

**[Until this opinion appears in the Ohio Official Reports advance sheets, it may be cited as *State ex rel. AWMS Water Solutions, L.L.C. v. Mertz*, Slip Opinion No. 2026-Ohio-1487.]**

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**SLIP OPINION NO. 2026-OHIO-1487**

**THE STATE EX REL. AWMS WATER SOLUTIONS, L.L.C., ET. AL.,  
APPELLANTS AND CROSS-APPELLEES, v. MERTZ, DIR., ET AL., APPELLEES  
AND CROSS-APPELLANTS.**

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may be cited as *State ex rel. AWMS Water Solutions, L.L.C. v. Mertz*,  
Slip Opinion No. 2026-Ohio-1487.]**

*Oil and gas—Regulatory takings—Court of appeals did not err in finding no total regulatory taking, because private company failed to prove that State’s suspension of operations of saltwater-injection wells deprived it of all economically beneficial use of its leasehold—Court of appeals did err in determining that State effected a compensable taking because proper balancing of Penn Cent. Transp. Co. v. New York City factors weighs against finding a partial regulatory taking—Court of appeals’ judgment affirmed in part and reversed in part and writ denied.*

(No. 2024-1433—Submitted August 20, 2025—Decided April 29, 2026.)

APPEAL AND CROSS-APPEAL from the Court of Appeals for Trumbull County,  
No. 2016-T-0085, 2024-Ohio-4451.

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DEWINE, J., authored the opinion of the court, which KENNEDY, C.J., and FISCHER, BRUNNER, DETERS, HAWKINS, and SHANAHAN, JJ., joined.

**DEWINE, J.**

{¶ 1} Over a decade ago, two earthquakes were recorded in the Mahoning Valley. After determining that the earthquakes were caused by two nearby saltwater-injection wells, the State of Ohio issued an order temporarily suspending the operation of the wells. The operator of the wells, AWMS,<sup>1</sup> sued. It claimed that the suspension order constituted a regulatory taking of its leasehold interest in the wells. This litigation has been going on ever since.

{¶ 2} The case is now before us a third time. Twice previously, we have reversed decisions of the Eleventh District Court of Appeals and remanded the matter to that court for further proceedings. *State ex rel. AWMS Water Solutions, L.L.C. v. Mertz*, 2020-Ohio-5482 (“*AWMS I*”), and *State ex rel. AWMS Water Solutions, L.L.C. v. Mertz*, 2024-Ohio-200 (“*AWMS II*”). Following our most recent remand, the Eleventh District denied AWMS a writ of mandamus on its claim that the State had effected a total taking of its property but granted AWMS a writ of mandamus for its claim that the State had effected a partial taking. 2024-Ohio-4451, ¶ 148-150, 152 (11th Dist.) (“*AWMS III*”). The Eleventh District ordered the State to institute eminent-domain proceedings in the Trumbull County Probate Court to determine the amount of compensation to be paid for the partial taking. *Id.* at ¶ 150.

{¶ 3} Both parties have again appealed to this court. AWMS contends that

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1. The appellants and cross-appellees in this action are AWMS Water Solutions, L.L.C.; AWMS Holdings, L.L.C.; and AWMS Rt. 169, L.L.C. We refer to them collectively as AWMS. The appellees and cross-appellants are the Ohio Department of Natural Resources (“ODNR”); ODNR’s director, Mary Mertz; ODNR’s Division of Oil and Gas Resources Management and the division’s chief, Eric Vendel. We refer to the appellees collectively as “the State.”

the court of appeals should have granted its claim for a total claiming. The State cross-appeals, arguing that the court of appeals should not have found a compensable taking at all. We agree with the State, affirm in part and reverse in part the Eleventh District’s judgment, and deny the writ.

## **I. FACTUAL AND PROCEDURAL BACKGROUND**

### **A. AWMS’s Saltwater-Injection Wells**

{¶ 4} AWMS disposes of wastewater produced in oil and gas fracking. In December 2011, it leased 5.2 acres for the purpose of drilling and operating saltwater-injection wells. As the sole consideration for the lease, AWMS agreed to pay a royalty of 5 percent on future revenues it earned from the disposal of wastewater.

{¶ 5} The leased property is in an urban area, near the City of Niles in Trumbull County. The nearest residence is about a quarter mile from the site, an intermediate school is about 2,000 feet from the site, and the Mineral Ridge Dam is about three miles from the site. Shortly after it had leased the property, AWMS applied to the ODNR Division of Oil and Gas Resources Management (“the division”) for permits to construct and operate two saltwater-injection wells on the site: well #1 and well #2.

{¶ 6} AWMS stipulated that before it acquired its leasehold, it “was aware that saltwater injection wells may have triggered induced seismicity in Ohio and elsewhere.” Indeed, as far back as the 1960s, the federal government had determined that injection wells could trigger seismic activity. And by 2009, issues related to induced seismicity at saltwater-injection wells had begun to arise in the United States.

{¶ 7} The day after AWMS applied for its permits, a 2.7-magnitude earthquake was recorded within one mile of an injection well located about seven miles from AWMS’s leasehold. The earthquake was the fifth seismic event of at least 2.2 magnitude reported that year to the United States Geological Survey in

Youngstown. About a week later, a 4.0-magnitude earthquake was recorded near the same well. This event was felt by more than 4,000 people in parts of northeastern Ohio, western Pennsylvania, and Ontario, Canada. Immediately after the 4.0-magnitude earthquake, former Governor John Kasich imposed a moratorium on certain well-injection activities. Though the moratorium delayed AWMS's permits, the division authorized AWMS to drill wells #1 and #2 in July 2013.

