

[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. 2020-Ohio-4509.]

NOTICE

This slip opinion is subject to formal revision before it is published in an advance sheet of the Ohio Official Reports. Readers are requested to promptly notify the Reporter of Decisions, Supreme Court of Ohio, 65 South Front Street, Columbus, Ohio 43215, of any typographical or other formal errors in the opinion, in order that corrections may be made before the opinion is published.

SLIP OPINION NO. 2020-OHIO-4509

**THE STATE EX REL. AWMS WATER SOLUTIONS, L.L.C., ET AL., APPELLANTS,
v. MERTZ,¹ DIR., ET AL., APPELLEES.**

[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. 2020-Ohio-4509.]

Oil and gas—Regulatory takings—Summary judgment—Genuine issues of material fact exist regarding whether state’s suspension of operations at private company’s saltwater-injection well constituted total or partial governmental taking of property—Judgment reversed and cause remanded.

(No. 2019-0493—Submitted April 7, 2020—Decided September 23, 2020.)

APPEAL from the Court of Appeals for Trumbull County, No. 2016-T-0085,
2019-Ohio-923.

1. James Zehringer, the former director of the Ohio Department of Natural Resources (“ODNR”), was originally named as a respondent in this case. Mary Mertz has since replaced Zehringer as ODNR’s director.

FISCHER, J.

{¶ 1} In this regulatory-takings case, appellants, AWMS Water Solutions, L.L.C.; AWMS Holdings, L.L.C.; and AWMS, Rt. 169, L.L.C. (collectively, “AWMS”), filed a petition for a writ of mandamus in the Eleventh District Court of Appeals to compel appellees, the Ohio Department of Natural Resources (“ODNR”); ODNR’s director, Mary Mertz; ODNR’s Division of Oil and Gas Resources Management (“the division”); and the division’s chief, Richard Simmers (collectively, “the state”), to initiate property-appropriation proceedings. AWMS alleged that it had suffered a taking of its property when the division suspended AWMS’s operation of one of its two saltwater-injection wells. The division suspended the operation of the well because of concerns that the well had induced a pair of earthquakes in its vicinity. The Eleventh District granted summary judgment to the state and denied the writ, determining that AWMS had suffered neither a total nor a partial governmental taking.

{¶ 2} Regulatory-takings cases present “complex and difficult” questions that often elude a “simple solution.” *State ex rel. R.T.G., Inc. v. State*, 98 Ohio St.3d 1, 2002-Ohio-6716, 780 N.E.2d 998, ¶ 1 (plurality opinion). This case is no different. As we will explain below, the court of appeals erred by entering summary judgment in favor of the state when genuine issues of material fact remained regarding whether AWMS had suffered a total or partial taking. Accordingly, we reverse the Eleventh District’s judgment and remand this cause to the court of appeals for further proceedings consistent with this opinion.

I. FACTUAL AND PROCEDURAL BACKGROUND

A. AWMS obtains permits to drill and inject wells, earthquakes ensue, and the division suspends the operation of one of AWMS’s wells

{¶ 3} On December 19, 2011, AWMS, a disposer of waste from oil-and-gas production and drilling sites, secured a leasehold right to operate one or more Class II saltwater-injection wells on 5.2 acres of industrial property in Weathersfield

Township, Trumbull County, Ohio. A Class II saltwater-injection well is used for the purpose of disposing of saltwater, a byproduct of oil- and natural-gas production. A saltwater-injection well is designed to isolate the injected fluid in a specific formation and prevent the contamination of freshwater. United States Environmental Protection Agency, *Class II Oil and Gas Related Injection Wells*, https://www.epa.gov/uic/class-ii-oil-and-gas-related-injection-wells#dw_protect (accessed Sept. 14, 2020) [<https://perma.cc/CH23-MYWS>]. The lease obligated AWMS to pay the lessor a 5 percent royalty on its disposal revenue.

{¶ 4} On December 23, 2011, AWMS applied to the division for permits to construct and operate two wells on the site: “well #1” and “well #2.” The next day, a 2.7-magnitude earthquake was recorded in Youngstown, Ohio, about seven miles from AWMS’s Weathersfield Township site and about one mile from an injection well known as “Northstar #1” that was not related to AWMS’s wells. On December 30, 2011, the division decided that Northstar #1 should be “shut in”—that is, taken out of operation. On December 31, 2011, a 4.0-magnitude earthquake was recorded within one mile of Northstar #1. That earthquake was felt by over 4,000 people in parts of northeastern Ohio, western Pennsylvania, and Ontario, Canada. The division later issued a report in which it found that a “compelling argument” existed linking the activities at Northstar #1 to the two December 2011 earthquakes.

{¶ 5} To put these events in context, we note that the United States Geological Survey estimates that more than one million earthquakes of magnitude 2.0 or greater occur naturally per year globally. Ground Water Protection Council & Interstate Oil & Gas Compact Commission, *Potential Injection-Induced Seismicity Associated with Oil & Gas Development: A Primer on Technical and Regulatory Considerations Informing Risk Management and Mitigation* 44 (2015), <http://www.gwpc.org/sites/default/files/finalprimerweb.pdf> (accessed Sept. 14, 2020) [<https://perma.cc/H9SS-FVKF>]. Earthquakes of about magnitude 2.0 or less are called “microseismic events” because they usually cannot be felt by people. *Id.*

Buildings usually do not suffer structural damage unless an earthquake in their vicinity reaches a magnitude of 5.0, although nonstructural damage can occur to a building during a 4.0-magnitude earthquake depending on the building's age and the materials used to construct it. *Id.* at 50. AWMS's expert witness on seismicity, Michael A. Hasting, testified at a March 2015 hearing in this case that Ohio probably experiences a couple of 2.0-magnitude earthquakes per day.

{¶ 6} Immediately after the December 31, 2011 earthquake occurred, former Governor John Kasich imposed a moratorium on certain injection-well activities, thereby enabling the division to study whether the earthquakes were due to "induced seismicity," a term used to describe earthquakes triggered by human activity. Thereafter, the division adopted rules regarding induced seismicity, developed a seismic monitoring network, hired a seismologist, and participated in workgroups to enhance its understanding of induced seismicity.

{¶ 7} The former governor's moratorium delayed the processing of AWMS's application for its operating permits. But on July 18, 2013, the division authorized AWMS to drill wells #1 and #2. AWMS spent approximately \$5.6 million constructing its facilities, which included the costs of wells #1 and #2, infrastructure, drilling, tanks, pumps, installation, and start-up. Well #2, the deeper of the two wells, was drilled to a depth of 8,502 feet, which enabled it to accept 95 percent of total injections.

{¶ 8} In September 2013, AWMS prepared a "confidential offering memorandum" for prospective investors in which it offered membership shares for \$50,000 each. AWMS disclosed several investment risks in the memorandum, including that the government's regulation of injection wells could increase in scope and complexity due to growing industry awareness, that AWMS's wells could cause a seismic event similar to the events that had occurred in Youngstown, and that a seismic event caused by AWMS's wells could lead to the suspension of its injection operations.

{¶ 9} On March 24, 2014, the division authorized AWMS to commence injections into wells #1 and #2. AWMS's permits did not contain express language empowering the division to suspend AWMS's operations due to a seismic event of a specific magnitude.

{¶ 10} The risks that AWMS outlined in its offering memorandum turned out to be well founded. On July 28, 2014, a 1.7-magnitude earthquake was recorded near well #2. And on August 31, 2014, a 2.1-magnitude earthquake was recorded in the same area. The Ohio Oil and Gas Commission ("the commission") later determined that the "July and August events were not detectable on the surface, and no property damage was reported."

{¶ 11} On September 3, 2014, the division issued orders requiring AWMS to suspend its operations at wells #1 and #2, stating that the two earthquakes from July and August 2014 were related to AWMS's operations at the wells. The division also required AWMS to "submit a written plan to the Division for evaluating the seismic concerns associated with the operation of" well #2. Two days later, the division issued new orders clarifying that the seismic events "may" have been related to AWMS's wells. The division later determined that well #1 likely did not contribute to seismicity in the area, terminated its suspension of operations at well #1, and allowed AWMS to resume operations at well #1. It left the suspension of operations at well #2 in place.

{¶ 12} On September 17, 2014, AWMS submitted to the division its written plan for well #2. In its plan, AWMS explained that it had not received direction from the division about what to include in the plan. Nevertheless, AWMS's plan included several proposals addressing the division's concerns, including a proposal to establish certain operational and management controls over injections at well #2. The division found AWMS's plan to be "generic and inadequate."

{¶ 13} On October 2, 2014, AWMS appealed the division's suspension of operations at well #2 to the commission. During the pendency of the appeal,

AWMS and the division held two meetings during which they discussed the induced-seismicity issue. In the first meeting, which took place near the end of October 2014, the division communicated to AWMS that it was planning to adopt a statewide policy on induced seismicity that it expected to be completed in “four to six” months. According to Stephen G. Kilper, vice president of AWMS, the division stated at that meeting that it was not prepared to address the suspension order regarding well #2 or AWMS’s plan until the statewide policy was in place.

{¶ 14} In the second meeting, which was held near the end of February 2015, the division presented AWMS a single sheet of paper containing 14 criteria that the division was considering for evaluating induced seismicity in its statewide policy. According to Kilper, the division stated at that meeting that it would not implement the statewide induced-seismicity policy for at least eight months and that it would not recommend a policy to ODNR unless the policy “guaranteed zero risk.”

{¶ 15} A few days after the February 2015 meeting, AWMS sent an e-mail to the division seeking clarification of some of the division’s proposed criteria, to which Robert Worstall, deputy chief of the division, responded that AWMS should propose whatever it thought was appropriate. In early March 2015, AWMS submitted a plan to the division addressing the division’s proposed criteria. Nothing in the record suggests that the division responded to AWMS’s plan.

B. Administrative and judicial proceedings regarding the division’s suspension order

{¶ 16} On August 12, 2015, the commission issued a decision affirming the division’s suspension of operations at well #2. The commission noted that two of AWMS’s expert witnesses had testified that the seismic events in July and August 2014 were likely associated with well #2. The commission also observed that while both experts had opined that operations at well #2 could be safely resumed subject to certain conditions, neither could state that the division’s suspension order was

unreasonable under the circumstances that had led to the order. Turning to the testimony of Simmers, the division's chief, the commission noted that he favored a temporary cessation of injections at well #2 pending further investigation and the implementation of a statewide policy on induced seismicity.

