

10-4135-cv (L), 10-4329-cv (XAP)
In re: MTBE Prods. Liability Litig.

United States Court of Appeals
FOR THE SECOND CIRCUIT

August Term, 2011

(Argued: May 23, 2012 Decided: July 26, 2013)

Docket Nos. 10-4135-cv (L), 10-4329-cv (XAP)

IN RE: METHYL TERTIARY BUTYL ETHER (“MTBE”)
PRODUCTS LIABILITY LITIGATION

B e f o r e:

PARKER, HALL, and CARNEY, Circuit Judges.

After an eleven-week bellwether trial and years of related litigation, the District Court entered a \$104.69 million judgment for the City of New York, the New York City Water Board, and the New York City Municipal Water Finance Authority (collectively, the “City”) and against Exxon Mobil Corporation, Exxon Mobil Oil Corporation, and Mobil Corporation (collectively, “Exxon”). The jury found Exxon liable under New York tort law for contaminating City-owned wells in Queens by its release of the chemical methyl tertiary butyl ether (“MTBE”), which Exxon used as a gasoline additive from the mid-1980s through the mid-2000s, and whose use New York State banned as of 2004. On appeal, Exxon challenges the verdict, arguing primarily that the City’s common law claims are preempted by the federal Clean Air Act, which, from the mid-1990s through 2004, required use of gasoline oxygenates, such as MTBE, in New York City. Exxon also argues that because (among other reasons) the jury projected MTBE levels equal to the State’s maximum contaminant level, the City’s injury was not legally cognizable; that the City’s action was not ripe for adjudication (or alternatively, that it was barred by the statute of limitations); that the City failed sufficiently to prove the elements of negligence, trespass, public nuisance, and failure-to-warn; and that the District Court erred in its handling of alleged jury misconduct. On cross-appeal, the City faults the District Court for instructing the jury to offset its damages award by the

cost of remediating pre-existing contamination, and for its ruling that, as a matter of law, the City was not entitled to an award of punitive damages. For the reasons set forth below, we AFFIRM the decision of the District Court in its entirety.

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SUSAN L. CARNEY, Circuit Judge:

Exxon Mobil Corporation, Exxon Mobil Oil Corporation, and Mobil Corporation (collectively, “Exxon”) appeal from an amended judgment entered in

favor of the City of New York, the New York City Water Board, and the New York City Municipal Water Finance Authority (collectively, “the City”) on September 17, 2010, in the United States District Court for the Southern District of New York (Shira A. Scheindlin, Judge), following an eleven-week jury trial and post-trial proceedings. The case was selected to serve as a bellwether trial in certain long-running multidistrict litigation, consolidated in the District Court, that concerns contamination of groundwater by the organic chemical compound methyl tertiary butyl ether (“MTBE”).¹

As described in greater detail below, this extended litigation arose from the intensive use of MTBE as a gasoline additive by Exxon and other gasoline companies in the New York area from the 1980s through the first half of the 2000s, when a state ban on MTBE brought the era to an end. Treatment with MTBE increased the oxygen content of gasoline and mitigated harm to air quality caused by automobile emissions, thereby furthering the goals of the Clean Air Act, 42 U.S.C. §§ 7401-7671q, as amended from time to time. Because of spillage and

¹ The path of this litigation is charted in a number of District Court opinions, as well as one opinion of our own Court. See In re MTBE Prods. Liab. Litig., 175 F. Supp. 2d 593 (S.D.N.Y. 2001) (MTBE I); In re MTBE Prods. Liab. Litig., 379 F. Supp. 2d 348 (S.D.N.Y. 2005) (MTBE II); In re MTBE Prods. Liab. Litig., 457 F. Supp. 2d 324 (S.D.N.Y. 2006) (MTBE III); In re MTBE Prods. Liab. Litig., 458 F. Supp. 2d 149 (S.D.N.Y. 2006) (MTBE IV); In re MTBE Prods. Liab. Litig., 488 F.3d 112 (2d Cir. 2007) (MTBE V); In re MTBE Prods. Liab. Litig., 2007 WL 1601491 (S.D.N.Y. June 4, 2007) (MTBE VI); In re MTBE Prods. Liab. Litig., 644 F. Supp. 2d 310 (S.D.N.Y. 2009) (MTBE VII); In re MTBE Prods. Liab. Litig., 643 F. Supp. 2d 446 (S.D.N.Y. 2009) (MTBE VIII); In re MTBE Prods. Liab. Litig., 2009 WL 2634749 (S.D.N.Y. Aug. 25, 2009) (MTBE IX); In re MTBE Prods. Liab. Litig., 2009 WL 3347214 (S.D.N.Y. Oct. 19, 2009) (MTBE X); In re MTBE Prods. Liab. Litig., 2010 WL 1328249 (S.D.N.Y. Apr. 5, 2010) (MTBE XI); In re MTBE Prods. Liab. Litig., 739 F. Supp. 2d 576 (S.D.N.Y. 2010) (MTBE XII).

