

Response to Comments:

Class II UIC Permit ID-2D001-A and Aquifer Exemption

November 3, 2022

Between January 14, 2022, and March 30, 2022, the U.S. Environmental Protection Agency, Region 10 (EPA) solicited public input on a draft Class II disposal (II-D) Underground Injection Control (UIC) permit (Permit No. ID-2D001-A) and a proposed Aquifer Exemption associated with the permit. During this time, EPA received 96 written comments. EPA also held a virtual public hearing on February 18, 2022, during which eight individuals provided oral testimony.

Following issuance of a draft permit for public input, and pursuant with 40 CFR §124.17, EPA must issue a response to comments that specifies any permit conditions that have been changed based on consideration of comments, and the reasons for such changes. EPA must also briefly describe and respond to all significant comments raised during the public comment period, or during any public hearing. EPA reviewed all comments and has made changes to the draft permit based on comments received.

Changes to the Draft Permit are summarized on pages 2-5. A **Response to Comments** narrative section occurs between pages 6-33. A **Public Hearing Transcript** begins on page 34.

Changes to the Draft Permit

CHANGE 1 – INCREASING DEPTH OF CEMENT BOND LOGGING REQUIRED

Section A.1. Casing and Cementing (Draft Permit)

The well must be cased and cemented to prevent the movement of fluids into or between USDWs in accordance with 40 CFR § 146.22 and any other applicable federal, state, or local laws and regulations. The construction must be designed for the life expectancy of the well.

The Permittee is required to submit a Cement Bond Log (CBL) for EPA approval prior to receiving written EPA authorization to commence and continue injection of authorized fluids into this Class II disposal well. This CBL must be run from at least 2,000 feet (ft.) True Vertical Depth (TVD) to surface. Results of the test must demonstrate cement isolation between all USDWs.

Section A.1. Casing and Cementing (Final Permit)

The well must be cased and cemented to prevent the movement of fluids into or between USDWs in accordance with 40 CFR § 146.22 and any other applicable federal, state, or local laws and regulations. The construction must be designed for the life expectancy of the well.

*The Permittee is required to submit a Cement Bond Log (CBL) for EPA approval prior to receiving written EPA authorization to commence and continue injection of authorized fluids into this Class II disposal well. ~~This CBL must be run from at least 2,000 feet (ft.) True Vertical Depth (TVD) to surface.~~ **This CBL must be run within the long string casing from the shallowest Cast Iron Bridge Plug, or a depth of at least 4,000 feet (ft.) True Vertical Depth (TVD), to surface.** Results of the test must be submitted demonstrate cement isolation between all USDWs.*

CHANGE 2 – CLARIFYING INJECTION FLUID SOURCE LIMITATIONS

Section B.7. Injection Fluid Limitation (Draft Permit)

Injected fluids are limited to those which are brought to the surface in connection with conventional oil or natural gas production that may be commingled with wastewaters 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. Fluids that do not fall within the above definition for a Class II fluid defined in 40 CFR § 144.6(b) are not approved for injection.

This Permit does not allow injection of any hazardous waste as defined in 40 CFR § 261.3.

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Section B.7. Injection Fluid Limitation (Final Permit)

Injected fluids are limited to those which are brought to the surface in connection with

conventional oil or natural gas production that may be commingled with wastewaters 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. Fluids that do not fall within the above definition for a Class II fluid defined in 40 CFR § 144.6(b) are not approved for injection.

This permit only allows injection of fluids generated by the Permittee and does not allow injection of fluids generated by any other person, company, entity, etc. This permit does not allow injection of fluids generated outside of Payette County, ID.

This Permit does not allow injection of any hazardous waste as defined in 40 CFR § 261.3.

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CHANGE 3 – ADDED REQUIREMENTS FOR PFOT TESTING ENTITY AND REQUIREMENT TO HALT INJECTION FOLLOWING PFOTs

Section C. 4.c) Pressure Fall-Off Test (PFOT) (Draft Permit)

A PFOT must be conducted annually for the life of this well. The procedure and testing methods for this test must be submitted to EPA at least 30 days prior to testing. Unless alternative conditions are approved in writing by EPA, the test procedure must match the EPA Region 6 UIC Pressure Falloff Testing Guideline (Third Revision) with necessary changes made for site-specific conditions. Testing protocol must be designed to produce all data needed to prepare a Boundary Effects Analysis Report (BEAR) ([Appendix B](#)).

Section C. 4. c) Pressure Fall-Off Test (PFOT) (Final Permit)

A PFOT must be conducted annually for the life of this well. The procedure and testing methods for this test must be submitted to EPA at least 30 days prior to testing. Unless alternative conditions are approved in writing by EPA, the test procedure must match the EPA Region 6 UIC Pressure Falloff Testing Guideline (Third Revision) with necessary changes made for site-specific conditions. Testing protocol must be designed to produce all data needed to prepare a Boundary Effects Analysis Report (BEAR) ([Appendix B](#)).

All PFOTs must be planned and performed by an individual who has attained:

- (i) at least a bachelor's degree in petroleum engineering or a field closely related to petroleum engineering;***
- (ii) a professional geologist or professional engineer licensure; and***
- (iii) at least 5 years of experience performing and analyzing PFOTs.***

These qualifications must be demonstrated in the Notification Prior to Testing (Section C.1.). EPA reserves the right to disapprove the submitted procedure and testing methods if the testing entity does not meet the above requirements.

Following completion of the initial PFOT to be performed within 30 days after beginning injection, the Permittee shall halt injection and shall not inject until test results have been submitted to EPA and the Director has approved the well to commence injection. Following the initial PFOT, injection need not be halted following completion of annual PFOTs unless 60 days has passed since completion of the test and the BEAR has not been submitted to EPA. For tests other than the initial PFOT, the Permittee may resume injection after submitting the BEAR to EPA unless the Director otherwise requires the Permittee to cease injection based on BEAR results.

CHANGE 4 – ADDED REQUIREMENT FOR ENTITY PREPARING PFOT RESULTS

Section C. 6. Submission of Test Results (Draft Permit)

All well logging and testing results other than those generated from a PFOT must be submitted to the Director within 30 calendar days of completion of the logging or testing activity. Results must be submitted as a report describing the methods used during logging or testing and an interpretation of the log or test results. When applicable, the report must include a descriptive report. Reports must address the results of logging or testing to possible endangerments of USDWs, particularly those near the injection zone.

The results of all static reservoir pressure tests and pressure build-up tests must compare the measured reservoir pressure against any prior reservoir pressure measurements required by this Permit, identifying any trends in pressure change over time. This includes reservoir pressure measurements made prior to receiving authorization to inject.

The results of a PFOT are required to be submitted to the Director within 60 days after completion of the test(s). Results must be submitted as a component of a BEAR. See [Appendix B](#) for a description of all information that must be reported in a BEAR.

Section C. 6. Submission of Test Results (Final Permit)

All well logging and testing results other than those generated from a PFOT must be submitted to the Director within 30 calendar days of completion of the logging or testing activity. Results must be submitted as a report describing the methods used during logging or testing and an interpretation of the log or test results. When applicable, the report must include a descriptive report. Reports must address the results of logging or testing to possible endangerments of USDWs, particularly those near the injection zone.

The results of all static reservoir pressure tests and pressure build-up tests must compare the measured reservoir pressure against any prior reservoir pressure measurements required by this Permit, identifying any trends in pressure change over time. This includes reservoir pressure measurements made prior to receiving authorization to inject.

*The results of a PFOT are required to be submitted to the Director within 60 days after completion of the test(s). Results must be submitted as a component of a BEAR. See [Appendix B](#) for a description of all information that must be reported in a BEAR. **These***

results must be analyzed by an entity meeting the requirements of Section C.4.c and certified as such during the submission of the test results. EPA may, on the basis of test results inadequately demonstrating isolation of Block E, require the Permittee to halt injection and perform additional actions needed to confirm the presence of fault boundaries and isolation of injected fluids to Block E of the Willow Sands, including but not being limited to substantiating and/or clarifying test results and performing subsequent PFOTs.

Response to Comments

1. Concerns about Confinement

Commenters expressed concern that the geologic conditions at the project site cannot provide adequate confinement. They assert that basalt and lacustrine sedimentary aquifers, such as those at the site, are vulnerable to contamination, and that the basalt intrusions may affect the integrity of the confining layer. Commenters asserted that lateral and vertical fluid movement is unpredictable, and that high transmissivity rates, acidizing in a nearby well, changes in subsurface pressure and temperature, and the potential for injection pressures to lead to fracturing can allow the injectate or methane to move rapidly and contaminate groundwater. Commenters also doubted the impermeability of faults at the site.

EPA acknowledges the importance of adequate confinement. For this reason, the conditions in the Permit are designed to prevent fluid movement beyond the permitted injection zone. The applicant provided, and EPA reviewed, information on the depositional history of the site supported by log-derived cross sections, core analyses, and seismic data. The depositional history, lithologies, and thickness of the Chalk Hills and Glenns Ferry claystones (which provide confinement) are consistent with a confining zone that is laterally continuous, thick, and impermeable.

Specifically, two confining zones separate the injection formation from underground sources of drinking water (USDWs). Above the Willow Sand 2 is a claystone interval of the Lower Chalk Hills Formation that is approximately 300 feet thick, and it is overlain by another continuous block of impermeable claystone that is nearly 3,000 feet thick.

Some commenters said that lacustrine confining layers do not prevent upward migration of injected fluids. As noted above, the thickness and extent of the Chalk Hills and Glenns Ferry claystones are demonstrated in log-derived geologic maps and cross sections to be laterally continuous throughout the extent of the Area of Review (AoR) for the Class II well and throughout Fault Block E ("Block E") in which the injection well is located.

One commenter said that the aquifer system has high transmissivity and can potentially allow fluid movement that could lead to contamination. The transmissivity figure cited in the comment (of 100,000 to 1,000,000 ft² per day) is based on a regional study of the aquifer throughout Idaho and Eastern Oregon. However, the determination of confinement for purposes of the proposed injection project is based on site-specific information that was gathered in the immediate vicinity of the injection well. While the permeability of the Willow Sands injection zone is high (estimated at 300 millidarcies, or mD), this characteristic will aid in the emplacement of fluids without excessive pressure buildup. Any fluid movement above or below the proposed injection zone would be limited by the presence of the low-permeability claystone confining layers.

Some commenters emphasized the importance of injection pressure limits to reduce the potential for fluid migration outside of the injection zone. EPA agrees and acknowledges concerns about changes in subsurface pressure that could lead to fracturing, which can then allow injectate and/or other fluids to contaminate groundwater. For this reason, pursuant to 40 CFR § 146.23(a)(1), the Permit includes a maximum allowable injection pressure (MAIP) that was calculated to ensure that injection does not initiate new fractures or propagate existing fractures in the injection and/or confining zone. Basing the MAIP on fracturing of the *injection zone* or the *confining zone* is more stringent and site-specific than standard Class II permitting requirements. The MAIP set in the Permit is based on site-specific information, including the fracture gradient in the vicinity of the injection well (which will be determined

by a step rate test); the specific gravity of the injection fluids (based on the fluid analysis of a representative sample); and the well-specific depth of the top perforation where injected fluids enter the subsurface. The inputs to the MAIP calculation are based on completed or planned testing by the Permittee, and injection will not be authorized until a step rate test is performed to confirm the fracture gradient.

To ensure this pressure limit is not exceeded, the Permittee must install devices that automatically shut off the injection pump before the injection pressure limit is reached at the wellhead. Further, if any of the variables used to calculate the MAIP change (e.g., if additional perforations in the injection zone are added or density of the injection fluid changes), the Permittee must recalculate the MAIP and request approval for a new MAIP from EPA.

Some commenters expressed concern about the potential for faults in the area to compromise confinement or to slip under the influence of increased pressures associated with injection activity. Multiple lines of evidence strongly support fault confinement; pressure differentials across fault blocks, offset oil/gas contact points, and geochemical and lithological characteristics of the fault materials support the conclusion that the faults that form the segmented Willow Field fault blocks as barriers to fluid movement. This evidence, in addition to required downhole pressure measurements required by the permit, demonstrate that the fault blocks are not connected. EPA will also require transient pressure testing and identification of fault boundary effects initially, and on an annual basis thereafter, to confirm that faults are behaving as barriers to fluid movement. These tests are not typical for Class II permits but were deemed necessary as an additional protective step to confirm isolation of the fault block and to prevent fluids from migrating outside of Block E.

Some commenters expressed concern about the potential for faults within sandstones to allow fluid movement. EPA reviewed regional field-derived information and general studies regarding transmissivity across faults to conclude that the faults forming Block E are highly likely to act as barriers to fluid movement. Petrophysical data show that fault rocks can seal small to moderate hydrocarbon columns over geologic timescales. The proposed permit requires annual testing to determine whether faults near the injection well within the Willow Sands continue to act as barrier to fluid movement. These requirements exceed typical permitting conditions for Class II wells but are necessary to demonstrate continued protection of USDWs uniquely near to the proposed injection zone. Combining field-wide data with PFOT results will conclusively demonstrate that faults forming Block E near the injection well act as barriers.

Some commenters said that acidizing in the nearby ML 1-11 well may contribute to contaminant migration. Acidizing, which involves pumping acid into a geologic formation to i.e., improve a well's injectivity creates fractures that are usually a few hundred feet long at most. The ML 1-11 well is ¼ mile from the fault separating the two fault blocks. Therefore, the extent of any fractures produced during acidizing of the ML 1-11 well would not affect either the confining faults or the DJS 2-14 well. Importantly, the ML 1-11 well is in a fluid withdrawal (i.e., producing state) so it creates a cone of depression within the Willow Sands whereby any acid injected would have been removed from the subsurface.

2. Concerns about Induced Seismicity

Commenters expressed concern about the potential for induced seismicity and questioned the basis for determining that there will be no fault slip associated with injection-induced pressures. One commenter asked if the modeling of fault slip potential accounted for the entire injection period. Another commenter questioned how the Permittee will monitor for earthquakes without a seismic monitoring network.