{¶ 8} At the time AWMS acquired its leasehold and applied for permits, it had invested only \$100,000 in the development of the site. However, in September 2013, AWMS began raising capital to fund its operations at wells #1 and #2. AWMS prepared a confidential offering memorandum for potential investors, offering membership shares of \$50,000 each. AWMS initially offered 70 shares in an effort to raise \$3.5 million. In the offering memorandum, AWMS identified several risk factors for potential investors to consider. Under the heading "Geologic Risks," AWMS disclosed that a nearby saltwater-injection well had caused earthquakes in the recent past and that future earthquakes could result in regulatory action that would have a negative impact on business operations:

It has been determined that operation of a saltwater injection well in Youngstown, Ohio caused numerous earthquakes in 2012, *likely due to the presence of a fault in the formation into which the saltwater brine was being injected*. These earthquakes caused the ODNR to suspend the issuance of new permits for Wells, and to strengthen the permitting process. If any of the Wells cause similar problems, or if wells operated by others cause similar problems, the ODNR may cease issuing new permits, *and/or order a suspension or cessation of operations from one or more of the Wells*. In any such case, these

events could have an adverse effect upon the results of operation of the Company's business.

(Emphasis added.) AWMS also cautioned its investors that it had performed due diligence—but not subsurface testing—regarding the suitability of the “injection zones” for the wells. Indeed, despite being aware of recent seismic activity nearby and knowing that injecting into a rock formation could cause earthquakes, AWMS did not perform any tests for fault lines before drilling the wells.

{¶ 9} Ultimately, AWMS was successful in obtaining the capital necessary for its operation. AWMS spent approximately \$5.6 million constructing its facilities at wells #1 and #2, which included infrastructure, drilling, tanks, pumps, installation, and start-up costs.

{¶ 10} In March 2014, the division authorized AWMS to commence injections into both wells. AWMS began full commercial operations at the wells in May and June 2014. Well #2 was the most heavily used, receiving 95 percent of the waste injected into the wells through August 2014. But in late July 2014, a 1.7-magnitude earthquake was recorded near the wells and, a month after that, a 2.1-magnitude earthquake was recorded in the same area. Following the second earthquake, the division determined that the earthquakes were caused by AWMS's activities and ordered it to suspend operations at the two wells. Soon thereafter, the division concluded that well #1 did not contribute to seismicity in the area and allowed that well to resume operations in September 2014. It left the suspension of well #2 in place until May 2021.

{¶ 11} AWMS appealed the suspension order of well #2 to the Ohio Oil and Gas Commission (“the commission”). In February 2015, the division and AWMS met to discuss resolution of the appeal. The division provided AWMS with a list of 14 “Seismic Evaluation Criteria” consisting of additional tools and recommendations for AWMS to consider implementing before restarting well #2.

At a hearing on AWMS’s appeal in March 2015, the division’s chief issued a report and testified that “AWMS ha[d] not submitted a plan with sufficient detail or information to minimize risk presented by induced seismicity.” The division’s chief testified at the hearing that the division preferred to develop a statewide plan to deal with seismic activity at injection wells, but that it possibly would consider a comprehensive plan to minimize seismicity risks at the site if AWMS presented one.

{¶ 12} In August 2015, the commission denied AWMS’s appeal, concluding that the issuance of the suspension order was not unlawful or unreasonable. The Tenth District Court of Appeals affirmed the commission’s decision. *Am. Water Mgt. Servs., L.L.C. v. Div. of Oil & Gas Resources Mgt.*, 2018-Ohio-3028, ¶ 1, 59 (10th Dist.), *appeal not accepted*, 2018-Ohio-4670.

**B. AWMS I**

{¶ 13} Meanwhile, in August 2016, AWMS filed a petition for a writ of mandamus in the Eleventh District to compel the State to commence appropriation proceedings. AWMS alleged that the suspension order was a regulatory taking of its property without just compensation.

{¶ 14} The court of appeals granted summary judgment in the State’s favor and denied AWMS’s mandamus petition, concluding that the State had not effected either a total or partial regulatory taking of AWMS’s property interest. *State ex rel. AWMS Water Solutions, L.L.C. v. Zehring*, 2019-Ohio-923, ¶ 50 (11th Dist.).

{¶ 15} In *AWMS I*, we reversed. We held that there was a genuine issue of material fact concerning whether the suspension of well #2 deprived AWMS of all economically viable use of its leasehold, thereby effecting a total taking. *AWMS I*, 2020-Ohio-5482, at ¶ 88. We also held that there were genuine issues of material fact regarding whether the State effected a partial regulatory taking of AWMS’s leasehold under the analytic framework established by the United States Supreme Court in *Penn Central Transp. Co. v. New York City*, 438 U.S. 104 (1978). *AWMS*

*I* at ¶ 89. We remanded the case to the court of appeals for it to weigh the parties’ evidence related to both the partial- and total-takings claims. *Id.* With respect to the total-takings claim, we instructed the court to determine whether AWMS was deprived of all economically beneficial use of its leasehold interest. *Id.* at ¶ 56; *see id.* at ¶ 43, citing *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1018 (1992). And with respect to the partial-takings claim, we instructed the court of appeals to analyze the State’s suspension order under the *Penn Central* framework. *Id.* at ¶ 87. This framework required the court of appeals to consider ““(1) the economic impact of the regulation on the claimant, (2) the extent to which the regulation has interfered with distinct investment-backed expectations, and (3) the character of the governmental action.’ ” *Id.* at ¶ 29, quoting *State ex rel. Shelly Materials, Inc. v. Clark Cty. Bd. of Commrs.*, 2007-Ohio-5022, ¶ 19, citing *Penn Cent.* at 124.

