks.

The application's tank inventory shows 9 tanks – 1 holding crude oil and 8 others holding brine -- even though there are 11 tanks at the site. The SPCC Plan for UIC2D0190460 in the application is a self-certified Tier 1 plan for a facility meeting specific conditions, including having aboveground storage tanks' total capacity for oil at no more than 5000 gallons.⁵² Only one tank, capable of holding 1500 gallons of diesel, is listed. Mr Young's 2013 inspection cites "two double wall diesel tanks near the office trailer;" Google Earth shows two tanks. The permit application inventories a 8316 gallon crude oil/used oil tank and other tanks capable of holding tens of thousands of gallons of condensate/brine. A proper SPCC Plan for UIC2D0190460 certified by a professional engineer is required. This 1500 gallon diesel tank is not shown on the facility plan in the operator's permit application for UIC2D0190460 and does not appear in the application's tank inventory. The operator was required to register all tanks on the site to fulfill his obligations under the state's recently passed Aboveground Storage Tank Act. He registered 10 tanks, 1 holding used oil, 8 holding brine, and 1 empty 2000 gallon tank (the other diesel tank) he did not register the 1500 gallon diesel tank as required.

The application for UIC2D0190508 uses the same tank inventory form as the other well, just changing the facility identification numbers. A proper tank inventory and facility plan needs to be created for UIC2D0190508. A presence of tanks at the UIC2D0190508 facility would require a separate SPCC Plan.

DEP Response: According to the Division of Water and Waste Management all above ground storage tanks at this facility have been registered. The tank battery located at the Lockgelly facility services both UIC wells.

141. Guidance Section 7 -- Area of Review

The quarter mile Area of Review (AOR) found in the law was the EPA's attempt to create a cookie-cutter approach to a very real problem. The Zone of Endangering Influence works on similar assumptions.

The assumptions are that the formation being injected into is homogenous; that flow progresses evenly outward from the bore in a circular fashion; that there are no voids, fractures or faults in the formation; and that the only avenues for upward migration of fluids are through boreholes.

The projected fluid migration within the formation in the application makes a number of similar assumptions in variance with the prior permit's application's computations. The assumptions must start with actual volume of fluid injected to this date (over 1,500,000 barrels) in addition to projected volumes, not 1,000,000 barrels of fluid total. The fluid displacement percentage in the earlier application was 10%, not 25% in the current computation.

Using a 10% displacement and formation height of 58 feet instead of 70 feet, 1,500,000 barrels injection makes the radius 2150 feet beyond the wellbore. At an additional 1,000 barrels a day injection over 5 years (the permit application anticipates 2880 barrels a day maximum), the radius becomes 3200 feet.⁵⁷ A quarter mile AOR is unrealistic.

We believe a mile AOR is more appropriate for these wells for these reasons. A mile radius is shown on the AOR maps for the applications and in the case of UIC2D0190460 there are 3 wells (not just 2 as shown on the application's map), two plugged (47-019-00320 is missing from the map) and one active.

DEP Response: 47 CSR 5.2.a & b states that:

“5.2 The area of review may be defined as either:

5.2.a The zone of endangering influence as determined accordance with subdivision 5.3.a; or

5.2.b An area with a fixed radius around each well as determined in accordance with subdivision 5.3.b”

The operator, as standard practice, utilized the fixed radius. It should be noted however, the Office of Oil and Gas staff has utilized the EPA Region 3 “Prescone” model, verifying the proposed injection operation remains within the chosen radius, in this case ¼ mile, by applicant. All wells were reviewed within the Area of Review.

142. Microseismic events at both injection wells during initial fracturing have created fractures or voids. In the case of UIC2D0190508 these fractures exist both above and below the confining zone. These fractures don't just extend laterally through the formation but also extend vertically into surrounding formations.

Because of the vertical fractures above and below the Ravencliff at UIC2D0190508 which could possibility provide avenues for transport of fluids into USDWs we believe a monitoring well is appropriate (47CSR58-4.9a).

We are also concerned about the seating of UIC2D0190460's surface casing shoe in or near a coal mine void that would compromise that well's protection of USDWs above that depth. We believe a monitoring well is appropriate there also, unless a single well between UIC2D0190460 and UIC2D0190508 to monitor USDWs can be deemed adequate with some surety.

The municipal USDW nearby has no clearly defined borders and its connection with aquifers above and below is unknown. We believe the Office of Oil and Gas/Division of Water and Waste should work closely with that authority prior to permitting to make sure all necessary safeguards are in place.

