March 16, 2026

Merissa A. Moeller
760 SW Ninth Avenue, Suite 3000
Portland, OR 97205
D. 503.294.9455
merissa.moeller@stoel.com

VIA EMAIL

Columbia County Planning Commission
230 Strand Street
St. Helens, OR 97051
c/o Kate McGuire, Planning Division Manager

Re: Application CU 25-169 – Applicant's First Open Record Period Submittal

Dear Chair Lynch and Honorable Planning Commissioners:

My office represents Northwest Natural Gas Company ("NW Natural"), the applicant in the above-referenced matter. As you know, NW Natural has submitted a Conditional Use Permit application ("Application") to develop four well pads and twelve wells ("Project") at the existing Mist Facility. County planning staff have carefully reviewed the Application, determined that it meets all applicable criteria, and recommended approval.

NW Natural's previous submittals more than justify approval of the Application, as staff have already concluded. Nonetheless, this submittal provides brief supplemental responses to several issues raised in the Northwest Environmental Defense Center's ("NEDC") March 9, 2026 comments, received shortly before last week's hearing.

1. **GeoEngineers Memorandum (Exhibit U)**[1]

GeoEngineers, NW Natural's professional geotechnical consultant, addresses NEDC's allegations regarding seismic risks. Their analysis concludes that (1) seismic hazards pose a low risk of adverse impacts from the well pads and wells and (2) the Project's siting, engineering, and design already incorporate measures that mitigate any potential seismic-related effects.

2. **Letter from Austin Mann (Exhibit V)**

Mr. Mann, whom you met at last week's hearing, responds to NEDC's assertions regarding potential gas leaks, wildfire risk, groundwater impacts, and methane emissions. As Mr. Mann explains, the well pads and wells were sited and engineered with these exact concerns in mind.

[1] For the Commission's convenience, this exhibit lettering continues the lettering in NW Natural's February 17, 2026 and March 2, 2026 supplemental submittals, which included Exhibits A through T.

NW Natural employs multiple safety systems to prevent and mitigate leaks or containment failures, making the likelihood of adverse impacts to Columbia County very low.

3. **Letter from Evenson Timberland Agency (Exhibit W)**

NEDC broadly claims that the Project could adversely affect accepted forest practices. Evenson Timberland Agency, which manages commercial timberlands on which well pads are proposed as part of the Project, confirms that "the new well pads will have no impact on our operational costs or our ongoing forestry activities."

4. **Tetra Tech Memorandum (Exhibit X)**

Tetra Tech, NW Natural's professional wildlife biologists, respond to NEDC's allegations concerning big game habitat. Their professional conclusion is that NW Natural accounted for big game considerations when siting the well pads, the Project will not meaningfully affect big game habitat or movement opportunities in the Project area, and there are no alternative locations for the well pads that would have meaningfully fewer impacts to big game habitat.

Thank you for your continued time, work, and attention to this Application.

Sincerely,

Merissa A. Moeller

Merissa A. Moeller

Enclosures:

Exhibit U – GeoEngineers Memorandum
Exhibit V – Letter from Austin Mann
Exhibit W – Letter from Evenson Timberland Agency
Exhibit X – Tetra Tech Memorandum

Exhibit U – GeoEngineers Memorandum

GeoEngineers

Memorandum

4000 Kruse Way Place, Building 3, Suite 200, Lake Oswego, Oregon 97035, Telephone: 503.624.9274 www.geoengineers.com

To: Columbia County Planning Commission

From: Brian C. Ranney, CEG

Digitally signed by Brian C. Ranney
Date: 2026.03.16 11:25:03 -07'00'

Kyle M. Smith, PE

Date: March 16, 2026

EXP 12-01-2026

Subject: Application CU 25-169: Response to NEDC Comments Regarding Seismic Risk

Introduction

The purpose of this memorandum is to address assertions made by the Northwest Environmental Defense Center (NEDC) regarding seismic risks in their letter to the Columbia County Planning Commission, regarding "*CU- 25-169, Northwest Natural's Proposal for an Expansion of the Mist Underground Natural Gas Storage Facility*" dated March 9, 2026. The specific comments and GeoEngineers, Inc's (GeoEngineers) responses are included below.

Executive Summary

NW Natural evaluated seismic risks for the proposed well pads and wells subject to CU 25-169 through a geologic hazard study and site-specific geotechnical reports. Seismic risks, including those related to landsliding, Cascadia Subduction Zone (CSZ) and Portland Hills Fault generated earthquakes, were considered when selecting the proposed well pad locations. Well pad infrastructure at each of the sites will be designed to account for earthquake ground motions (seismic accelerations) in accordance with the 2025 Oregon Structural Specialty Code. Therefore, in GeoEngineers' professional opinion, there is a low risk of loss of containment due to seismic hazards, and the project has already incorporated measures into its project design to mitigate the losses that could result from seismic hazards.