### **C. The Division Terminates Its Suspension Order**

{¶ 16} In May 2021, after our decision in *AWMS I* but before the matter was heard in the Eleventh District on remand, the division issued an order that allowed AWMS to resume operations at well #2. The order terminated the previous suspension orders and imposed conditions on AWMS’s operation of the well that required AWMS to monitor seismic activity around the well to avoid causing earthquakes. AWMS appealed to the commission, which upheld the order. The commission’s decision was affirmed on appeal by both the Franklin County Common Pleas Court and the Tenth District Court of Appeals on the basis that AWMS failed to timely appeal the commission’s order. *See AWMS Water Solutions, L.L.C. v. Dept. of Natural Resources*, Franklin C.P. No. 22-CVF-005503 (Oct. 31, 2024), *aff’d*, 2025-Ohio-1845 (10th Dist.), *appeal not accepted*, 2025-Ohio-3078.

**D. *AWMS II***

{¶ 17} Following our remand in *AWMS I*, a three-judge panel of the Eleventh District held a nine-day trial in September 2021. Over a year after the trial was completed, the court of appeals denied the writ of mandamus. *State ex rel. AWMS Water Solutions, L.L.C. v. Mertz*, 2022-Ohio-4571, ¶ 103-105 (11th Dist.). But instead of undertaking the analysis we ordered in *AWMS I*, the court of appeals held that AWMS did not possess a cognizable property interest for purposes of a takings analysis. *Id.*

{¶ 18} AWMS appealed and we again reversed. *AWMS II*, 2024-Ohio-200, at ¶ 31. We held that the court of appeals did not comply with our remand instructions in *AWMS I* and ran afoul of the law-of-the-case doctrine. *AWMS II* at ¶ 20, 27. We explained that “it is the law of the case that AWMS possesses a cognizable property interest in the leasehold right to operate Class II saltwater-injection wells on 5.2 acres of industrial property in Weathersfield Township, Trumbull County, Ohio.” *Id.* at ¶ 30. We remanded again to the court of appeals to weigh the parties’ evidence to determine whether AWMS suffered a total or partial taking of its leasehold. *Id.* at ¶ 31. With respect to the partial-takings analysis, we again instructed the court of appeals to balance the three *Penn Central* factors. *Id.*

**E. *AWMS III***

{¶ 19} By the time we remanded the case in *AWMS II*, the makeup of the Eleventh District had changed. As a result, the panel that decided *AWMS III*, 2024-Ohio-4451 (11th Dist.), consisted of two of the panel members who had presided over the trial in *AWMS II*, and a new judge who had recently joined the court.

{¶ 20} The court of appeals granted the writ as to AWMS’s partial-takings claim and denied the writ as to its total-takings claim. *Id.* at ¶ 152. In doing so, the court of appeals rejected the State’s nuisance defense as a complete bar to AWMS’s takings claim. *Id.* at ¶ 50. After rejecting the State’s nuisance defense, the court of

appeals considered AWMS’s total-takings claim. On this issue, the court of appeals unanimously found the division’s “compelling” and “persuasive” evidence prevented AWMS from satisfying its burden of proof. *Id.* at ¶ 75. It noted that AWMS could modify well #1 to inject into deeper formations and that AWMS could drill additional wells on the property. *Id.* at ¶ 67-70. The court further observed that AWMS “did not specifically refute any of [the] non-exhaustive options for utilizing the leasehold” that were suggested in the testimony of the division’s expert. *Id.* at ¶ 72.

{¶ 21} With respect to the partial-takings claim, however, the court of appeals, in a split decision, sided with AWMS. After analyzing the *Penn Central* factors, the two-judge majority concluded that AWMS had proved a compensable taking. *AWMS III* at ¶ 147. In reaching this conclusion, the majority acknowledged that the weight of the evidence at trial established that AWMS’s investment-backed expectations when it acquired the leasehold “were fundamentally tempered by its express awareness of the serious risks of a shutdown.” *Id.* at ¶ 104. The court of appeals found it significant that AWMS had cautioned its potential investors that its operations could be suspended or terminated by regulatory authorities, and “was thus aware that its business investment was subject to noteworthy oversight and regulation.” *Id.* at ¶ 100. But although regulation by the division was reasonable, the court of appeals opined that AWMS “could not have reasonably anticipated the manner in which the Division addressed the Suspension Order in relation to its business enterprise.” *Id.* at ¶ 134. In the majority’s view, the division failed to afford AWMS “adequate attention in light of its efforts to comply with the Division’s requests and recommendations,” *id.* at ¶ 143, and “dragged its heels” in response to AWMS’s restart proposals, *id.* at ¶ 145.

{¶ 22} In dissent, Judge Eklund faulted the majority’s analysis of the second *Penn Central* factor—the level of the State’s interference with AWMS’s distinct, investment-backed expectations. *Id.*, 2024-Ohio-4451, at ¶ 159-186 (11th Dist.)