{¶ 17} In upholding the suspension order, the commission acknowledged that under the circumstances, the division could be perceived as acting slowly in implementing a statewide policy to address induced seismicity. But the commission stressed that regulating induced seismicity caused by saltwater injection is a “complicated process that does not happen overnight.” The commission also determined that while there had been no evidence presented establishing that AWMS had violated the terms and conditions of its permit, the absence of a violation could not justify its lifting the suspension in light of the division's determination that further injection operations at well #2 could result in imminent danger to public health and safety or damage to the environment.

{¶ 18} AWMS appealed the commission's order to the Franklin County Court of Common Pleas, which vacated the order. The court determined that although the division had the authority to issue the suspension order, the division's failure to respond to AWMS's plan for resuming operations was unreasonable. The court stated, “[I]t defies logic as to how [the division] can expect [AWMS] to formulate and submit a comprehensive plan that would comply with a statewide policy that has yet to be formulated and completed.” The court then ordered the parties to submit proposed plans for restarting operations at well #2, which both parties did. Thereafter, the court ordered that operations at well #2 could be restarted under certain conditions, including that AWMS would cease injection operations if an imminent threat to public safety and health or to the environment occurred at or near the well. In the event of such a threat, the court's order dictated that operations could not be restarted unless two AWMS representatives and two commission representatives determined that the threat had passed.

{¶ 19} The division appealed the common pleas court’s judgment to the Tenth District Court of Appeals. In a two-to-one decision, the court of appeals affirmed in part, reversed in part, and after modifying the common pleas court’s judgment, affirmed the commission’s decision and reimposed the suspension of operations at well #2. *Am. Water Mgt. Servs., L.L.C. v. Div. of Oil and Gas Resources Mgt.*, 2018-Ohio-3028, 118 N.E.3d 385, ¶ 59-60 (10th Dist.) (“*AWMS I*”). The court of appeals held that the common pleas court had erred in requiring two commission members to determine that an imminent threat had passed before operations at well #2 could be restarted. *Id.* at ¶ 28-31. The court of appeals also held that the court had erred in drawing certain conclusions from the record about the seismic risks posed by restarting operations at well #2. *Id.* at ¶ 39-49. AWMS appealed the judgment in *AWMS I* to this court, which denied AWMS’s discretionary appeal, *see* 154 Ohio St.3d 1431, 2018-Ohio-4670, 111 N.E.3d 1192, and subsequent motion for reconsideration, *see* 154 Ohio St.3d 1467, 2018-Ohio-5209, 114 N.E.3d 216.

C. AWMS’s mandamus action

{¶ 20} On August 26, 2016, while AWMS’s appeal in *AWMS I* was pending, AWMS filed a petition for a writ of mandamus in the Eleventh District to compel the state to commence property-appropriation proceedings. AWMS alleged that the suspension order effected a governmental taking of its property requiring the state to pay AWMS just compensation. In support, AWMS argued that it had complied with the relevant law and AWMS’s permit conditions, had not endangered public health and safety or the environment, and had been subjected to a “permanent shutdown” (rather than a temporary suspension) of its operations. AWMS emphasized that its mandamus action was *not* an attempt to challenge the suspension order.

{¶ 21} The state moved for summary judgment, asserting that AWMS had failed to establish that a taking occurred. After the Tenth District issued its decision

in *AWMS I*, the Eleventh District granted the state’s summary-judgment motion and denied AWMS’s mandamus petition, 2019-Ohio-923, 132 N.E.3d 1151, ¶ 50-51. First, the Eleventh District determined that the state had not effected a total regulatory taking because AWMS had not been deprived of all economically beneficial use of its property. In support, it reasoned that after the state had suspended operations at well #2, well #1 remained in operation for a period of time; that AWMS had derived revenue from processing, storing, recycling, treating, and disposing brine; that third parties had contacted AWMS about using the property; and that AWMS could put the property to other uses related to the oil-and-gas industry. *Id.* at ¶ 15-17. Second, the court of appeals determined that the state had not effected a partial regulatory taking. The court found it significant that the suspension order had been designed to “protect[] the public’s health and safety from the realistic potential of increased induced seismicity resulting from injection activities” at well #2. *Id.* at ¶ 40. It also found it significant that AWMS’s investors had been aware of the seismic activities in the Youngstown area and of the risks involved with the operation of AWMS’s injection wells. *Id.* at ¶ 44, 49.

{¶ 22} AWMS appealed the Eleventh District’s judgment to this court.

II. APPLICABLE LEGAL STANDARDS

A. Summary-judgment standard

{¶ 23} This court reviews a grant of summary judgment de novo. *Ratonel v. Roetzel & Andress, L.P.A.*, 147 Ohio St.3d 485, 2016-Ohio-8013, 67 N.E.3d 775, ¶ 18. Under Civ.R. 56(C), summary judgment is appropriate when (1) there is no genuine issue of material fact, (2) the moving party is entitled to judgment as a matter of law, and (3) it appears that after construing the evidence most strongly in the nonmoving party’s favor that reasonable minds can come to but one conclusion. “Neither we nor the trial court may weigh the proof or choose among reasonable inferences in deciding whether summary judgment should be granted.” *Perez v. Scripps-Howard Broadcasting Co.*, 35 Ohio St.3d 215, 218, 520 N.E.2d 198

(1988). At the summary-judgment stage, a “court should not reject one expert opinion for another simply because it believes one theory over the other.” *Miller v. Bike Athletic Co.*, 80 Ohio St.3d 607, 613, 687 N.E.2d 735 (1998).

B. Mandamus standard

{¶ 24} To prevail on its mandamus claim, AWMS must show (1) a clear legal right to compel the state to commence property-appropriation proceedings, (2) a clear legal duty on the part of the state to institute that action, and (3) the lack of an adequate remedy in the ordinary course of the law. *State ex rel. Gilmour Realty, Inc. v. Mayfield Hts.*, 122 Ohio St.3d 260, 2009-Ohio-2871, 910 N.E.2d 455, ¶ 15. “Mandamus is the appropriate action to compel public authorities to commence appropriation cases when an involuntary taking of private property is alleged.” *State ex rel. Shelly Materials, Inc. v. Clark Cty. Bd. of Commrs.*, 115 Ohio St.3d 337, 2007-Ohio-5022, 875 N.E.2d 59, ¶ 15.

C. Regulatory-takings doctrine

{¶ 25} AWMS has asserted that it is entitled to compensation for the state’s regulatory taking of its property under the Takings Clause of the Fifth Amendment to the United States Constitution. The Takings Clause provides that private property shall not “be taken for public use, without just compensation.” The clause applies to the states through the Fourteenth Amendment. *Chicago, Burlington & Quincy RR. Co. v. Chicago*, 166 U.S. 226, 239-241, 17 S.Ct. 581, 41 L.Ed. 979 (1897).

{¶ 26} We acknowledge that “ ‘[e]very sort of [real property] interest the citizen may possess’ counts as a property interest under the Fifth Amendment.” (Brackets sic.) *Cienega Gardens v. United States*, 331 F.3d 1319, 1329 (Fed.Cir.2003) (“*Cienega Gardens I*”), quoting *United States v. Gen. Motors Corp.*, 323 U.S. 373, 378, 65 S.Ct. 357, 89 L.Ed. 311 (1945). Accordingly, “the holder of an unexpired leasehold interest in land is entitled” to invoke the Takings Clause’s

guarantees. *Alamo Land & Cattle Co., Inc. v. Arizona*, 424 U.S. 295, 303, 96 S.Ct. 910, 47 L.Ed.2d 1 (1976).

{¶ 27} AWMS has also referred to its right to compensation for the state’s alleged taking of its property under the Ohio Constitution. “Section 19, Article I of the Ohio Constitution also provides that private property shall not be taken for public use without just compensation.” *Shelly Materials*, 115 Ohio St.3d 337, 2007-Ohio-5022, 875 N.E.2d 59, at ¶ 16. Although AWMS makes a passing reference to that provision, its substantive arguments rely on Fifth Amendment takings jurisprudence so we focus our analysis here on that jurisprudence.

{¶ 28} Although the federal Takings Clause had been originally understood to apply only to situations involving the direct appropriation of property or the functional equivalent of a practical ouster of an owner’s possession, *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1014, 112 S.Ct. 2886, 120 L.Ed.2d 798 (1992) (collecting cases), the United States Supreme Court has recognized that the clause may also be applied to overly burdensome governmental regulations of property, *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415, 43 S.Ct. 158, 67 L.Ed. 322 (1922) (“while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking”). Since *Mahon*, principles have been established for identifying regulations that go too far. *See Lingle v. Chevron U.S.A., Inc.*, 544 U.S. 528, 538-540, 125 S.Ct. 2074, 161 L.Ed.2d 876 (2005).

{¶ 29} Two of those principles bear on this case. The first is the “categorical rule” discussed in *Lucas*, which applies to “total regulatory takings.” *Lucas* at 1026. Under that rule, the government’s payment of just compensation is required when its regulation “deprives land of all economically beneficial use,” *id.* at 1027, unless “background principles of the State’s law of property and nuisance” impose independent restrictions on the owner’s usage, *id.* at 1029. The second principle derives from the Supreme Court’s decision in *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 98 S.Ct. 2646, 57 L.Ed.2d 631 (1978), which applies

to “ ‘partial’ regulatory taking[s],” *Shelly Materials* at ¶ 19. The ad hoc, fact-specific analysis established in *Penn Cent.* requires a court to consider three factors: “(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.*

III. ANALYSIS

{¶ 30} We begin our analysis by addressing two preliminary questions, the answers to which will influence our regulatory-takings analysis. First, we consider the state’s argument that this case is unripe. Second, we consider the state’s argument that it effected at most a temporary suspension, rather than a permanent shutdown, of well #2. After addressing those questions, we turn to the main issue in this case, i.e., whether the state effected either a total taking of well #2 under the standard established in *Lucas* or a partial taking of it under the standard established in *Penn Cent.*

A. Ripeness

{¶ 31} The state faults AWMS for having failed to submit a comprehensive plan for restarting operations at well #2, stating that it “stands by willing to allow operation of the AWMS #2 Well if [AWMS] submits a comprehensive plan protective of public health and safety.” (Emphasis sic.) Although the state does not precisely identify a legal doctrine in support of its argument, the crux of its position, as we understand it, is that AWMS’s takings claim is unripe.