Comment Responses

NEDC Comment (page 6, paragraph 2): "*Specifically, the applicant has not adequately addressed the potential loss of containment risk that stems from operator error or earthquakes and the subsequent impact that loss will have on emissions, wildfires, and groundwater contamination, all of which would increase the cost and force significant change in forest practices surrounding the area.*"

Response: GeoEngineers has evaluated earthquake risks for all four well pads as part of NW Natural's site-selection and permitting processes for the well pads. Earthquake risks were evaluated for the Newton, Stegosaur and Medicine IW well pads in Exhibit H of the Request for Amendment No. 13 for the Mist Underground Natural Gas Storage Site Certificate submitted to the Oregon Department of Energy (ODOE). At that time, the Oregon Department of Geology and Mineral Industries (DOGAMI) was consulted regarding seismic hazard evaluation methodology. Evidence of this consultation is provided in Exhibit H. Earthquake risks were also evaluated in supplemental site-specific geotechnical reports for the Newton (GeoEngineers 2026), Stegosaur (GeoEngineers 2026a), Medicine IW (GeoEngineers 2026b) and Medicine OM (GeoEngineers 2026c) well pads.

As discussed in Exhibit H, GeoEngineers concluded that there were no mapped Quaternary (potentially active) faults crossing the Newton, Stegosaur or Medicine IW well Pads. The Medicine OM well pad was not included in the Exhibit H report; however, a review of the USGS Quaternary Fault and Fold Database (USGS 2026) does not map potentially active faults at the Medicine OM Well Pad.

A ground shaking evaluation was conducted for the Exhibit H report and included site-specific Probabilistic Seismic Hazard Analyses for the 4,975-year (1 percent probability of exceedance [PE] in 50 years), 2,475-year (2 percent PE in 50 years) and 475-year (10 percent PE in 50 years) hazard levels. The seismic site class was assigned in accordance with methods outlined in Chapter 20 of American Society of Civil Engineers (ASCE) 7-16. GeoEngineers provided the mapped seismic acceleration parameters, per ASCE 7-16, for designing structures to resist earthquake ground motions for the Newton, Stegosaur and Medicine IW well pads. The dominant seismic hazard source for the seismic acceleration parameters at each of these return periods is a magnitude (M) 8.8 to 9.1 Cascadia Subduction Zone (CSZ) interface event, which contributes to 55 to 79 percent of the seismic hazard. The seismic hazard analysis inherently includes the potential for intraslab, crustal earthquakes and background seismicity associated with crustal fault sources of non-discrete origin.

It should also be emphasized that the well pad sites are located in mountainous terrain where subsurface conditions consist of soil formed from weathering of the parent rock formation, as well as the underlying intact rock. Liquefaction is not a risk in this type of mountainous terrain and therefore precludes the risk of lateral spreading. As discussed in Exhibit H, GeoEngineers concluded there was a low risk of liquefaction, lateral spreading, fault rupture and seismically induced landsliding at the Newton, Stegosaur, and Medicine IW well pads, and thus no specific mitigation for these earthquake hazards was indicated.

The individual geotechnical reports prepared for each well pad in 2026 provided updated and site-specific earthquake engineering evaluations and parameters specific to each site, in accordance with the 2025 Oregon Structural Specialty Code. These evaluations were based on site-specific evaluations and subsurface data. The evaluations concluded that no faults are mapped at the sites, the sites are not underlain by liquefiable soil and groundwater conditions, and there is a low risk of seismically induced landsliding at each site. Each geotechnical report provides the recommended site class and associated updated mapped seismic acceleration parameters per ASCE 7-22 in accordance with the 2024 International Building Code (IBC). Site class and updated mapped seismic acceleration parameters for well pad structures are based on shear wave velocity data from downhole seismic testing at the site or from nearby sites with similar soil conditions.

Given the lack of active faulting, non-liquefiable soil and groundwater conditions, and the low risk of seismically induced landsliding at each site, there is a low risk of faulting, liquefaction, lateral spreading or seismically induced landsliding occurring at the well pad sites. Provided structures are designed in accordance with the design parameters provided in the site-specific geotechnical reports, there is a low risk of potential loss of containment and subsequent impact to emissions, wildfires and groundwater contamination resulting from earthquake related risks that could impact the surrounding area.