(Eklund, J., dissenting). He noted, “There was no trial evidence that AWMS had *any* relevant expectations . . . , reasonable or otherwise, about whether the regulatory regime . . . would remain in place, or that new, more restrictive legislation or regulations . . . would not be adopted.” (Emphasis in original.) *Id.* at ¶ 172 (Eklund, J., dissenting). He pointed out that AWMS failed to offer any evidence about its investment-backed expectations at the time it entered into the lease and specifically about how it expected the State to react to events of induced seismicity. *Id.* at ¶ 177-178 (Eklund, J., dissenting). Judge Eklund also explained that the third *Penn Central* factor—the character of the regulation—weighed heavily against the majority’s finding of a partial taking. *Id.* at ¶ 187-205 (Eklund, J., dissenting).

{¶ 23} Over Judge Eklund’s dissent, the court of appeals granted a writ of mandamus ordering the State to commence appropriation proceedings to determine the just compensation owed AWMS for the partial regulatory taking. *Id.* at ¶ 150-151.

#### **F. Appeal and Cross-Appeal**

{¶ 24} AWMS appealed the court of appeals’ judgment as of right, and the State filed a cross-appeal. AWMS raises four issues. First, it contends that the court of appeals impermissibly exceeded the scope of remand by limiting the damages available to AWMS for its partial-takings claim. Second, AWMS contends that the court of appeals “abused its discretion by making credibility determinations on remand” because one of the judges on the panel was a successor judge who had not participated in the September 2021 trial. Third, AWMS argues that the evidence at trial established that there was a total taking of its property interest. And fourth, AWMS contends that the court improperly limited the discretion of the factfinder in the upcoming probate court proceeding by understating the economic impact of the suspension order on AWMS.

{¶ 25} The State raises three issues in its cross-appeal. First, it argues that the court of appeals erred in rejecting its nuisance defense. Second, the State contends that the court of appeals applied the wrong legal standard in concluding that the suspension order interfered with AWMS’s investment-backed expectations under the second *Penn Central* factor. Finally, the State argues that the court of appeals did not properly weigh the *Penn Central* factors in its analysis of AWMS’s partial-takings claim.

## II. ANALYSIS

{¶ 26} A party who alleges an involuntary taking of private property may file an action in mandamus to require the government to institute an eminent-domain proceeding. *Shelly Materials*, 2007-Ohio-5022, at ¶ 15. To obtain a writ of mandamus, AWMS must establish a clear legal right to compel the State to commence eminent-domain proceedings, a clear legal duty on the State’s part to do so, and the lack of an adequate remedy in the ordinary course of the law. *State ex rel. Wasserman v. Fremont*, 2014-Ohio-2962, ¶ 22.

{¶ 27} The Takings Clause of the Fifth Amendment to the United States Constitution provides that private property shall not “be taken for public use, without just compensation.”<sup>2</sup> *See also Chicago, Burlington & Quincy RR. Co. v. Chicago*, 166 U.S. 226, 239-241 (1897) (applying the Takings Clause to the states under the Fourteenth Amendment). We have already determined that AWMS’s leasehold is a property interest to which the Takings Clause applies. *AWMS I*, 2020-Ohio-5482, at ¶ 25-26, 56; *AWMS II*, 2024-Ohio-200, at ¶ 25.

{¶ 28} “The paradigmatic taking requiring just compensation is a direct government appropriation or physical invasion of private property.” *Lingle v.*

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2. AWMS’s amended mandamus petition and merit brief also make passing reference to Article I, Section 19 of the Ohio Constitution, which requires compensation when private property is taken for public use. But its substantive arguments rely solely on Fifth Amendment jurisprudence. Because AWMS has failed to develop an argument under the Ohio Constitution, we are constrained to analyze this case under the Fifth Amendment only.

*Chevron U.S.A., Inc.*, 544 U.S. 528, 537 (2005). In addition, the United States Supreme Court has recognized that the clause may also be applied to overly burdensome government regulation of property “if [the] regulation goes too far.” *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922).

{¶ 29} The United States Supreme Court has identified “two categories of regulatory action that generally will be deemed per se takings for Fifth Amendment purposes.” *Lingle* at 538. First, when government regulation requires an owner to suffer “a permanent physical invasion” of the owner’s property, no matter how minor, the government must provide just compensation. *Id.*, citing *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982). Second, payment of just compensation is required when a regulation effects a total or categorical taking: that is, when regulation “deprives land of all economically beneficial use” unless “background principles of the State’s law of property and nuisance” independently restrict the owner’s usage. *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1027, 1029 (1992); *see also Lingle* at 538.

{¶ 30} Outside these per se categories, regulatory takings are evaluated based on the factors described in *Penn Central*, 438 U.S. 104. *Shelly Materials*, 2007-Ohio-5022, at ¶ 18. “Primary among [the] factors are ‘[t]he economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations.’ ” (Second bracketed text in original.) *Lingle* at 538-539, quoting *Penn Cent.* at 124. In addition, the “‘character of the governmental action’ . . . may be relevant in discerning whether a taking has occurred.” *Id.* at 539, quoting *Penn Cent.* at 124. “The *Penn Central* factors—though each has given rise to vexing subsidiary questions—have served as the principal guidelines for resolving regulatory takings claims that do not fall within the physical takings or *Lucas* rules.” *Id.*

### A. AWMS's Total-Takings Claim

{¶ 31} AWMS argues that the court of appeals erred in holding that the State did not effect a total taking of its leasehold as a result of the suspension order. The court of appeals determined that “[t]he weight of the credible evidence does not support the conclusion that AWMS lost all economically viable use of the leasehold,” explaining that the State produced credible evidence that there were alternative uses that would allow AWMS to generate income from the property. *AWMS III*, 2024-Ohio-4451, at ¶ 4 (11th Dist.).