Of course the most important safeguard is a responsible operator. Unfortunately this operator has demonstrated continuously over the years just how irresponsible he is.

DEP Response: The Office of Oil and Gas acknowledges your comment. The Office has no records or evidence that microseismic events or fractures exist connecting the Weir Sandstone injection zone or the Big Lime (Greenbrier Limestone) and MacCraday Shale confining layers with an USDW. It is common practice in the oil and gas to industry to hydraulically fracture ("stimulate") target formations to increase reservoir performance. Both 47-019-00460 and 47-019-00508 are vertical wells where pressures during stimulation were exerted horizontally causing dominant fracture propagation to occur laterally, within the Weir Sandstone, rather than vertically. It is important to note, the Ravencliff Sandstone stratigraphically overlies the injection zone and confining layers by ~642 feet (47-019-00508 well record) and is not associated with DEWC injection operations. Regarding the casing issue shoe concern, a "basket" was used, which is a common practice in the oil and gas industry to set cement casing through intersected voids in subsurface strata. It is important to note that both wells, 47-019-00460 and 47-019-00508, provide two additional cement cased well strings (7" and 4½") which add additional protection to the coal seams and void. The municipal water supply does not extract water from a "USDW", which is a underground source of drinking water, rather they draw their water at surface water via the New River. The Office of Oil and Gas does coordinate with the Department of Health and Human Resources the regulatory body that regulates drinking water sources. It is the determination of the Office of Oil and Gas that the Weir Sandstone has adequate zonal isolation and is not hydraulically connected to any municipal water source.

143. Section 7.3 -- Depth of USDW

See above, page 9 and 30. This section of the Guidance needs to be expanded to cover USDW determination for existing wells converted to UIC purposes. Justification needs to be provided by the operator to demonstrate how an aquifer is not an USDW. All USDWs should be noted on a revised Appendix A.

DEP Response: The fresh and salt water request in Appendix A is primarily used to satisfy the casing/cementing requirements in Legislative Rule 35-4. The Office of Oil and Gas acknowledges that the USDW delineation does not provide TDS concentrations for the water zone intersected during drilling operations. This has been an identified as a concern with historic well construction, by the WVDEP UIC program. USDW determination has been incorporated into the permitting application.

In regard to the construction of these wells the following conclusions were drawn as to the acceptance of the previous standard on USDWs determination:

1. Both wells, 47-019-00460 and 47-019-00508, possess adequate cemented casing protecting all water zones, fresh and salt, to a depth of 1,853' and 2,776' below surface, respectively. These depths are below the encountered water at 1,022', according to the 47-019-00460 completion report.
2. No documented conduits exist within the Area of Review that would hydraulically connect the Weir Sandstone injection zone to a USDW aquifer. The Office of Oil and Gas also evaluated the surrounding 2.65 mile from each injection well, "Prescone" pressure model radius, and located no other problem wells (i.e. abandoned, inactive or improperly plugged) or mapped geological features that may allow fluids to migrate into zones above the Weir Sandstone injection zone.

The USDW of 206' was established using a recently drilled fresh water well located approximately 0.462 mi and 0.952 mi from the 47-019-00460 and 47-019-00508 injection wells, respectively. Both wells have more than adequate cemented casing strings to protect the USDW's.

144. Section 7.4 – Water Wells

The list of parameters for water well sample analysis in the Guidance is not reproduced exactly on the application form's Appendix E – TSS, TOC, and sulfate are missing from the Appendix. The water test submitted by the operator fulfills the requirements of Appendix E. The high TPH GRO and arsenic are suspicious. The water is not safe to drink. Arsenic was at 340 ppb; the EPA's Maximum Contamination Level for arsenic in drinking water is 10 ppb. The samples were provided by the operator's staff rather than collected by a third party or the lab and will not be defensible if the operator contaminates a USDW.

This aquifer is shown on the well schematics, using the depth of the water well as an USDW.

DEP Response: The levels of TPH-GRO and arsenic appear to be elevated. The wells owner should contact the county health department for assistance. The validity of the samples is not in question. Any person can collect a sample, submit it to a WV certified lab for analysis and provide the data to the agency as long as the requirements of Legislative Rule Title 47 Series 32 are followed. Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

145. Guidance Section 8 – Geological Data

We found the geological fault maps provided in the applications unreadable in the digital documents provided by the Office. What we could read seemed to indicate a map scale which made detailed depiction of local faults impossible.