leakage from gasoline stored in underground tanks, however, MTBE-treated gasoline was released into the ground, contaminating groundwater supplies. MTBE causes water to assume a foul smell and taste, and has been identified as an animal carcinogen and a possible human carcinogen. In 1990, Congress identified MTBE as one of several additives that gasoline suppliers might use to satisfy new federal oxygenate requirements set forth in amendments to the Clean Air Act, calling for the creation of a “reformulated gasoline” program. In 2005, however, Congress ended that program.

In this suit, the City sought to recover from Exxon for harm caused by the company’s introduction of gasoline containing MTBE into a system of water wells in Queens known as the Station Six Wells. Although not currently operative, the City alleged that the Station Six Wells are a significant component of its overall plan to deliver potable water to its residents without interruption over many years to come. Without significant treatment of the water drawn by those wells, the City would be unable to rely on their eventual use, and it alleged that this inability constituted a serious and compensable harm under various State tort law and other legal theories.

Because of the matter’s complexity, the trial proceeded in several phases. Phase I of the trial addressed whether the City established that it intends in good faith to use the Station Six Wells as a source of drinking water in the future. The jury answered that question in the affirmative. In Phase II, the jury was asked

whether MTBE will be in the Station Six Wells when those wells begin operating, and at what peak level MTBE will be found. Again answering in the affirmative, the jury concluded that the concentration of MTBE will peak at 10 parts per billion (“ppb”) in 2033.

Phase III addressed questions of liability and damages. In Phase III, the jury found Exxon liable to the City under New York law for negligence, trespass, public nuisance, and failure-to-warn; the jury found that Exxon was not liable, however, on the City’s design-defect and private nuisance claims. The jury then calculated a gross compensatory award reflecting its assessment of the damage to the wells caused by MTBE contamination generally. It offset this award by amounts it attributed to the damage caused by the introduction of MTBE by companies other than Exxon and by preexisting contamination by other chemicals. The result was the jury’s finding — and the court’s imposition — of a damages award of \$104.69 million, plus pre-judgment and post-judgment interest, for the City.

After ruling that, as a matter of law, Exxon’s conduct provided an inadequate basis for assessing punitive damages in the City’s favor, the District Court did not permit the City to proceed with a proposed Phase IV, in which the jury would have addressed that question. The District Court then entered judgment on the claims submitted to the jury pursuant to Federal Rule of Civil Procedure 54(b), holding in abeyance any proceedings on the City’s additional claims under the Toxic

Substances Control Act, 15 U.S.C. §§ 2601-2692 (creating liability for, inter alia, failing to inform the EPA of known risks associated with the use of a chemical), and under New York State Navigation Law § 181(5) (creating liability for oil spillage).

On appeal, Exxon contends that: (1) the City's claims are preempted by the Clean Air Act; (2) the City has suffered no cognizable injury; (3) the City's claims are not ripe (or, in the alternative, are barred by the statute of limitations); (4) the City failed to prove injury or causation; (5) the City's claims fail as a matter of New York law; and (6) the District Court abused its discretion by failing to declare a mistrial as a result of alleged juror misconduct. In its cross-appeal, the City contends that the District Court erred by: (1) declining to allow a punitive damages phase to proceed; and (2) requiring the jury to offset its gross damages finding by an amount attributable to preexisting contamination.