Under certain conditions, disposal of fluids through injection wells causes seismic events, a phenomenon referred to as “induced seismicity.” Due to the proximity of faults within the AoR of the DJS 2-14 well and a lack of historical injection practice in this region, EPA considered seismic risk associated with injection in reviewing the Class II permit application.

Induced seismicity associated with wastewater injection occurs when injection of fluids increases pore pressure within an existing stressed fault to a point of overcoming frictional forces holding a stressed fault in place, resulting in slip. Fault slippage may create a new pathway for fluid movement. It may also create a seismic moment capable of being felt at the surface. A decision model developed by EPA’s UIC National Technical Workgroup identifies three key characteristics related to potential injection-induced seismicity that may lead to induced seismicity: (1) sufficient pressure buildup from disposal activities, (2) presence of a Fault of Concern, and (3) a pathway allowing the increased pressure to communicate from the disposal well to the Fault of Concern. Typically, induced seismic events that can be felt at the surface involve disposal of a large quantity of fluids near basement rock, or near a fault connected to basement rock.

EPA evaluated the following site-specific information to determine that wastewater injection in the DJS 2-14 well does not meet all required characteristics of injection-induced seismicity:

- First, EPA considered whether proposed injection pressures pose a risk of initiating faults near the wellbore. Following review, EPA concluded that the proposed injection activity does not pose a risk of initiating fault movement. This determination is based on the constraints imposed by the Permit which establish a MAIP below the formation fracture pressure of both the injection and confining zones (as described in Section 1) and results of fault slip modeling performed by the Permittee, as described below.
- To evaluate whether increased reservoir pressure could induce movement along a vulnerable fault before reaching the fracture pressure of the rock matrix, the Permittee conducted a Fault Slip Potential (FSP) analysis that yielded the probability of each fault that forms a boundary to Fault Block E (where the DJS 2-14 well is located) slipping as a function of pore pressure increase. This FSP modeling used site-specific information about the calculated fracture pressure and the injection pressure to demonstrate that faults would not slip because of the expected reservoir pressure increase due to injection. This scenario considers pressure influence on nearby faults when the bottomhole pressure increases above original formation pressures. The maximum injection pressure in the draft Permit is 10% below the estimated formation fracture pressure.
- No known Faults of Concern are located near the injection well using the decision model from the EPA UIC National Technical Workgroup. The proposed well terminates in the injection zone at a depth of 5,500 ft., while the depth to granitic basement rock is approximately 13,000-15,800 ft. There are lower confining zones immediately below the injection zone that prevent downward fluid movement.

- Historic seismic activity is an indicator of critical stress in basement rocks. Few earthquakes have occurred in the Western Snake River Plain. Based on available US Geological Survey (USGS) earthquake records, since 1900 there is no record of an earthquake occurring within a ten-mile radius of DJS 2-14.

The Permit contains provisions that limit the potential for induced seismic activity or adverse effects of a seismic event:

- Section A.10 of the Permit requires the Permittee to monitor active and publicly posted USGS earthquake data. If an earthquake of any magnitude is detected within five miles of the surface location of the injection well, the Permittee must shut in the well and notify EPA. Injection may resume only at such time and under such restrictions as determined by the Director to be protective of USDWs.
- The Permittee must conduct PFOTs and submit annual BEARs throughout injection operations. The Permit requires continuously monitoring injection pressure to ensure that it does not exceed the MAIP (per Section D.4). This monitoring will verify that faults continue serving as fluid barriers even after injection begins. If these boundary effects do not indicate confinement of fluids by the faults, the Permittee must stop injection.
- As discussed above, the permit sets a MAIP below the formation fracture pressure of both the injection and confining zones. This limit is to be based on the lower of 1) the formation fracture pressure, as determined by a step-rate test (plus a 10% safety factor), or 2) a maximum downhole reservoir pressure used to model fault slip potential (see following paragraph).

To the commenters who asked if the modeling of fault slip potential accounted for the entire injection period, EPA clarifies that the FSP model generated an estimated reservoir pressure that would result in slippage for each fault based on a geomechanical inputs. This information was compared against an expected reservoir pressure increase (616 psi) based on lifetime volume injection and injection capacity calculations. The permit sets a lifetime injection volume limit (7.35 million barrels) lower than the volume estimate the expected reservoir pressure increase (7.36 million barrels). In addition, and to ensure the injection capacity calculations did not under-assume the resulting increase in formation pressure, permit condition B.5.f. states that, “The MAIP must not result in a bottomhole pressure exceeding the sum of the original formation pressure (as measured during pre-injection testing) plus 616 psi.” This requirement ensures injection will not increase formation pressure above that used in the FSP modeling to demonstrate that fault slippage is improbable. As described above, pre-injection testing will be used to determine the formation fracture pressure and set an appropriate MAIP based on the formulaic requirement. Additionally, as described in EPA’s responses to comments about the Aquifer Exemption, the Permittee must perform ongoing testing and monitoring to evaluate confinement through the life of the Permit and submit a BEAR annually to ensure that faults do not become transmissive after approval to inject is granted.

EPA acknowledges concerns that induced seismic events have been detected miles from injection projects in certain circumstances. This concern is legitimate in cases where the conditions of long-range induced events are present. Based on the location of the DJS 2-14 well, the scale of injection, and the significant distance between the injection zone and basement rock, concerns that injection will induce seismic events at great distances are unfounded. For instance, one commenter accurately states that induced seismic

events have occurred up to 30 km/18 miles away from an injection source¹. In response, EPA clarifies that the injection operations described in this study and resulting in this long-distance induction of seismicity were at a “large-scale, field-wide”, which is not the reality of this proposed injection well. This specific example is one datum in a meta-study of injection-induced seismic events concerning the spatial footprint of injection wells resulting in seismic events. While the study presents evidence that poroelastic effects may result in larger-than-expected spatial footprints for injection wells injecting into sedimentary deposits, these events are not shown to occur when injection zones are separated from basement rock by great vertical distance, as is the case for DJS 2-14. As stated in the conclusion of this study, “[t]he key result from this analysis is that injection in sedimentary units immediately overlying basement rocks is more likely to encounter a large fault by chance because of the larger spatial footprint.” As previously established, faults forming Block E are not considered “Faults of Concern” as described by the National Technical Workgroup, and injection is not occurring in sedimentary units immediately overlying basement rocks.

Commenters cited past examples of induced seismicity associated with Class II wells, referencing a Government Accountability Office (GAO) report that concluded that UIC regulations do not address seismicity and seismic activity in Idaho.

EPA acknowledges that the Class II regulations do not require specific consideration of seismicity. However, in recognition of the public’s concern about the potential for induced seismicity related to UIC permitted wells, EPA’s National Technical UIC workgroup researched the conditions that could lead to seismic activity due to injection, and developed a report entitled “Minimizing and Managing Potential Impacts of Injection-Induced Seismicity from Class II Disposal Wells: Practical Approaches.” As described above, EPA considered the recommendations of that report and performed a rigorous site-specific evaluation of the conditions at the proposed site and the seismic risk associated with injection into the DJS 2-14 well to determine that it is highly unlikely that injection authorized by this permit will result in a seismic event.

Commenters assert that seismic activity could cause property damage; affect infrastructure, including an aging nearby dam and irrigation ditches (one commenter provided several newspaper articles about the dam); or endanger human lives.

EPA acknowledges that earthquakes have the potential to cause property damage (and that earthquake damage associated with oil and gas exploration may not be covered by insurance, as one commenter describes), affect infrastructure, and/or endanger human lives. However, as EPA describes above, an evaluation was made of site-specific factors that could result in a seismic event. Based on the application of the decision model developed by EPA’s National Technical Work Group (as described above), EPA concluded that conditions necessary to trigger an induced seismic event do not exist at the DJS 2-14 well disposal location.

In response to questions about how the Permittee will monitor for earthquakes, EPA notes that nationwide seismic monitoring by the USGS, including monitoring in Idaho, would identify seismic events near the project site. As noted above, Section A.10 of the Permit requires the Permittee to monitor existing seismic networks for seismic events and to stop injection and notify EPA immediately if seismic activity occurs near the well. While conditions needed for induced seismic events are not present at this location, this requirement is intended as a redundant protective measure. Deep-well injection has not yet occurred in this formation, so EPA deems it appropriate to take additional protective measures.

In summary, EPA considered the potential for induced seismicity as it evaluated the Permit application and set permit conditions. Based on an examination of seismic history in the region, a lack of Faults of

¹https://www.researchgate.net/publication/327332105_The_spatial_footprint_of_injection_wells_in_a_global_compilation_of_induced_earthquake_sequences

Concern near the injection well, and injection pressure limits and other protective measures in the Permit, EPA has determined that conditions do not exist to result in a seismic event that would be felt at the surface. As a redundant and protective measure, EPA is requiring earthquake monitoring using existing USGS data made publicly available.

3. Comments about the Area of Review (AoR)

One commenter recommended that the AoR for the Class II well be based on a calculation of the zone of endangering influence using the Theis equation, rather than the ¼ mile AoR in the Permit.

The UIC regulations, at 40 CFR § 146.6, require the establishment of an AoR, allowing one of two methods to be used: by calculation of a zone of endangering influence (e.g., by the Theis equation), or by a fixed radius of no less than ¼ mile. EPA accepted the Permittee's proposed ¼ mile AoR based on a review of the similarity of injection and formation fluids, hydrogeologic conditions, nearby population, and groundwater usage of the Willow Sands. EPA clarifies that the Theis equation is based on several assumptions, including a homogenous and isotropic injection zone of infinite area extent, which are not applicable to the Willow Sands/DJS 2-14 well. Thus, EPA concludes that the ¼ mile AoR, along with other demonstrations of confinement (as described in Section 1) demonstrate USDW protection. As the commenter noted, the change in hydrostatic head near the well would be insufficient to contaminate the USDW, which provides further indication that the ¼ mile AoR is a sufficiently protective area over which to identify and evaluate wells for corrective action.

Commenters expressed concerns about the integrity of abandoned wells within the AoR, citing examples of unidentified leaking abandoned wells at other injection projects. A commenter also asserted that the applicant cannot be certain that they identified every well, given the uncertainties in the search process. Another commenter asked how wells posing possible conduits for fluid movement are sealed without becoming conduits for fluid movement to shallow aquifers.

EPA acknowledges the concerns raised by commenters about the integrity of abandoned wells associated with injection projects and possibility that they could serve as conduits for fluid movement. Identifying and addressing deficient wells near proposed injection projects is a key UIC Program requirement that addresses this risk. The Permittee surveyed the area near the DJS 2-14 well and identified no producing wells, injection wells, abandoned wells, dry holes, mines, quarries, drinking water wells, or springs within the AoR. EPA reviewed historical records of oil and gas wells, geothermal wells, and confirmed the Permittee's review of drinking water wells within the AoR. No wells occur within the AoR, so no corrective action is needed to address potential conduits for fluid movement.

EPA also acknowledges, as one commenter asserts, that the applicant cannot be certain that they identified every well. However, the injection well is in a producing oil field in which SROG is an operator; therefore, its operations (including the locations of wells) are known to the Permittee. In addition, monitoring required in the Permit, particularly PFOTs required in Section C.5 of the Permit, would provide an indication of the presence of leaks or open conduits. Any incidents of leaking wells in the vicinity of other injection projects are outside the scope of this permit application review.

4. Concerns about the Composition of the Injectate

Comments about the composition of the proposed injection fluid included: assertions that it is a hazardous or toxic waste; concerns about the presence of carcinogenic, radioactive, or toxic components; and general concerns about the composition of hydraulic fracturing wastewaters. Commenters asserted that the composition of the injectate is a trade secret, and that the wastewater comes from far away. One commenter quoted the Idaho Radioactive Material disposal regulations but provided no specific comment.

Allowable injected fluids are limited to those that are brought to the surface in connection with conventional oil or natural gas production that may be commingled with wastewaters 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. As part of its review of the permit application, EPA evaluated the applicant's analysis of a produced water sample from the Willow Field, which is the source of the wastewater to be injected pursuant to this permit. The sample contains constituents that are typical of oilfield brines. Section B.7 of the Permit prohibits injection of hazardous waste, as defined by 40 CFR § 261.

EPA acknowledges that individual constituents contained within fluid produced from an oil or gas production reservoir could be determined to be toxic, hazardous, or radioactive. However, these fluids, when generated in association with oil and gas production, are exempt from classification as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 et seq. In December 1978, EPA proposed hazardous waste management standards that included reduced requirements for several types of large volume wastes. Generally, EPA stated these large volume "special wastes" were lower in toxicity than other RCRA regulated hazardous wastes. Subsequently, Congress exempted the wastes from RCRA Subtitle C pending a study and regulatory determination by EPA. In 1988, based on further study and scientific review, EPA issued a regulatory determination that the control of oil and gas exploration and production wastes under RCRA Subtitle C was not warranted, in part because other State and Federal programs, such as the UIC Program, effectively manage the disposal of such wastes. Therefore, the UIC Program regulates fluids produced in association with oil and gas production activities, but not as hazardous waste.

EPA acknowledges concerns about injecting wastewaters that have radioactive components and clarifies that not all oil and gas production fluids are radioactive. Whether a production fluid contains radioactive byproducts depends on the geologic formation from which the fluid has been produced. Produced fluid may contain Naturally Occurring Radioactive Material, or NORM. The NORM concentrations in produced fluids are typically low and do not exceed the RCRA definition of hazardous waste. If this wastewater were to be disposed in a different manner (i.e., disposed directly into the environment by stream discharge, or transported to an above-ground landfill) then a more extensive characterization would be necessary. However, this wastewater will be injected between 4,908 and 5,500 feet beneath Earth's surface into an environment similar to where the wastewater was generated. EPA also characterizes the reuse or recycling of produced fluid as a sound environmental management practice. The UIC permitting program is designed to provide an alternative through which injection activities may occur in a regulated and environmentally protective manner which ensures that best management practices are identified and employed.