NEDC Comment (page 6, paragraph 3): *"The applicant must address the risk of loss of containment as it relates to forest practices because the risk of such an event occurring is not insignificant. Loss of containment may stem from human error, which is 'widely cited as an important cause of [underground gas storage] incidents. It might also be the result of an earthquake, which has the potential to damage [gas storage] surface infrastructure by direct fault displacement, shaking and ground deformation due to liquefaction and earthquake induced landsliding."*

Response: See discussion above. There is a low risk of loss of containment increasing the cost of or forcing significant change in forest practices in the surrounding area due to fault displacement (no active faults are mapped at the sites), ground deformation due to liquefaction (liquefiable soils are not present beneath the sites), or earthquake induced landsliding (no existing landslides on steep slopes at the sites).

In terms of seismic ground shaking, the site-specific geotechnical reports referenced above provide seismic design parameters for structures associated with the proposed well pads. Provided surface infrastructure is designed considering the seismic design parameters recommended in the site-specific geotechnical reports, there is a low risk of ground shaking alone resulting in loss of containment from the structures associated with the well pads that would increase the cost and force significant change in forest practices in the surrounding area.

With respect to earthquake-induced landslides, slopes with existing landslides are most susceptible to seismically induced landsliding. Through Exhibit H and the site-specific geotechnical reports, NW Natural conducted a landslide hazard study and selected the well pad sites to avoid existing landslides.

NW Natural, through its consultant GeoEngineers, also provides periodic landslide hazard identification training for staff that routinely visit each well pad site at the broader Mist Facility. Those staff, as well as GeoEngineers, periodically monitor existing well pads for indications of land movement. The training is conducted by a State of Oregon Certified Engineering Geologist and includes a comprehensive review of landslide classification, causation, identification, monitoring, reporting and prevention. This training allows NW Natural staff that routinely visit the well pads to identify indications of landsliding and report indications of landsliding to the appropriate professionals so the risk to the well pads and wells can be quickly assessed, and risk response plans developed as necessary. Landslide hazard training for NW Natural staff responsible for patrolling the well pads was provided in 2023 and 2024 and will continue to be provided periodically in the future. Well pad landslide hazard monitoring includes visual observation to identify indications of landslide activity or landslide development and monitoring of inclinometer casings installed within select well pads. The Newton, Stegosaur, Medicine IW and Medicine OM well pads will be added to the landslide hazard identification training and well pad monitoring program.

NEDC Comment (page 6, paragraph 4 and page 7 paragraph 1): "*The Oregon Department of Geology and Mineral Industries (DOGAMI) notes that a Cascadia Subduction Zone Earthquake of a magnitude of 9.0 has a 10 to 14 percent chance of occurring within the next 50 years. Such an event would have a 'major impact' on Columbia County, including potential 'large ground deformations' that pose a threat to fuel facilities.*[30] *A major earthquake might also occur along the Portland Hills Fault, with a magnitude 6.8 earthquake there resulting in similar damage to Columbia County as a Cascadia Subduction Zone 9.0 magnitude earthquake. DOGAMI classifies earthquake risks in Oregon as having a 'moderate' probability but an overall risk score of 'very high'. While the likelihood of earthquakes along these two faults might be called into question, the uncertainty of earthquake modeling should urge more caution and rigorous examination by the applicant and the County.*

* * * * *

[30] *Diane Moug et al., Critical Energy Infrastructure Hub: Seismic Hazard Mitigation Study of Fuel Facilities, 8 (Dec. 2021)."*

Response: The source identified in footnote 30 of NEDC's comment letter concerns the Critical Energy Infrastructure Hub in Portland, which consists of above-ground storage tanks along the Columbia River, largely on artificially built land less than ½ mile from the Portland Hills Fault—not naturally occurring reservoirs more than 1,000 feet underground in the Coast Range in Columbia County. The "large ground deformations" alluded to in that footnote and that NEDC alleges "pose a threat to fuel facilities" during a seismic event are only likely to occur in lowlands in Columbia County (*e.g.*, the Columbia River or other river valleys) due to liquefaction and lateral spreading, or active fault displacement (where Quaternary faults are mapped). These geographical and geological features are not risks at the well pad sites subject to NW Natural's application because the well pad sites are located in mountainous terrain where subsurface conditions consist of soil formed from weathering of the parent rock formation, as well as the underlying intact rock. Liquefaction is not a risk in this type of mountainous terrain and therefore precludes the risk of lateral spreading. Lastly, mapped Quaternary Faults, such as the Portland Hills fault, are not mapped near the proposed well pad sites. The nearest potentially active fault is over 17 miles away and the Portland Hills fault is located over 33 miles away.

