REGION 3

PHILADELPHIA, PA 19103

STATEMENT OF BASIS

U.S. EPA UNDERGROUND INJECTION CONTROL (UIC)
DRAFT CLASS II-D PERMIT ISSUANCE PAS2D205BCLE

FOR

EXCO RESOURCES (PA), LLC
325 AIRPORT ROAD
MONTOURSVILLE, PENNSYLVANIA, 17754

FOR

A project consisting of one Class II-D injection well which allows for the injection of fluids produced solely in association with oil and gas production from EXCO Resources (PA), LLC located in:

Bell Township
Clearfield County, Pennsylvania

On July 14, 2025, EXCO Resources (PA), LLC ("EXCO" or "the Permittee") submitted a permit application to the U.S. Environmental Protection Agency ("EPA" or the "Agency"), Region 3 for the issuance of a permit that would allow for the continued operation of a Class II-D disposal injection well, Irvin A-19, API No. 37-033-00053, (hereinafter, "Injection Well", "Irvin A-19", or the "Facility"), located in Bell Township of Clearfield County, Pennsylvania. The coordinates for the Injection Well are: Latitude: 40° 58' 13.95" Longitude: -78° 46' 24.22". The EPA staff reviewed the initial permit application and found deficiencies. The EPA issued a Notice of Deficiency to EXCO on August 28, 2025 to which EXCO responded on October 22, 2025. The Permittee responded to the Notice of Deficiency by adding the requested information and clarifying previously submitted material. On October 22, 2025, the EPA deemed the application complete. The Permittee's October 22, 2025, and July 14, 2025, submittals are collectively referred to in this Statement of Basis as the "Permit Application".

Pursuant to the federal Safe Drinking Water Act ("SDWA"), 42 U.S.C. §§ 300f *et. seq.*, and its implementing regulations, 40 C.F.R. Parts 144-146, and §§ 147.1950-1955, the EPA UIC program is responsible for regulating, through the issuance of permits, the construction, operation, monitoring, and closure of injection wells that place fluids underground for disposal or enhanced recovery in oil and gas production. Today's draft permit specifies conditions for injection well construction, operation, monitoring, reporting, and plugging and abandonment which are specified to protect and prevent the movement of fluids into Underground Source(s) of Drinking Water (USDW). The final permit will

contain the same conditions in the draft permit unless the EPA receives information supporting and warranting alternative final permit conditions or actions on this Permit Application.

The Permittee's UIC project and the draft permit conditions specific to the project are described below:

Area of Review: Pursuant to the applicable regulations 40 C.F.R. §§ 144.3 and 146.6(b), the "Area of Review" is an area surrounding the Injection Well for which the applicant must first research, and then develop, a program for corrective action to address any wells that penetrate the injection zone and which may provide conduits for fluid migration during the injection operation at the Facility. EXCO proposed, and the EPA accepted, a fixed one-quarter-mile Area of Review based on the injectate and formation fluid chemistry, local hydrogeology, population and groundwater use, and historical area conditions. EXCO documented the injected fluids, groundwater use, and well population within the Area of Review. The injection zone is an oil- and gas-bearing formation compatible with the byproducts of oil and gas production, and no drinking water wells are located within the Area of Review. Four active production wells are present, but the deepest is still about 2,500 feet above the injection interval, so fluid migration is not expected. No known abandoned oil or gas wells or unplugged wells that penetrate the injection zone are within the Area of Review. Reclaimed former surface mines are located in the southern portion of the area, but the Irvin A-19 well is outside the mined area. An unnamed tributary to Laurel Run crosses the central portion of the Area of Review, about 180 feet north of the Irvin A-19 well. If any unplugged or abandoned wells that penetrate the injection zone are later identified, the draft permit requires corrective action.

Underground Sources of Drinking Water (USDW): The SDWA protects USDWs from contamination due to underground injection. Therefore, it is important to identify USDWs in the area of the proposed injection.

USDWs are aquifers or the portions thereof which 1) currently supply any public water system or 2) contain a sufficient quantity of groundwater to supply a public water system and currently supplies drinking water for human consumption or contain fewer than 10,000 mg/L (milligrams per liter) Total Dissolved Solids (TDS). See 40 C.F.R. § 144.3

The Permittee notes that the deepest USDW occurs approximately 380 feet below ground surface based on the depth of the drinking water wells in the area and regional hydrogeologic conditions. Construction of the Injection Well requires the Permittee to maintain surface casing to a depth of approximately 1,013 feet and to cement the entire length of casing back to the surface. The Permittee must, among other requirements, also maintain long string casing from the ground surface to an approximate depth of 7,170 feet and cement the casing to a depth of approximately 5,000 feet below ground surface. The Permittee must maintain in the Injection Well, and inject fluids through, a tubing string which is set on a packer and placed above the injection zone interval at approximately 7,009 feet below ground surface.