To commenters who asserted that the composition of the injectate is a trade secret, EPA responds that, as described above, the injectate consists of fluids which are brought to the surface in connection with conventional oil or natural gas production near the injection well. Section D.1 of the Permit requires the

Permittee to sample the injectate annually or if the source of the injectate changes. The purpose of this monitoring is to verify that the fluids injected in the well are the type of fluids authorized by the Permit.

The Permittee must notify the Director prior to injection of a new fluid source. Fluids produced from a different formation, a different well field, or a different waste process would constitute a new fluid source. The notification must include a description of the fluid including the process that generated the fluid and the results of a chemical analysis of a representative sample of the new fluid that provides an analysis of the constituents found in Section D.1. If the analysis indicates that the specific gravity of the fluid is significantly higher than that used to calculate the MAIP, the Permittee must request a new MAIP. See Section B.4 Injection Pressure Limitation.

In response to comments asserting that the wastewater comes from far away, EPA clarifies that, if the Permittee were to request to inject fluid from a new source, they must (per Section D.1 of the Permit) analyze the sample for a broad set of chemical analytes to gather a chemical signature of the new injection stream and provide an analysis to EPA for review and approval prior to injecting that fluid. The purpose of this review is to confirm that the wastewater from the new source has similar chemical and physical properties to the approved injectate. This Permit considers the chemical and physical characteristics of injection fluids allowed, as well as the rate and lifetime volume of fluids to be injected. USDWs are no more or less at risk of endangerment based on the geographical origination of injected fluids. Permit conditions ensure that injected fluids are adequately characterized and managed based on chemical and physical parameters.

EPA did not consider injection of fluids that originated from outside Payette County, Idaho, and did not consider acceptance of third-party wastes in review of this permit. For the sake of clarity to the Permittee, EPA, and interested stakeholders, EPA is making the following change to the permit:

CHANGE 2 – CLARIFYING INJECTION FLUID SOURCE LIMITATIONS

Section B.7. Injection Fluid Limitation (Draft Permit)

Injected fluids are limited to those which are brought to the surface in connection with conventional oil or natural gas production that may be commingled with wastewaters 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. Fluids that do not fall within the above definition for a Class II fluid defined in 40 CFR § 144.6(b) are not approved for injection.

This Permit does not allow injection of any hazardous waste as defined in 40 CFR § 261.3.

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Section B.7. Injection Fluid Limitation (Final Permit)

Injected fluids are limited to those which are brought to the surface in connection with conventional oil or natural gas production that may be commingled with wastewaters 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. Fluids that do not fall within the above definition for a Class II fluid defined in 40 CFR § 144.6(b) are not approved for injection.

This permit only allows injection of fluids generated by the Permittee and does not allow

injection of fluids generated by any other person, company, entity, etc. This permit does not allow injection of fluids generated outside of Payette County, ID.

This Permit does not allow injection of any hazardous waste as defined in 40 CFR § 261.3.

...[CONTINUED]

In preparing the conditions in the draft permit, EPA only considered waste streams originating from SROG-operated facilities located in Payette County, ID. This change to the Permit, based on comments received, will ensure that all injected fluids originate from facilities operated by the permittee within the “surrounding area” (a verbatim description of the fluid sources from the initial permit application).

EPA acknowledges the concerns of some commenters about the composition of hydraulic fracturing fluids. Hydraulic fracturing will not be performed under this Permit.

5. Concerns about Mechanical Integrity

Commenters expressed concerns about converting the DJS 2-14 well for wastewater injection, saying that there may be unknown deficiencies in the surface casing or cement, and recommended that the applicant be required to drill a new well. One commenter asked EPA to clarify the expected life of the well and the injection project.

EPA acknowledges commenters’ concerns about the importance of mechanical integrity (MI) of the proposed injection well. Proper construction and mechanical integrity testing of injection wells are cornerstones of the UIC regulations and are integral to permit application review and setting the permit conditions.

Recognizing commenter’s concerns about converting the DJS 2-14 well for wastewater injection, EPA evaluated information about the DJS 2-14 well’s construction and the procedures by which it will be converted from a production well to an injection well. These include: a schematic for the well as it was drilled and completed in 2014, the proposed schematic for the Class II well, and the Permittee’s proposed conversion procedures. Appendix A of the Permit describes the conversion procedures that the Permittee must follow to ensure that the well’s tubing and packer are installed to prevent injection fluids from contacting the long string casing above the injection zone. Specifically, the Permittee will install injection tubing inside the long string casing from the injection zone to the surface; install a packer between the tubing and the casing at the depth of the upper confining zone; and fill the inner annulus (the space between the tubing and the casing, above the packer) with a solution containing appropriate corrosion inhibitors.

Following the conversion to an injection well, the Permittee may not initiate injection operations until: the Permittee demonstrates the mechanical integrity of the injection well in accordance with 40 CFR § 146.8; EPA reviews and approves documentation of all required conversion and testing procedures including a Cement Bond Log (CBL); and EPA inspects the well and finds it to be in compliance with the Permit (if necessary), in accordance with Section B.2 of the Permit.

Commenters expressed concern about the potential for the steel and cement casings of injection wells to incur structural failures as they age and the potential to allow leakage of injected fluids.

EPA acknowledges concerns about aging wells and agrees with commenters about the need to verify mechanical integrity over the life of an injection well. For this reason, the Permit requires continuous

monitoring to indicate if the well may have lost mechanical integrity and a demonstration of internal and external MI every three years. This mechanical integrity testing is more frequent than is required in the Class II regulations at 40 CFR § 146.23. This mechanical integrity testing, using methods specified in Section C.4 of the Permit, includes regular pressure testing of the inner annulus to detect leaks in the casing, tubing, or packer (to demonstrate internal MI) and a temperature log, radioactive tracer survey, or water flow log (to demonstrate external MI).

Section D.4 of the Permit requires continuous monitoring of injection pressure, inner annulus pressure, and injection rate. this monitoring would detect a leak in the tubing, packer, or long string casing. if this were to occur, Section C.7 of the Permit requires the Permittee to cease injection and notify the Director within 24 hours.

Finally, when it is determined that the well will no longer be used, it must be permanently plugged and abandoned in a manner that does not allow movement of fluids into or between USDWs (i.e., with appropriate plugging procedures and materials), in accordance with Section E and Appendix C of the Permit.

EPA has reviewed information provided by commenters about MI concerns in other injection wells, including *Pro Publica* papers from 2012 and 2014 that describe concerns about the integrity of older injection wells, information about drinking water aquifers that were contaminated in Pennsylvania due to drilling operations, and images of damaged well casings. However, the wells described in these reports and attachments differed in important ways from the DJS 2-14 well. EPA based its determination to issue the Permit based on an extensive well-specific evaluation of the construction, planned conversion, and planned testing of the DJS 2-14 well.

EPA also clarifies that the DJS 2-14 well is not a “legacy well” as described in the aforementioned *Pro Publica* papers. The concerns raised in the *Pro Publica* papers are about wells that were not constructed pursuant to the UIC regulations, are not being maintained and tested (as required in the Permit), or whose locations are undetermined. Converting an existing well that has been demonstrated to have adequate construction (via evaluation of construction information in the permit application and the pre-operational and ongoing testing that are required in the Permit) can be preferable to drilling a new well since it avoids the need to create new conduits for upward migration of fluids to USDWs.

In response to a question about the expected life of the well and the injection project, the Permit is issued for the operating life of the facility or until the maximum injection volume authorized in the permit is reached. EPA also clarifies that Section B.6 of the Permit establishes a lifetime injection volume limit of 7.35 million barrels, or approximately 300 million gallons of fluid. This limit is based on a calculation of the expected injection reservoir capacity that considers reservoir characteristics and the anticipated effects of injection.

Commenters expressed concerns about relying on a CBL for determining the suitability of the DJS 2-14 well for conversion, asserting that CBLs can miss the detection of micro-channels, low density cement, or low porosity formations. Several commenters submitted an “industry expert” report evaluating the permit materials. The report requested additional information about the CBL, including: the time between cementing and when the CBL was run (and whether it was consistent with the 72-hour wait-time recommended in EPA guidance); whether the log was run on the surface casing; the appropriateness of the top cement job; and whether a subsequent log was run to assess the quality of the cementing after the top job was performed. Commenters also requested that a CBL be run from the depth of the shallowest known cast iron bridge plug to the surface to evaluate the cement bond more fully for the long string casing.

EPA acknowledges commenters' concerns that the cement job performed on the long string of the well is of unknown quality and has reviewed the specific comments about the CBL provided in the "Review of Proposed Class II Disposal Well in Payette County, Idaho" referenced by several commenters.

A CBL across the surface casing for this well was not conducted and is not necessary. Cement returns were seen at the surface, which demonstrate that cement migrated from the surface casing shoe to the surface, between the surface casing and surrounding formation.

Because the cementing bonding above 2,150 feet is of unknown quality, Section A.1 of the Permit requires the Permittee to assess the cement bond behind the long string casing from 2,000 feet to the surface by completing a cement bond log. This is to ensure that the injection well does not allow the movement of fluids between USDWs and that adequate cement bonding is present between all USDWs. Section B.2 of the Permit requires that the Permittee submit this information to EPA, and EPA will review it to ensure that it meets the well construction conditions of the Permit before EPA will authorize injection. EPA will evaluate the CBL based on guidance by EPA Region 8 UIC Program, and if the results of this CBL do not demonstrate protection of USDWs, the Permittee will be required to perform additional conversion/repair work on the well.

EPA has confirmed that the primary cementing operations of the long string casing on DJS 2-14 occurred on September 21, 2014, more than 72 hours prior to the performance of the CBL referenced in this response. Though, to ensure that the required CBL adequately evaluates the top job cementing operation from October 21, 2014, EPA has made the following change to the permit based on a commenter's suggestion:

CHANGE 1 – INCREASING DEPTH OF CEMENT BOND LOGGING REQUIRED

Section A.1. Casing and Cementing (Draft Permit)

The well must be cased and cemented to prevent the movement of fluids into or between USDWs in accordance with 40 CFR § 146.22 and any other applicable federal, state, or local laws and regulations. The construction must be designed for the life expectancy of the well.

The Permittee is required to submit a Cement Bond Log (CBL) for EPA approval prior to receiving written EPA authorization to commence and continue injection of authorized fluids into this Class II disposal well. This CBL must be run from at least 2,000 feet (ft.) True Vertical Depth (TVD) to surface. Results of the test must demonstrate cement isolation between all USDWs.

Section A.1. Casing and Cementing (Final Permit)

The well must be cased and cemented to prevent the movement of fluids into or between USDWs in accordance with 40 CFR § 146.22 and any other applicable federal, state, or local laws and regulations. The construction must be designed for the life expectancy of the well.

*The Permittee is required to submit a Cement Bond Log (CBL) for EPA approval prior to receiving written EPA authorization to commence and continue injection of authorized fluids into this Class II disposal well. ~~This CBL must be run from at least 2,000 feet (ft.) True Vertical Depth (TVD) to surface.~~ **This CBL must be run within the long string casing from the shallowest Cast Iron Bridge Plug, or a depth of at least 4,000 feet (ft.) True Vertical Depth (TVD), to surface.** Results of the test must be submitted demonstrate cement isolation between all USDWs.*

Ultimately, if the cementing behind casing in this well is found unable to protect USDWs, the Permittee will not be allowed to inject. Section A. 1. of the permit states that, “Results of the [CBL] **must** demonstrate cement isolation between all USDWs.” (Bolding provided for emphasis). Guidance 34 from EPA Region 8 (*Cement bond logging techniques and interpretation*) will serve as a guide for interpreting whether adequate cementing has occurred between USDWs.

6. Comments about Testing and Monitoring

Commenters asserted the importance of monitoring and mechanical integrity tests (MITs), and supported the Permit’s requirement for MITs at a frequency beyond the minimum Class II requirements.

Commenters requested that the Permit include additional testing and monitoring conditions, including: pre-injection and annual pressure testing and fall-off testing to determine if there is fluid migration between formations and to support setting of injection pressure limits; reservoir pressure monitoring; groundwater monitoring to identify water quality changes in nearby designated drinking water supply aquifers; injectate monitoring; and soil testing. A commenter, asserting that third-party baseline and ongoing testing are the best way to determine if contamination has occurred, questioned how private citizens can pay to test for hydrocarbons in their water wells.

EPA agrees with commenters about the importance of testing and monitoring to ensure that USDWs are not being endangered. Sections C and D of the Permit require many of the testing and monitoring activities that commenters requested, including: pre-injection PFOT to determine if there is fluid migration between formations and step-rate testing to support setting of injection pressure limits (required in Sections A and C.5); annual pressure testing and fall-off testing (required in Sections C.4.c and C.4.d); reservoir pressure monitoring via a downhole pressure gauge (in Section C.4.e); and injectate monitoring (per Section D). Initial PFOT results will confirm that faults are acting as barriers to fluid movement.

EPA finds that PFOTs to identify fault barriers, more frequent MITs, and restrictions on allowable injection pressure will confirm isolation of injected fluids to Block E. Construction of additional wellbores through confining zones, such as deep monitoring wells, presents an additional risk of creating new conduits for upward migration of fluids to USDWs.

Additionally, as EPA described in Section 1, above, the injection zone is separated from surface waters and subsurface drinking water aquifers by thousands of feet of impermeable rock formations. Shallow groundwater monitoring is not typical for deep injection projects. Ensuring confining zones and well construction meet regulatory standards effectively limits injected fluids to the proposed injection zone. MITs regularly test integrity of integrity of well components. EPA also clarifies that it is outside the scope of the UIC regulations to require the Permittee to pay for third-party baseline and ongoing testing of private water wells, as one commenter requested.

EPA clarifies that soil testing is outside of the UIC program scope, and adds requirements to ensure and demonstrate that fluids will remain in the injection zone and that the well will maintain MI, which are designed to protect USDWs and ensure fluids to not migrate to shallow aquifers and soils.