For the reasons that follow, we AFFIRM the judgment of the District Court in its entirety.

I. BACKGROUND

We begin by setting forth in some detail the factual background and providing an account of the district court proceedings. We then turn to a discussion of the key legal issues raised by Exxon's appeal: primarily, preemption, legal cognizability of injury, ripeness, and sufficiency of the evidence with regard to injury and causation and as to specific elements of each of the City's New York state law tort claims. We next briefly address Exxon's juror misconduct claim. Finally,

we discuss the City's arguments regarding the jury's calculation of its damages and the District Court's denial of its claim for punitive damages.

Unless otherwise noted, the following facts are either undisputed or are viewed in the light most favorable to the City. See *Tepperwien v. Entergy Nuclear Operations, Inc.*, 663 F.3d 556, 561 n.1 (2d Cir. 2011).

A. MTBE and Its Effects

MTBE is an organic chemical compound derived from methanol and isobutylene. Until the mid-2000s, MTBE was widely used in certain regions of the United States, including in New York State, as a fuel oxygenate, i.e., an additive that reduces harmful tailpipe emissions by increasing the octane level in gasoline. By virtue of its chemical properties, however, spilled MTBE spreads easily into groundwater supplies. The Environmental Protection Agency ("EPA") advises:

MTBE is capable of traveling through soil rapidly, is very soluble in water . . . and is highly resistant to biodegradation MTBE that enters groundwater moves at nearly the same velocity as the groundwater itself. As a result, it often travels farther than other gasoline constituents, making it more likely to impact public and private drinking water wells. Due to its affinity for water and its tendency to form large contamination plumes in groundwater, and because MTBE is highly resistant to biodegradation and remediation, gasoline releases with MTBE can be substantially more difficult and costly to remediate than gasoline releases that do not contain MTBE.

Methyl Tertiary Butyl Ether (MTBE); Advance Notice of Intent to Initiate Rulemaking Under the Toxic Substances Control Act to Eliminate or Limit the Use

of MTBE as a Fuel Additive in Gasoline, 65 Fed. Reg. 16094, 16097 (proposed Mar. 24, 2000) (to be codified at 40 C.F.R. Part 755).

Contamination of groundwater supplies by MTBE is undesirable because MTBE has a “very unpleasant turpentine-like taste and odor that at low levels of contamination can render drinking water unacceptable for consumption.” Id. Further, although MTBE has not been classified as a human carcinogen by either the EPA or the National Toxicology Program, see Testimony of Sandra Mohr (“Mohr Testimony”), Trial Transcript (“Tr.”) at 3055:7; id. at 3097:5-6, some toxicological studies “show [that MTBE] can cause [DNA] mutations,” Testimony of Kenneth Rudo (“Rudo Testimony”), Tr. at 3262:18-19, which “can possibly lead to cancer,” id. at 3267:22-23. But see Mohr Testimony, Tr. at 3104:20-21 (testifying that “MTBE is at best a weak mutagen and may not be particularly mutagenic at all”).

New York law limits the concentration of contaminants permitted in drinking water. See N.Y. Comp. Codes R. & Regs. tit. 10, § 5-1.1 (ap). If the concentration of a particular contaminant exceeds the relevant “maximum contaminant level” (“MCL”), the water may not be served to the public. See id. § 5-1.30. From 1989 through December 23, 2003, the MCL for MTBE was 50 ppb.² N.Y. Comp. Codes R. & Regs. tit. 10, § 5-1.52 (2002). Effective as of December 24, 2003, the MCL for MTBE was reduced to 10 ppb. Id. § 5-1.52 (2003).

² New York’s MCL is denominated in micrograms per liter; this measure is equivalent to parts per billion. See, e.g., Zane Satterfield, What Does ppm or ppb Mean?, Nat’l Env’tl. Servs. Ctr., W. Va. Univ., at 1 (2004), <http://www.nesc.wvu.edu/ndwc/articles/ot/fa04/q&a.pdf>.

Effective January 1, 2004, New York State banned the use of MTBE in gasoline. See N.Y. Agric. & Mkts. Law § 192-g (2000).