{¶ 32} “[A] claim that the application of government regulations effects a taking of a property interest is not ripe until the government entity charged with implementing the regulations has reached a final decision regarding the application of the regulations to the property at issue.” *Williamson Cty. Regional Planning Comm. v. Hamilton Bank of Johnson City*, 473 U.S. 172, 186, 105 S.Ct. 3108, 87 L.Ed.2d 126 (1985), *overruled on other grounds*, *Knick v. Twp. of Scott*, ___ U.S. ___, 139 S.Ct. 2162, 2179, 204 L.Ed.2d 558 (2019). “Where further administrative

process could reasonably result in a more definite statement of the impact of the regulation, the property owner is generally required to pursue that avenue of relief before bringing a takings claim.” *Morris v. United States*, 392 F.3d 1372, 1376 (Fed.Cir.2004).

{¶ 33} The “[r]ipeness doctrine does not,” however, “require a landowner to submit applications for their own sake.” *Palazzolo v. Rhode Island*, 533 U.S. 606, 622, 121 S.Ct. 2448, 150 L.Ed.2d 592 (2001). Accordingly, “[a] failure to secure a final decision may be excused under the futility exception, ‘where [an] agency’s decision makes clear that pursuing remaining administrative remedies will not result in a different outcome.’ ” (Second bracket sic.) *Freeman v. United States*, 875 F.3d 623, 628 (Fed.Cir.2017), quoting *Morris* at 1376. “A landowner need not resort to futile piecemeal litigation or submit to repetitive application requirements to make a taking claim ripe.” *Cooley v. United States*, 324 F.3d 1297, 1302 (Fed.Cir.2003). Because a takings claim is ripe after a governmental entity’s final decision, “an applicant need not submit further applications” before it can pursue its claim. *Id.* at 1302-1303.

{¶ 34} In this case, the state suggests that if AWMS would submit a restart plan for well #2 that meets the standards it set out during the parties’ common-pleas-court litigation (standards the state settled on *after* AWMS filed its mandamus petition), then AWMS would be able to restart its operations. Broadly speaking, the state’s standards outlined a five-step restart plan directing AWMS to (1) gather information, (2) perform well-construction modifications, (3) install monitoring equipment, (4) perform pre-operation testing, and (5) follow a schedule of operations with defined injection pressures and maximum amounts to be injected, subject to modifications or the suspension of operations depending on seismicity in the area of well #2.

{¶ 35} The state ignores that AWMS twice tried—and failed—to persuade the division to allow it to restart operations at well #2. AWMS first tried to do this

by submitting its September 2014 plan. According to Simmers, the division had found that plan to be “generic and inadequate,” although, as noted by the court of appeals in *AWMS I*, the division did not contact AWMS to collaborate on the plan or to critique the plan, 2018-Ohio-3028, 118 N.E.3d 385, at ¶ 7, and the record does not show that the division responded to the plan. Moreover, AWMS submitted a second plan in March 2015 to which the division apparently never responded either, *id.* at ¶ 8.

{¶ 36} Now, the state argues that AWMS should be faulted for having failed to submit a third restart plan for well #2 based on standards the state set out after AWMS filed its mandamus complaint and after it twice tried to satisfy the state’s standards. The state’s argument, if we were to accept it, would invite protracted litigation. Also, because there is no indication that the state’s standards, if met, would be binding on the state, the division could change them at any time, which, under the state’s logic, could create yet another opportunity for it to say that all AWMS needs to do is submit another plan. We decline the state’s invitation to issue a decision establishing precedent permitting the state to create moving targets.

{¶ 37} In summary, the division either rebuffed or ignored the two plans that AWMS had submitted to restart well #2. We conclude that AWMS was justified in pursuing compensation through a takings action rather than submitting a third restart plan and that AWMS’s claim was ripe at the time it instituted its takings action. *See Cooley*, 324 F.3d at 1302-1303.

B. Permanent versus temporary takings

{¶ 38} The state next argues that the suspension of operations at well #2 is merely temporary and cannot amount to a categorical taking. In casting the suspension as temporary, the state seeks the benefit of the rule articulated in *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302, 122 S.Ct. 1465, 152 L.Ed.2d 517 (2002), in which the United States Supreme Court determined that the principles espoused in *Penn Cent.*, rather than those set

forth in *Lucas*, should apply to a moratorium on property development of finite duration, provided the duration of the moratorium is reasonable under the circumstances. *Tahoe-Sierra* at 341-342 (considering a 32-month moratorium). The court reasoned that *Lucas*'s categorical rule should not apply to that situation because a temporary prohibition on property use could not permanently deprive the property of all its value. "Logically, a fee simple estate cannot be rendered valueless by a temporary prohibition on economic use, because the property will recover value as soon as the prohibition is lifted." *Id.* at 332.

{¶ 39} The state contends that its suspension of operations at well #2 is temporary for two reasons. First, it argues that the division did not order the well to be permanently plugged under R.C. 1509.12(B). But from a functional standpoint, there is no material difference between a plugged well and a suspended well—neither can be used. Second, it argues that the restart of operations at well #2 is entirely within the control of AWMS because all AWMS needs to do is submit another restart plan. But that is simply untrue. Even if AWMS were to submit another plan, the division might again fail to respond to it or disapprove it.

{¶ 40} The state's attempt to characterize the suspension of operations at well #2 as temporary founders on its open-endedness. *See Wyatt v. United States*, 271 F.3d 1090, 1097 (Fed.Cir.2001), fn. 6 ("The essential element of a temporary taking is a finite start and end to the taking"). Unlike in *Tahoe-Sierra*, which involved a prohibition on land use of finite duration, this case involves a suspension of operations without a fixed expiration date. Indeed, the record shows that the suspension will remain in effect unless and until the division decides that operations at well #2 may be restarted.

{¶ 41} Also instructive here is our decision in *State ex rel. BSW Dev. Group v. Dayton*, 83 Ohio St.3d 338, 699 N.E.2d 1271 (1998). In that case, we rejected a property owner's argument that the government had permanently taken the owner's property because the government indicated that it would have granted the owner's

application for a permit upon the owner’s fulfilment of certain *ministerial* requirements. *Id.* at 342-343. Here, the conditions that the division has asked AWMS to meet to restart operations at well #2 are hardly ministerial.

{¶ 42} In summary, we reject the state’s argument that the suspension of operations at well #2 is temporary.

C. Whether the division effected a total taking

1. Economically beneficial use

{¶ 43} We start our analysis of AWMS’s total-takings claim with the rule espoused in *Lucas*, which applies to the “relatively rare situations where the government has deprived a landowner of all economically beneficial uses.” 505 U.S. at 1018, 112 S.Ct. 2886, 120 L.Ed.2d 798. Under *Lucas*, the “determinative factor” is whether the regulation effects a “complete elimination of a property’s value.” *Lingle*, 544 U.S. at 539, 125 S.Ct. 2074, 161 L.Ed.2d 876. *See also R.T.G., Inc.*, 98 Ohio St.3d 1, 2002-Ohio-6716, 780 N.E.2d 998, at ¶ 39 (plurality opinion) (“*Lucas* applies where the regulation has deprived the property of all economic value”).

{¶ 44} AWMS supports its argument that it suffered a total taking with the report of its expert witness, Dr. William W. Wade, who determined, using a net-present-value calculation that AWMS had lost 99.4 percent of its investment by September 2015 and 101.5 percent of its investment by June 2017. Dr. Wade determined that the division’s continued enforcement of its suspension order for well #2 created a situation in which AWMS could not cover its operating costs despite any operating revenues generated by well #1. As he explained, “operations without Well #2 are not economically viable” because “Well #2 is essential to the business operations.”

{¶ 45} The state’s expert witnesses faulted Dr. Wade’s analysis as relying on an overly optimistic projection of the volume of wastewater that AWMS’s wells would have accepted. In their view, the well-capacity limitations of AWMS’s

wells, not the division’s suspension order, had been one of the leading culprits for AWMS’s decline in operating revenues. Had Dr. Wade accounted for those limitations, the state says, he would not have concluded that AWMS suffered a total taking.

{¶ 46} We need not decide which expert witness was right, for a court may not weigh competing expert-witness opinions at the summary-judgment stage. *Miller*, 80 Ohio St.3d at 613, 687 N.E.2d 735. We hold, however, that these differences of opinion are enough to establish a genuine issue of material fact concerning whether AWMS suffered a total taking under *Lucas*. For that reason, we reverse the Eleventh District’s judgment granting summary judgment to the state and remand to that court for further proceedings on AWMS’s total-takings claim.

{¶ 47} In reaching this decision, we reject the state’s argument that AWMS did not suffer a total taking because AWMS used and could continue to use its site after the division suspended operations at well #2. The state emphasizes that AWMS could use the site to (1) conduct saltwater-injection operations at well #1, (2) store, recycle, and treat wastewater, and (3) sell byproducts of the wastewater. According to the state, nothing prevents AWMS from continuing those uses. Our concern here, however, is not whether AWMS’s property is capable of being used, but whether it is capable of being used in an “economically beneficial or productive” manner. *Lucas*, 505 U.S. at 1015, 1017, 112 S.Ct. 2886, 120 L.Ed.2d 798. As Dr. Wade opined, the uses to which the state refers yield monthly net losses. For the purposes of summary judgment, his opinion is enough to establish a genuine issue of material fact sufficient to withstand the state’s claim that AWMS did not suffer a total taking.

{¶ 48} We also reject the court of appeals’ conclusion that AWMS did not suffer a total taking because AWMS could have sublet its property to a third party. 2019-Ohio-923, 132 N.E.3d 1151, at ¶ 16. The Federal Circuit addressed a similar

argument in *Lost Tree Village Corp. v. United States*, 787 F.3d 1111 (Fed.Cir.2015). In that case, the government argued that an owner's ability to sell an affected parcel of land constituted an economically beneficial use under *Lucas*. In rejecting that argument, the court explained that "[t]ypical economic uses enable a landowner to derive benefits from land ownership rather than requiring a landowner to sell the affected parcel." *Id.* at 1117. By analogy, AWMS's subletting the property, which would transfer away its right to directly use the property, also does not rise to the level of an economically beneficial use under *Lucas*. Moreover, any sublessee of the property would encounter the same problem as AWMS because it would inherit AWMS's leasehold rights, which, as noted above, extend no further than saltwater-injection-well operations.