{¶ 32} In reaching this conclusion, the court of appeals relied primarily on the testimony of the State’s expert, Andrew Adgate, who holds a master’s degree in geology and has experience in overseeing compliance regarding Class II injection wells. *See id.* at ¶ 60, 67-73. Adgate opined on potential alternative activities that could be conducted on AWMS’s leasehold site.

{¶ 33} Adgate testified that AWMS could modify both well #1 and well #2. With respect to well #1, which AWMS’s experts asserted had no economic viability, Adgate opined that AWMS could apply for a permit to drill deeper and “complete in a deeper formation” for injection or “plug-back” and complete the well in a shallower formation. Regarding well #2, Adgate opined that AWMS could “plug back” and either inject into the remaining open hole or complete in a shallower formation. Adgate also suggested that AWMS could try some combination of the two strategies for both wells to maximize fluid disposal capacity. Finally, Adgate opined that AWMS could apply for permits to drill on additional sites on the leasehold property.

{¶ 34} AWMS complains that the court of appeals did not credit the testimony of its experts, who opined that AWMS’s leasehold was deprived of its “economic viability” because of the suspension order and the restrictive conditions of the restart order. Dr. William Wade, a natural-resources economist, opined that there were no alternative economically beneficial uses for AWMS’s property and

that well #2 lost all economic viability after the suspension order. Dr. Brian Roach, an environmental economist, agreed with Dr. Wade’s conclusions and maintained that AWMS’s operation of well #2 was not economically viable under the conditions of the restart order.

{¶ 35} “[T]he issue whether a landowner has been deprived of all economically viable use of his property is a predominantly factual question.” *Monterey v. Del Monte Dunes at Monterey, Ltd.*, 526 U.S. 687, 720 (1999). Here, the court of appeals was the trier of fact in determining whether a taking of AWMS’s property occurred, *see State ex rel. BSW Dev. Group v. Dayton*, 1998-Ohio-287, ¶ 15, and AWMS bore the burden of proving its case for a total taking, including the burden of proving “the deprivation of all economically viable use of the land,” *id.* at ¶ 24.

{¶ 36} AWMS would have us reject Adgate’s opinions in favor of those of its experts. But we “defer to a lower court’s factual determination if it is supported by competent, credible evidence.” *Id.* at ¶ 25. And here, the court of appeals’ conclusion is supported by competent, credible evidence. While AWMS believes that Adgate’s testimony was not persuasive on the issue of whether there are economically viable uses for the property, the court of appeals was within its right to find Adgate’s testimony more reliable on the total-takings issue.

{¶ 37} Further, the State issued an order allowing AWMS to restart operations at well #2 in May 2021. Although in *AWMS I* we rejected the State’s argument that the suspension order was temporary, 2020-Ohio-5482 at ¶ 41, after that decision was released, the State terminated its suspension order. Thus, by the time of trial it was evident that the suspension order was not a permanent moratorium on AWMS’s ability to conduct injection-well activities. Temporary restrictions on property use do not constitute categorical takings under *Lucas* and instead are analyzed under the *Penn Central* factors to determine if there has been a partial regulatory taking. *See Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional*

*Planning Agency*, 535 U.S. 302, 321, 341-342 (2002) (32-month moratorium on development of property was analyzed under *Penn Central* rather than a categorical-takings rule).

{¶ 38} Because AWMS failed to prove that the suspension order deprived it of all economically beneficial use of its leasehold, we reject AWMS’s argument that the court of appeals should have found a total taking of its leasehold.

**B. Partial Regulatory Taking: Balancing the *Penn Central* Factors**

{¶ 39} A regulation that falls short of a total taking is analyzed under the three-factor analysis of *Penn Central*. That analysis requires us to consider (1) the economic impact of the regulation, (2) the extent to which the regulation interfered with distinct investment-backed expectations, and (3) the character of the government action. *AWMS I* at ¶ 57. In its cross-appeal, the State contends that the court of appeals misapplied these factors.

{¶ 40} The court of appeals found that the first *Penn Central* factor, the economic impact of the regulation, weighed heavily in AWMS’s favor because AWMS lost income because of the suspension order. *AWMS III*, 2024-Ohio-4451, at ¶ 93, 133 (11th Dist.). It also recognized that the third factor, the character of the government action, already had been resolved in the State’s favor in *AWMS I*. *AWMS III* at ¶ 131, 135. Indeed, we held in *AWMS I* that there was no genuine issue of material fact that “the character of the division’s suspension order was to protect the public’s health and safety.” *AWMS I*, 2020-Ohio-5482, at ¶ 86.

{¶ 41} The State takes issue with the court of appeals’ analysis of the second factor—the extent to which the suspension order interfered with AWMS’s investment-backed expectations. The State also contends that the court of appeals erred in its balancing of the *Penn Central* factors, which led to a flawed determination that there was a compensable, regulatory taking of AWMS’s leasehold. We agree with the State on both points.

*1. Interference with Investment-Backed Expectations*

{¶ 42} Under *Penn Central*, the second factor a court must consider in determining whether there has been a compensable regulatory taking is “the extent to which the regulation has interfered with distinct investment-backed expectations.’ ” *AWMS I* at ¶ 57, quoting *Shelly Materials*, 2007-Ohio-5022, at ¶ 19. The analysis of this factor “is designed to account for property owners’ expectation that the regulatory regime in existence at the time of their acquisition will remain in place, and that new, more restrictive legislation or regulations will not be adopted.” *Love Terminal Partners, L.P. v. United States*, 889 F.3d 1331, 1345 (Fed.Cir. 2018). In other words, AWMS had to show that it made its investment “in reliance on a state of affairs that did not include the challenged regulatory regime,” *Loveladies Harbor, Inc. v. United States*, 28 F.3d 1171, 1177 (Fed.Cir. 1994), *abrogation on other grounds recognized by Anaheim Gardens, L.P. v. United States*, 953 F.3d 1344 (Fed.Cir. 2020). These expectations must be reasonable. *See Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1005-1006 (1984).