EPA acknowledges comments about the importance of monitoring and MITs (including the need to confirm that there is no communication between formations along the well) and support of the requirement for MITs at a frequency beyond the minimum Class II requirements, as required in Section C.5 of the Permit. Section C.4 of the Permit requires the Permittee to demonstrate MI every three (3) years via pressure testing of the annulus to detect leaks in the casing tubing or packer (to demonstrate

internal MI) and a temperature log, radioactive tracer survey, or water flow log (to demonstrate external MI). Performing this testing will demonstrate that there is no significant leak in the casing, tubing, or packer and that there is no significant movement through vertical channels adjacent to the wellbore. See also EPA's responses to comments about mechanical integrity in Section 5.

Some commenters requested that EPA make monitoring results publicly available and extend the report retention timeframe to document any contamination that may occur.

Regarding requests that EPA make monitoring results publicly available, EPA clarifies that all monitoring reports are reviewed by EPA as they are submitted to ensure that, should there be any evidence of fluid movement or USDW contamination, the Permittee would be required to take appropriate steps (e.g., to repair the well, cease injection, etc.). Monitoring and inspection reports are available to interested parties through the Freedom of Information Act.

Regarding requests to extend the report retention timeframe, Section D.5 of the draft Permit required the Permittee to retain records for 3 years after the date on which that activity took place. EPA finds that the records retention schedule is compliant with 40 CFR 144.51(j) and finds no reason why a more stringent record retention requirement should be set.

7. Concerns about Plugging and Financial Assurance

Commenters assert that the Permit requires insufficient bonding and insurance to address a contamination event. They also expressed concern about the financial health of the applicant and the potential that they may abandon the project and leave the cost of cleanup to be borne by the public. A commenter suggested that the applicant be required to obtain pollution liability insurance.

EPA acknowledges the importance of adequate financial assurance to plug injection wells. The Permittee has submitted a surety bond with a standby trust agreement provided by Bancorp South Bank. The value for this instrument is \$100,000, which is higher than the estimated cost for plugging and abandoning the well of \$69,250. This cost estimate was developed by an independent third-party based on information specific to the well's depth, diameter, and construction.

EPA acknowledges concerns that the bond amount is less than what would be needed to address a contamination event. However, consistent with the Class II regulations, the Permittee must maintain financial responsibility and resources to close, plug, and abandon the DJS 2-14 well injection well in a manner prescribed by EPA, which SROG has satisfied. There are no provisions in the SDWA that would require or allow EPA to require Class II permittees to be bonded for anything other than those activities needed to close, plug, and abandon wells as part of the permitting process. Therefore, EPA is without authority to require a bond during the permitting process for any yet unknown cleanup costs of any potential contamination, or the requirement that a Permittee obtain liability insurance, as one commenter requests.

The well owner will be responsible for any potential contamination that occurs on or from the Permittee's activity. A permittee is required to prevent or correct environmental damage, as provided under Section I.4 of the Permit (Duty to Mitigate). A reasonable action might be to prevent and contain any surface spills, remediate groundwater contamination, replace any degraded component of the well, and so forth. In addition, EPA has other programs that could utilize regulatory tools (e.g., the Comprehensive

Environmental Response, Compensation and Liability Act of 1980 or “CERCLA,” and the Resource Conservation and Recovery Act or “RCRA”) to clean up sites and to compel responsible parties to perform cleanups or reimburse the government for EPA-led cleanups. Additionally, pursuant to SDWA Section 1431, EPA can require various actions when USDWs are under threat of an imminent and substantial endangerment when the health of persons is also under threat.

Regarding a commenter’s concerns about the financial solvency/strength of the Permittee, EPA notes that the purpose of providing financial assurance is to ensure that resources are available to plug the injection well should an operator experience financial difficulty and be unwilling or unable to plug the well. To ensure proper plugging of the injection well, the Permittee submitted a surety bond with a standby trust agreement provided by Bancorp South Bank, which is an FDIC insured bank.

Regarding comments that the Permittee may abandon the project and leave the cost of cleanup to be borne by the public, EPA responds that the Permittee is subject to the financial responsibility provision at 40 CFR § 144.52(a)(7)—a “permittee [...] is required to demonstrate and maintain financial responsibility and resources *to close, plug, and abandon* the underground injection operation in a manner prescribed by the Director” (emphases added). Therefore, a failure to maintain sufficient financial responsibility would be a violation, actionable under the duty to comply at 144.51(a). If the operator were to not meet the requirements for plugging at 40 CFR § 146.10, which are incorporated into the Permit via 144.51(o) before abandonment, this would be considered a “willful” violation of the Permit and would be considered a criminal violation (under SDWA 1423(b)(2)). See also EPA’s responses to comments about the applicant in Section 11.

EPA acknowledges comments that the plugging and abandonment conditions of the Permit meet the criteria at 40 CFR § 146.10. Section E and Appendix C of the Permit describe the procedures that the Permittee must take prior to plugging and abandoning the well to prevent the movement of fluids either into or between USDWs.

8. Comments about the Aquifer Exemption

Comments on the draft Aquifer Exemption Record of Decision (ROD) addressed the use of the aquifer and the adequacy of confinement. Commenters writing about the Aquifer Exemption also addressed other aspects of the Class II permit; those comments are addressed elsewhere in this document.

Commenters objected to exempting the Willow Sands Aquifer because they assert that the groundwater is needed for other uses or that the Willow Sands groundwater may be needed in the future due to increased frequency of drought conditions and a growing population. One commenter alleges that the applicant’s past activities are why the Willow Sands is too contaminated for use.

Determinations about exempting aquifers from SDWA protection must be based on the detailed and specific criteria at 40 CFR § 146.4. Regarding comments that the groundwater is needed for other uses, EPA clarifies that under the SDWA, EPA is responsible for evaluating the use of groundwater for current and future drinking water purposes. The Willow Sands aquifer is not currently being used for drinking water, irrigation, or other water supply needs. The applicant searched an area of 24 square miles at the surface above the site of the Willow Sands aquifer proposed for exemption. The 28 wells (including domestic wells, irrigation wells, stock wells, a cathodic protection well, and a dry well) identified are all completed in the shallow alluvium, and none are deeper than 415 feet, which is more than 4,000 feet shallower than the Willow Sands injection zone. EPA reviewed water well reports and information about

each well's use, depth, aquifer of completion, and age to verify that none are completed in, or are hydraulically connected to, the aquifer proposed for exemption. EPA also reviewed public water supply records along the Snake River-Payette River Basin using the State of Idaho's Source Water Assessment and Protection tool and identified no water supplies within the search area that penetrate the injection zone. These searches and information reviews indicate that the Willow Sands is not currently being used to meet water supply needs in the area of the DJS 2-14 well.

As EPA describes in the ROD, EPA has determined that the Willow Sands is not reasonably expected to be used to meet future water supply needs based on several lines of evidence:

- The Willow Sands are an economically impractical drinking water source. First, the reservoir characteristics of the Willow Sands limit the available quantity of water, therefore affecting its usefulness as a long-term drinking water source. Further, the quality of the Willow Sands would necessitate expensive treatment. This is due to the presence of hydrocarbons (including benzene, toluene, and ethylbenzene) and fluoride at levels above the maximum contaminant level identified in the National Primary Drinking Water Regulations, along with iron, manganese, and high alkalinity that affect water treatment processes or pose aesthetic concerns. These characteristics would necessitate significant capital outlays and monthly operational costs to provide Willow Sands water for drinking water uses, including: drilling a 5,300 foot well, electricity to pump water to the surface, pipelines to transport the water to nearby communities, and extensive water treatment. Based on information provided by water treatment companies, the estimated cost of extracting and treating Willow Sands water prior to delivering this water to market would be approximately \$0.0680/gallon, which is 12.6 to 21.9 times higher than the current, actual costs of water available to customers in nearby cities.
- EPA contacted the local cities of Fruitland, New Plymouth, and the City of Payette about their long-term water resource plans. None of these cities indicated that the Willow Sands was considered as a future water source. There is no indication that extremely deep groundwater sources (i.e., over 4,000 feet deep) have ever been considered by local water systems to meet drinking water needs.

EPA acknowledges concerns about the need for groundwater in the future. However, the population of Payette County, though growing, remains small, and water usage is not expected to increase dramatically in the coming decades. This finding is based on studies by the USGS and for the Idaho Department of Water Resources and Idaho Water Resource Board, which made similar conclusions that, while Idaho's population has grown since 1990, total water withdrawals have remained steady or declined slightly as per capita water use has—and is expected to—decline, due to water conservation tactics that discourage excessive water use. If unforeseen circumstances necessitated supplemental water resources in the future, less expensive and more easily accessible water sources, including shallow groundwater resources or surface water from the Payette River, would be used before the Willow Sands.

EPA acknowledges the comment alleging that the applicant's past activities resulted in the determination that the Willow Sands is too contaminated for use as a drinking water source. The presence of hydrocarbons, such as benzene, toluene, and ethylbenzene (BTEX) are consistent with natural accumulations of hydrocarbons. The presence of BTEX compounds in the Willow Sands at the location of Willow Field and appears to be widespread throughout the field. Reservoir samples taken from eight different wells penetrating the Willow Sands contained BTEX compounds at levels similar to, or greater than, the levels in water sample taken from DJS 2-14. Additionally, as EPA describes above, the presence of other contaminants (such as fluoride, iron, and manganese) and high alkalinity of water in the Willow

Sands, along with the depth of the formation, make it an economically impractical drinking water source that is not being considered for use by any local water suppliers.

Commenters expressed concern that there is insufficient evidence of isolation across the fault blocks (e.g., between Fault Blocks A and B, Fault Blocks A and E, or east of Fault Block E) and whether lateral confinement is present. They asked EPA to clarify the content of the BEAR and its conclusions for fault slip and asserted that the determination to exempt the aquifer should not be made until a pre-injection PFOT is performed. A commenter stated that successful containment depends on skillful testing procedures, and insightful analysis.

The Willow Field contains a series of relatively short faults that occurred during deposition of the Chalk Hills Formation. Based on 3-D seismic imaging, the Permittee identified specific faults cross-cutting the field that form vertices at their intersections. Within these faults and their intersections are isolated sections of the Willow Sands, or “Blocks,” which have been named alphabetically, e.g., “Block A” through “Block E.” The DJS 2-14 well is located within Block E.

EPA acknowledges commenters’ concerns about the sealing capacity of these faults; for this reason, EPA required that SROG provide multiple lines of evidence to demonstrate that the faults forming the Willow Field fault blocks are sealing and would serve as barriers to fluid movement. The applicant provided, and EPA reviewed, extensive information about the fault blocks individually and regionally including geologic history, information about hydrocarbon accumulation, and pressure data within the fault blocks within the Willow Field. This evidence includes:

- Comparison of reservoir pressure data over time in wells drilled on either side of the faults that demonstrate that fluid withdrawal from one block did not result in fluid movement from a block across the fault. This demonstration was made based on pressure measurements over time in wells drilled into Blocks A and B, and on fluid production trends from Blocks B and C.
- Hydrocarbon accumulation and vertical offset of hydrocarbon/water contact points in Blocks other than Block E, which indicates that the geologic structure of the fault blocks effectively inhibits fluid movement.
- Evidence of clay smear (in which clay from the wall rock is incorporated in a fault zone) and silica cementation (a process by which percolation of geothermal water precipitates silica in voids of the sands), which contribute to the impermeable nature of the faults. SROG provided examples of cementation, and the occurrence of numerous claystone/sandstone transitions within the Willow Sands increases the likelihood of clay smear.
- Subsurface geophysical imaging that identified syndepositional faults at Willow Field, and historic seismic records that indicate a lack of seismicity in the project area. This information supports the conclusion that the faults are inactive and have not deformed since time of formation.

In addition to evaluating multiple lines of evidence that the faults forming the segmented Willow Field fault blocks are sealing, EPA is requiring the Permittee to gather data to confirm fault containment before EPA will authorize injection. This site-specific permitting condition in Section C.4 of the Permit requires the Permittee to measure static reservoir pressures across the fault blocks and perform a PFOT to identify whether the faults form a barrier to fluid movement (i.e., boundary effects) within the reservoir. This information must be submitted to EPA as part of a BEAR, which (per Appendix B to the Permit) must provide a description of the PFOT procedures and data results and an evaluation that includes the following:

- A narrative analysis of PFOT results focusing on the flow boundaries identified. The analysis must identify a sealing boundary(-ies) encountered within the radius of investigation along the semilog derivative plot as an upswing followed by a plateau. If the radius of investigation encounters both the southwest and northern fault, plots should demonstrate a response expected of a well between two intersection sealing faults or similar multi-boundary response.
- A comparison of actual reservoir pressure measured from the PFOT versus reservoir pressure expected from cumulative injection in a bound reservoir. The discussion should include an evaluation of whether the lifetime volume limit (7.35 million barrels) will be protective of USDWs.

EPA will not grant approval to inject into the DJS 2-14 well if this testing fails to confirm full sealing capabilities across the faults forming Fault Block E. Should the PFOT fail to confirm the confinement on which the Aquifer Exemption determination is based, injection into the aquifer would not be authorized.

Additionally, to ensure that faults do not become transmissive after approval to inject is granted, EPA is requiring ongoing testing and monitoring to evaluate and confirm confinement through the life of the Permit. This ongoing monitoring includes the measurement of bottom hole pressures in four wells within Fault Blocks A, B, and E; annual PFOTs; and reservoir pressure monitoring in wells in Fault Blocks A and B to detect flow outside of the injection zone. BEARs must be submitted annually to confirm ongoing isolation of the fault system. If the results of ongoing testing and/or monitoring indicate faults are no longer acting as complete barriers to fluid movement, the Permittee must shut-in the well and notify the Director. If the Permittee cannot verify that injection will continue to occur in a manner protective of USDWs, EPA may require additional testing, revoke and reissue the permit, or terminate the permit.