{¶ 49} It is doubtful that AWMS's subletting the property would even be a viable option here. "[A] proposed 'use' requires a showing of reasonable probability that, at the time of the taking, the land was both physically adaptable for such use and that there was a need or demand for such use in the reasonably near future." *Bd. of Cty. Supervisors of Prince William Cty. v. United States*, 276 F.3d 1359, 1365 (Fed.Cir.2002). The court of appeals observed that third parties had expressed interest in using AWMS's property but that no agreement had been finalized. 2019-Ohio-923, 132 N.E.3d 1151, at ¶ 16. In support, it relied on the deposition testimony of Kilper, AWMS's vice president, who explained that two potential buyers had contacted him and expressed interest in possibly buying out AWMS's interest in the property. The record does not disclose the details of those conversations, but Kilper explained that at some point in the negotiations the potential buyers stopped returning AWMS's telephone calls. The evidence, therefore, does not show a legitimate demand for AWMS's interest in the property.

{¶ 50} The court of appeals also relied on the report of Andrew Adgate, ODNR's underground-injection-control manager, *id.* at ¶ 17. In his report, Adgate suggested alternative ways in which AWMS could use the property. But because

we conclude that Dr. Wade’s opinions in his report are enough to create a genuine issue of material fact regarding whether AWMS suffered a total taking, we need not consider the substance of Adgate’s report.

2. *The state’s nuisance defense*

{¶ 51} Under *Lucas*, even if a governmental regulation completely deprives an owner of all economically beneficial use of its property, just compensation is not required if the government can show that background principles of property and nuisance law proscribe the owner’s use of the property. *Lucas*, 505 U.S. at 1029, 1017, 112 S.Ct. 2886, 120 L.Ed.2d 798. To take an example from *Lucas*,

the corporate owner of a nuclear generating plant [would not be entitled to just compensation] when it is directed to remove all improvements from its land upon discovery that the plant sits astride an earthquake fault. Such regulatory action may well have the effect of eliminating the land’s only economically productive use, but it does not proscribe a productive use that was previously permissible under relevant property and nuisance principles.

Id. at 1029-1030. Courts have interpreted *Lucas*’s background-principles-of-property-and-nuisance-law passage as creating a *defense* that the government can raise in a regulatory-takings action. *See, e.g., Rith Energy, Inc. v. United States*, 247 F.3d 1355, 1361 (Fed.Cir.2001); *Palm Beach Isles Assocs. v. United States*, 231 F.3d 1354, 1357 (Fed.Cir.2000). We must consider whether, as AWMS argues, the state waived its nuisance defense.

{¶ 52} “Unlike lack of subject matter jurisdiction, other affirmative defenses can be waived.” *State ex rel. Jones v. Suster*, 84 Ohio St.3d 70, 77, 701 N.E.2d 1002 (1998). “[I]t is well settled that ‘[a] party who fails to raise an argument in the court below waives his or her right to raise it here.’ ” (Second

bracket sic.) *Niskanen v. Giant Eagle, Inc.*, 122 Ohio St.3d 486, 2009-Ohio-3626, 912 N.E.2d 595, ¶ 34, quoting *State ex rel. Zollner v. Indus. Comm.*, 66 Ohio St.3d 276, 278, 611 N.E.2d 830 (1993).

{¶ 53} AWMS argues that the state waived its nuisance defense because the state did not raise it in the court of appeals. The state’s second amended answer to AWMS’s complaint clearly sets forth the defense, but whether the state did so in its summary-judgment motion presents a closer question.

{¶ 54} In its motion for summary judgment, the state briefly analogized the facts of this case to the hypothetical used by the court in *Lucas* in which the government could raise a nuisance defense in a situation in which a nuclear-power-generation plant sits astride an earthquake fault. In making that analogy, the state claimed that AWMS’s facility was located near “a previously unknown earthquake fault.”

{¶ 55} At first blush, it would appear that the state did not waive its nuisance defense. The problem, however, is that *Lucas* requires a government-defendant to ground its nuisance defense in principles of its state’s property and nuisance law. *Lucas*, 505 U.S. at 1029-1030, 1017, 112 S.Ct. 2886, 120 L.Ed.2d 798. Here, the state did not ground its nuisance defense in principles of Ohio property and nuisance law. We have held that waiver will apply when a litigant supplies no argument “regarding whether the relevant case law, applied to the facts of th[e] case, justifies a decision in [the litigant’s] favor.” *Util. Serv. Partners, Inc. v. Pub. Util. Comm.*, 124 Ohio St.3d 284, 2009-Ohio-6764, 921 N.E.2d 1038, ¶ 53. We find that principle dispositive here and hold that the state waived its nuisance defense for purposes of this appeal.

{¶ 56} In summary, we conclude that there is a genuine issue of material fact concerning whether the state’s suspension of operations at well #2 deprived AWMS of all economically beneficial use of its leasehold. We further conclude that the state waived its nuisance defense. We therefore reverse the Eleventh

District’s judgment granting summary judgment to the state on AWMS’s total-takings claim. On remand, the court of appeals must weigh the parties’ evidence relating to AWMS’s total-takings claim and disregard the state’s nuisance defense.

D. Whether the division effected a partial taking

{¶ 57} A regulation that prohibits less than all economically beneficial use of land falls outside of *Lucas*’ categorical rule and into *Penn Cent.*’s three-factor analysis. *Palazzolo*, 533 U.S. 606, 617, 121 S.Ct. 2448, 150 L.Ed.2d 592. Under the framework of the *Penn Cent.* analysis, a court should 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,” *Shelly Materials*, 115 Ohio St.3d 337, 2007-Ohio-5022, 875 N.E.2d 59, at ¶ 19. “[T]he *Penn Central* inquiry turns in large part, albeit not exclusively, upon the magnitude of a regulation’s economic impact and the degree to which it interferes with legitimate property interests.” *Lingle*, 544 U.S. at 540, 125 S.Ct. 2074, 161 L.Ed.2d 876. “These essentially ad hoc, factual inquiries,” *Penn Cent.*, 438 U.S. at 123, 98 S.Ct. 2646, 57 L.Ed.2d 631, account for the “particular circumstances of the case,” *767 Third Ave. Assocs. v. United States*, 48 F.3d 1575, 1580 (Fed.Cir.1995).

1. Economic impact

{¶ 58} Although the court of appeals did not consider the economic impact upon AWMS resulting from the state’s suspension of its operations at well #2, an established method of performing the economic-impact analysis involves “compar[ing] the value that has been taken from the property with the value that remains in the property.” *Keystone Bituminous Coal Assn. v. DeBenedictis*, 480 U.S. 470, 497, 107 S.Ct. 1232, 94 L.Ed.2d 472 (1987). This method is sometimes referred to as the “with and without” method. Eagle, “*Economic Impact*” in *Regulatory Takings Law*, 19 Hastings W.-Nw.J.Env’tl.L. & Pol’y 407, 417-418, 420 (2013) (“The usual approach to determine the impact of the regulation subtracts the

value of a parcel with the regulation in place from the value of the parcel without the regulation”).

{¶ 59} Although there does not appear to be an exclusive method of comparing the value of property before and after a regulation, at least two approaches have been expressly endorsed. The first is the market-value approach, which compares the “market value of the property with and without the restrictions on the date that the restriction began.” *Cienega Gardens v. United States*, 503 F.3d 1266, 1282 (Fed.Cir.2007) (“*Cienega Gardens II*”). The second is the lost-net-income approach, which “compare[s] the lost net income due to the restriction (discounted to present value at the date the restriction was imposed) with the total net income without the restriction over the entire useful life of the property (again discounted to present value).” (Parenthesis sic.) *Id.*

{¶ 60} AWMS’s expert witness, Dr. Wade, calculated the economic impact of the state’s regulation on AWMS under the with-and-without method using the lost-net-income approach. In Dr. Wade’s first calculation, he computed “the actual outcome caused by the shutdown of well #2.” In his second calculation, he computed “the expected outcome, which motivated [AWMS]’s investment in the leased property.” In each scenario, Dr. Wade used a discounted-cash-flow model to arrive at the net present value of AWMS’s property interest as of September 2014 (when the suspension of operations at well #2 occurred) by looking backwards from June 2017 (the last date for which Dr. Wade had figures included on AWMS’s net-income statement from which to perform an analysis).

{¶ 61} Regarding the first calculation, Dr. Wade computed a net loss of \$6,119,275, and regarding the second calculation, he computed an expected net income of \$14,475,770. Dr. Wade then computed the difference between those two numbers and determined that the economic impact upon AWMS was a loss of \$20,595,045. Finally, Dr. Wade compared the present value of AWMS’s investment (\$6,076,043 as of September 2014) with the actual outcome (a net loss

of \$6,119,275 as of September 2014) and concluded that AWMS’s “continued ownership of the facilities through June 2017 incurred a loss of 101.5% of investment.” In his words, “the actual outcome does not recoup investment; no return on investment exists.”

{¶ 62} The state’s expert witnesses agree that the lost-net-income approach is a valid method for computing economic impact. And they too performed a discounted-cash-flow analysis. But they concluded that the economic impact of the state’s suspension of operations at well #2 upon AWMS ranged from a low of \$116,334 to a high of \$359,374.

{¶ 63} Again, the court of appeals did not consider the economic impact upon AWMS resulting from the state’s suspension of its operations at well #2. Given the significant numerical disparities in the results of the economic-impact analyses between AWMS’s and the state’s expert witnesses, we conclude that a genuine issue of material fact precluded the granting of summary judgment on the economic-impact factor under *Penn Cent*. We therefore reverse the Eleventh District’s judgment granting summary judgment to the state on AWMS’s partial-takings claim, remand to the court of appeals, and order it to weigh the parties’ evidence concerning the economic-impact upon AWMS of the state’s suspension of operations at well #2.

2. *Reasonable investment-backed expectations*

{¶ 64} “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 Partners, L.P. v. United States*, 889 F.3d 1331, 1345 (Fed.Cir.2018). The Federal Circuit has developed three factors to guide a court when conducting that 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.” *Apollo 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).