{¶ 43} This factor has three subfactors that guide the inquiry: “(1) whether the plaintiff operated in a ‘highly regulated industry;’ (2) whether the plaintiff was aware of the problem that spawned the regulation at the time it purchased the allegedly taken property; and (3) whether the plaintiff could have ‘reasonably anticipated’ the possibility of such regulation in light of the ‘regulatory environment’ at the time of purchase.” *Appolo Fuels, Inc. v. United States*, 381 F.3d 1338, 1349 (Fed.Cir. 2004), quoting *Commonwealth Edison Co. v. United States*, 271 F.3d 1327, 1348 (Fed.Cir. 2001); *see also AWMS I* at ¶ 64 (quoting *Appolo Fuels* with approval).

{¶ 44} The court of appeals found that the first two subfactors cut against AWMS: the company operated in a highly regulated industry and was aware of the problem (i.e., earthquakes) that led to the suspension order. *AWMS III*, 2024-Ohio-4451, at ¶ 95, 104 (11th Dist.). The court of appeals, however, found that the third

subfactor favored AWMS because “it did not (nor could it) anticipate that the Division would effectively ‘stonewall’ its efforts to comply with the Division in interest of either lifting or modifying the suspension order.” *Id.* at ¶ 106. This was true, according to the court of appeals’ majority, even though “the regulatory regime did not fundamentally or meaningfully change” after AWMS acquired its leasehold. *Id.* at ¶ 119.

{¶ 45} We consider AWMS’s investment-backed expectations primarily through the lens of what it knew when it acquired its leasehold interest. *See AWMS I* at ¶ 66, citing *Appolo Fuels* at 1349. AWMS has been in the business of hauling and disposing of waste since 1988 and saw an opportunity to expand into oil-and-gas wastewater disposal. Even before AWMS entered this line of business, it knew that earthquakes had been linked to saltwater-injection wells. And the court of appeals found as a factual matter that AWMS’s expectations at the time that it acquired the leasehold “were fundamentally tempered by its express awareness of the serious risks of a shutdown.” *AWMS III* at ¶ 104.

{¶ 46} Though the confidential offering memorandum that AWMS prepared for prospective investors was issued after the acquisition of the leasehold, the court of appeals determined that the memorandum reflected what AWMS knew or should have known at the time that it entered into the lease. *Id.* at ¶ 99. The memorandum is also relevant because the second *Penn Central* factor requires that expectations be “investment-backed”; thus, AWMS’s knowledge, after it signed the lease but before it invested significant funds in the wells, necessarily bears some weight in the “ad hoc, factual inquiries” required by *Penn Cent.*, 438 U.S. at 124. We therefore agree with the court of appeals that the confidential offering memorandum was germane to the issue whether the suspension order interfered with AWMS’s investment-backed expectations. *See AWMS III* at ¶ 99-104.

{¶ 47} The offering memorandum underscores the risks that AWMS anticipated when it decided to enter the saltwater-injection-well business. For

starters, AWMS recognized the highly regulated nature of the business it was entering. AWMS disclosed to potential investors that “public awareness of the environmental risks of saltwater brine and its disposal in Saltwater Disposal Wells is growing,” raising the expectation that government regulation would “increase in scope and complexity.” The offering memorandum also cautioned investors about the risk that the wells could induce earthquakes, which could spawn government intervention. AWMS explained that if any of AWMS’s wells caused earthquakes, the division “may cease issuing new permits, and/or order a suspension or cessation of operations from one or more of the Wells,” which would adversely affect the company’s business. Thus, AWMS anticipated the very occurrence that happened here: a shutdown of its operations because one of its wells caused an earthquake.

{¶ 48} Despite knowing the potential for induced seismicity at the well sites, an AWMS executive admitted at trial that AWMS did not perform subsurface testing for fault lines at the drill sites. Indeed, the AWMS executive testified that AWMS neglected to perform an analysis of the ground beneath the well sites because it believed—erroneously as it turned out—that there were no faults at the well site. Thus, AWMS did not undertake a risk assessment to determine the likelihood that its injection activities would cause earthquakes or the potential magnitude of an induced earthquake.

{¶ 49} Despite AWMS’s awareness of the risks of earthquakes and a regulatory shutdown, the court of appeals determined that the second *Penn Central* factor “strongly” favored AWMS. *AWMS III*, 2024-Ohio-4451, at ¶ 125 (11th Dist.). This analysis was flawed.

{¶ 50} “The reasonable, investment-backed expectation analysis is designed to account for property owners’ expectation that the regulatory regime in existence at the time of their acquisition will remain in place, and that new, more restrictive legislation or regulations will not be adopted.” *Love Terminal*, 889 F.3d at 1345. Plainly, when AWMS acquired the property, it knew that there was a

substantial risk that it would be subject to additional regulation, particularly if the wells were found to induce seismic activity. Yet AWMS made a calculated risk to move forward with its investment without testing for the existence of a possible fault line.