Further, both Exhibit H and the site-specific geotechnical reports evaluated and addressed seismic risks associated with a Cascadia Subduction Zone ("CSZ") earthquake and an earthquake occurring along the Portland Hills Fault. These evaluations are standard when generating the mapped seismic acceleration parameters described earlier in accordance with ASCE 7-22. Based on the conclusions of Exhibit H and the site-specific geotechnical reports, the only seismic-related risk associated with either of these earthquake hazard sources is the seismic acceleration parameters that account for ground shaking and effects on structures. As documented in the site-specific geotechnical reports, seismic shaking from both the CSZ and Portland Hills Fault sources are included in the procedures used to estimate seismic acceleration design parameters for each well pad site, which is standard when performing seismic siting and design analyses for these types of wells.

The recommended seismic design parameters will be utilized by NW Natural and/or project structural engineers to design well-related structures to withstand anticipated seismic shaking forces. Thus, NW Natural (1) evaluated seismic risks associated with a CSZ or Portland Hills Fault earthquake when selecting

the well pad locations and designing the wells, and (2) NW Natural will implement earthquake-risk reduction measures into its engineering, design, and construction of the well pads and wells.

References

American Society of Civil Engineers (ASCE) and Structural Engineering Institute (SEI) 2016. ASCE/SEI 7-16 Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

American Society of Civil Engineers (ASCE) and Structural Engineering Institute (SEI) 2022. ASCE/SEI 7-22 Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

International Code Council, 2024. Internation Building Code.

Oregon Department of Geology and Mineral Industries (DOGAMI) 2023. Email from Jason D. McClaughry, R.G. regarding evidence of consultation with DOGAMI – NW Natural's Mist Resiliency Project. September 28, 2023

GeoEngineers 2026. Geotechnical Engineering Report, Newton Well Pad, Columbia County Oregon. Dated February 9, 2026.

GeoEngineers 2026a. Geotechnical Engineering Report, Stegosaur Well Pad, Columbia County Oregon. Dated February 9, 2026.

GeoEngineers 2026b. Geotechnical Engineering Report, Medicine IW Well Pad, Columbia County Oregon. Dated February 9, 2026.

GeoEngineers 2026c. Geotechnical Engineering Report, Medicine OM Well Pad, Columbia County Oregon. Dated February 9, 2026.

O'Rourke, T.D. and M.C. Palmer. 1996. Earthquake Performance of Gas Transmission Pipelines, Earthquake Spectra Vol. 12, No. 3, pp. 493-527.

State of Oregon Building Codes Division 2025. Oregon Structural Specialty Code.

United States Geological Survey (USGS) 2026. Quaternary Fault and Fold Database of the United States. Accessed on March 10, 2026. https://www.usgs.gov/programs/earthquake-hazards/faults

One electronic copy submitted

Exhibit V – Letter from Austin Mann

NW Natural®

250 SW Taylor Street
Portland, OR 97204

503-226-4211
nwnatural.com

VIA EMAIL

Columbia County Planning Commission
230 Strand St.
St. Helens, OR 97051

March 16, 2026

Re: Letter from Austin Mann for CU 25-169

Dear Honorable Planning Commissioners:

My name is Austin Mann and I am an engineering manager at Northwest Natural Gas Company ("NW Natural"). In this role, I am responsible for the oversight of land management, integrity management, operations, and monitoring of the reservoirs and wells at NW Natural's Mist Underground Gas Storage Facility ("Mist Facility"). As part of my role, I helped identify and evaluate potential sites for the four well pads and twelve wells proposed in NW Natural's Conditional Use Permit application CU 25-169 (the "Project").

The purpose of this letter is to explain how the underground reservoirs and associated wells at the Mist Facility operate from a safety standpoint, and to provide additional context for why NW Natural selected these specific well and well pad locations. I also address several specific allegations made by the Northwest Environmental Defense Center ("NEDC") in its March 9, 2026 comment letter.

1. Nature of Existing Underground Reservoirs

As further context for the Project, it is important to understand the nature of the existing underground reservoirs at the Mist Facility.

The reservoirs are deep, naturally occurring sandstone formations that were deposited tens of millions of years ago through geological processes. Located between approximately 1,200 and 2,700 feet below the ground surface, they are essentially confined pockets of sandstone that held natural gas long before NW Natural developed the Mist Facility. NW Natural now proposes to drill wells into certain of these reservoirs—which have safely contained gas for millions of years—in order to inject into, and withdraw gas from, these reservoirs as part of NW Natural's broader operation of the Mist Facility.

The geology of these reservoirs provides inherent safety features that make the risk of underground gas migration extremely low. The reservoirs are comprised of a sandstone that is a well-sorted, fine-grained, and

250 SW Taylor Street
Portland, OR 97204

503-226-4211
nwnatural.com

loosely packed rock composed of sand-sized grains. They have high porosity and high permeability,[1] which together enable gas to be injected and withdrawn from these reservoirs without altering the sandstone. The sandstone is overlain by a thick layer of claystone and mudstone, which acts as a natural seal, preventing gas from moving upward toward the surface, while structural traps prevent lateral movement outside the reservoir. NW Natural's three-dimensional subsurface imaging indicates that these reservoirs[2] are like the other reservoirs that NW Natural has safely operated as part of its Mist Facility for decades without gas escaping.