{¶ 65} Starting with the first factor—whether AWMS operated in a highly regulated industry—AWMS correctly notes that an entrant into a highly regulated field does not abandon all reasonable investment-backed expectations. *See Cienega Gardens I*, 331 F.3d at 1350. It is also true, however, that “reasonable investment-backed expectations are greatly reduced in a highly regulated field.” *Branch v. United States*, 69 F.3d 1571, 1581 (Fed.Cir.1995). And here, AWMS does not deny that it had entered a highly regulated industry—that of oil and gas.

{¶ 66} Turning to the second factor—whether AWMS had been aware of the potential seismicity problem—AWMS admits to having known that induced seismicity could be an issue with its injection wells. However, we disagree with some of the state’s arguments concerning the problem-awareness factor because they focus on circumstances that arose after AWMS had acquired its leasehold on December 19, 2011. First, the state points to the seismic events that took place in Youngstown on December 24 and December 31, 2011, which prompted former Governor Kasich to impose a moratorium on certain injection activities. Second, the state emphasizes the September 2013 confidential offering memorandum that AWMS prepared for prospective investors in which AWMS acknowledged that governmental regulation of injection wells might increase, that its wells might induce a seismic event, and that such an event could cause a suspension of its injection operations. True, that evidence tends to show AWMS’s awareness that its operations might be suspended if its wells were to be determined to have induced seismic events. But it is the interestholder’s expectations at the time it acquired its

interest that is determinative, not its expectations following an event occurring at some later point in time. *See Apollo Fuels*, 381 F.3d at 1349.

{¶ 67} At the time AWMS acquired its leasehold interest, AWMS could not have anticipated that the state would waver between a case-by-case approach and a statewide approach to addressing induced seismicity while rebuffing AWMS's attempts to meet the state's inchoate regulatory expectations. The parties do not dispute that at the time AWMS obtained its leasehold in December 2011, the division had not established its approach to managing induced seismicity. When the division first issued its suspension orders in September 2014, it put the onus on AWMS to "submit a written plan to the Division for evaluating the seismic concerns associated with the operation of" well #2. Although AWMS had not received direction from the division about what to include in the plan, AWMS nevertheless submitted a plan that included several proposals to establish certain controls over injections at well #2. The division rejected the plan as "generic and inadequate."

{¶ 68} During its appeal of the suspension order, AWMS met twice with the division in an attempt to understand the division's regulatory position. At the first meeting in October 2014, the division stated that its statewide policy would not be ready for at least four to six more months and declined to address the circumstances of its suspension of AWMS's operations. At the second meeting in February 2015, the division presented AWMS a single sheet of paper containing 14 criteria that the division was considering for evaluating induced seismicity in its statewide policy. But the division also told AWMS that it would not implement a statewide policy for at least another eight months. A few days after the February 2015 meeting, AWMS sought clarification on some of the division's proposed criteria. Once again, the division failed to offer any direction or clarification. AWMS nevertheless submitted a plan to the division in early March 2015

addressing the division's proposed criteria. The record does not indicate that the division responded.

{¶ 69} AWMS got its answer in August 2015 when the commission issued its decision affirming the division's suspension of operations of well #2. AWMS could not have reasonably anticipated when it acquired its leasehold interest that the state's inconsistent regulatory approach or its lack of responsiveness to AWMS's attempts at remediation would leave AWMS in limbo for years with an indefinite suspension of its operations.

{¶ 70} AWMS has demonstrated a material issue of fact that the division's suspension of operations at #2 interfered with AMWS's reasonable investment-backed expectations. We therefore reverse the Eleventh District's granting of summary judgment on this factor under *Penn Cent.*

3. *Character of the governmental action*

{¶ 71} The court of appeals began its analysis of the character-of-the-governmental-action factor under *Penn Cent.* as follows:

In evaluating the character of the Suspension Order, we emphasize that the issue of the reasonableness of the Suspension Order has been fully litigated and the Tenth District's opinion has preclusive effect on that point. * * * The character of the order has been deemed reasonable as a matter of law and that judgment was issued in an action between the same parties. Collateral estoppel therefore bars [AWMS] from challenging the reasonableness of the underlying order.

2019-Ohio-923, 132 N.E.3d 1151, at ¶ 22. The court of appeals did not, however, cite any takings-related authority to support its application of the doctrine of collateral estoppel as a means of deciding the character-of-the-governmental-action

inquiry. And neither party's brief defends the court of appeals' invocation of that doctrine. The parties' silence is justified because the character of a governmental action is not determined by its lawfulness or propriety. *See Norman v. United States*, 63 Fed.Cl. 231, 285 (2004) ("the lawfulness or appropriateness of the governmental action is not akin to the character of the governmental action"). Applying this principle, we will analyze the character-of-the-governmental-action factor on its merits rather than recognize the court of appeals' procedural bar.

{¶ 72} Without attempting to provide an exhaustive list of the factors that courts have used to guide their character-of-the-governmental-action inquiries, we will focus on three factors emphasized by the parties. The first factor involves whether the interestholder has been impermissibly "singled out" by the government for unfavorable treatment, *Sherman v. Chester*, 752 F.3d 554, 565-566 (2d Cir.2014), or instead been permissibly included within a governmental program aimed at "adjusting the benefits and burdens of economic life to promote the common good," *Penn Cent.*, 438 U.S. at 124, 98 S.Ct. 2646, 57 L.Ed.2d 631. The second factor involves whether the regulation bears a "harm-preventing purpose." *Rose Acre Farms, Inc. v. United States*, 559 F.3d 1260, 1281 (Fed.Cir.2009). And the third factor involves the extent to which regulatory delay accompanied the government's decisionmaking process. *State ex rel. Duncan v. Middlefield*, 120 Ohio St.3d 313, 2008-Ohio-6200, 898 N.E.2d 952, ¶ 19-20.

{¶ 73} Turning to the first factor—whether the state impermissibly singled out AWMS for unfair treatment—AWMS claims that the division unfairly did so by suspending its operations at well #2 while not suspending operations at a seismicity-inducing well in Washington County (the "Long Run well"). The state's expert witnesses agreed that the Long Run well contributed to seismicity in its surrounding area. And the division's personnel do not dispute that the division contacted the operator of the Long Run well and asked it to reduce—rather than suspend—the well's injection volumes in an effort to mitigate seismicity risks.

{¶ 74} The state argues, however, that there has been no unfair singling out of well #2 because the characteristics of well #2 and the Long Run well differ. First, the state asserts that the wells differ from a geological standpoint. The state stresses the proximity of the bottom of well #2 to a region known as the Precambrian basement, which consists of “igneous and metamorphic rocks that exist below the oldest sedimentary rock cover.” Ground Water Protection Council & Interstate Oil & Gas Compact Commission at 124. According to Simmers, the division’s chief, well injections near that region should be avoided. In Washington County, the separation between the bottom of the Long Run well’s injection zone and the Precambrian basement is just under a mile, which is a significant separation. Well #2, however, is drilled much deeper and bottoms out in an area located directly above the Precambrian basement.

{¶ 75} AWMS agrees that the Long Run well and well #2 differ geologically. But it maintains that the significance of the differences have been overblown. The problem with AWMS’s argument in that regard, however, is that AWMS’s brief cites nothing from the record to support that view. *See State ex rel. Coulverson v. Ohio Adult Parole Auth.*, 62 Ohio St.3d 12, 14, 577 N.E.2d 352 (1991) (holding that conclusory allegations are not sufficient to withstand summary judgment).

{¶ 76} The state’s second basis for distinguishing the Long Run well from well #2 rests on the respective wells’ relative proximities to population centers. In support, the state points to a report prepared by one of its expert witnesses concluding that “the seismic risk in Trumbull and Washington Counties are at opposite ends of the spectrum” due to the differences in the “distribution and density of [the] population and structures” in those areas. AWMS responds that it is not the proximity of injection wells to population centers that should matter but rather the proximity of seismic events to population centers. Yet, AWMS fails to identify anything in the record that affirmatively negates the state’s emphasis on

the wells' proximity to population centers. And even if it had done so, there are still enough differences between well #2 and the Long Run well to persuade us that the state did not unfairly single out well #2.

{¶ 77} Under the second character-of-the-governmental-action factor—whether governmental regulation bears a harm-preventing purpose—the character of a regulation will “weigh[] strongly against finding a taking” when the purpose of that regulation is to prevent harm to public health and safety. *Rose Acre Farms*, 559 F.3d at 1281. “[I]n the context of the protection of public health and safety, ‘the private interest has traditionally been most confined and governments are given the greatest leeway to act without the need to compensate those affected by their actions.’ ” *Dimare Fresh, Inc. v. United States*, 808 F.3d 1301, 1311 (Fed.Cir.2015), quoting *Rose Acre Farms* at 1281-1282. In *Rose Acre Farms*, the federal circuit addressed a governmental action undertaken to limit the spread of salmonella bacteria in the chicken-egg market. *Id.* at 1261. In rejecting the plaintiff’s takings claim, the court gave considerable weight to the government’s harm-preventing purpose, explaining that human consumption of the “infected eggs could have caused serious illness and possibly even death.” *Id.* at 1283.

{¶ 78} In this case, the state presents a similar harm-prevention justification, arguing that the purpose behind the division’s suspension of operations at well #2 was to protect the public against the threat of earthquakes. A December 2017 report prepared by Simmers bears out this assertion. Simmers explained in his report that the “protect[ion] [of] public health and safety” was the purpose of the state’s suspension of operations at well #2. He further noted a strong correlation between the operations at well #2 and the seismic events that took place in the vicinity of well #2 on July 28, 2014, and August 31, 2014. And he concluded that the restarting of operations at well #2 would pose a continued threat of harm to public health and safety because the division has, since issuing the suspension order, obtained evidence that well #2 sits near a geological fault.

{¶ 79} AWMS does not challenge Simmers’s statement that the purpose of the suspension was to protect the public from harm—in fact, AWMS recognizes that preventing harm to the public is a laudable goal. Nor does AWMS challenge Simmers’s determination that its operations at well #2 correlated with the seismic events from 2014—two of AWMS’s expert witnesses concur in that determination. But AWMS does say in its merit brief that no one has determined that AWMS’s operations posed an “imminent threat” to public safety. However, AWMS identifies no authority that requires a governmental actor to establish that there is an imminent threat of harm before the government implements a regulatory action to protect public health and safety.