Regarding questions about how PFOTs and other information submitted in the BEAR establish non-movement of fluids, including vertical fluid movement across the fault boundaries, EPA acknowledges that determining the absence of fluid movement—both across the fault boundaries and vertically—necessitates an evaluation of multiple lines of evidence. Therefore, as described above, EPA evaluated multiple types of data from the applicant (e.g., pressure data, hydrocarbon/water contact points, clay smear, and geophysical data) to determine that the faults forming the Willow Field fault blocks are sealing and would serve as barriers to fluid movement. This will be confirmed by the results of PFOTs performed before injection commences and annually throughout the project. The BEAR, which will include a fluid distribution map and Hall Plot, will track anticipated injectate dispersal and identify possible fracture flow to provide ongoing confirmation that faults near the injection well continue to act as barriers to fluid movement.

EPA clarifies that PFOTs do not necessarily result in a “failure,” as one commenter asserts; rather, their purpose is to measure formation properties (e.g., transmissivity) in the vicinity of the injection well to monitor for any changes in the near-wellbore environment that may impact injectivity and pressure increase. Anomalous pressure drops during the test may indicate several scenarios, such as changes in relative permeability, the effects of well stimulation procedures, or fluid leakage. Following each PFOT, the Permittee must analyze the results and identify boundary effects encountered by pressure transients (and report this in the BEAR). If these boundary effects do not indicate full confinement of fluids by faults, the Permittee must stop injection and EPA would either require the Permittee to perform additional testing or initiate an action to modify, revoke and reissue, or terminate the permit. CHANGE 3 to this permit, described below, is enacted to ensure injection only commences once EPA has confirmed boundary effects following the initial PFOT. EPA adds that PFOTs are not the only method that EPA will rely on to identify the potential for fluid movement. The Permittee will monitor reservoir pressure within

Fault Blocks A and B using transient pressure testing as another method to identify whether any fluid movement across the fault blocks may be occurring.

In response to a public comment, EPA is making a change to the required test procedure for all PFOTs. The Permittee must ensure the entity conducting the test be well qualified with educational, professional, and experiential knowledge. See CHANGE 3, below.

Related to the performance of PFOTs, based on a commenter's concerns that injection may endanger USDWs, EPA is adding a condition stipulating when injection must be halted following performance of a PFOT (also CHANGE 3, below). This is required to ensure that injection is limited to such volumes needed to confirm fault isolation, and, for the initial PFOT, EPA has reviewed PFOT results and determined that injection may commence. In subsequent PFOTs, EPA must be provided the results of such tests in a timeline manner for annual confirmation that faults remain sealing.

CHANGE 3 – ADDED REQUIREMENTS FOR PFOT TESTING ENTITY AND REQUIREMENT TO HALT INJECTION FOLLOWING INITIAL PFOT

Section C. 4.c) Pressure Fall-Off Test (PFOT) (Draft Permit)

- a) *A PFOT must be conducted annually for the life of this well. The procedure and testing methods for this test must be submitted to EPA at least 30 days prior to testing. Unless alternative conditions are approved in writing by EPA, the test procedure must match the EPA Region 6 UIC Pressure Falloff Testing Guideline (Third Revision) with necessary changes made for site-specific conditions. Testing protocol must be designed to produce all data needed to prepare a Boundary Effects Analysis Report (BEAR) ([Appendix B](#)).*

Section C. 4. c) Pressure Fall-Off Test (PFOT) (Final Permit)

A PFOT must be conducted annually for the life of this well. The procedure and testing methods for this test must be submitted to EPA at least 30 days prior to testing. Unless alternative conditions are approved in writing by EPA, the test procedure must match the EPA Region 6 UIC Pressure Falloff Testing Guideline (Third Revision) with necessary changes made for site-specific conditions. Testing protocol must be designed to produce all data needed to prepare a Boundary Effects Analysis Report (BEAR) ([Appendix B](#)).

All PFOTs must be planned and performed by an individual who has attained:

- (i) at least a bachelor's degree in petroleum engineering or a field closely related to petroleum engineering;***
- (ii) a professional geologist or professional engineer licensure; and***
- (iii) at least 5 years of experience performing and analyzing PFOTs.***

These qualifications must be demonstrated in the Notification Prior to Testing (Section C.1.). EPA reserves the right to disapprove the submitted procedure and testing methods if the testing entity does not meet the above requirements.

Following completion of the initial PFOT to be performed within 30 days after beginning injection, the Permittee shall halt injection and shall not inject until test results have been submitted to EPA and the Director has approved the well to commence injection. Following the initial PFOT, injection need not be halted following completion of annual PFOTs unless 60 days has passed since completion of the test and the BEAR has not been submitted to EPA. For tests other than the initial PFOT, the Permittee may resume injection after submitting the BEAR to EPA unless the Director otherwise requires the Permittee to cease injection based on BEAR results.

Additionally, EPA is requiring similar changes to interpretation of the PFOT test results. These changes are made to ensure that the identification of fault boundaries is carried out by an entity with specialized expertise in this field.

CHANGE 4 – ADDED REQUIREMENT FOR ENTITY PREPARING PFOT RESULTS

Section C. 6. Submission of Test Results (Draft Permit)

All well logging and testing results other than those generated from a PFOT must be submitted to the Director within 30 calendar days of completion of the logging or testing activity. Results must be submitted as a report describing the methods used during logging or testing and an interpretation of the log or test results. When applicable, the report must include a descriptive report. Reports must address the results of logging or testing to possible endangerments of USDWs, particularly those near the injection zone.

The results of all static reservoir pressure tests and pressure build-up tests must compare the measured reservoir pressure against any prior reservoir pressure measurements required by this Permit, identifying any trends in pressure change over time. This includes reservoir pressure measurements made prior to receiving authorization to inject.

The results of a PFOT are required to be submitted to the Director within 60 days after completion of the test(s). Results must be submitted as a component of a BEAR. See [Appendix B](#) for a description of all information that must be reported in a BEAR.

Section C. 6. Submission of Test Results (Final Permit)

All well logging and testing results other than those generated from a PFOT must be submitted to the Director within 30 calendar days of completion of the logging or testing activity. Results must be submitted as a report describing the methods used during logging or testing and an interpretation of the log or test results. When applicable, the report must include a descriptive report. Reports must address the results of logging or testing to possible endangerments of USDWs, particularly those near the injection zone.

The results of all static reservoir pressure tests and pressure build-up tests must compare the measured reservoir pressure against any prior reservoir pressure measurements required by this Permit, identifying any trends in pressure change over time. This includes reservoir pressure measurements made prior to receiving authorization to inject.

The results of a PFOT are required to be submitted to the Director within 60 days after completion of the test(s). Results must be submitted as a component of a BEAR. See [Appendix B](#) for a description of all information that must be reported in a BEAR. These results must be analyzed by an entity meeting the requirements of Section C.4.c and certified as such during the submission of the test results. EPA may, on the basis of test results inadequately demonstrating isolation of Block E, require the Permittee to halt injection and perform additional actions needed to confirm the presence of fault boundaries and isolation of injected fluids to Block E of the Willow Sands, including but not being limited to substantiating and/or clarifying test results and performing subsequent PFOTs.

Comments about specific aspects of the ROD included: the content of a figure in the ROD; uncertainty about determining groundwater flow patterns; and why one water quality sample with an anomalously high total dissolved solids (TDS) value reading was discounted from the evaluation.

EPA appreciates commenters' review of specific information in the ROD, and offers the following responses to specific questions and comments:

- Regarding the comment that Figure 4 does not depict the shallow drinking water aquifers, EPA clarifies that the focus of the figure is the upper and lower confining zones, which are more than 3,000 feet below the shallow aquifers that feed domestic water wells and irrigation systems. EPA clarifies that it performed an extensive review of the wells that are completed in the shallow alluvium, as described above.
- Regarding the comment that the depths in Figure 4 of the ROD are incorrect, EPA clarifies that the figure illustrates depths relative to sea level, whereas the injection zone depth of 4,900 to 5,500 feet that is referenced throughout the permit materials refers to depth below the ground surface.
- To the commenter who expressed concern about the lack of definitiveness in the statement that “no groundwater flow is expected within Block E of the Willow Sands,” EPA clarifies that the basis for this statement is the multiple lines of evidence about fault confinement, which will be confirmed based on pre-operational testing (as described above). EPA also clarifies that groundwater within the Idaho Group (which includes the Glens Ferry and Chalk Hills Formations) has residence times ranging from hundreds to tens of thousands of years, meaning that groundwater flow is generally slow within the region.
- Regarding why EPA disregarded one water quality sample with an anomalously high TDS value from the evaluation of the Willow Sands TDS, EPA clarifies that the sample (with a TDS of 15,982 mg/L and which EPA asked SROG to explain) was believed to be contaminated by drilling fluid, and that all other samples are representative of water quality in the Willow Sands. All other samples were between 510 mg/l and 5,950 mg/L, consistent with the characterization of the Willow Sands as a USDW.

9. Objections to Injection for Wastewater Disposal

Several commenters expressed general objection to issuing the Permit and the use of injection as a wastewater disposal method, citing contamination associated with other injection wells. Other commenters expressed concern that issuance of Permit No. ID-2D001-A could lead to allowing additional injection or oil and gas operations in Idaho. Commenters assert that wastewater disposal via injection saves the operator money at the cost of environmental protection, and that the operator should identify an alternative way to treat and dispose of the wastewater.

EPA acknowledges that improperly managed injection wells have the potential to adversely affect water quality and agrees with commenters about the importance of permitting and management of injection wells. For this reason, the UIC regulations and the permit for the DJS 2-14 well have conditions that are specific to the risks to USDWs, including provisions for proper construction, operation, monitoring, and closure of the well. The applicable Permit conditions to ensure that injected fluids do not endanger USDWs include:

- Section A of the Permit, which requires that the injection well be constructed with casing and cement to prevent the movement of fluids into or between USDWs.
- Section B.4 of the Permit, which sets maximum injection pressure limitations that were developed using a formula that considers site-specific information, including the depth to the injection zone, the properties of the injection fluid, and a fracture gradient based on a shut-in test. This will ensure that injection does not create fractures through which injected or other fluids could move to USDWs.
- Section C of the Permit, which requires the Permittee to demonstrate and maintain mechanical integrity of the well. This includes continuously monitoring tubing pressure, inner annulus pressure, and injection rate (in Section C.2); and internal and external mechanical integrity testing every 3 years (in Section C.5).
- The Plugging and Abandonment Plan in Section E and Appendix C of the Permit, which will ensure environmentally protective well closure after the cessation of operations.

EPA acknowledges that there are alternative disposal methods for oilfield wastewaters. Based on evaluation of the UIC permit application, EPA has determined that injection can be performed in a manner that does not endanger USDWs. If managed and operated properly, EPA considers the risk to the environment by injecting fluids deep underground can be considered safer than other methods of disposal, such as allowing fluids to be discharged into a stream, disposed of in a landfill, or treated and stored in containment pits or storage tanks.

Commenters objected to EPA's direct implementation of the Class II Program in Idaho and assert that the transfer of Class II primacy to EPA overturns Idaho's ban on Class II wells. Commenters also assert that the Class II UIC regulations are inadequate.

Concerns about and objections to EPA's direct implementation of the Class II Program in Idaho are outside the scope of this UIC permitting decision. EPA clarifies that, per 40 CFR § 147.651, Idaho's UIC Program for Class II injection wells was transferred from Idaho to EPA. Idaho submitted a formal request that EPA transfer and directly implement the Class II UIC Program. This transfer was codified on July 30, 2018 [83 FR 36435]. EPA also reviewed news articles provided by commenters describing public objections to issuing the Permit or the Aquifer Exemption; many of these describe concerns that EPA addresses elsewhere in this responsiveness document. EPA disagrees that the Class II or UIC regulations are inadequate.

Some commenters objected to the use of hydraulic fracturing technology. One commenter submitted a petition, signed by 11 people, that objected to hydraulic fracturing and oil and gas industry wastewater disposal wells (the petition also mentioned general environmental concerns that are discussed elsewhere in this document).

EPA acknowledges public concerns about the use of hydraulic fracturing technology; however, hydraulic fracturing will not be performed under Permit No. ID-2D001-A. Injection will be limited to a pressure value below the fracture gradient of the injection and confining intervals. Injection must be under the intent of waste disposal.

10. Concerns about Oversight and the Permit Application Review

Commenters questioned the adequacy of the permit application review process and the determination of permit limits and requested a third-party review of the Permit.

EPA recognizes the importance of a thorough review of a proposed project and clarifies that it performed an intensive review of the permit application and Aquifer Exemption request, and on numerous occasions requested additional information from the applicant to clarify their application and ensure that sufficient information was provided to demonstrate that the project is protective of USDWs. At EPA's request, SROG submitted additional materials on April 23, 2020; August 21, 2021; January 6, 2021; February 3, 2021; February 24, 2021; April 27, 2021; June 17, 2021; and June 21, 2021. EPA reviewed the permit application and all updated information to confirm that: the project, as proposed, meets the requirements for Class II wells; there are adequate injection and confining zones so that the injected fluids will be confined and will not endanger USDWs; that the operating limits (e.g., injection pressures) are appropriately based on site-specific conditions; that appropriate testing and monitoring of the injection well, injectate, and formation conditions will be performed; and that the well will be plugged at the end of injection so that it will not become a conduit for fluid movement that endangers a USDW. EPA reviews each line of evidence provided in the permit application (including logs, water quality analyses, cross sections and maps, pressure data, core data, geophysical studies, and reports and evaluations submitted by the applicant) to ensure that it is reasonable, consistent, and thoroughly documented.

Commenters asked how EPA will ensure that the operator will not exceed the injection volume and pressure limits on which assumptions about confinement are based. A commenter expressed concern that determinations of compliance will be based on self-reporting by the applicant. Commenters assert that there is no guarantee that the applicant will comply with the Permit or has the technical expertise to perform activities required in the Permit.