B. The Clean Air Act and the Reformulated Gasoline Program

The Clean Air Act, 42 U.S.C. §§ 7401-7671g, first passed in 1955 and amended in 1965 to impose nationwide emission standards for automobiles, establishes a comprehensive regulatory scheme to “protect and enhance the quality of the Nation’s air resources so as to promote the public health and welfare” and “encourage and assist the development and operation of regional air pollution prevention and control programs.” 42 U.S.C. § 7401(b). See generally Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. New York State Dep’t of Env’tl. Conservation, 17 F.3d 521, 524-28 (2d Cir. 1994) (tracing development of Clean Air Act).

In 1990, Congress amended the Clean Air Act to establish the Reformulated Gasoline Program (“RFG Program”). See Pub. L. No. 101-549, § 219, 104 Stat. 2399, 2492-2500 (1990). The RFG Program mandated the use of “reformulated gasoline” — gasoline enhanced with certain additives — in metropolitan areas with significant concentrations of ambient ozone. See 42 U.S.C. § 7545(k) (2000). Its goal was to obtain the “greatest reduction [achievable] in emissions of ozone forming volatile organic compounds (during the high ozone season) and emissions of toxic air pollutants (during the entire year).” Id. § 7545(k)(1).

As relevant here, the RFG Program required that reformulated gasoline consist of at least two percent oxygen by weight. Id. § 7545(k)(2)(B). Refiners and

suppliers met this requirement by adding oxygenates such as MTBE to their gasoline. The Clean Air Act did not mandate the use of any particular oxygenate. Rather, the EPA identified several additives, including MTBE, that refiners and suppliers could blend into reformulated gasoline and thereby satisfy the requirements of the RFG Program.³ See, e.g., 40 C.F.R. § 79.56(e)(4)(ii)(A)(1)(i) (2000); id. § 80.46(g)(9)(i).

Fifteen years later, in 2005, Congress altered its approach and again amended the Clean Air Act — this time, to eliminate the oxygenate requirement for reformulated gasoline. Energy Policy Act of 2005, § 1504, Pub. L. 109-58, 119 Stat. 594, 1076-77 (amending 42 U.S.C. § 7545).

C. The City’s Water-Supply System

The City’s water-supply system provides drinking water to over eight million customers within City limits, and to one million customers in upstate New York. Phase III Joint Pretrial Order (“JPTO”) Statement of Undisputed Facts ¶ 41. The City’s system relies largely upon water that is drawn from three upland reservoir systems and then transported into the City through a network of aqueducts and tunnels. Id. ¶¶ 41-43. Major components of the City’s system are aging and in need of maintenance and repair. Id. ¶ 44.

³ The additives identified by the EPA included ethanol, MTBE, ethyl tertiary butyl ether, tertiary amyl methyl ether, and diisopropyl ether. See, e.g., 40 C.F.R. § 79.56(e)(4)(ii)(A)(1)(i) (2000); see also MTBE V, 488 F.3d 112, 126 (2d Cir. 2007).

In the late 1980s, an intergovernmental task force organized by the City's Mayor (the "Task Force") assessed the City's long-term water supply needs and proposed ways for the City to meet those needs. Id. ¶ 26. Among other things, the Task Force recommended that the City investigate the feasibility of using groundwater from the Brooklyn-Queens Aquifer System — a thick layer of permeable soil and rock beneath Brooklyn and Queens through which groundwater moves — to supplement the City's existing surface-water system. Id. ¶ 27. The investigation led to a report issued in 1999, recommending that the City use local groundwater for "potable drinking water supply" and that the City treat the groundwater at several regional treatment facilities, or "well clusters." Id. ¶¶ 29-30.

One of those well clusters is in Jamaica, Queens, and is known as Station Six (the "Station Six Wells"). The quality of the water at those wells is the subject of this appeal. Purchased by the City in 1996, the Station Six Wells were formerly managed by the Jamaica Water Supply Company. Most of the Station Six Wells draw from the shallowest aquifer beneath Queens. Id. ¶¶ 11, 15-16, 76, 93.