DEP Response: The Office of Oil and Gas acknowledges that the fault investigation map was presented in a scale (small) that is difficult to locate local structural features. Minimal fault mapping and/or documentation exists throughout West Virginia and local/large-scale fault structure maps in the Beckwith field are not available. The information provided by the applicant included all publically available fault information provided by the West Virginia Geological and Economic Survey. It is important to note that the UIC staff did not locate any faults during their review that would be affected by the proposed injection operations.

146. Guidance Section 9 -- Operating Requirements/Data

Section 9.3 – Characteristics of Injection Fluid

We believe the list of parameters in the Guidance for laboratory testing is good. This list should also be found on the permit as noted above (page 17). Unfortunately, none of the operators whose permits are out for comment at the present time have tested their fluid for all the substances on the list. This seems to be based more on general sloppiness than the list of parameters being onerous.

We are also concerned that draft permits' requirement that tests showing Total Organic Carbon at more than 250 mg/l require Office notification may be unrealistic. Often operators' tests show much higher than 250 mg/l TOC. If there is a reason for the condition in the permit, the importance for low TOC needs to be emphasized in the Guidance.

The operator provides in the applications several fluid analyses. In total they still do not fulfill the application's requirements as given in the Guidance. A new test of a single fluid sample should be conducted.

DEP Response: The permittee had originally submitted a UIC permit application prior to the Office's parameter list change. Consequently we will accept previous analytical data as well as previous analytical parameter requirements from the original UIC permit application. The Office of Oil and Gas believes these parameters characterize the injection fluid. TOC and specific gravity are utilized as an indicator of a potential change in the Injectate fluid. This will allow the Office of Oil and Gas to evaluate if there is a reason to modify the injection requirements.

147. Section 9.4 – MSDS and Section 9.5 -- Annular fluid

The annulus fluid for the two wells according to the applications consists of "brine" with a corrosion inhibitor. It is not clear if the MSDS furnished is the inhibitor used both for the annulus and the injection fluid. We realize that use of brine as annular fluid is typical but believe a better fluid for the annulus should have been chosen since corrosion inhibitor does not prevent, but rather slows down eventual deterioration of the tubing/casing.

DEP Response: Fluid is not injected into the annulus. Fluid may be utilized when conducting a MIT but brine would not be used on the annulus for it.

148. Guidance Section 10.1 – Monitoring

The operator has had severe noncompliance in the past with monitoring and reporting. It is still unclear if they have gauges on the well to measure annular pressures as required by the permit. They don't appear to have a flow rate gauge.

The operator doesn't know how to use the instrumentation or doesn't care to record measurements properly.

Correct monitoring and reporting is a condition of the permit. Persistent flagrant noncompliance, in conjunction with no compliance enforcement, indicate a lack of concern for the citizens of West Virginia.

DEP Response: The facility gauges the fluid. The wells are equipped with gauges and barrel flow meters.

149. Guidance Section 11 -- The Groundwater Protection Plan

The ongoing contamination of the stream running past UIC2D0190460's facility indicates a failure of the GPP. The permit should not be granted until a revised and correct GPP is fully in place and contamination of the stream can demonstrably be shown to have ended. The GPP is attached to the permit as a condition of the permit. It is essential that the GPP be thorough and correct, taken seriously not like the example presented in the operator's application. Individual GPPs are required for the permits since these are individual facilities with possible independent avenues of groundwater pollution present.

The operator's GPP is seriously deficient. Apparently the operator is unaware, or doesn't care, that UIC wells and pipelines can pollute groundwater.

Part of the reason the GPP is deficient is the requirement in the application package that operators use the form in Appendix H which has no flexibility and doesn't meet the requirements of the rule (for example 47CSR58-4.1 and 47CSR58-4.9). The instructions in the Guidance should be geared specifically toward UIC applications.

A proper UIC GPP should contain:

Processes and activities that can contaminate groundwater:

Chemicals stored on facility should be listed, e.g., corrosion inhibitors

Fluids stored on site should be listed, e.g., condensate, brine, new and used oil, diesel, etc.

Any other materials kept on the site that could contaminate groundwater should be listed, e.g., solvents and cleaners, paints, etc.

Processes include:

Unloading disposal fluids and possible spills

Transfer hoses

Filtering of fluid

Pipes and valves that can leak or burst

The UIC well itself

Injection processes including the transfer of fluid to wellbore

Pipelines

Existing processes that protect groundwater

A facility map is required

Tank inventory is required

Secondary containment description is required

Processes used for groundwater protection is required

New Operations/Equipment

Should augment and add to containment and to groundwater safety.