2. Well Pad Site Selection

The locations of the new wells, and hence the well pads from which they are drilled, must align with the locations of the preexisting underground reservoirs, so there are practical limits on where the well pads and wells can feasibly be located. Within those locational constraints, NW Natural carefully evaluated and selected the specific well pad locations now proposed to maximize well integrity and operational efficiency.

NW Natural used detailed three-dimensional subsurface imaging to first identify the optimal location within the reservoirs for each well. We then designed well paths back to the surface and determined the potential locations for the wellhead on the surface while attempting to minimize the angle of said path. Our goal is to drill wells for a given reservoir from a common surface location, thereby minimizing disturbance to the surrounding area and simplifying our monitoring operations.

Seismic risk and ground stability were also key considerations in well pad site selection. Areas that have experienced landslides in the past are more prone to future movement, so we consciously avoided those areas. Professional geotechnical engineers evaluated these conditions, and their assessments directly informed where the well pads and wells could be safely located.

Because minimizing disturbance to the surrounding area was also a goal, we also evaluated whether potential well pad locations could connect efficiently to existing roads and pipelines so as to avoid constructing unnecessary new infrastructure. We also avoided environmentally sensitive areas such as streams and wetlands—both to protect natural resources and to minimize any possible risk of environmental contamination in the unlikely event of a well leak. We located all new well pads in areas that are already cleared of timber and relatively flat, which further reduces overall construction impacts. These gravel well pads are maintained free of vegetation and serve as potential fire breaks within the forested area surrounding them.

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[1] Porosity refers to the voids – or pore space – between the sand grains of the subsurface sandstone, and permeability refers to the physical connectivity of those voids. The pore space between the sand grains at the Mist Facility is tiny, measured in microns.

[2] That subsurface imaging indicates that the reservoirs to be utilized as part of the Project are located in the S/2SW/4 of Section 27, the S/2SE/4 of Section 28, the N/2 of Sections 33 and 34, the SE/4 of Section 34, and the S/2 of Section 35, all of which are zoned PF-80.

250 SW Taylor Street
Portland, OR 97204

503-226-4211
nwnatural.com

3. Preventing Leaks and Emissions

In its comment letter, NEDC suggested that these new wells could result in methane emissions or other types of gas leaks. As a practical matter, emissions and leaks are extremely unlikely due to the design of these wells and associated infrastructure. Gas leaks can pose risks to workers and the environment and are subject to strict reporting and regulatory oversight, so safety and regulatory requirements are both strong incentives for NW Natural to develop infrastructure that prevents leaks. In addition, NW Natural is handling this gas on behalf of its customers and is contractually obligated to deliver it to them.

4. Well Design and Safety Systems

We design all our injection/withdrawal ("I/W") and pressure monitoring ("KI") wells, which are the two types of wells that penetrate the reservoirs, with multiple layers of protection.[3] Each I/W and KI well includes at least two independent barriers to prevent gas from escaping: (1) a cemented steel casing system to prevent gas from flowing upwards between the surrounding rock and the steel casing; and (2) sealing devices known as "packers" between the steel casing and the interior tubing that prevents gas from flowing upwards between the steel casing and the tubing. As a result, gas can only reach the surface through the tubing, and each I/W and KI wellhead has its own additional leak protection devices that are described below. In contrast, many older facilities—including Aliso Canyon and Rager Mountain referenced by NEDC—converted old gas production wells and were operated without that second barrier, which significantly increases the risk of severe corrosion (the cause of the well control incidents at both of those facilities) and leaks. Oregon has long required a dual barrier design, and those regulatory requirements were developed in collaboration with NW Natural to enhance well integrity and safety.

In addition to these subsurface barriers, each I/W and KI wellhead is equipped with multiple isolation valves at the surface. NW Natural previously shared an image of a representative wellhead in Attachment 1 to Dave Weber's testimony submitted on February 17, 2026. That image shows the two handle wheels on the wellhead, each of which operates an independent isolation valve. If one valve were to fail, NW Natural personnel can still stop gas flow by closing the other. For situations where personnel cannot safely access the wellhead, we also install emergency shutdown controls on the wellhead that can be closed remotely from Miller Station.

All I/W and KI wells at Mist were designed with surface casing installed to a depth below the lowest known source of fresh water. This steel casing is cemented into place and protects fresh waters from contamination as well as providing structural support for the wellbore and wellhead.