Injection and Confining Zones: Injection of fluids is limited by the draft permit to the Ridgeley Sandstone and Shriver Chert in the subsurface intervals between approximately 7,295 feet to 7,344 feet below ground surface.

The lowermost USDW is separated from the injection zone by approximately 6,915 feet. The upper confining unit includes the 74-foot-thick Onondaga Formation, the 1-foot Tioga bentonite, and the 515-foot-thick Hamilton Group, which together consist mainly of limestone, shale, chert, and grayish-black shale. Below the injection zone, the lower confining unit includes the 166-foot-thick Helderberg Formation and the 70-foot-thick Keyser Formation, composed primarily of limestone, shale, and dolomite.

Injection Fluid: The draft permit limits the injection fluids in this well to produced fluids obtained solely from EXCO's production operations. The draft permit also establishes a maximum daily injection volume of 27,000 barrels per month. One barrel of fluid is equal to 42 gallons.

Maximum Injection Pressure: The maximum allowable surface injection pressure for the permitted operation of the Injection Well will be 3,050 pounds/square inch ("psi") with a bottom-hole pressure of 6,678 psi. The maximum surface injection pressure and bottom-hole pressure were developed using the injection pressure limitation calculation; a formula that considers the depth to the top of the Ridgeley Sandstone Formation injection zone, the specific gravity of the injection fluid (1.15) and a fracture gradient developed by using the instantaneous shut-in pressure (a pressure lower than the fracture pressure). The final permit will include an injection pressure limit to prevent the initiation or propagation of fractures that could create conduits for the injected fluid to flow to any existing faults. The surface maximum allowable injection pressure (MAIP) for this draft permit was calculated using the instantaneous shut-in pressure (ISIP). The ISIP is the minimum pressure necessary to begin to reopen any fractures created during the fracture stimulation process and is significantly lower than the pressure required to fracture the rock. The surface MAIP is less than both the ISIP and the fracture pressure to prevent the initiation of new, or propagation of existing, fractures.

Potential for Seismicity: The SDWA regulations for Class II injection wells do not require consideration of the seismicity of the region, unlike the SDWA regulations for Class I injection wells for the injection of hazardous wastes. See regulations for Class I hazardous injection wells at 40 C.F.R. §§ 146.62(b)(1) and 146.68(f). Nonetheless, because of public concerns about injection-induced seismicity, the EPA evaluated factors relevant to seismic activity as discussed below and addressed more fully in *Region 3 framework for evaluating seismic potential associated with UIC Class II* permits, which is available in the administrative record. The final permit will provide that the Permittee shall only inject produced fluids through the Injection Well and into a formation which is overlain by a confining zone free of known open faults or fractures within the Area of Review, as required pursuant to 40 C.F.R. § 146.22.

A report conducted by the *Commonwealth of Pennsylvania Department of Conservation and Natural Resources Bureau of Topographic and Geologic Survey*, "Earthquake Hazard in Pennsylvania" documents known epicenters found in Pennsylvania. Per the report, there are no documented cases in which the epicenter of an earthquake was traced back to Clearfield County, Pennsylvania. On page 7 of the report, the author states, "The great majority of earthquakes occur along boundaries between tectonic plates. The reason for this is not completely clear, but it appears that stress levels are higher along plate boundaries, and that strain energy builds up more rapidly in those areas. Eastern North America, including Pennsylvania, today is far from the nearest plate boundary – the mid-Atlantic Ridge, some 2,000 miles to the East." According to the United States Geological Survey (USGS), there have been no earthquake epicenters that have occurred in Clearfield County from 1900 to the present-day.

A review of the USGS site on August 18, 2026, shows that the closest recorded seismic event in proximity to Clearfield County was a 1.5 magnitude earthquake in neighboring Centre County in 2020. A 1.5 magnitude earthquake is typically not felt. According to an article titled "The Pennsylvania State Seismic Network (PASEIS) and Seismicity Within the Commonwealth of Pennsylvania" from *Seismological Research Letters* in September 2025, "Between November 2016 and December 2024, 1305 seismic events were detected and located (47 earthquakes, 4 mine collapse events, and 1254 mine and quarry blasting events). During that time interval, no induced events related to hydraulic fracturing or wastewater disposal were detected."

Finally, a number of factors help to prevent injection wells from failing in a seismic event and contributing to the contamination of an USDW. Most Class I and Class II injection wells, including this Injection Well, are constructed to withstand significant amounts of pressure. The Irvin A-19 Injection Well is constructed with multiple steel rings of casing that are cemented in place. Furthermore, the draft permit requires EXCO to continuously monitor the Injection Well during operations in order to identify any potential mechanical integrity concerns. The Injection Well is also designed to automatically cease operation in the event that the mechanical integrity of the well is compromised, including by a seismic event.