Activities regulated for groundwater protection

UIC IID injection of oil and gas liquid waste.

SPCC Plan (which means the SPCC Plan has to be accurate and true rather than the inappropriate plan submitted by the operator).

Groundwater Quality

Water well sample lab results.

Water well results shows groundwater pollution by metals and TPH GRO.

Surface water sample lab results upstream and downstream of the site.

Surface water lab results show pollution by chloride and metals typically associated with oil and gas produced water contamination.

Surface water tests should include Plateau Action Network's 2013, 2014 and 2015 stream samples, the DEP for Brad Keenan in 2013, and Duke's 2013 analysis along with operator's upstream sampling.

Fill Material and Deicing

The operator's statement in his GPP is barely adequate. Video testimony by a former manager describes burying sludge on site, ordered by the operator. Until the contamination of the stream stops and its source is documented and future contamination is prevented, most of the operator's offerings in their GPP are moot.

Responsibility and Training

The operator's GPP for this section is generic and acceptable.

DEP Response: The Office of Oil and Gas obtained the GPP form from the Division of Water and Waste Management (DWWM). This form is utilized by DWWM UIC program. Any water quality violation that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

150. Guidance Section 12 Plugging and Abandonment

The plugging and abandonment plan is a permit condition requirement in state and federal law and must be part of the permit. A format or form should be devised for the plan to make sure all necessary elements of the plugging plan are present. The plugging and abandonment plan, just like the GPP, is then appended to the permit to fulfill 47CSR13-13.7.f.

Federal law has specific requirements for Class II plugging (40CFR146.10). The plugging plan has to show which method of placement of plugs is used: balance method, dump bailer method, the two-plug method, or approved alternate method.

EPA's form 7520-14 provides a model for the type of form required. Region 3 permits include form 7520-14 and a narrative of the plugging plan as their Appendix 1. Some Region 3 permits also include a well schematic showing locations of plugs and types of fluid used in the intervals. We believe the inclusion of a schematic is an excellent idea. Attachment C in our comments is a plugging plan from a Region 3 commercial UIC IID permit.

DEP Response: The plugging and abandonment (P&A) plan is a required component of the permit application. The draft permit would not be considered if such information was not provided. If the permittee must plug the well; he or she must apply for a plugging permit and explain in detail how they will execute such task which meets or exceeds the requirements at that time. The objective of the P&A plan inclusion in the Class II and 3 UIC permit process is to ensure the requirements in Legislative Rule 47-13 are met. The permittee must consider current injection well construction in their ability to meet current and future plugging and abandonment requirements. The permittee's proposed plugging plan will be included in the final permit.

151. Guidance Section 14 – Financial Responsibility

An amount estimated for plugging and abandonment, shown in section 12's plugging plan, has to be included as a permit condition. This amount should also be shown in the plugging and abandonment plan included in the permit as a condition. Financial responsibility for plugging a well is a permit condition, unlike additional bonding and other financial components found in the Guidance and permit application.

The operator's applications need to have actual documentation for financial responsibility. Each should be based on a realistic estimate of plugging and abandonment costs and should have a value in dollars that will appear in the permit.

DEP Response: Office of Oil and Gas acknowledges your comment and the change has been incorporated into the final permit. Appendix I from the permit application has been added to the permit.

152. Guidance Section 15 Site Security Plan

The site security plan in Appendix J is excellent and fulfills EPA's Guidance #77 for UIC IID commercial facilities.

Why the draft permit allows security not to be in place until after the permit is granted is puzzling (see our comments for permit condition III A.7, above). The most recent inspection reports for the wells note lack of locking on valves.

The permit should not be granted until site security is assured, especially for this operator who has shown a remarkable ability for backing out of similar permit conditions in the past.

DEP Response: The UIC permit stipulates in condition III.A.7 what will be required for security. The draft does not carry the authority to require the security. The Operator has closed and locked all tank valves.

153. The WVDEP is considering permitting this operation for another five years. We ask that action be taken to prevent the issuance of any new permits for the UIC well operated by DWC in Lochgelly WV. In addition we ask that measures be taken to assess damages done to the soils and waters of the state and property owners.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

154. We are requesting that it be demonstrated with sufficient data that the Weir Sandstone is in fact isolated from all surface waters and drinking source waters. If waters are being polluted, there is a violation of property owner's Riparian Rights, and damage done to the West Virginia investment in ownership of aquatic life.