The City first detected MTBE in the Station Six Wells in April 2000, when readings from untreated water drawn from one well showed MTBE concentrations of 0.73 ppb and readings from another well showed MTBE concentrations of 1.5 ppb. Id. ¶¶ 108, 111. Testing conducted three years later, in January 2003, showed that MTBE levels had reached 350 ppb in one of the wells. Id. ¶ 109.

At no point since acquiring them in 1996 has the City pumped water from any of the Station Six Wells into its drinking water distribution system. Id. ¶ 79. A treatment facility there is in the planning stages, but construction has not begun.

D. The City's Claims

In October 2003, the City sued Exxon and twenty-eight other petroleum companies, complaining of injuries to its water supply from gasoline containing MTBE. Over the following year, the City amended its complaint to include twenty-six additional petroleum company defendants. All defendants except Exxon settled before trial. The City's Fourth Amended Complaint (the "Amended Complaint"), filed March 9, 2007, governed the claims against Exxon tried during the Station Six bellwether trial.

In the Amended Complaint, the City sought to recover "all costs and damages . . . that it has incurred, is incurring, and will incur from investigating, cleaning, detecting, monitoring, preventing, abating, containing, removing, and remediating" the harm caused by MTBE "to the City's groundwater well system as a result of contamination of the soil and/or the aquifer from which these wells draw water." Am. Compl. ¶ 1. The City alleged that the petroleum company defendants "distributed, sold, manufactured, supplied, marketed, and designed MTBE . . . when they knew or reasonably should have known that MTBE . . . would cause damage to the groundwater" in and around Jamaica, Queens. Id. ¶ 3. In particular, the City asserted that the petroleum company defendants knew at relevant times that

MTBE was highly soluble in groundwater, see id. ¶ 100, that MTBE was highly prone to spreading widely from a spill point, see id. ¶¶ 88-89, and that underground gasoline tanks in which reformulated gasoline was stored leaked regularly, see id. ¶¶ 92-94.

The City asserted the following ten causes of action:

- strict liability for defective design of the gasoline, based on the “unreasonably dangerous and foreseeable risk to groundwater” posed by MTBE, id. ¶ 131;
- strict liability for failure-to-warn, based on defendants’ “strict duty to warn against latent dangers resulting from foreseeable uses of [MTBE] that [d]efendants knew or should have known about,” id. ¶ 136;
- negligence, based on defendants’ breach of their duty “not to place into the stream of commerce a product that was in a defective condition and . . . unreasonably dangerous to groundwater resources,” id. ¶ 143;
- civil conspiracy, based on an “industry-wide conspiracy to suppress information regarding the threat that [MTBE] posed to groundwater resources,” id. ¶ 150;
- public nuisance, based on “interfere[nce] with and . . . damage to a public or common resource that endangered public property, health, safety and comfort,” id. ¶ 161;
- private nuisance, based on “contamination now interfering with the City’s rights as property owner,” id. ¶ 173;
- trespass, based on the “placement of . . . MTBE on and in property owned by the City without permission or right of entry,” id. ¶ 177;
- violation of Section 181(5) of the New York State Navigation Law, which proscribes the “discharge [of] any kind or any form of petroleum, including wastes or byproducts of petroleum,” id. ¶ 182;

- violation of Section 349 of the New York State General Business Law, based on defendants’ “statements and representations that MTBE was environmentally safe, when in fact they knew or should have known that MTBE posed a substantial threat to groundwater resources,” id. ¶ 188; and
- violation of the federal Toxic Substances Control Act, 15 U.S.C. § 2614(3)(B), based on defendants’ failure to inform the EPA of the risks associated with MTBE, id. ¶¶ 196-202.

The City sought compensatory damages of \$300 million and punitive damages in an amount to be determined at trial.

E. The Trial

The City’s design-defect, failure-to-warn, negligence, public nuisance, private nuisance, and trespass claims were tried to a jury beginning in August 2009. The trial, which lasted for approximately eleven weeks, culminated in a jury verdict finding Exxon liable on four claims (failure-to-warn, negligence, public nuisance, and trespass), and acquitting Exxon of liability on two (design-defect and private nuisance). Portions of the trial proceedings relevant to this appeal are recounted below.