Finally, each well is equipped with a fusible plug—a heat sensitive safety device that melts at approximately 212 degrees Fahrenheit. If activated, it automatically triggers the emergency shutdown valve, providing an additional layer of protection without requiring human intervention in the unlikely event that an above-ground fire prevents personnel from accessing the well pad and overtakes the wellhead.

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[3] KI wells track internal reservoir behavior, preventing over- and under-pressurization of reservoirs.

250 SW Taylor Street
Portland, OR 97204

503-226-4211
nwnatural.com

In addition to the I/W and KI wells that penetrate the reservoirs, NW Natural operates observation and monitoring ("O/M") wells around the perimeter of the reservoirs. Because these O/M wells fall outside the reservoir, we expect their wellbores to be free of injected gas. Their purpose is to verify that injected gas remains within the reservoir and to alert NW Natural in the unlikely event that injected gas ever moves outside the reservoir, prompting immediate investigation and response (*e.g.*, withdrawing gas from the reservoir in a controlled manner). In the extremely unlikely event that injected gas is ever detected in an O/M well, that gas will be contained within the well's cemented steel casing so it does not leak.

5. Monitoring Protocols

Once NW Natural completes construction of a well, we conduct regular inspections to ensure its continued safety and integrity. Professional geotechnical engineers train our field operators to recognize signs of ground movement or other seismic activity, and our operators visit each well pad at least once a week to identify any early warning indicators of possible seismic risks. If an operator identifies a potential issue, we can quickly close any impacted well's valves to isolate the reservoir from the surface, or—if necessary—withdrawing gas from the reservoir in a controlled manner before the condition poses a safety concern.

During these weekly visits, operators also collect well pressure data. Each well is equipped with a continuous reading pressure sensor, and any abnormal pressure trend triggers immediate investigation.

6. Incidents at Other Facilities Are Distinct

The prior well incidents at other facilities cited by NEDC, including the incidents at Aliso Canyon and Rager Mountain, involved facilities that converted production wells into I/W wells 50+ years ago, often in residential areas, and without the modern design features required in Oregon. The incident at Moss Bluff occurred during the construction and development of a salt cavern to be used for gas storage.

In contrast, NW Natural designs its systems to modern well safety standards, incorporating redundant safety barriers. None of the Project's I/W and KI wells are converted production wells; they were all designed specifically as I/W and KI wells. The new well pads and wells before the Planning Commission will also be located in a remote area, not in backyards or neighborhoods, and away from sensitive features. Plus, NW Natural will not be constructing a cavern in a salt formation but rather will be utilizing existing underground reservoirs that safely contained gas for millions of years. Thus, the events associated with those other facilities are extremely unlikely to occur at the Mist Facility and not remotely representative of NW Natural's current proposal.

7. Conclusion

In summary, the Project is grounded in naturally secure geologic reservoirs, employed careful and conservative site selection, and involves multiple engineered layers of safety protection plus continuous monitoring. Together, these measures minimize risk and safeguard public safety, workers, and the environment, making the risk of gas leaks, fire, or other containment incidents that could impact Columbia County extremely low.

250 SW Taylor Street
Portland, OR 97204

503-226-4211
nwnatural.com

Thank you for your attention and careful consideration.

Sincerely,

Austin Mann
Engineering Manager – Underground Gas Storage
NW Natural

Exhibit W – Letter from Evenson Timberland Agency

Evenson Timberland Agency
PO Box 127
Clatskanie, Oregon 97016

Columbia County Planning Commission
230 Strand St.
St. Helens, OR 97051

March 12, 2026

Re: CU 25-169 – Project Impacts on Adjacent or Nearby Forest Practices

Dear Honorable Planning Commissioners:

On behalf of Evenson Timberland Agency, Inc. ("Evenson"), I write regarding Northwest Natural's ("NW Natural") Conditional Use Permit application CU 25-169, and to respond to the March 9, 2026 letter from Northwest Environmental Defense Center ("NEDC").

NEDC suggests that NW Natural's proposed well pads could significantly change or significantly increase the cost of accepted forest practices near the Mist Facility due to potential containment failures. NEDC's primary concerns appear to be speculative fears about operator error or the risk of earthquakes.

Based on decades of experience managing timberlands adjacent to the Mist Facility, we disagree. Evenson manages commercial timberlands on Tax Lots 4500 and 5000 (where the Mist Facility currently exists and where new well pads will be located), as well as many other acres nearby. The Mist Facility has operated since the 1980s without affecting our forestry operations, and NW Natural has always been a responsible operator. We have never experienced issues related to operator error that interfered with our ability to perform our forestry operations. Meanwhile, we understand that NW Natural has already addressed earthquake risks in its well design.