DEP Response: The confining layers responsible for isolating the injection fluids in the Weir Sandstone are the MacCrady Shale (50') and Greenbrier Limestone - Big Lime (470') according to WVGES well records. OOG measured ~77' of MacCrady Shale (gamma-density-neutron logs) and 307' of "tight" (average density ~2.71 g/cm³) Big Lime (Greenbrier Limestone). Both formations work conjunctively and conformably overlying the Weir Sandstone, adequately preventing upward migration of Class II injection fluids. The lower confining layer is a thick shale sequence with minor silt interbedding that extends ~370' below the Weir Sandstone. The applicant recognized this as the Sunbury Shale, then confirmed by the UIC permitting staff upon review of gamma-neutron-density well log data. The inherent characteristics of both "tight" limestone and shale formations have extremely low permeabilities and effective porosities. The permeability differential between the Weir Sandstone injection zone and confining layers supports the injection fluid travel into the targeted Weir Sandstone formation.

155. This permit extension should be denied, on the grounds that Danny Webb Construction has arrogantly disregarded safety rules, willfully polluted air and water, and agreed to accept waste in greater amounts than can be safely disposed of in a reasonable time, and is therefore not entitled to the trust of the people of West Virginia.

DEP Response: The operator currently is in compliance with the requirements regulating Class II disposal UIC operations.

156. The requirement that this well's operator check the status of other wells within 1/4 mile isn't realistic either, since pollutants injected at high pressure and very deep could demonstrably travel well over 1/4mi. Current best practices in the drilling industry require monitoring water wells (much shallower!) at least twice as far away.

DEP Response: 47 CSR 5.2.a & b states that:

“5.2 The area of review may be defined as either:

5.2.a The zone of endangering influence as determined accordance with subdivision 5.3.a; or

5.2.b An area with a fixed radius around each well as determined in accordance with subdivision 5.3.b”

The operator, as standard practice, utilized the fixed radius. It should be noted however, the Office of Oil and Gas staff has utilized the EPA Region 3 “Prescone” model, verifying the proposed injection operation remains within the chosen radius, in this case ¼ mile, by applicant. All wells were reviewed within the Area of Review.

157. This facility is in my neighborhood, less than a quarter-mile from my home. I have visited the site and it does not appear to be adequately maintained.

DEP Response: The operator currently is in compliance with the requirements regulating Class II disposal UIC operations.

158. There has recently been evidence that a tributary of the New River, Wolf Creek, has been contaminated with toxic substances linked to fracking fluids. Since Wolf Creek is in close proximity to the North Hill Plant, it is likely that the contamination is from this site

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

159. There are no employees that work up there so there is no economic reason to issue this permit. The economics are clearly on the side of denying this permit. Danny Webb may be making a lot of money, but the tax revenue comes from the taxpayers who live and work here and the tourists who come here. In large part they are coming to the New River. The New River must be protected.

DEP Response: The Office of Oil and Gas acknowledges your comment.

160. DWC injects wastewater from the fracking industry into two UIC wells. The contaminated wastewater contains hazardous materials with the majority of the shipments coming from out of State. Like Freedom Industry, DWC has a long list of violations, many of which have yet to be resolved or rectified. If this wastewater is allowed to seep out, it will endanger the environment, public health, Fayette County's drinking water, and the New River Gorge National River. Despite all of the violations, it appears DEP may not have the authority to shut down DWC's operation or deny a renewal permit. Why?

DEP Response: Pursuant to 47CSR13 the Office of Oil and Gas does have the authority to revoke, suspend, and/or deny a permit.

161. Wolf Creek and other New River tributaries faced clean water challenges before the onset of underground injection of fracking waste in the watershed. See the Lower New River State of the Watershed Report, http://www.npca.org/assets/pdf/NewRiverState_ScreenView_Full.pdf, published in July 2011 by the New River Clean Water Alliance, which included NPCA, the West Virginia Department of Environmental Protection, and other agencies and community groups.

DEP Response: The Office of Oil and Gas acknowledges your comment.

162. The water quality of these rivers, equally important to the economic and ecological health of Fayette County, should not be jeopardized. For these reasons, NPCA urges the denial of these permits, and any other future injection well permit applications in the watersheds of the Gauley, Bluestone, and New Rivers.

DEP Response: The Office of Oil and Gas acknowledges your comment.

163. Peter Halvorson, 51, worked as one of two or three employees for 2 and 1/2 years, from 2003 to 2005, at Danny Webb Construction Company, a Class II, frack waste-water disposal site in Fayette County, WV. Mr. Halvorson has stated publicly that the injection well was plagued with many spill-incidents while he worked there.