EPA clarifies that exceeding the volume and pressure limits would be violations of the Permit. Additionally, the DJS 2-14 well must be equipped with a pressure actuated shut-off device to shut off the pump if the MAIP is exceeded. The Permittee must submit reports about the results of injected fluid sampling, tubing pressure, inner annulus pressure, and injection rate monitoring, logging, and testing and certify (per Section I.10 of the Permit) under penalty of law that the reports were prepared in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information, and the reports are true, accurate, and complete. EPA expects all operators to comply with the regulatory requirements as well as their UIC permit requirements. An operator's failure to comply with the Permit, including accurately monitoring and reporting to EPA, would subject the operator to possible enforcement actions resulting in civil or criminal penalties or both. The Permit also includes a duty to comply (Section

I.2) and a duty to mitigate environmental impacts (Section I.4), and there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Finally, self-monitoring and self-reporting are consistent with the SDWA and record-keeping and inspection activities involve third-party review in these processes. They are fundamental elements of the UIC permit program and other Federal regulatory programs, such as those under the Clean Water Act, RCRA, and Clean Air Act.

Regarding concerns that the Permittee has the technical expertise necessary to perform the activities required in the Permit, EPA clarifies that Section I.5 of the Permit requires that the Permittee must always properly operate and maintain all facilities, including providing adequate operator staffing and training. As noted above, failure to comply with this provision would subject the operator to possible civil or criminal penalties or both. EPA clarifies that the Permit's "Duty to Comply" provision includes performing all required tests (such as PFOTs or the testing required to prepare the BEAR) and, if the Permittee is unable to do so, EPA would require that the well be shut-in or could commence enforcement actions. EPA adds that, if SROG does not have the expertise to conduct certain testing activities (as commenters assert), they have the option of hiring qualified contractors or service companies that have extensive experience in the types of testing required in UIC permits.

Commenters also expressed concern about EPA's capacity and staffing to oversee the Permittee. They also assert that state regulators have done a poor job of holding operators accountable and have conflicts of interest in dealing with industry operators, including the Permittee.

EPA disagrees that it is unable to oversee the Permittee. EPA staff will review all pre-operational testing information required by the Permit before authorizing injection, and testing and monitoring data submitted throughout injection operations, to ensure that the project is performing as intended or to determine whether any information indicates a potential for endangerment of USDWs. If any adverse effects were to occur, EPA will take the necessary actions to ensure that the Permittee performs the required follow up. Regarding concerns that EPA has inadequate staffing, EPA clarifies that national UIC program staff across the EPA Regions and its Headquarters are available to address workload needs. Additionally, the Agency maintains an active National Technical Workgroup to address unique technical challenges, and the Agency has the resources and ability to contract third-party services, when needed, to meet its workload demands.

Regarding comments asserting that state regulators have not held operators accountable or have conflicts of interest in dealing with industry operators, EPA clarifies that Permit No. ID-2D001-A is being issued—and will be overseen—by EPA Region 10. Commenters' concerns about state regulators are outside of the scope of this EPA UIC permitting decision.

11. Concerns about the Applicant

Commenters expressed concerns about the applicant's compliance history (including allegations of hazardous substances violations of the Emergency Planning and Community Right-to-Know Act, illegally acidizing wells, re-completing wells without permits, and trespassing). Several commenters reference the fact that the applicant is based outside of Idaho. One commenter requested that its objections to other permit applications by the operator be part of the record for Permit No. ID-2D001-A.

EPA acknowledges comments and concerns about the applicant and reviewed news articles about past violations by and court rulings against the Permittee attached to one comment (which do not appear to be specific to Permit No. ID-2D001-A). However, the Permittee's compliance with other regulatory programs or other permits is outside the scope of this UIC permitting action. Similarly, concerns that the applicant is based outside of Idaho are outside the scope of this UIC permitting action.

EPA also clarifies that other permit applications by the operator are outside the scope of this UIC permitting action and therefore disagrees that they should be included in the record for Permit No. ID-2D001-A.

Commenters also expressed general concerns about the energy industry, including: its overall compliance record; adverse financial and environmental impacts of oil and gas operations on the state; and production, transportation, and disposal risks associated with oil and gas production.

EPA also acknowledges commenters' general concerns about the energy industry. However, as noted above, EPA's permitting decision for the DJS 2-14 well is focused on its evaluation of the site-specific information contained in the Permit application and setting UIC permit conditions to ensure that injection operations do not endanger USDWs via conditions for construction, testing, maintenance, and plugging to ensure that the DJS 2-14 well maintains mechanical integrity throughout the life of the well and is properly closed.

12. General Environmental Concerns

In addition to the specific topics above, commenters raised general environmental concerns about issuing the permit, citing concerns about protection of groundwater and surface water, endangered and threatened species, and the cumulative impacts associated with the project.

Commenters raised general concerns for protection of groundwater and domestic water wells. EPA received dozens of identical comments expressing general concern for the availability of groundwater supply, particularly due to climate change.

EPA acknowledges commenters' concerns about the importance of protecting groundwater quality, including local drinking water wells. For this reason, the UIC regulations and the Permit for the DJS 2-14 well have conditions that are specific to the potential risks posed to USDWs by injection into the DJS 2-14 well. These include:

- Selection of a suitable injection zone that is sufficiently thick and extensive to receive the volume of wastewater to be injected and is overlain by confining zones that separate the injected fluids from USDWs by more than 3,000 feet of impermeable claystone.
- Adequate construction of the injection well that includes cemented surface casing to prevent fluid movement that could endanger a USDW.
- Operation within pressure limitations that were developed based on site-specific information and testing to ensure that injection does not create or activate fractures through which injected or other fluids could potentially migrate to a USDW.
- Demonstration and maintenance of mechanical integrity via continuous monitoring of tubing pressure, inner annulus pressure, and injection rate and internal and external MITs every three years to ensure that the well does not become a conduit for fluid movement to USDWs.

- Plugging and abandonment procedures to ensure environmentally protective injection well closure after injection operations end.

To the commenter who wrote that four USDWs are impacted by the conversion of the well, EPA assumes that the commenter is referring to the formations described on Table 2 of the Fact Sheet. EPA clarifies that the Pierce Gulch and Glenns Ferry Formations are thousands of feet above the confining zone, separated from the injection zone by impermeable claystones (see Section 1). EPA adds that the Pierce Gulch Formation is the surficial aquifer used for water supply and the Glenns Ferry Formation is not currently used as a drinking water source. The basalt sill within the Chalk Hills Formation has unknown water quality but it is believed, based on its depth and the limited availability of water, unlikely to be a drinking water source. Regardless, it is separated from the injection zone by a confining interval. EPA clarifies that, while the Willow Sands meets the TDS-based definition of a USDW, it has been exempted because it meets the criteria at 40 CFR § 146.4 to be exempted from status as a USDW. The permit application review and the permit conditions are designed to ensure that no USDW will be endangered by injection activities.

Commenters also expressed concerns about surface water and watershed protection, including the surface water supply for the local public water system and tribal waters.

EPA acknowledges concerns about protecting surface water bodies, such as the Payette River. The protection of watersheds and surface water bodies is outside of the scope of EPA's UIC permitting and decision-making authority, which is limited to the protection of USDWs. However, EPA notes that the Permit's conditions, which ensure the proper siting, construction, operation, monitoring, and closure of the DJS 2-14 well to prevent fluid movement to USDWs, will also protect surface water bodies. Additionally, the injection zone is separated from surface water bodies by thousands of feet of impermeable rock formations, including a competent confining layer. When making the decision regarding whether to issue a UIC permit, EPA's jurisdiction rests solely in determining whether the proposed injection operation will safely protect USDWs from the subsurface emplacement of fluids. EPA also clarifies that, based on the AoR study performed pursuant to 40 CFR § 146.6, there are no surface water bodies within the area of review of the DJS 2-14 well.

EPA reviewed reports attached to one comment about groundwater and surface water interaction and a report about the effects of polycyclic aromatic hydrocarbons on the aquatic environment, and notes that, as described above, EPA's UIC permitting authority and the scope and conditions of this Permit are limited to the protection of USDWs. EPA adds that protection of USDWs and shallow groundwater formations would, in turn, address any groundwaters that interact with surface water bodies.

Commenters also expressed concerns for human health; fish and wildlife; and endangered and threatened species.

Pursuant to Section 7(a)(2) of the Endangered Species Act, 16 U.S.C. § 1536 (a)(2), EPA must ensure that permitting actions are not likely to jeopardize the continued existence of federally-listed endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. EPA has determined that a decision to issue a Class II permit for authorization of injection into the DJS 2-14 well would constitute an action that is subject to the Endangered Species Act and its implementing regulations (50 CFR part 402).

Therefore, EPA reviewed information about endangered and threatened species in Idaho or near the project site, and has determined that there are no endangered species, nor any critical habitat as defined by the U.S. Fish and Wildlife Service, within the area of the proposed project. Certain birds may be at the well location that are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle

Protection Act, and any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures.

Commenters questioned the cumulative impacts of all the environmental effects associated with the project and requested that EPA perform an environmental impact study.

Federal Environmental Impact Statement, or EIS documents, are described under the National Environmental Policy Act (NEPA), which is the federal law that compels all federal agencies to consider environmental impacts in their decision-making process. Courts, including the Environmental Appeals Board (the Board), have recognized consistently that EPA's procedures and environmental reviews under enabling legislation are functionally equivalent to the NEPA process. For example, in *In re American Soda, LLP*, 705 9 E.A.D. 280 (Environmental Appeals Board 2000), the Board concluded that under the plain language of the regulations governing the issuance of a UIC permit, EPA was not required to prepare an EIS in support of a UIC permit. The Board found that "[t]he SDWA and the UIC regulations are designed to protect underground sources of drinking water. See generally SDWA, 42 U.S.C. § 300f to 300j-26; 40 CFR parts 124, 144, 146, and 147. Neither the statute nor the implementing regulations authorize EPA to regulate solution-mining activities apart from their impacts on underground sources of drinking water...." *Id.* At 289. In reaching its holding, the Board provided the following comprehensive analysis:

By its terms, NEPA requires an EIS for, inter alia, "major Federal actions significantly affecting the quality of the human environment" NEPA § 102(C), 42 U.S.C. § 4332(C). Notwithstanding NEPA's general application to major federal actions, courts have long recognized that NEPA's primary goal is to require government to consider the environmental consequences of its decision. 42 U.S.C. § 4332. Accordingly, Courts have developed the doctrine of "functional equivalency" to ensure that NEPA remains consistent with its primary goal and does not add one more regulatory hurdle to the process. (Citation omitted). The functional equivalency test provides that, where a federal agency is engaged primarily in an examination of environmental questions, and where substantive and procedural standards ensure full and adequate consideration of environmental issues, then formal compliance with NEPA is not necessary, [and] functional compliance [is] . . . sufficient. (Internal quotation marks omitted, citation omitted).

Although the Board has not previously considered the question of functional equivalency in the context of a UIC permit, there is prior administrative case law that has discussed the issue of functional equivalency in related contexts. For instance, in *In re Chemical Waste Management, Inc.* [2 E.A.D. 575 (1980)] a case involving a RCRA treatment storage and disposal permit, the Administrator determined that in order to show functional equivalency to NEPA, EPA need not demonstrate that it has addressed all five elements of an EIS as set forth in NEPA, but rather, "NEPA is fulfilled where the federal action has been taken by an agency with recognized environmental expertise and whose procedures ensure extensive consideration of environmental concerns, public participation, and judicial review." Similarly, in *In re IT Corporation*, 1 E.A.D. 777 (1983), the Administrator observed, "The courts have recognized that Federal regulatory action taken by an agency with recognized environmental expertise, when circumscribed by extensive procedures, including public participation for evaluation of environmental issues, constitutes the functional equivalent of NEPA's requirements." *Id.* at 778.

Notably, IT Corp. was a case involving an appeal of a Hazardous Waste Management permit, and thus arose under 40 CFR part 124, which establishes procedures for issuing, modifying, revoking and reissuing, or terminating both RCRA and UIC permits. 40 CFR § 124.9(b)(6) states in relevant part: “All RCRA [and] UIC . . . permits . . . are not subject to the environmental impact statement provisions of § 102(2)(C) of the National Environmental Policy Act, 42 U.S. C. § 4321.”

The Administrator held that 40 CFR § 124.9(b)(6) served to codify the case law on NEPA functional equivalence and accordingly found that the RCRA permitting program was the functional equivalent of NEPA. As in IT Corp., we find 40 CFR § 124.9(b)(6) dispositive on the question of the UIC permit program’s functional equivalence to NEPA. Under the plain language of this regulatory provision the Region was not required to prepare an EIS in support of the Permit. (Footnote omitted). The Board, thus, finds that the Region has not committed clear error in its determination that an EIS was not required. Id. at 290.

Furthermore, according to 40 CFR § 124.9 (b)(6): National Pollution Discharge Elimination System (NPDES) permits other than permits to new sources as well as all RCRA, UIC and Prevention of Significant Deterioration permits are not subject to the environmental impact statement provisions of section 102(2)(C) of the National Environmental Policy Act, 42 U.S.C. 4321.” This means that EPA is not required to prepare environmental analysis documentation for permits (except for certain surface water discharge permits), but may voluntarily do additional analyses if EPA finds a project has significant environmental impacts.

13. Out of Scope Issues

Several commentors raised concerns about matters outside of the UIC Program’s jurisdictional scope, which EPA lacks the regulatory authority to address in the UIC permitting process. These commenters raised issues associated with: potential surface spills and leaks from tanks and surface infrastructure; permits issued to other operators; concerns that the project is infringing on mineral rights; the need to rely on renewable energy over fossil fuels; threats to the agricultural and tourism industries; traffic accidents; increased noise; and air quality effects.

When deciding on whether to issue a UIC permit, EPA’s jurisdiction is limited to determining whether the proposed injection operation will safely protect USDWs from the subsurface emplacement of fluids and a determination that the injection operation, as proposed, will be compliant with all federal UIC regulations. EPA therefore acknowledges its receipt and review of these comments but, because these comments raise matters and issues that are not within the jurisdictional scope and purview of the UIC regulations and permitting process, EPA will not respond to them in this document.

14. Comments in Support of the Permit

Commenters supporting issuance of the Permit referenced the protective conditions in the Permit; EPA’s review of the permit application; the safety of injection; and the benefits of energy production.