1. Phase I: Future Use of the Station Six Wells

Phase I addressed a threshold issue: because the City was not using the Station Six Wells as a source of drinking water at the time of trial (nor is it now), the jury was asked to determine whether the City intended to use those wells for that purpose in the future. The District Court’s interrogatories to the jury instructed that, to recover on any theory, the City had to “prove[], by a fair

preponderance of the credible evidence, that it intends, in good faith, to begin construction of the Station 6 facility within the next fifteen (15) years,” and that the City “intends, in good faith, to use the water from the Station 6 wells, within the next fifteen (15) to twenty (20) years, either to supply drinking water to its residents or to serve as a back-up source of drinking water if needed due to shortages in other sources of supply (or both).” Phase I Interrogatory Sheet.

The City’s Phase I witnesses included James Roberts, the Deputy Commissioner of the New York City Bureau of Water and Sewer Operations of the New York City Department of Environmental Protection (“DEP”). Roberts testified that although the City was not then using the Station Six Wells, it had not abandoned them. Testimony of James Roberts (“Roberts Testimony”), Tr. at 339:3-4. To the contrary, Roberts explained, because the wells the City acquired from the Jamaica Water Supply Company are the “the so[le] source of water that lies within the [C]ity’s bounds that [the City] controls . . . it’s a no-brainer that [the City] would want to be able to utilize that resource when and if necessary.” Id. at 340:24 to 341:2. Roberts testified further that the Commissioner of DEP had decided that a treatment facility would be built at Station Six, id. at 358:12-18, and that the City was in the early stages of designing the facility, id. at 357:2-13. According to Roberts, design and construction costs would total approximately \$250 million. Id. at 357:16-19.

The jury also heard testimony from Kathryn Garcia, the Assistant Commissioner for Strategic Projects at DEP. Garcia described Station Six as “absolutely a priority matter” for the City. Testimony of Kathryn Garcia (“Garcia Testimony”), Tr. at 436:14. She testified that “Station 6 has always been a decision that has been made and to my knowledge has never been revisited,” and that she had “never heard any conversation about . . . maybe we shouldn’t do Station 6.” Id. at 439:3-7. According to Garcia, the City had yet to construct a treatment facility at Station Six because “[w]e have been struggling with our capital budget in terms of having enough money for all of our needs.” Id. at 435:9-10. In 2008 and 2009, however, the Mayor and City Council approved budgets that included funding for the project. Id. at 440:5-24.

William Meakin, the former Chief of Dependability and Risk Assessment at DEP, also testified about the impact of budget issues on Station Six. Meakin reiterated that the City is “committed to designing and building Station 6.” Testimony of William Meakin (“Meakin Testimony”), Tr. at 612:6-7. According to Meakin, the City had yet to do so for only one reason: “money, the funding.” Id. at 612:10.

The City also presented the testimony of Steven Lawitts, the Acting Commissioner of DEP. Lawitts confirmed that he had approved the design and construction of a treatment facility at Station Six and that the Mayor and the City Council had ratified that decision by providing for a facility in the City’s budget.

Testimony of Steven Lawitts (“Lawitts Testimony”), Tr. at 680:3-11. Lawitts agreed that “if the City had the money for Station 6, . . . that project [would] go forward.”

Id. at 681:10-12; see also id. at 683:2-5 (answering “yes” to the question, “From your perspective as [C]ommissioner, is money the only reason Station 6 hasn’t been built yet?”). When asked for his view about the importance of Station Six, Lawitts explained that:

Station 6 will be a critical element in ensuring our ability to continue to deliver adequate quantities of water, because the Station 6 project will allow us to tap an additional source of water that we’re not currently tapping, and provide an additional 10 million gallons per day of treated drinking water to be able to be distributed throughout the New York City water system.

Id. at 681:18-24. Lawitts explained that an additional 10 million gallons of water per day “would be enough water to supply on average about 80,000 people.” Id. at 682:2-3.

At the conclusion of Phase I, the jury found that the City had proven its good faith intent to begin construction of the Station Six facility within the next fifteen years. The jury also found that the City intends to use the Station Six Wells within the next fifteen to twenty years as a back-up (rather than primary) source of drinking water.