Testing, Monitoring, and Reporting Requirements: The Permittee is required to conduct a mechanical integrity test (MIT) every five (5) years and whenever a rework on the Injection Well requires the tubing and packer to be released and reset. The MIT consists of a pressure test and a fluid movement test. The pressure test will be conducted in order to ensure that the casing, tubing, and packer in the Injection Well do not leak. The fluid movement test, which includes case cement record and cement bond log or temperature log reviews, will be conducted to ensure that fluid movement does not occur outside of the injection zone. In addition, every two years, the Permittee must analyze the injected fluid for selected constituents typically found in injection fluid and shallow groundwater.

The Permittee will be responsible for continuously monitoring the Injection Well for surface injection pressure, annular pressure, flow rate, and cumulative volume from the date on which the Injection Well commences operation and until such date that the Injection Well is plugged and abandoned. The Injection Well shall be equipped with automatic shut-off devices which would be activated in the event of a mechanical integrity failure. In addition, Paragraph II.D. of the draft Permit requires the Permittee to report to the Director of the Water Division, EPA Region 3 ("Director") within twenty-four (24) hours, any permit noncompliance which may endanger, or which has endangered, human health or the environment. The Permittee must submit an Annual Report to the EPA summarizing the results of the monitoring and testing activities required by the draft Permit, including monthly monitoring records of the injection fluid, the results of any mechanical integrity testing, and information identifying any major changes in the characteristics of the injected fluid. The Annual Report must be submitted to the EPA by January 31 of each calendar year.

Plugging and Abandonment: The Permittee has submitted a Plugging and Abandonment Plan that will result in an environmentally protective Injection Well closure at the time of cessation of operations. The Permittee will secure a Letter of Credit to ensure proper plugging of the Injection Well. The amount of the Letter of Credit shall cover the estimated cost to close, plug, and abandon the Injection Well in the amount of at least $135,000. The amount of the Letter of Credit, which is based upon an independent, third-party professional's estimate of the costs associated with the plugging and

abandonment of the Injection Well, must also be sufficient to preclude the possibility of abandonment without proper plugging and closure.

Effective and Expiration Date: When issued, the final permit will become effective as of the date of signature. If comments received requested a change in the draft permit, the final permit shall become effective 35 days after the date of signature to allow for the filing of appeals to the EPA's Environmental Appeals Board.

The permit will be in effect for the operational life of the Facility, which includes the proper plugging and abandonment of the Injection Well when operations cease. The EPA will conduct an annual review of the Permittee's Injection Well operation.

Additional Information: The Administrative Record for the draft permit is available for public review. All data submitted by the Permittee in support of the draft permit, unless deemed confidential, is included in the Administrative Record. The Administrative Record can be requested by contacting the EPA staff listed below. Copies of the Permit Application, the draft permit, the Statement of Basis, and the Administrative Record index are available for review and inspection on the EPA's website. Please direct any questions, comments on the draft permit, and requests for additional information to the EPA staff listed below. **The public may submit comments on the draft permit until October 27, 2026.**

Tentative Public Hearing: The EPA has tentatively scheduled a virtual public hearing on October 27, 2026. An in-person hearing will not take place. The call-in information for the virtual meeting is listed below:

Call-in Number: (484) 352-3221 6:00 PM Eastern Standard Time
Conference ID: 896 429 675#

MS Teams Link: https://msteams.link/PGGZ

There is no need to register in advance for the virtual hearing. Attendees may utilize MS Teams by calling via telephone or entering the URL into a web browser. Participants who want to submit written or printed materials can do so using the information listed below.

EPA will hold the virtual public hearing only if the EPA receives requests from the public to do so. **Requests to hold this public hearing must be received by the EPA via email or telephone by October 20, 2026**. When requesting a public hearing, please state the nature of the issues you propose to raise. The EPA expressly reserves the right to cancel this hearing unless a significant degree of public interest is evidenced by October 20, 2026.

General Notice: If you would like to be added to a general mailing list for notice of any UIC permitting actions in EPA Region 3 jurisdictions (Pennsylvania, Virginia, and Washington D.C.), please notify the EPA by sending an email to R3_UIC_Mailbox@epa.gov. Please specify if you are interested in permitting actions in all three jurisdictions or only in particular jurisdiction(s). If you don't have access to email, you may also send a request to be included on the list at the physical address listed below.

Submit comments or requests for a hearing or for additional information to:

Ryan Hancharick
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