EPA acknowledges comments supporting issuance of the Permit.

15. Comments about the Public Notice Process

Several commenters asked EPA to extend the deadline to submit comments by 30 or 45 days to provide the public adequate opportunity to respond to the request for comments and to accommodate challenges posed by the COVID-19 pandemic. One commenter objected to the fact that EPA did not accept comments in hard copy by mail. Commenters also requested that EPA make the comments and the public hearing transcript available before it finalizes its decision to provide additional transparency.

EPA acknowledges the importance of public communications and recognizes that the COVID-19 pandemic provides unique challenges. Therefore, EPA, on February 18, 2022, extended the public comment period for this permitting action by one month, for a total comment period of 75 days that ended on March 30, 2022. The typical length of a public comment period is 30 days.

EPA acknowledges a commenter's objection to the fact that EPA was not accepting comments in hard copy by mail. However, to accommodate COVID-19 restrictions and ensure the safety of EPA staff, who were working remotely during the comment period, EPA was only able to accept comments electronically. EPA also accepted comments during a public hearing.

Regarding requests that EPA make the comments and the public hearing transcript available before it finalizes its permitting decision, EPA clarifies that the docket for this UIC permitting action differs from a rulemaking-level action (such as the transfer of Class II primacy to EPA that some commenters referenced), which is issued through www.regulations.gov, a site that makes posted comments public. EPA will make this response to comments document available on its website. EPA will attempt to contact all commenters by email to notify them of the final permit decision as well as provide them a copy of this response to comments document.

Public Hearing Transcript:
Draft Permit ID-2D001-A and Associated Aquifer Exemption

This public hearing was conducted remotely, over the telephone, on February 18, 2022. Personally Identifiable Information has been redacted (ex. “XXXX”).

Note: All bolded time stamps are in the format HH:MM:SS, and are set to Eastern Standard Time.

This is Karen Burgess with EPA Region 10 and we going to go – begin the hearing. It’s 10:10 a.m. Mountain Time. Good morning and welcome. Again, my name is Karen Burges [00:13:00] and I am the manager of the Ground Water and Drinking Water Section, in the Water Division at EPA Region 10. The purpose of this hearing is to collect comments on the proposed permit and Aquifer Exemption located in Payette County, Idaho. This hearing is being conducted remotely due to the public health concerns posted by COVID-19. This hearing is an opportunity for EPA to take oral statements about these actions. This meeting is being recorded and will be part of the public record. [00:13:30]

The proposed permit was issued for public comment on January 14th, 2022. It would allow the permittees, Snake River Oil and Gas to con – convert the existing gas well into an injection well. This would allow the permittee to dispose of fluids produced from natural gas extraction. The proposed injection would – well would inject fluids between 4,900 feet and 5,500 feet [00:14:00] below ground, into the geologic formation that contains the aqua – an aquifer meeting that EPA’s criterion of an underground source of drinking water. Otherwise, known as a USDW.

SNAKE RIVER OIL AND GAS has applied for an EPA – for EPA to exempt this deep aquifer from the status, as an underground source of drinking water. For more information, please visit the EPA Region 10 UIC webpage that was provided in the [00:14:30] public notice. There, you will find a copy of the draft permit, a fact sheet to the draft permit, and a record of decision for the Aquifer Exemption. These documents contain information on why EPA decided to make these draft determinations and what permit conditions are required in the draft permit, to protect other water resources. EPA’s accepting comments till the end of the public – public comment period.

Initially, EPA started a 45-day public comment period [00:15:00] that would end on March 28th, 2022. Based on requests from multiple commenters, EPA has extended the public comment period an additional 30 days. The end of the public comment period will now be on March 30th, 2022 at 5:00 p.m. mountain time.

If you would like to submit comments after this meeting, please submit them by email as explained in the – on the EPA, um, Region 10 webpage for the – through the public notice. **[00:15:30]** We will, uh, now begin the process of developing a list of attendees who would like to make a statement. In a moment, I'll ask you – every – anyone who wants to comment, to press *5 on their phone. This will allow EPA to hold your spot in the queue, based on the last four digits of your phone number. Then, one by one, we'll call on the phone number – on the phone lines, based on the last four digits of the phone number.

If you have **[00:16:00]** any questions during this process, I encourage you to review the instructions that were posted on EPA's webpage – website, where – where you found this information about this hearing. The UIC webpage – public comment webpage.

There, you will also find contact information for the staff who is on call to assist with any issues that may arise. Now, I'd like to, um – I would like you to **[00:16:30]** – if you would like to comment – to – on today's hearing, please press *5 on your phone. You should hear – after that, you should hear an automated response indicating that your hand is raised. When P – EPA has recorded your place in the queue and your number, you'll hear an automated response, um, stating that your hand has been lowered. This means that you've been registered in our queue. I will now pause, while we compile the list. Again, please press *5 now, if you wish to make a comment. **[00:17:00]**

[00:17:30]

[00:18:00]

Again, press *5 to raise your hand if you would like to make comments during this hearing. **[00:18:30]** Thank you, those that signed up to provide comments. We – we've identified, uh, five, uh, attendees that would like to provide comments. Based – uh, initially, um, we can provide – oh – additional people are signing up. So, let's wait – let's wait one more moment. Thank you. **[00:19:00]** We'll be limiting comments, to five minutes, to make sure that everyone has a chance to speak. And we'll be, um, **[00:19:30]** warning you when you're nearing the end of your time. And that, we reserve the right to mute lines to make sure that everyone can comment.

If you're concerned that you have not had enough time to make a full statement, please remember that you can email comments to EPA, at any point, prior to the close of the public com – comment period. If you've missed a chance to speak or if you call – called in late, please raise your hand by using *5, and we'll add you

to the – to the, um, list of commenters. [00:20:00]

We will now call on individual to speak. Once your number's called, please follow the following three steps. First, you'll need to mute yourself – unmute yourself, I'm sorry, pressing *6 to unmute your line in the EP – in our system. EPA cannot unmute your line for you. This may take a few sec – seconds, so please be patient. Also, make sure that your device is unmuted. [00:20:30] It may be that you have, uh – that you've, uh, pressed *6 to unmute your line in your system, and you need to unmute your device as well.

Second, before you start your comments, please ask me if you, uh, can be heard and wait for me to respond before you start your comments. This will make sure that they whole comment is recorded. Sometimes, it can take a few seconds for your line to be unmuted in our system. So, please be patient. Lastly, we – after we've confirmed that we can hear you, [00:21:00] start off by saying your full name, spelling your last name. This is very important. If you do not state your name, EPA can – will not be able, um, to know who made the comment. Please hold for one moment while we, uh – we ready our queue.

[00:21:30]

[00:22:00] Okay. Let's begin. On behalf of EPA, thank you for participating in today's hearing. The first – first speaker has a phone number ending in XXXX. We are now allowing phone – that phone number ending in XXXX to unmute. Please press *6 to unmute your line and make sure that your device is – is not muted. And confirm that we can hear you.

Richard: [00:22:30] Uh, yes. My name is Richard Brown and I'm the owner, manager of Snake River Oil and Gas and the applicant, here. Uh, I – my name is R-I-C-H-A-R-D-B-R-O-W-N. And I am XXXX years of age and I've practiced in the oil and gas industry in – for 40 plus years.

Karen: Thank you. We can –

Richard: I have been involved in this – okay.

Karen: I just wanted to make sure that I [00:23:00] – I – I notified you that we are hearing you clearly and – and – and got that information. Thank you so much. And on with your comment.

Richard: Yes, um – and my comments would be, uh, that, uh, this reinjection of – process of produced waters, the safest and least invasive, and most economic – not that a water disposal. And I'll just give you a little, uh, brief history. I – I've been involved in this Idaho oil and gas project since 2012 [00:23:30] uh, and I've, specifically, been involved in this application process since 2014. Um, I'm going to say, in my career, uh, this permit has probably – it – it – not probably – has been the most extensively and carefully vetted application, uh, in my entire 40-year career.

We have spent over 1,000 hours of engineering and safety consultant work [00:24:00] uh, that's gone into the process. Um, and for those who don't know, produced water is a natural phenomenon in all oil and gas fields. Not only in the U.S. but in the entire world. And this – this permit provides that this naturally produced water, as it was mentioned previously, from the wells in this Willow field area, will be returned to the formation of its origin. So, basically, we're taking produced – naturally produced [00:24:30] water and putting it right back where it came from.

Uh, the formation that it's going into is 3,000 to 4,000 feet below, uh, known drinking water supplies in the area. Uh, it'll be separated by multiple clay stones, over thousands of feet, uh, to hold this – this well is engineered with extensive casing, we're following all of the safety requirements of not only the state of Idaho, but of the EPA and, [00:25:00] um – and obviously, we've done a – extensive work with the EPA to confirm the safety status. And, uh, that is really all I have to say. Obviously, we're in support of this, uh – this application and we think this is the safest and least invasive method of disposing of the water. Thank you for your time.

Karen: Thank you Mr. Brown. Our next commenter has a phone number ending in XXXX. [00:25:30] Your phone, uh – please press *6 to unmute your line and make sure your device is not muted. And then, make sure we can hear you. Thank you. XXXX.

Joann: Can you hear me?

Karen: Yes, I can. Thank you.

Joann: [00:26:00] My name is Joann Smith. Last name spelled S-M-I-T-H. I'm with the Payette Soil and Water Conservation District and my comments are, um, Payette County is a community not far from a rapidly expanding city of Boise. We are experiencing fast residential development [00:26:30]. Payette County maintains a strong agriculture economy that relies on natural resources of fertile soil and clean

abundant water. The county's updated comprehensive plan supports the agriculture industry, conservation of its natural resources, and planned residential development. Disposal of oil and gassed wastewater into [00:27:00] injection wells in Payette County does not seem to be compatible with its plan in land use.

The injection well site, under consideration, is located between three identified TMDL water bodies. Little Willow and Big Willow Creek, and below it, Lower Payette River. [00:27:30] Several hundreds of thousands of dollars of federal grant funds have already been invested in these water sheds to improve irrigation systems, to improve water quality here. Are there alternative methods of disposal, already available for this wastewater? [00:28:00] Does the applicant have adequate financial resources and insurance to clean up spillage, or leaks, or any damage?

And from records that I was able to review, um – I just heard the applicant state that this is being returned right back where it was obtained from but – I could be misunderstanding, but the – that well site did not produce [00:28:30] any oil or gas. So, I'm confused as to it being returned right back where it came from. And that's all my comments. Thank you.

[00:29:00]

Speaker 1: Thank you for your comment. Our next commenter has a phone number ending in XXXX. [00:29:30] If your phone ends in XXXX, please, uh, now press *6 to unmute your line and make sure your device is not on mute. Then, make sure that we can hear you.

Commenter 3: Yes. Can you hear me?

Speaker 1: Uh, we can hear you. Please state your name and spell your last name. And then, begin your comment.

Commenter 3: Okay. [00:30:00] My name is [Commenter 3].

Karen: Thank you. You can begin your comment.

Commenter 3: And, uh – okay. Thank you. Good morning and thanks, Karen. And I wanted to also thank Shelly Brock and, uh, the organization's, uh, CAIA for putting out the, uh [00:30:30] – uh, the schedule for this comment, to let us comment about this. Um, I've just, uh, never really been very politically active but, uh, I just couldn't,

uh, stay silent when I heard about this. Um, I would just, uh, like to remind, uh, you folks at the EPA that you're not the energy protection agency, you're the environmental protection [00:31:00] agency. And it's so important that you guys do your job for us, we just can't, on an individual basis, uh, it's – where it's just really tough to stand up to these, um, huge energy companies, uh, that are choosing these, um, unsafe methods to – to get our energy.

Here in Idaho, we're – we're already facing severe drought conditions and, uh, [00:31:30] as it was mentioned before, uh, the population here is also, uh, growing extremely – extremely fast. We're the fastest growing populations in the country. And we've just never needed our fresh drinking water, uh, more than right now. And, uh, these, uh – these energy companies, they – they just need to invest some of these [00:32:00] uh – some of these profits that they're making. They're – they're – these aren't small – small profits that they're making. And to, uh – other ways to extract energy, clean ways to extract energy. And, uh, if they – if they can't figure out a way to do this, um, I think we need to shift our focus, uh, into more clean and [00:32:30] sustainable energy.

We just can't – we just can't afford to, uh – to jeopardize our limited, uh, fresh water resources. So, please again, EPA, please, uh, protect it for us. Help us out. Uh, thanks for listening. And that's, uh – that's the end of my comment. Thank you.

Karen: Thank you. Our next commenter has the [00:33:00] phone number ending in XXXX. If your phone number ends in XXXX, please press *6 to unmute your line and make sure your device is not on mute. And then, make sure we can hear you.

Commenter 4: Hello, can you hear me?

Karen: Yes. Thank you.

Commenter 4: My name is [Commenter 4]. [00:33:30] XXXX for more than 30 years. Probably close to 40. XXXX we have no concerns whatsoever for the, if any, negative effect on our domestic water well or our stock wells, that we own [00:34:00] on this property. My husband farmed and ranched for more than 30 years on this property and we fully support the approval of this injection route because we think it's the safest way to dispose of these waters that are coming up – coming up from the wells. And it would be beneficial to our county and our state, that this oil and gas industry could grow. [00:34:30]

And the only way that it's going to be able to grow, in a safe manner, is if we can come up with a way to dispose of the waters. And to me, this is the safest way to

dispose of the waters by putting it back into the ground where it came. The reason we're not concerned for our own wells is because the level that the water is going to be reinjected, is far below the level of our drinking water in our stock well [00:35:00] water. Therefore, we fully support approval of these permits and I thank you very much for your consideration.

Karen: Thank you for your comment. Please – can you please spell your first name? Our – we want to make sure we have it correct in our records.

Commenter 4: [Commenter 4].

Karen: Excellent. Thank you very much. [00:35:30] Thank you.

Commenter 4: Thank you.