2. Phase II: Peak MTBE Concentration in the Station Six Wells

In Phase II, the jury was asked whether the City had proven “that MTBE will be in the groundwater of the capture zone of the Station 6 wells when they

begin operat[ing]” as a back-up source of drinking water, with “capture zone” defined as “the groundwater that will be drawn into the Station 6 wells when they begin operation.” Phase II Interrogatory Sheet. It was also asked “[a]t what peak level will MTBE be found in the combined outflow of the Station 6 wells, and when that will occur,” with “combined outflow” defined as “the combination of all the water from all the wells that goes into the treatment facility.” Id.

The City’s principal witness during Phase II was David Terry, a hydrogeologist who testified about two groundwater models he created to estimate future levels of MTBE contamination in the Station Six Wells. According to Terry, hydrogeologists use groundwater models “to understand the flow of groundwater and how contaminants move through the groundwater system.” Testimony of David Terry (“Terry Testimony”), Tr. at 1890:18-20. Terry explained that, in developing a groundwater model,

[y]ou have certain inputs that you use, pumping rates of wells, locations of contamination sites and inside the computer there’s information sort of like a road network, but instead it tells about how groundwater flows under, where the aquifers are, which direction it’s traveling, how fast it moves. Then [it] can run a certain set of situations we want to investigate and get out there, such as where the contamination will move to, what concentration it will be, how long it will last at a certain location.

Id. at 1891:6-14.

The first of Terry’s two models was a “groundwater flow model.” Id. at 1893:22-1895:15. Terry used this model, which was developed by the United States Geological Survey and shows “where the groundwater flows” and “how fast it

moves,” id. at 1893:23-24, to predict the likely size and shape of the Station Six capture zone, id. at 1895:21-1896:9. He did so by populating the model with a “proposed pumping scenario” provided by City planners. Id. at 1896:12-20. The “proposed pumping scenario” included information about the location of various wells at and near Station Six, their anticipated activation dates, and the anticipated rates at which they would pump. Id. at 1901:14-20. Terry explained that in estimating the Station Six capture zone, “[w]e really can’t look at Station 6 by itself because there are other wells near Station 6, and when those wells pump they affect the water flow direction at the wells near Station 6.” Id. at 1896:16-19. His testimony also made clear that his prediction of the size and shape of the Station Six capture zone was based on the City’s proposed pumping scenario, which could change over time. Id. at 1902-12; 2087:17-21; 2210:8-10.

The second of Terry’s two models was a “transport model.” Terry explained that a transport model

really rides on top of the flow model. [The transport] model describes how contaminants move through the groundwater system. So the flow model is actually describing the flow of groundwater from place to place and the transport model is sort of describing on top of that how the contamination moves through the system.

Id. at 1894:17-23. Terry used the transport model to make “numerical projections” about “how high of a concentration of MTBE will occur at Station 6 in the future, and how long it will last.” Id. at 2013:2-5. Like his flow model, Terry’s transport

model relied upon specific assumptions about proposed pumping scenarios that could change over time. Id. at 2013:17-21.

Terry used his flow and transport models to perform two different analyses. His “Analysis 1” was designed to ascertain “future peak concentrations at Station 6.” Id. at 2016:9-10. Relying on actual ground water quality information gathered in 2004 for sample locations in the vicinity of Station Six, Analysis 1 predicted that the concentration of MTBE in the combined outflow of the Station Six Wells would peak at 35 ppb in 2024. Id. at 2067:17-19.

Terry’s “Analysis 2” was designed to determine how long MTBE contamination at Station Six would last if well usage began in 2016. Id. at 1906:8-18; 2015:9-11. As part of this analysis, Terry identified twenty-two known gasoline release sites in the vicinity of Station Six and assumed different release volumes at each site. Id. at 2073:7-16; 2074:6-8. Analysis 2 predicted that if no more than 50 gallons of gasoline were released at each site, MTBE concentration in the combined outflow of the Station Six Wells would be undetectable. Pl. Ex. 1682. But if 500 gallons of gasoline were released at each site, MTBE concentration would peak at approximately 6 ppb and last through at least 2040. Id. And if 2,000 gallons of gasoline were released at each site, MTBE concentration would peak at approximately 23 ppb and also last through at least 2040. Pl. Ex. 14862. Terry opined that the 2,000-gallon release scenario was “relatively conservative,” Terry

Testimony, Tr. at 2075:19-20, but “probably the most realistic of [the] scenarios,” id. at 2075:6-8.