DEP Response: The Office of Oil and Gas has no evidence to substantiate such contamination allegations. The Office of Oil and Gas has investigated for evidence of contamination as well as performed site sampling investigation (pending results). Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

164. I'm co-president of Faulkner Veterinary Services Inc., we are currently building a veterinary hospital at Wolf Creek Park. This type of negative water quality news is terrible for our area and our state. As a business owner, I can tell you I'm thinking twice about completing plans for our hospital based on the WVDEP's perceived lack of concern for water quality in this area.

On a personal level, with a child on the way I will need your office to tell the people of our area why we should NOT be concerned about our water quality in the face of mounting evidence to the contrary. My concern for water quality for my family going forward is very high. I've yet to see a DEP response to this situation that is convincing.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements. The public water system (West Virginia American Water) is regulated by the Bureau for Public Health. There is a monthly sample and monitoring program for all public water supply systems. The analytical data can be requested by calling (304) 558-2971.

165. Perception is reality. If there is even a perception that there is radioactive waste or other toxins being dumped and seeping into Wolf Creek which will go into the New River, it will kill the tourism industry that Fayette Co is known for now. People have to be assured and right now they are clearly not assured that this fracking wastewater is "safe."

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

166. The shale gas industry is not Fayette County's future but the bright future that it has will be destroyed if toxic wastewater is allowed to be dumped there. Again, perception is reality and we have no assurance that this chemical-laced wastewater is never going to do harm to the environment or to people. If people perceive that radioactive wastewater is being injected into Fayette County because Pennsylvania will not allow such wastewater to be injected there, then there is no amount of assurance that can undo that perception. Therefore, it is best to keep it out of Fayette County and not issue the permit.

DEP Response: Pennsylvania will allow such waste water to be injected under EPA rule. All decisions are based on the applicant/operator's ability to fulfill current Class II UIC operational regulations. Also, "fracking wastewater", by definition, is considered a Class II fluid and may be injected at permitted Class II disposal UIC facility.

167. The National Park Service (NPS) is charged with preserving the natural resources and values of the New River Gorge National River in such a manner that they are unimpaired for present and future generations. Water quality is one of the fundamental resources of the park and we must ensure the standards set forth by the Clean Water Act are upheld and enforced. The NPS is opposed to permitting any injection wells or holding ponds used to store wastes or fluids associated with oil and natural gas production within the watersheds of the three rivers associated with the three National Parks: New River, Gauley River, and Bluestone River. This is especially true with the injection wells and ponds located adjacent to Wolf Creek, a tributary of the New River Gorge National River, that falls under draft permits 2D0 190460 and 2D0190508.

DEP Response: The Office of Oil and Gas acknowledges your comment. Danny E. Webb Construction Inc. is in compliance with the current UIC regulations governing Class II disposal UIC facilities.

168. The history of these sites, particularly the North Hills 1-A Well site (UIC 20 0 190460), is plagued with a long-term pattern of neglect, operational violations, and inadequate oversight.

This is supported by Department of Environmental Protection (DEP) data and information and the public record. The public and the NPS are gathering evidence through soil and water tests to ascertain if park resources have been polluted from these two sites.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements. NPS environmental data submitted to the Office of Oil and Gas does not indicate a water quality standard issue.

169. Water contamination: DEP has not determined if the injection wells are causing any ground water or surface water contamination. DEP must determine the source of contamination in the stream before issuing any new permits. Recent testing by independent scientists from Duke University found high levels of contaminants in the stream that runs adjacent to the Danny Webb Construction waste site. The contamination matches oil and gas wastewater chemistry, but no one has determined if the contamination is from the pits or from the underground injection wells. No new permits should be issued for injection wells until it is certain that the injection wells are not causing any water contamination and all contamination has been resolved.

DEP Response: Information does not indicate that the proposed permit activities for this injection operation are creating contamination. Any contamination that may be found associated with this facility will be addressed in compliance with the appropriate requirements.

170. History of violations at the site: Danny Webb Construction Inc. has a pattern of violations. The company has been issued numerous violation notices and orders since 2004. Many of them are for very serious offenses. There is no evidence that the company has complied with all of the previous orders. This is not the kind of company we want in our community. DEP should automatically reject any permit applications from companies with a pattern of noncompliance and require any operator applying for a permit to certify that it is currently in compliance with all safety and environmental requirements and that it has met all obligations for any prior violations.

DEP Response: The operator currently is in compliance with the requirements regulating Class II disposal UIC operations.