Karen: You're welcome. Oh – our next commenter has the phone number ending in XXXX. If your phone number ends in XXXX, please press *6 to unmute your line and make sure your – your device is not on mute. And then, make sure we can hear you.

Shelly: Hi. Good morning, this is Shelly Brock. I'm a long time Idaho citizen and president of CAIA. [00:36:00] Can you hear me okay?

Karen: Yes, we can. Thank you.

Shelly: Okay. Thanks. Um, you know, I appreciate all of your best efforts to set really rigid requirements of this operator, for this permit. Um, but unfortunately, this industry, in a whole, has an abysmal track record of compliance. Both here and across the nation. In your agency, EPA, has been, uh, notoriously weak in regulating injection wells, through no fault of your own, but due to chronic lack of staffing and resources. [00:36:30] Um, Mr. Brown mentioned that they're just putting the same water back where they got it, um, but the fact is that he's just trying to save a lot of money on his operations. Uh, he admits that this is the cheapest way for them.

Um, at least one of the people who's spoken already, has wells on their property and I know that they are hoping to make some money off of this, and that's their incentive. But for the rest of us, um, a lot of Idaho citizens are really concerned about the long-term effects of this. [00:37:00] Here in Idaho, state regulators have just done a really poor job of holding operators accountable. There have been

multiple law suits for allowing them to trample on the rights of land owners, while endangering water resources and public health.

When our previous main operator here, who's partner was Snake River Oil and Gas, Richard Brown, was caught illegally [inaudible] [00:37:22] the MLI when 11 gas wells, which happens to be very near this proposed injection well, it was actually seven long months before that [00:37:30] infraction was reported publicly, and another two months before regulators settled with the company on a policy fine. So, now all record of that violation, and other violations on other wells across the state, have been scrubbed from the state website. We can't even see that. Uh, I will be submitting that in comment. So...

So, given this history, we have no reason to believe the requirements you're placing on this operator, will be adhered to or that the public will be notified of violations. Your documents state that [00:38:00] this permit is not allowed injection of any hazardous waste and yet, the 2014 wastewater report from oil and gas operations here, that we obtained from DEQ, shows contamination of thousands of units above the acceptable levels for carcinogens like benzene and for other harmful chemicals like [inaudible] ethylbenzene, methane. All of which, historically, have ended up migrating into drinking and surface water through faulty casings.

That's the real risk here, is the casings don't stand up. [00:38:30] IDEQ is charged with regulating disposal of hazardous waste, yet they admit their hands are tied because of RCRA and that this industry is completely self-reporting, that they're on the honor system. Uh, this permit requires the operator not to exceed the injection of 7.35 million barrels of fluid into block E, but how are you going to monitor this and prove they're not exceeding pressure? An increasing risk is the reality that historic gas wells have been known to communicate with injection wells, and there are dozens [00:39:00] of these wells within the immediate vicinity of the DJS 214, including some that are nearly a century old.

We will be submitting a statement from the world's most utmost authority on leaking well casings Dr. Anthony Ingraffea, who has reviewed this permit for us and raises multiple serious concerns for the suitability of this well, being recommissioned for injection of waste. Um, there are 37 ground water supply wells that access this hydrologic unit at depths between 150 and 300 feet underground. We know that [00:39:30] ground water flows towards the – excuse me – Payette and Snake Rivers, uh, as is the movement of fluids from deeper confined aquifers.

So, contamination from this injection well, will eventually end up in domestic wells and the rivers. And considering that fact, and the fact that the Payette is head waters to the mass parish protected fishing grounds, I'm curious as to what steps

you've taken to notify and work with them on this.

Um, Snake River Oil and Gas was re – required to perform a cost estimate of extracting, transporting [00:40:00] and treating the water, uh, for this Aquifer Exemption. Uh, the analysis appears to address, virtually, every detail it could impact the costs of using the water for drinking water but my question is: why has EPA not required the same cost analysis be done on the Payette water shed and the incredible economic losses that could be encored agriculturally and recreationally by leaks, spills and contamination, through this injection well, which is upgrading of the river?

And finally, on page 10 of your Aquifer Exemption document, figure four, [00:40:30] um, it's very important to note this – this – this image's graphic is incorrect. Uh, the injection zone is stated as between 4,900 to 5,500 feet deep throughout your permit and yet, the graphic shows the injection of wastewater will occur between 2,300 to 3,000 feet. Also, nothing is shown above about 1,500 feet, which is where multiple shallow drinking water aquifers lie, above this point, that feed domestic water wells and irrigation systems. And nothing is documented below – below about 3,300 [00:41:00]. So, I think that's a serious, uh, problem with this – with this, uh, application.

One last thing I wanted to say. The permit mentions the possibility of the operator discarding records of fluids the inject after a period of time but this was for any legal action sought by land owners whose water's been contaminated. So, why in the world would you consider allowing any of these records to be discarded? Uh, I think I'm – am I about out of time, here? Uh, I'll just keep talking until you cut me off. [00:41:30] Um, you know, you – you have a lot of language in there about possibilities, um, that things could go wrong, you admit in the, uh, application that you're only, uh, dealing with the likely hood that the aquifer will be contained and safe with the injection stater –

Speaker 1: You've reached five minutes on your comment. Please wrap up your comment soon. Thank you.

Shelly: Okay. Okay. Well, this is all, uh, just guess work as to what's going to happen underground and, um, it's really not worth the risk. We will be submitting a lot more documentation [00:42:00] and I really appreciate you extending the, uh, public comment period. Thank you very much.

Karen: Thank you. Our next commenter has a phone number ending in XXXX. If your phone number ends in, please press *6 to unmute your line and make sure your device is not on mute. And then, make sure that we can hear you.

[00:42:30]

Speaker 2: I'll defer my time now at this time, thank you.

Karen: Thank you. Our next commenter has a phone number ending in XXXX. If your phone number ends in XXXX, please press *6 to unmute your line and make sure your device is not on mute. And then, make sure that we can hear you.

[00:43:00]

Commenter 6: Hello. Can you hear –?

Karen: Yes, we can. Thank you. And please state – state your name, spell your last name –

Commenter 6: Can you hear?

Karen: Yes, we can hear you?

Commenter 6: Can you hear me?

Karen: Yes, we can hear you. Thank you.

Commenter 6: Okay. My name is [Commenter 6]. My last name is spelled [Commenter 6] and I'm also a member of CAIA. And I would urge the EPA to deny the permit. It's too risky. Uh, the **[00:43:30]** casings can fail, um, and the injected fluids could leak in – into and contaminate the aquifer, even though they're directed deeply below. If the casings fail, um, then that fluid can leak into our aquifer. Um, our aquifers are already depleted and we need to protect them from hazardous waste that would be injected into these wells. And also, there's a possibility of earthquakes that can happen because of class two injection wells. We don't know **[00:44:00]** if it would happen, but it's a possibility. And I think it's too risky to do this and I would urge you to deny the permit. Thank you for letting me speak.

Karen: Thank you. We've now reached the end of our list of people who have signed up to provide comment. If there's anyone else who wants to provide comment but has not had a chance to do so, please press *5 on your phone, now. We'll wait a couple

of minutes to wait – to – to [00:44:30] make sure that everyone has had their opportunity to speak. I see that there's an additional number that has signed up. If your [00:45:00] phone number ends in XXXX, please unmute your line and make sure your device is not muted. And confirm that we can hear you.

Helen: Hello. Can you hear me?

Karen: Yes, we can. Thank you.

Helen: This is Helen Yost. My name is Y-O-S-T and I'm speaking on behalf of about – of about 3,200 members and friends of Wild Idaho Rising Tide. Uh, we insist that the EPA rejects this first Idaho application for a class two underground injection control well. For oil and gas, my products and the proposed record of decision for an exemption of the surrounding Willow Sands aquifer. Uh, we request an additional 30-day comment period deadline extension, due to COVID-19 difficulties [00:46:00] and especially the Idaho precedents of these EPA decisions. And we also request that you include our remarks in the public record, for draft permit ID-2D001-A.

Regulating class two injection wells after assuming authority, over that program, from the state of Idaho several years ago, the EPA cannot issue underground injection control permits under part C of the safe drinking water act. It's subsurface [00:46:30] waste injection endangers underground sources of drinking water. Accordingly, the EPA and Snake River Oil and Gas require impacted Aquifer Exemption to advance, these otherwise, prohibited class two injection well decisions and activities.

The fifth most seismically prone state of Idaho, banned inherently risky oil and gas waste injection wells in 1985, but against public opposition, the EPA approved a 2018 rule change that transferred authority [00:47:00] for permitting these wells as requested by the Idaho department of water resources from the state to the federal agency, extensively over riding the ban and facilitating this controversial practice. In oil and gas producing regions throughout the continent, has this oil and gas waste injection wells, have caused well documented devastating surface and ground water contamination and induced and increased seismic in – incidents including extensive earthquake [00:47:30] clusters, many miles from these wells. And it inflicted property damages, insurance claims, and law suits.

And quoting citizens allied for integrity and accountability, who we support in every from of their litigation, vote this message for disposing of oil and gas waste, while notorious hazardous presents an even greater risk when promoted through the use of legacy wells. Steel and cement casings have a long history [00:48:00]

of failing over time, allowing toxic fluids to migrate upward into drinking water aquifers, and to the surface where they can poison streams, rivers, irrigation systems, and critical wild life habitats on quote. Federal laws two decades ago, exempted many oil fill operations in waste, such as, drilling fluids, produced water, and hydraulic fracturing or fracking fluids, from the environmental and hazardous waste regulations that govern other businesses.

Moreover, the historically understaffed [00:48:30] and often politically repressed. EPA lacks capacities and often motivation, to adequately inspect, document, and enforce oil and gas operation violations. Oil and gas extraction wells and looming waste injection wells, in Payette County, have already degraded and could continue to negatively impact the critical air. And a lot of resources in public and environmental health and safety of multiple generations of Idaho residents and [00:49:00] downstream Columbia River basin communities.

They jeopardize aquifers, water sheds, wild life habitats, public and private lands, and their values and uses, local agricultural recreational and business economies, and public funds and resources. Again, as a citizen's ally for accountability – or for integrity and accountability, described these class two well threats, this well permit and aquifer [00:49:30] redemption would authorize Snake River Oil and Gas to inject massive volumes of high-pressure brews of radioactive chemical laden, carcinogenic, industrial waste by products, deep underground. Directly through precious, irreplicable drinking water, aquifers, and I quote them, uh, with Idaho's burgeoning, population rising temperatures and historic drought, exacerbating the strain on mostly, unconfined and already depleting aquifers. [00:50:00]

The thought of sacrificing any existing water resources to an industry whose only goal is to exploit our natural resources for – for profits and who has already caused Idaho tax payers far more to operate than it has returned in severance taxes, is aberrant, on quote. And we would also like to quote Brian Eardst, who is representing CAIA in this matter. He is said quote, “Regulators have provided inadequate assurances that the poison that operators propose [00:50:30] to pump into the ground, will not spill, leak, and leach in the bodies of water that Idahoans use as sources of drinking water. The EPA should deny this permit.

There has been inadequate study and we would recommend independent 3rd party study, uh, on the problems that these wells – that this particular injection well could cause the water system,” uh, and the quote continues, “Contradictory and capricious claims about the geology of the proposed [00:51:00] site, agencies lack of capacity to keep proper oversight, and the undeniable risk all governed against approval –

Speaker 1: Your comment is finished – **[audio cuts out]** your comment soon. Thank you.

Helen: Okay. So, Wild Idaho Rising Tide and regional allied organizations have been anticipating, preparing for, and commenting on government proposals leading to this situation, since at least 2012. Including gathering signatures on a September 2014 informal public petition demanding bans of **[00:51:30]** fracking while treatments and oil and gas waste injection wells in Idaho. We will be submitting those signatures to the EPA, uh, with more extensive written comments before the deadline. Thank you for this opportunity to comment.

Karen: Thank you. Our next commenter has a phone number ending in XXXX. If your phone number ends in XXXX, please press *6 to unmute your line and make sure **[00:52:00]** your device is not muted. And then, make sure that we can hear you.

Michael: Can you hear me?

Karen: Yes, we can. Thank you. And please state your name, spell your last name and share your comment.

Michael: Thank you. My name is Michael Christian. My last name is spelled C-H-R-I-S-T-I-A-N. I am an – I am an attorney who represents the applicant, Snake River Oil and Gas. **[00:52:30]** Um, I wanted to respond briefly to some of the comments. I would note that – that the comments made in opposition are not specific to the – the draft permit terms or the permit fact sheet that has been made available online by EPA. Uh, as is set forth in the draft permit and the permit fact sheet, uh, there are numerous safeguards, uh, that – that will be put in place to ensure that the well is operated safely and **[00:53:00]** protective of, uh, drinking water resources.

Those include, uh, regular mechanical integrity testing, uh, cement bond log requirements, pressure and volume limitations, uh, annual and, uh – requirement for testing to, uh, ensure, uh, isolation of the injection block, and, uh, regular recording of all of this, uh, on, at least, an annual basis to EPA and also cooperation with EPA in, uh, **[00:53:30]** developing the protocols for each of these activities. Um, I would urge anyone who has, uh, an interest in learning the actual details of the draft permit and the safeguards and effects, to go to EPA's website and actually review the draft permit and UIC permit fact sheet associated with it. Thank you.

Karen: Thank you. I want to give one last opportunity for anyone who wants to provide **[00:54:00]** comment but hasn't had a chance. So, please press *5 on your phone and we'll wait a couple of minutes to see if there are any additional comments. **[00:54:30]** There are no other commenters in the queue. We will now conclude

this hearing. Note that this was recorded and that a transcript will be provided when – with the, uh, final decision and response to comments.

Please remember that this is not your last opportunity to provide comment. You may submit written comments anytime before **[00:55:00]** March 30th, the end of the public comment period. The directions for doing so are listed in EPAs UIC webpage and in the public notice. Thank you for participating in to – today’s hearing. Have a nice day.

[00:55:30]

[End of audio]

Duration: 56 minutes