{¶ 80} The third and final character-of-the-governmental-action factor involves the extent to which delay accompanied the state’s decisionmaking process. Although “[a] requirement that a person obtain a permit before engaging in a certain use of his or her property does not itself ‘take’ the property in any sense,” *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 127, 106 S.Ct. 455, 88 L.Ed.2d 419 (1985), “a taking may occur by reason of ‘extraordinary delay in governmental decisionmaking,’ ” *Wyatt*, 271 F.3d at 1097, quoting *Tabb Lakes, Ltd. v. United States*, 10 F.3d 796, 803 (Fed.Cir.1993). In deciding whether a delay is extraordinary, a court must weigh “all relevant factors,” *Duncan*, 120 Ohio St.3d 313, 2008-Ohio-6200, 898 N.E.2d 952, at ¶ 20, including the length of the delay, *Bass Ents. Prod. Co.*, 381 F.3d at 366. Bad faith on the part of the government will influence the inquiry, as will any delay that the interestholder’s conduct caused. *Duncan* at ¶ 20. The “nature of the permitting process” and the “reasons for any delay” may also inform the analysis. *Wyatt* at 1098.

{¶ 81} The party alleging a governmental taking must tie its claim of extraordinary delay to the government’s decisionmaking process, namely, the process by which the government reviews an interestholder’s formal request to use its property in a particular way. *Duncan* at ¶ 19-20. In *Duncan*, a case cited by

AWMS in its merit brief, a landowner tied his claim of extraordinary delay to the government's conduct in reviewing his zoning-permit applications. *Duncan* at ¶ 21 (addressing delays of six and nine months). In *Byrd v. Hartsville*, a case *Duncan* cites with approval, *see Duncan* at ¶ 19, a landowner similarly claimed to have suffered from extraordinary delay during the government's review of his zoning petition, 365 S.C. 650, 660-662, 620 S.E.2d 76 (2005) (addressing delays of two and eleven months). Although the plaintiffs in *Duncan* and *Byrd* did not succeed on their extraordinary-delay claims, the salient point for the purpose of our analysis is that the plaintiffs in those cases tied their claims to the manner in which the government conducted itself in reviewing their formal requests to use their property in a particular way.

{¶ 82} Here, although it is a bit unclear, AWMS appears to allege extraordinary delay stemming from the division's decision to delay, and then abandon, the implementation of its once-promised statewide policy on induced seismicity. But AWMS cites no authority supporting its argument that a claim of extraordinary delay will lie against the government for unduly delaying the implementation of a policy, as opposed to deciding an interestholder's pending request to use its property in a certain way. And AWMS makes no claim that it is awaiting the division's approval of its plans to restart well #2.

{¶ 83} AWMS next alleges that the division has engaged in extraordinary delay based on the length of time that operations at well #2 have been suspended. But that argument is misplaced because it targets the consequences of the division's decisionmaking process, not the decisionmaking process itself.

{¶ 84} AWMS also alleges that the division has acted in bad faith. In support of that contention, AWMS points to an affidavit provided by Kilper, its vice president, in which he stated that he was told by a member of the division that "press and politics" (rather than science) was the real reason that the Long Run well had been permitted to operate and well #2 had not. But as explained above, there

is no genuine dispute that well #2 and the Long Run well differ in significant ways. Given these differences, AWMS's allegations of bad faith are not "significantly probative." *Buckeye Union Ins. Co. v. Consol. Stores Corp.*, 68 Ohio App.3d 19, 22, 587 N.E.2d 391 (10th Dist.1990) (if evidence is "merely colorable" or not "significantly probative," summary judgment may be entered).

{¶ 85} If the crux of AWMS's argument is that the division took too long to conduct its review of AWMS's restart plan—again, AWMS's argument regarding the division's delay is a bit unclear—then the temporal scope of such reviews must be considered. AWMS is not clear on how it imputes value to a particular length of time. Approximately seven months—from September 2014 to March 2015—elapsed between the dates on which it submitted its first and second restart plans. And approximately 17 months—from March 2015 to August 2016—elapsed between the dates on which it submitted its second restart plan and filed its mandamus petition. Because the record does not show that the division ever formally rejected AWMS's second restart plan, *see also AWMS I*, 2018-Ohio-3028, 118 N.E.3d 385, at ¶ 8, in the absence of further guidance, we construe the filing of AWMS's mandamus petition as setting the date upon which AWMS regarded the division as having effected a constructive denial of its plans. Even if we were to assume that the state acted in bad faith, AWMS cites no authority supporting its argument that delays of the lengths that occurred in this case are extraordinary under the circumstances. Further, delays of 45 months and longer have been deemed unextraordinary when, as here, complex regulatory schemes are involved. *See, e.g., Bass Ents. Prod. Co.*, 381 F.3d at 1363, 1366-1368 (45-month delay); *Wyatt*, 271 F.3d at 1098-1100 (76-month delay).

{¶ 86} In summary, we conclude that 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.

4. *Balancing the factors*

{¶ 87} In a typical partial-takings case, a reviewing court must balance the *Penn Cent.* factors to determine whether a partial taking has occurred. *Reoforce, Inc. v. United States*, 853 F.3d 1249, 1271 (Fed.Cir.2017). But genuine issues of material fact preclude us from performing that balancing exercise. We reverse the Eleventh District’s judgment granting summary judgment to the state on AWMS’s partial-takings claim. On remand, the court of appeals must weigh the parties’ economic-impact evidence and determine in whose favor that factor falls. After doing so, the court of appeals must balance all three *Penn Cent.* factors to determine whether AWMS suffered a partial taking.

IV. CONCLUSION

{¶ 88} For the foregoing reasons, we hold that there is a genuine issue of material fact concerning whether the state’s suspension of AWMS’s operations at well #2 constituted a total taking by depriving AWMS of all economically beneficial use of its leasehold. We further conclude that the state waived its nuisance defense to AWMS’s total-takings claim. We reverse the Eleventh District’s judgment granting summary judgment to the state on AWMS’s total-takings claim. On remand, the court of appeals must weigh the parties’ evidence relating to AWMS’s total-takings claim and disregard the state’s nuisance defense.

{¶ 89} We also reverse the Eleventh District’s judgment granting summary judgment to the state on AWMS’s partial-takings claim. On remand, the court of appeals must weigh the parties’ evidence in accordance with this opinion and balance all three *Penn Cent.* factors to determine whether AWMS suffered a partial taking.

Judgment reversed
and cause remanded.

O’CONNOR, C.J., and FRENCH and DEWINE, JJ., concur.

KENNEDY, J., concurs in judgment only, with an opinion.

STEWART, J., concurs in judgment only.

DONNELLY, J., dissents, with an opinion.

KENNEDY, J., concurring in judgment only.

{¶ 90} Because I agree with the majority that there are genuine issues of material fact precluding the entry of summary judgment in favor of appellees, the Ohio Department of Natural Resources (“ODNR”); ODNR’s director, Mary Mertz; ODNR’s Division of Oil and Gas Resources Management (“the division”); and the division’s chief, Richard Simmers (collectively, “the state”), I concur in the court’s judgment to reverse the decision of the Eleventh District Court of Appeals. Appellants, AWMS Water Solutions, L.L.C.; AWMS Holdings, L.L.C.; and AWMS, Rt. 169, L.L.C. (collectively, “AWMS”), presented evidence that the state’s order closing AWMS’s saltwater-injection well effected a total or partial taking of its property sufficient to survive the state’s motion for summary judgment.

Total-takings analysis

{¶ 91} The threshold issue in a takings analysis is to define the property allegedly taken, and state law determines which individual rights constitute property, *see State ex rel. New Wen, Inc. v. Marchbanks*, 159 Ohio St.3d 15, 2020-Ohio-63, 146 N.E.3d 545, ¶ 24. “An interest in real property is defined by the metes and bounds that describe its geographic dimensions and the term of years that describes the temporal aspect of the owner’s interest.” *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302, 331-332, 122 S.Ct. 1465, 152 L.Ed.2d 517 (2002). We have recognized, for example, that “[a] mineral estate may be considered the relevant parcel for a compensable regulatory taking if the mineral estate was purchased separately from the other interests in the real property.” *State ex rel. Shelly Materials, Inc. v. Clark Cty. Bd. of Commrs.*, 115 Ohio St.3d 337, 2007-Ohio-5022, 875 N.E.2d 59, ¶ 34.

{¶ 92} The property interest at stake in this case is a narrow one: a leasehold right to operate Class II saltwater-injection wells on 5.2 acres of industrial property in Weathersfield Township, Trumbull County, Ohio. AWMS has invested millions of dollars to develop the facilities necessary to operate those wells, but it may use the property only for operations consistent with the limited property interest it owns. That is, AWMS cannot use the property to operate a fast-food restaurant or a car dealership or anything else exceeding the scope of the lease. Therefore, in determining whether the state’s order suspending AWMS’s operations at well #2 constitutes a total or partial taking, the property allegedly taken is AWMS’s limited property right allowing it to operate saltwater-injection wells under its leasehold and the ancillary activities associated with that right.

{¶ 93} In the United States Supreme Court’s seminal decision in *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 43 S.Ct. 158, 67 L.Ed. 322 (1922), the claimant had sold the surface rights to particular parcels of property, but expressly reserved the right to remove the coal underneath those parcels. After the sale, Pennsylvania enacted a statute forbidding the mining of coal that causes the subsidence of any structure used as a human habitation unless, among other exceptions, the owner of the coal also owned the surface land. *Id.* at 412-413. The Supreme Court determined that the statute had made it “commercially impracticable” to mine the coal and had “very nearly the same effect for constitutional purposes as appropriating or destroying” the reservation of the mineral interest. *Id.* at 414. The court therefore held that the statute effected a governmental taking of property. *Id.* at 415-416.

{¶ 94} Similarly, AWMS’s evidence established a triable issue regarding whether the state’s suspension order caused a total taking of AWMS’s property by depriving its leasehold of “all economically beneficial or productive use,” *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1015, 112 S.Ct. 2886, 120 L.Ed.2d 798 (1992). AWMS presented the report of its expert, Dr. William W. Wade, who

explained that AWMS had lost 99.4 percent of its investment by September 2015 and 101.5 percent of its investment by June 2017. He therefore opined that it was not economically viable for AWMS to conduct saltwater-injection operations at well #1 if the suspension order remained in place for well #2. That evidence, if believed, is sufficient to establish that the suspension order was a total governmental taking of AWMS's property because it completely deprived AWMS of all economically beneficial use of its leasehold interest, a limited property right allowing AWMS to operate saltwater-injection wells and to conduct the ancillary activities associated with the wells. *See Lucas* at 1015; *Mahan* at 414. A property right has no economic value if it can only be exercised at an economic loss.