The new well pads will be located on areas already cleared of timber and designated for this project. As a result, the new well pads will have no impact on our operational costs or our ongoing forestry activities. In our experience, nothing about the proposed project will interfere with Evenson's ability to continue safe, economical, and effective forest operations near the Mist Facility.

If the Planning Commission approves NW Natural's application, Evenson will continue its normal forestry operations near the Mist Facility, just as we always have.

Sincerely,

David Evenson

David Evenson, President

Exhibit X – Tetra Tech Memorandum

TETRA TECH

MEMO

To:	Columbia County Planning Commission
From:	Susan Hurley, Tetra Tech
Date:	March 16, 2026
Subject:	Application CU 25-169: Supplemental Big Game Habitat Analysis for Mist Well Pads

This memo provides supplemental information regarding big game habitat conditions at the proposed well pad locations described in Conditional Use Permit application CU 25-169 submitted by NW Natural (NWN) to Columbia County. The application identifies four well pad locations that are described further below (Table 1; Figure 1). This memo incorporates information presented in NWN's Request for the 13th Amendment to the Mist Underground Natural Gas Storage Facility that was approved by the Oregon Energy Facility Siting Council (EFSC) in the Final Order dated January 17, 2025 (EFSC 2025).

Table 1. Proposed Well Pads

Well Pad	New or Existing	Approximate Acreage	Included in Exhibit P Analysis Area
Medicine I/W	New	1.5	Yes
Medicine OM	New	0.5	No
Newton	New	2.0	Yes
Stegosaur	Existing (to be expanded)	2.0	Yes

Development of the four proposed well pads would permanently affect approximately 6 acres of mapped Oregon Department Fish and Wildlife Big Game Year-Round Major Habitat, of which 5.5 acres were previously evaluated as part of EFSC's approval of Request for Amendment 13. Given the small footprint of the proposed pads and their location within actively managed commercial timberlands with extensive surrounding habitat, the development of the well pads is not expected to measurably affect big game habitat availability or movement in the surrounding landscape.

Tetra Tech, Inc.
1750 S Harbor Way, Suite 400, Portland, OR 97201
Tel 503.221.8636 Fax 503.227.1287 www.tetratech.com

Habitat Categorization and Special Status Species

Three of the well pads (Medicine I/W, Newton, and Stegosaur) occur within the Analysis Area described and evaluated in Exhibit P[1] (NWN 2024). To prepare Exhibit P, field surveys were conducted within the Analysis Area, including general biological surveys, botanical surveys, and habitat categorization consistent with the Oregon Department of Fish and Wildlife (ODFW) Habitat Mitigation Policy. During those surveys, biologists documented any special status species, including big game, that were seen, and habitats were categorized according to ODFW's Habitat Mitigation Policy. Surveys and habitat categorization are summarized in Sections 2 and 3 of NWN's Exhibit P. Potential impacts to state sensitive species are summarized in Section 6.2 of Exhibit P.

The Medicine OM well pad is located outside the Analysis Area described and evaluated in Exhibit P. Accordingly, in connection with application CU 25-169, Tetra Tech conducted a desktop review of habitat and species occurrence records for the Medicine OM well pad area using aerial photography, previous field survey records, and Oregon Biodiversity Information Center data (ORBIC 2023).

Habitat surveys indicated that the proposed well pad areas consist primarily of Westside Lowlands Conifer-Hardwood Forest classified as Category 4 active commercial timberlands. The proposed well pads also fall within ODFW's mapped Big Game Year-Round Major Habitat, which ODFW generally considers Category 3 habitat. Tetra Tech's desktop review indicates that the Medicine OM well pad occurs within the same mapped habitat designations. All proposed well pads are located outside the documented range of Columbian white-tailed deer (*Odocoileus virginianus leucurus;* NWN 2024).

Based on the proposed footprint of the four well pads, approximately 6 acres of Category 3 (Big Game Year-Round Major) habitat would be permanently impacted by development of the well pads.

Habitat Conflict and Value

The location of the well pads is largely dictated by the need to provide access to the existing underground reservoirs at the Mist Facility. Although minor adjustments within the general area may be feasible, the well pads are proposed within a homogeneous landscape of working timberlands that is a patchwork of stands of varying age. The proposed well pads are located adjacent to existing roads in areas that are currently cleared and therefore provide limited value as big game foraging habitat. The proposed well pads would not provide any barrier to movement or use of adjacent habitat. Additionally, as noted in the Columbia County Planning Commission staff report dated March 2, 2026, the total development area of approximately 6 acres is less than one percent of the total land area of the subject properties. While big

[1] May be accessed at: oregon.gov/energy/facilities-safety/facilities/Facility Exhibits/MST/2024-08-09-MSTAMD13-RFA13-Exhibit-P-Fish-and-Wildlife.pdf

game would not be able to use the estimated 6 acres in the future, there is significant habitat available both in the remainder of the subject properties and the surrounding landscape as illustrated on Figure 1. The localized habitat changes expected to occur as a result of this application would not be expected to measurably affect big game use of the surrounding landscape. The surrounding landscape consists largely of actively managed commercial timberlands characterized by periodic harvest and regeneration cycles. As a result, wildlife species occurring in the area are adapted to dynamic habitat conditions and regularly move among forest stands of varying age and structure.