{¶ 51} The Eleventh District recognized much of this. It found as a factual matter that AWMS was “aware of the inherent and significant regulation of the industry into which it was embarking at the time it acquired its leasehold.” *AWMS III* at ¶ 96. It found that AWMS acquired its leasehold based on an untested and ultimately wrong assumption that there was not a fault line on the property. *Id.* at ¶ 103. It found that AWMS was aware of the dangers posed by its operations “and that . . . suspension was likely given these problems.” *Id.* at ¶ 134. And it found that AWMS disclosed that its operations “could be suspended and/or terminated” by regulatory authorities, *id.* at ¶ 100, and thus its expectations were “fundamentally tempered by its express awareness of the serious risks of a shutdown,” *id.* at ¶ 104.

{¶ 52} These factual findings should have led the Eleventh District to determine that the investment-based-expectations factor weighed against AWMS. But instead, the Eleventh District decided that the factor weighed in favor of AWMS because it concluded that the State failed to give appropriate consideration to two restart plans submitted by AWMS. *Id.* at ¶ 125. While recognizing that this court had previously held that the State did not act in bad faith or engage in extraordinary delay, *id.* at ¶ 106, citing *AWMS I*, 2020-Ohio-5482, at ¶ 82-86, the court of appeals opined that this does not “imply that the Division’s acts or omissions in rebuffing AWMS’ attempts to submit a restart plan were reasonable.” *Id.* In this regard, the court faulted the division for “a lack of consistency,” *id.* at ¶ 109, and for failing to engage in a “meaningful dialogue” with AWMS about restart plans, *id.* at ¶ 110.

{¶ 53} In other words, the court of appeals concluded that while AWMS knew that seismic activity might lead the State to suspend its operations completely,

it could not have reasonably anticipated that the State would not be more cooperative in considering AWMS’s restart proposals. The problem with this analysis is that it focuses on evaluating the particulars of the government’s response rather than on the nature of AWMS’s expectations. As the court of appeals found, AWMS was aware that seismic activity induced by the wells could lead to a regulatory order requiring suspension or termination of the wells. If AWMS could have reasonably expected the possibility of termination, then its investment-backed expectations cannot be diminished by other government actions that fell short of a permanent suspension order.

{¶ 54} Thus, we disagree with the court of appeals’ conclusion that the investment-backed-expectations prong weighs in favor of AWMS.

## 2. *Weighing the Penn Central Factors*

{¶ 55} In its third cross-proposition of law, the State contends that the court of appeals did not properly weigh the three *Penn Central* factors in reaching its conclusion that there was a compensable partial taking. Ultimately, the *Penn Central* balancing is designed to “ascertain whether . . . it is unfair to force the property owner to bear the cost of the regulatory action.” *Rose Acre Farms, Inc. v. United States*, 559 F.3d 1260, 1282 (Fed.Cir. 2009).

{¶ 56} We conclude that the court of appeals erred in its balancing of the *Penn Central* factors. As we have already explained, the second factor, AWMS’s investment-backed expectations, weighs in favor of the State.

{¶ 57} In *AWMS I*, we concluded that the third factor—the character of the government action—also weighs in favor of the State. *AWMS I*, 2020-Ohio-5482, at ¶ 86 (“AWMS has not demonstrated that there is a genuine issue of material fact regarding whether the character of the division’s suspension order was to protect the public’s health and safety”). The State argues that in balancing the *Penn Central* factors, the Eleventh District gave too little weight to this factor. We agree.

{¶ 58} The character factor requires a court to “consider the purpose and importance of the public interest reflected in the regulatory imposition.” *Loveladies*, 28 F.3d at 1176. Thus, “[t]here is little doubt that it is appropriate to consider the harm-preventing purpose of a regulation in the context of the character prong of a *Penn Central* analysis.” *Rose Acre Farms*, 559 F.3d at 1281, citing *Appolo Fuels*, 381 F.3d at 1351. Because it is undisputed that AWMS’s activities caused earthquakes, there can be no question that there were risks to public safety if AWMS continued in those activities. Even though the evidence at trial showed that the earthquakes that had been experienced were of relatively small magnitude, they were still felt by people in the region, and the State did not have to wait to take action to protect the public until a larger, catastrophic seismic event. This is particularly true given the evidence at trial that important infrastructure was located near the AWMS well sites. There was no way of knowing how large an earthquake could be caused by AWMS’s injection activities and the State therefore had a significant interest in acting to prevent (or lessen the impact of) additional and possibly catastrophic earthquakes. This factor therefore weighs against AWMS’s takings claim far more than the court of appeals determined it did. *See AWMS III*, 2024-Ohio-4451, at ¶ 135 (11th Dist.).

{¶ 59} That leaves the first factor: the economic impact of the suspension order on AWMS. The court of appeals concluded that this factor “weigh[ed] heavily in AWMS’ favor.” *Id.* at ¶ 133. The State does not dispute that the suspension order had some economic impact on AWMS’s operations; rather, it contends that the court of appeals accorded too much weight to this factor in light of its factual findings. We agree.

{¶ 60} Significantly, the court of appeals found the economic impact to be substantially less than AWMS claimed. While AWMS said it suffered an economic loss of more than \$13.2 million from September 2014 through May 2021, the court of appeals found that the evidence at trial revealed AWMS’s economic loss to range

from \$201,150 to \$359,573. *AWMS III* at ¶ 80-81, 88, 93. In reaching this conclusion, the court of appeals was persuaded by the expert testimony of Roland Blauer, a reservoir engineer who testified for the State. *Id.* at ¶ 82-88. The court of appeals expressly found Blauer’s testimony more credible than that of AWMS’s experts. *Id.* at ¶ 93, 133. Blauer reached his conclusions through an analysis of the geology of the site and the capacity of AWMS’s wells. *Id.* at ¶ 93.