{¶ 95} Because Dr. Wade's opinion created a genuine issue of material fact regarding whether AWMS had suffered a total taking of its property interest, it is unnecessary to consider other factual issues regarding whether AWMS's leasehold retained some economic value because AWMS could continue other kinds of operations on the premises or because it could sell or sublet its interest. Those remain triable issues that should be considered by the court of appeals on remand; this court should not resolve factual disputes in the first instance when considering issues on appeal.

Partial-takings analysis

{¶ 96} Regarding AWMS's partial-takings claim, I agree with the majority that there are genuine issues of material fact that precluded the entry of summary judgment in favor of the state. In determining whether a partial taking has occurred, we apply the analysis from *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 98 S.Ct. 2646, 57 L.Ed.2d 631 (1978). We have noted that the analysis involves an

an ad hoc, factual inquiry that requires the examination of the following three factors to determine whether a regulatory taking occurred in cases in which there is no physical invasion and the

regulation deprives the property of less than 100 percent of its economically viable use: (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.

Shelly Materials, 115 Ohio St.3d 337, 2007-Ohio-5022, 875 N.E.2d 59, at ¶ 19.

{¶ 97} Regarding the first prong of the *Penn Cent.* test—the economic impact of the regulation—AWMS presented Dr. Wade’s expert opinion that the economic impact of the suspension order on AWMS was a loss of \$20,595,045 and the elimination of any return on investment. The state’s experts calculated the economic impact as ranging between \$116,334 and \$359,374. Accordingly, there is a significant factual dispute regarding the scope of the economic impact that AWMS suffered. Without resolving this factual dispute, the court of appeals had no basis to determine what weight, if any, to give the economic impact of the regulation on AWMS’s property. Simply assuming that this factor weighed in AWMS’s favor, as the court of appeals did here, is no substitute. There is a difference between assuming that this factor weighed in AWMS’s favor and finding that the suspension order has cost AWMS tens of millions of dollars.

{¶ 98} The majority therefore correctly determines that there are genuine issues of material fact regarding the economic impact of the regulation that precluded the court of appeals from granting summary judgment to the state.

{¶ 99} The second prong of the *Penn Cent.* test requires us to evaluate the reasonableness of the property owner’s distinct investment-backed expectations. In investing millions of dollars to construct saltwater-injection wells, AWMS had a reasonable expectation that it would be able to conduct its operations if it complied with the statutes enacted by the General Assembly and the rules promulgated by the division. It was also more than reasonable for AWMS to expect that it would

be able to continue saltwater-injection operations as long as it obeyed the terms of its permits. That is, AWMS had the right to expect that the state would adhere to the principle that “the government itself is subject to rules of law, and cannot disregard the law, or remake it to suit itself without heeding those procedures specified by law.” *Cooper v. Gwinn*, 171 W.Va. 245, 250, 298 S.E.2d 781 (1981).

{¶ 100} The state might be correct when it calls AWMS’s investment “a calculated investment risk.” However, that calculation was based on AWMS’s expectations that the division would adhere to Ohio’s statutes and rules and AWMS’s permit conditions as written, which would allow AWMS’s continued operation of its well if the terms of its permits were not violated. AWMS could reasonably rely on R.C. 1509.04(A) and (C), which allow saltwater-injection operations to be suspended when there is a violation of a statute, administrative rule, or condition of the permit, but only if (1) the operator has violated an order finding a material and substantial violation or (2) continued operation “presents an imminent danger to the health or safety of the public or that results in or is likely to result in immediate substantial damage to the natural resources of this state.” And AWMS could rely on the fact that neither the Revised Code nor the division’s administrative rules include specific provisions regulating induced seismicity. And to the extent that Ohio law permits the division to include conditions regarding induced seismicity in a permit, AWMS could rely on the fact that its permits did not contain express language empowering the division to suspend its operations due to a seismic event of a specific magnitude.

{¶ 101} The division and AWMS were both aware of the concerns that saltwater-injection operations could induce seismicity prior to the division’s issuing AWMS its permits, but the division nonetheless issued the permits for AWMS to construct two wells, without reserving its authority to suspend AWMS’s operations if the wells caused a particular amount of seismic activity. The Supreme Court of the United States has recognized that that such approval “can lead to the fruition of

a number of expectancies embodied in the concept of ‘property’—expectancies that, if sufficiently important, the Government must condemn and pay for before it takes over the management of the landowner’s property.” *Kaiser Aetna v. United States*, 444 U.S. 164, 179, 100 S.Ct. 383, 62 L.Ed.2d 332 (1979). And there have been no relevant changes to Ohio’s regulatory scheme that should preclude AWMS’s continued reliance on the division’s approval.

{¶ 102} Based on these facts, a factfinder could conclude that the state’s suspension order interferes with AWMS’s distinct investment-based expectations and that those expectations were reasonable.

{¶ 103} In reviewing this second prong of the *Penn Cent.* test, the majority focuses on “the state’s inconsistent regulatory approach” and “its lack of responsiveness to AWMS’s attempts at remediation.” Majority opinion at ¶ 69. But that evidence should not be considered solely under the second prong of the *Penn Cent.* test, because it is also relevant in determining the character of the governmental regulation, which is the third prong of the *Penn Cent.* test. The third prong recognizes that there can be a range of governmental action that can affect property rights, from the physical invasion of property, to a regulation that “merely affects property interests through ‘some public program adjusting the benefits and burdens of economic life to promote the common good,’ ” *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 539, 125 S.Ct. 2074, 161 L.Ed.2d 876 (2005), quoting *Penn Cent.*, 438 U.S. at 124, 98 S.Ct. 2646, 57 L.Ed.2d 631. The focus should appropriately be on “the degree to which [the regulation] interferes with legitimate property interests,” *id.* at 540, and draw on the understanding that the right to use property “is subject to the reasonable exercise of state authority, including the enforcement of valid zoning and land-use restrictions,” *Palazzolo v. Rhode Island*, 533 U.S. 606, 627, 121 S.Ct. 2448, 150 L.Ed.2d 592 (2001). Our task here is to determine where on the continuum of governmental action the state’s suspension order on AWMS fell.

{¶ 104} Contrary to the majority’s reasoning, there are genuine issues of material fact that must be resolved before the third prong of *Penn Cent.* test may be balanced against the first two factors. AWMS presented evidence establishing that the division’s suspension order had neither been intended to promote public safety nor supported by science, but that it was imposed because of “press and politics.” AWMS supports that claim by pointing to situations involving other saltwater-injection wells that had been permitted to continue their operations notwithstanding concerns about their inducing seismicity, including one that had been permitted to inject saltwater at reduced volumes rather than have its operations suspended. AWMS points to the division’s delay in reviewing its plan for restarting its operations, a plan that sought to mitigate potential seismic activity through operational adjustments that had been successfully used with other wells. That is, “the state’s inconsistent regulatory approach” and “its lack of responsiveness to AWMS’s attempts at remediation” that have left “AWMS in limbo for years with an indefinite suspension of its operations,” majority opinion at ¶ 69, support AWMS’s assertion that the suspension order is “not * * * a broadly applied regulation to prevent or limit an existing threat to public safety or welfare[,]” but rather requires one injection-well operator to solely bear the burden of “a problem that is shared by its peers.”

{¶ 105} This evidence establishes a factual dispute regarding the character of the state’s regulation of AWMS’s operations and whether the state’s purpose is to protect the environment and public safety or whether this “particular exercise of the State’s regulatory power is so unreasonable or onerous as to compel compensation,” *Palazzolo* at 627.

{¶ 106} For these reasons, I agree with the majority that there are genuine issues of material fact precluding the entry of summary judgment on AWMS’s total-takings and partial-takings claims.

DONNELLY, J., dissenting.

{¶ 107} I would hold that appellants, AWMS Water Solutions, L.L.C.; AWMS Holdings, L.L.C.; and AWMS, Rt. 169, L.L.C. (collectively, “AWMS”), suffered neither a total nor a partial regulatory taking, and thus I would affirm the judgment of the Eleventh District Court of Appeals. Accordingly, I respectfully dissent.

Total-takings analysis

{¶ 108} I start my regulatory-takings analysis where the majority does, by considering AWMS’s total-takings claim against the backdrop of the United States Supreme Court’s decision in *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 112 S.Ct. 2886, 120 L.Ed.2d 798 (1992). In that case, the property owner bought beachfront property for the purpose of developing it into single-family residences. *Id.* at 1006-1007. Later, the South Carolina legislature enacted legislation forbidding the owner from erecting any permanent habitable structures on the property, rendering the property “valueless.” *Id.* at 1007. The Supreme Court of South Carolina determined that the legislation had not effected a governmental taking of the owner’s property because the legislation’s purpose was to preserve beaches as a public resource. *Id.* at 1009-1010.

{¶ 109} The United States Supreme Court reversed, determining that the legislation’s purpose had no place in a takings analysis. The Supreme Court held that “when the owner of real property has been called upon to sacrifice all economically beneficial uses in the name of the common good, that is, to leave his property economically idle, he has suffered a taking,” *id.* at 1019, unless the state can show that the owner’s “proscribed use interests were not part of his title to begin with,” *id.* at 1027. The court explained that when a regulation deprives land of any “economically beneficial or productive options for its use—typically, as here, by requiring land to be left substantially in its natural state,” the regulation carries with

it a “heightened risk that private property is being pressed into some form of public service under the guise of mitigating serious public harm.” *Id.* at 1018.

{¶ 110} The facts presented in this case are a far cry from those involved in *Lucas*. Appellees, the Ohio Department of Natural Resources (“ODNR”); ODNR’s director, Mary Mertz; ODNR’s Division of Oil and Gas Resources Management (“the division”); and the division’s chief, Richard Simmers (collectively, “the state”), did not force AWMS to render its property economically idle by leaving it to its natural state. AWMS continued to use well #1 after the division suspended operations at well #2. In fact, before AWMS voluntarily decided to shut down its operations at well #1, it had generated hundreds of thousands of dollars in revenue from its use. And as the court of appeals noted, even after well #2’s suspension, AWMS “still processed, stored, recycled, treated, and disposed of brine” on the property. 2019-Ohio-923, 132 N.E.3d 1151, ¶ 15.