Because well pad locations at the Mist Facility must correspond to specific portions of the underground reservoirs, they cannot be freely located across the surrounding landscape. Within those operational constraints, the proposed well pads occur within Category 3 Big Game Year-Round Habitat that is broadly distributed throughout the surrounding area and consists largely of managed commercial timberlands. Because similar habitat conditions occur across much of the surrounding landscape, relocating the well pads within the general vicinity would not be expected to meaningfully reduce impacts to big game habitat.

The Northwest Environmental Defense Center (NEDC) noted that the proposed well pads occur within designated Priority Wildlife Connectivity Areas (PWCAs). PWCAs are intended to identify areas that may facilitate wildlife movement across the landscape. As stated in the source cited by NEDC in footnote 55 to their March 6 comments, PWCAs are "an informational tool" (OCS 2026). PWCAs "are not regulatory and do not dictate land use for any public or private entity" (OCS 2026).

The PWCA analysis incorporates habitat connectivity modeling for 54 species across multiple taxa, including Roosevelt elk and black-tailed deer. Compared to the PWCA mapping, the ODFW West Side Big Game Year-Round Habitat Overlay and the County's Big Game Habitat Overlay identify a much larger area as important to big game, covering much of the County. While the PWCA analysis provides useful regional-scale information regarding landscape connectivity, it does not necessarily identify individual project areas as high-value habitat, particularly at the scale of a single acre.

Given the limited footprint of the proposed well pads and the presence of extensive contiguous forest habitat in the surrounding area, the project would not be expected to meaningfully reduce landscape connectivity for wildlife movement. In summary, the proposed well pads would affect a small area of previously disturbed or managed timberland within a landscape that continues to provide extensive big game habitat and movement opportunities.

References

EFSC (Oregon Energy Facility Siting Council). 2025. Final Order Denying Requests for Contested Case and Approving Request For Amendment 13. 2025-01-17-MSTAMD13-Final-Order-w-Site-Cert-and-Attachments.pdf

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safety/facilities/Pages/MST.aspx?Paged=TRUE&p_Facility_x0020_Code=MST&p_Date=20070611%2007%3a00%3a00&p_ID=1249&PageFirstRow=31&&View={50A4A924-24E3-4105-9E0D-3ACFA70B13E9}

ORBIC (Oregon Biodiversity Information Center). 2023. GIS data provided in response to data request for GIS data pertaining to listed, endangered, threatened, or special concern species occurring within Clatsop, Columbia, Tillamook, and Washington counties in Oregon. Oregon Biodiversity Information Center, Portland, Oregon.

OCS (Oregon Conservation Strategy). 2026. Priority Wildlife Connectivity Areas (PWCAs). https://www.oregonconservationstrategy.org/success-story/priority-wildlife-connectivity-areas-pwcas/. Accessed March 2026.

USFWS (U.S. Fish and Wildlife Service). 2025. 5-year review. Columbia white-tailed deer. Columbia River DPS. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/31494.pdf

Mist Resiliency Project

Figure 1
Habitat at
Mist Well Pads

COLUMBIA COUNTY, OR

Newton Well Pad

Stegosaur Well Pad

Medicine IW Well Pad

Medicine OM Well Pad

Detailed Medicine OM Well Pad

- Project Area

ODFW West Side Big Game Overlay

- Year-round Major Habitat
- Year-round Peripheral Habitat

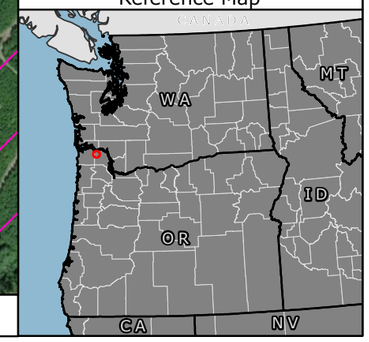
Habitat Category: Habitat Type

- 3: Open Water - Lakes, Rivers, Streams
- 3: Wetlands
- 4: Agriculture, Pasture, and Mixed Environs
- 4: Open Water - Lakes, Rivers, Streams
- 4: Upland Forests and Woodlands
- 6: Urban and Mixed Environs

TETRA TECH

NW Natural

Reference Map



1:11,000

WGS 1984 UTM Zone 10N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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