{¶ 61} To be sure, AWMS takes issue with the court of appeals’ reliance on Blauer’s testimony. But Blauer’s testimony was competent, credible evidence on the issue of the economic impact of the suspension order. As a reviewing court, we will not second-guess the court of appeals’ determination of the credibility of the expert witnesses who testified at trial. Having found that the economic impact was a mere fraction of what AWMS claimed, it was inconsistent for the court of appeals to then find that the factor “weigh[ed] heavily” in AWMS’s favor. *Id.*, 2024-Ohio-4451, at ¶ 133 (11th Dist.).

{¶ 62} “Whether a compensable taking has occurred is a question of law based on factual underpinnings.” *Maritrans Inc. v. United States*, 342 F.3d 1344, 1350 (Fed.Cir. 2003). As we have already explained, the court of appeals erred in weighing the investment-backed-expectations factor in AWMS’s favor and gave too little weight to the character-of-the-state-action factor. The court of appeals also gave too much weight to the economic impact of the suspension order on AWMS in view of its factual determination that the impact was much less than AWMS had claimed.

{¶ 63} Balancing the *Penn Central* factors, we conclude that AWMS’s lack of investment-backed expectations and the character of the regulation outweigh the economic impact of the suspension order. *See Appolo Fuels*, 381 F.3d at 1351 (balancing *Penn Central* factors and concluding that lack of reasonable investment-backed expectations coupled with government action designed to protect health and safety outweighed economic injury).

{¶ 64} For these reasons, the State’s cross-appeal has merit. The court of appeals erred in granting the writ. There was no regulatory taking of AWMS’s property under a proper balancing of the *Penn Central* factors.

### C. Successor Judge Argument

{¶ 65} AWMS complains that the court of appeals’ judgment should be reversed and the case remanded for a new hearing because it was rendered by a different three-judge panel than the one that presided over the trial. Because Judge Lucci, who succeeded Judge Wright after the trial but before remand, “made crucial credibility determinations” without observing the trial testimony, AWMS argues that this court should vacate the court of appeals’ judgment and remand the case for a new hearing.

{¶ 66} AWMS’s argument fails for at least two reasons. First, AWMS relies on decisions from Ohio appellate courts for the proposition that “[g]enerally, where credibility is a factor, courts have held that it is reversible error for a successor judge in a bench trial, having never observed the testimony of the witnesses, to enter judgment based on a transcript of the proceedings,” *Yurkowski v. Univ. of Cincinnati*, 2015-Ohio-1511, ¶ 14 (10th Dist.); *see also Vergon v. Vergon*, 87 Ohio App.3d 639, 643 (8th Dist. 1993); *Welsh v. Brown-Graves Lumber Co.*, 58 Ohio App.2d 49, 51 (9th Dist. 1978); *Arthur Young & Co. v. Kelly*, 68 Ohio App.3d 287, 294 (10th Dist. 1990). But each of those cases involved a single trial-court judge who rendered a decision despite having heard none of the hearing or trial testimony. This case, by contrast, involves a three-judge panel where two of the three members were present for the trial.

{¶ 67} Second, AWMS can show no prejudice from Judge Lucci’s having participated in his predecessor’s stead. The court of appeals *unanimously* found against AWMS on the total-takings claim. *AWMS III*, 2024-Ohio-4451, at ¶ 75 (11th Dist.); *see also id.* at ¶ 156 (Eklund, J., dissenting). And with respect to the

partial-takings claim, Judge Lucci joined the majority opinion, providing the second vote in AWMS's favor.

{¶ 68} For these reasons, AWMS's challenge to the makeup of the three-judge panel is without merit.

#### **D. Arguments We Need Not Reach**

{¶ 69} AWMS argues that the court of appeals exceeded the scope of its jurisdiction on remand from *AWMS I* and *AWMS II* by improperly limiting the damages a jury could award for the partial taking of its leasehold. And assuming that the court of appeals did not exceed the scope of the remand order, AWMS contends that the court of appeals improperly constrained the jury by undercalculating its losses from the partial taking of its property.

{¶ 70} We need not reach AWMS's arguments on these issues. Both arguments relate to AWMS's claimed damages arising from a partial regulatory taking at a future jury trial. But because we hold that the State's suspension order was not a compensable taking of AWMS's property, AWMS is not entitled to compensation. It is therefore unnecessary to opine on these issues.

{¶ 71} It is also unnecessary for us to reach the State's argument about its nuisance defense. Because we conclude that no taking occurred, there is no reason for us to determine whether the State demonstrated the applicability of its claimed nuisance defense to a taking. *See Appolo Fuels*, 381 F.3d at 1347 (finding it unnecessary to decide the applicability of the nuisance defense "because . . . there has been no taking under the *Penn Central* analysis, quite apart from the nuisance defense").

### **III. CONCLUSION**

{¶ 72} Though the court of appeals correctly held that AWMS failed to prove a total taking under *Lucas*, it erred in finding a partial regulatory taking under the *Penn Central* analysis. Under a proper balancing of the *Penn Central* factors, we conclude that the suspension order did not result in a compensable taking. We

therefore affirm the court of appeals' judgment concerning the total takings claim, reverse its judgment concerning the partial takings claim, and deny the writ.

Judgment affirmed in part  
and reversed in part and writ denied.

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