{¶ 111} Given that the property was, and still could be, used for income-producing purposes, I am puzzled by the majority’s decision to remand the cause to the court of appeals for further weighing of the evidence. The majority points to the parties’ competing economic-impact evidence, explaining that there is a genuine issue of material fact about whether the division’s suspension of operations at well #2 left AWMS’ leasehold valueless. True, the parties’ experts offered sharply divergent opinions on how far AWMS undershot its original revenue goals and why. The majority correctly notes that the “complete elimination of a property’s value” is the “determinative factor” under the analysis espoused in a *Lucas*. Majority opinion at ¶ 43, quoting *Lingle v. Chevron, U.S.A., Inc.*, 544 U.S. 528, 539, 125 S.Ct. 2074, 161 L.Ed.2d 876 (2005). But from a regulatory-takings perspective, I fail to see how a property could ever be characterized as valueless when the property is capable of being put to the economically beneficial uses discussed above. As *Lucas* itself makes clear, a property’s usage informs its value. *See Lucas*, 505 U.S. at 1019, 1027, 112 S.Ct. 2886, 120 L.Ed.2d 798.

{¶ 112} Indeed, we interpreted the reasoning in *Lucas* in precisely that way in *State ex rel. Shelly Materials, Inc. v. Clark Cty. Bd. of Commrs.*, 115 Ohio St.3d 337, 2007-Ohio-5022, 875 N.E.2d 59. In that case, a local zoning board had denied a company’s request for a permit to mine sand and gravel deposits located below the surface of the company’s property. *Id.* at ¶ 4. The company eventually responded by filing a total-takings claim. *Id.* at ¶ 14. In one part of our decision, we framed the takings question as turning on whether the government had deprived the owner of all economically beneficial use of the property. *Id.* at ¶ 18. In another part of our decision, we framed the question as whether the company had suffered a “ ‘complete elimination of [the property’s] value.’ ” *Id.* at ¶ 22, quoting *Lingle* at 539. We ultimately rejected the company’s argument that the government’s denial of the permit destroyed “all economic value associated with its property,” determining instead that “there are other potential *uses* available for th[e] land.” (Emphasis added.) *Shelly Materials* at ¶ 39. We noted that the property could be used for agriculture purposes or developed into residential lots. *Id.* at ¶ 3.

{¶ 113} Other authorities support this understanding of *Lucas*. According to a leading treatise on regulatory takings, “[t]he tenor of *Lucas* * * * continually reinforces the idea that ‘property’ consists of rights to *use* resources.” (Emphasis sic.) 1 Eagle, *Regulatory Takings*, Section 7-3(b)(5) (2018). While recognizing that the concept of value does appear in *Lucas*, the treatise explains that *Lucas*’s discussion of value “is coupled with economically beneficial use.” *Id.* This coupling arises from the fact that “[a] large component of property, and of its value, is the right to receive streams of income in the future.” *Id.* at Section 7-3(b)(6).

{¶ 114} The same treatise further observes that the United States Court of Appeals for the Federal Circuit “has repeatedly found that a categorical taking is measured by complete deprivation of use, not value.” *Id.* at Section 7-3(b)(5). The United States Courts of Appeals for the Ninth and Fourth Circuits have applied *Lucas*’s rule in a similar way. *See, e.g., Del Monte Dunes at Monterey, Ltd. v.*

Monterey, 95 F.3d 1422, 1433 (9th Cir.1996) (“our focus is primarily on use, not value”), *aff’d on other grounds*, 526 U.S. 687, 119 S.Ct. 1624, 143 L.Ed.2d 882 (1999); *Front Royal and Warren Cty. Indus. Park Corp. v. Front Royal*, 135 F.3d 275, 286 (4th Cir.1998) (rejecting the claimant’s total-takings claim under *Lucas* because the claimant had not been denied “the right to use its property”).

{¶ 115} Today’s decision creates friction with those authorities and does little to bring certainty to Ohio litigants, other than ensuring that their litigation costs will rise. The majority’s holding will now make it necessary for litigants to pay an expert to prepare an economic-impact statement to prosecute (or defend against) a total-takings claim brought under *Lucas*. Nor is the majority’s decision today likely to simplify matters for Ohio courts considering a total-takings claim. Rather than requiring courts to consider, as *Lucas* instructs, whether an owner has been forced to render his or her property economically idle by leaving it to its natural state (a simple enough inquiry), the courts will now be expected to sift through dense economic analyses and determine which litigant’s expert produced the more probative report. Nothing in *Lucas* requires that we leave these important questions of constitutional dimension in the hands of economists and corporate-strategy analysts.

{¶ 116} The upshot of the majority’s decision today is that Ohio taxpayers might now be forced to bear the financial fallout of an inherently risky business venture. Justice Holmes warned of such dangers long ago, observing that “[g]overnment hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law.” *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413, 43 S.Ct. 158, 67 L.Ed. 322 (1922). I fear that the majority’s decision today has lost sight of that principle.

Partial-takings analysis

{¶ 117} I turn now to the majority’s analysis of AWMS’s partial-takings claim and the factors to be applied to that claim derived from *Penn Cent. Transp.*

Co. v. New York City, 438 U.S. 104, 98 S.Ct. 2646, 57 L.Ed.2d 631 (1978). Although I agree with the majority’s analysis of the factor in *Penn Cent.* examining the character of the governmental action and its conclusion that there is a genuine issue of material fact concerning the economic-impact factor, I would resolve the *Penn Cent.* inquiry solely on the basis of the reasonable-investment-backed-expectations factor.

{¶ 118} I agree with a good portion of the majority’s analysis of the facts of this case under *Penn Cent.*’s reasonable-investment-backed-expectations factor. As the majority correctly points out, the government’s regulation of induced seismicity is an issue of enormous complexity. But, as the Federal Circuit noted in *Good v. United States*, we have a “growing consciousness of and sensitivity toward environmental issues,” with the result here being that AWMS “must * * * have been aware that standards could change to [its] detriment, and that regulatory approval could become harder to get.” 189 F.3d 1355, 1363 (Fed.Cir.1999). Given the added threat to public health and safety or damage to the environment arising from human-induced earthquakes, the majority properly finds that the balance of the investment-backed-expectations factor tips in the state’s favor.

{¶ 119} Unlike the majority, however, I would go a step further and conclude that the balance tips *decisively* in the state’s favor, thus obviating the need to address the other *Penn Cent.* factors. That is precisely the approach that the Federal Circuit applied in *Good* when it held that “the government is entitled to summary judgment on a regulatory takings claim where the plaintiffs lacked reasonable, investment-backed expectations, even where the challenged government action ‘substantially reduc[ed] the value of plaintiff’s property.’ ” (Brackets sic.) *Good* at 1363, quoting *Avenal v. United States*, 100 F.3d 933, 937 (Fed.Cir.1996). The Ninth Circuit Court of Appeals has applied a similar approach. See *Guggenheim v. Goleta*, 638 F.3d 1111, 1120 (9th Cir.2010) (according

dispositive status to its conclusion on the inquiry into reasonable investment-backed expectations).

{¶ 120} The majority declines to accord controlling significance to the investment-backed-expectations factor. I find it problematic that while the majority has applied a large swath of the Federal Circuit’s takings jurisprudence in this case, it has chosen not to apply it, as the Federal Circuit did in *Good*, to conclusively resolve the *Penn Cent.* analysis on the basis of the expectations factor. I do not find the majority’s piecemeal approach to be particularly helpful. In order to better ensure predictability and uniformity in our takings jurisprudence, the majority should follow the approach taken by the Federal Circuit in *Good*.

{¶ 121} More importantly, I find it problematic that the majority focuses on AWMS’s expectations at the time it obtained its leasehold—rather than at the time of its investment. An analysis of a claimant’s reasonable investment-backed expectations should necessarily involve consideration of the claimant’s expectations formed at the time of its investment. When an interest in real property is relevant in a takings case, the economic investment and the price of acquiring the property interest are normally one and the same. *See, e.g., Love Terminal Partners, L.P. v. United States*, 889 F.3d 1331, 1337, 1346 (Fed.Cir.2018) (claimant’s investment was \$6.5 million spent to acquire the property interest). Not so here.

{¶ 122} When AWMS obtained its leasehold in December 2011, its only “investment” was its promise to pay the lessor a 5 percent royalty on any revenue eventually derived from each well from brine disposal. AWMS’s actual investment occurred, as AWMS itself states, when it spent millions of dollars “constructing a state-of-the-art disposal [f]acility on the leasehold.” The actual investment did not start to take place until September 2013, long after the series of earthquakes that occurred in Youngstown, Ohio in December 2011, long after the division took the “Northstar #1” well out of operation for causing the earthquakes, and long after the statewide moratorium had been imposed on certain well-injection activities so that

the division could study induced seismicity. At the time that AWMS's actual investment occurred, AWMS explicitly acknowledged in its "confidential offering memorandum" that it knew that the government's regulation of injection wells could increase in scope and complexity due to growing industry awareness, that AWMS's wells could cause a seismic event similar to the events that had occurred in Youngstown, and that a seismic event caused by AWMS's wells could lead to the suspension of its injection operations.

{¶ 123} All three factors in the reasonable-expectations analysis weigh heavily in the state's favor: AWMS operates in a highly regulated industry, it was aware that induced earthquakes had caused state regulation of an injection well in its property's vicinity by the time of its investment, and it expressly anticipated the possibility of such regulation of its own wells at the time of its investment. *See Apollo Fuels, Inc. v. United States*, 381 F.3d 1338, 1349 (Fed.Cir.2004). Contrary to the majority's conclusion, AWMS was absolutely forewarned that the division would regulate injection-well-induced earthquakes in the way that the division did.

{¶ 124} Accordingly, after the division ordered AWMS to temporarily suspend its operations at well #2 due to the likelihood that AWMS's operations had caused multiple earthquakes, the court of appeals correctly held that the suspension did not cause AWMS to suffer a total or partial regulatory taking. I therefore dissent and would affirm the judgment of the Eleventh District Court of Appeals.

Brouse McDowell, L.P.A., Matthew G. Vansuch, and Kyle A. Shelton, for appellants.

Dave Yost, Attorney General, Samuel C. Peterson, Deputy Solicitor General, and Brett A. Kravitz and W. Scott Myers, Assistant Attorneys General, for appellees.