Exxon had no affirmative burden to establish an alternative measure of MTBE contamination at Station Six, and it did not proffer a competing model. It did, however, present the testimony of an expert who concluded that Terry’s models were “fatal[lly] flaw[ed],” Testimony of Thomas Maguire (“Maguire Testimony”), Tr. at 2432:20-22, and that the methods Terry employed were “scientifically [in]valid,” id. at 2444:2-5.

At the conclusion of Phase II, the jury found that the City had proven that “MTBE will be in the groundwater of the capture zone of the Station 6 wells when they begin operation.” Phase II Interrogatory Sheet. The jury found further that the concentration of MTBE in the combined outflow of the Station Six Wells will peak at 10 ppb in 2033. Id.

3. Phase III: Liability and Statute of Limitations

Phase III dealt with liability and statute of limitations issues. As to liability, the jury was asked (1) whether the City “is, or will be, injured by the MTBE that will be in the combined outflow of the Station 6 wells”; (2) whether Exxon “was a cause of the City’s injury” as either a “direct spiller” of MTBE gasoline or a “manufacturer, refiner, supplier, or seller” of MTBE gasoline; (3) whether Exxon was liable on the City’s design-defect, failure-to-warn, trespass, private nuisance, public nuisance, and negligence claims; and (4) what amount of compensatory

damages should be awarded to the City. Phase III Interrogatory Sheet. As to the statute of limitations, the jury was asked whether Exxon had proven “that the City did not bring its claims in a timely manner.” Id.

a. Injury

The jury was instructed that, in determining whether the City is or will be injured by MTBE contamination at Station Six, the “question is whether the [C]ity has proven by a fair preponderance of the credible evidence that a reasonable water provider in the [C]ity’s position would treat the water to reduce the levels or minimize the effects of the MTBE in the combined outflow of the Station 6 wells in order to use that water as a back-up source of drinking water.” Tr. at 6604:5-10.

In support of its claim that a reasonable water provider in its position would treat the water in the Station Six Wells, the City presented a number of witnesses, including Dr. Kathleen Burns, who testified about the toxicological characteristics of MTBE. In Dr. Burns’s opinion, MTBE “is an animal carcinogen,” “a probable human carcinogen,” and “a probable human mutagen.” Testimony of Kathleen Burns (“Burns Testimony”), Tr. at 2809:10-22. Describing mutagenicity, Dr. Burns advised, “It only takes one molecule . . . of MTBE interacting with DNA[] to start to initiate the sequence that will give us an abnormal reproducing cell line and ultimately lead to cancer.” Id. at 2829:12-14.

Similarly, Dr. Kenneth Rudo, a toxicologist, testified that MTBE is both “mutagenic” and a “probable human carcinogen.” Testimony of Kenneth Rudo

(“Rudo Testimony”), Tr. at 3265:23-3266:2. As a mutagen, MTBE can change the way human DNA is expressed. Id. at 3266:3-18. According to Dr. Rudo, at even the lowest levels of exposure in drinking water, MTBE can cause mutations that lead to cancer. Id. at 3267:21-24.

The City also presented expert testimony about the taste and odor characteristics of MTBE. Harry Lawless, a professor in Cornell University’s food science department, testified about his review of the scientific literature regarding the proportion of the population that is sensitive to the taste and smell of MTBE in drinking water at various concentration levels. Testimony of Harry Lawless (“Lawless Testimony”), Tr. at 2888:20-25. Based on his review, Lawless opined that 50 percent of the population would detect MTBE in drinking water at 14 to 15 ppb; 25 percent of the population would detect MTBE in drinking water at 3 to 4 ppb; and 10 percent of the population would detect MTBE in drinking water at 1 to 2 ppb. Id. at 2889:18-22. Lawless also testified that “if [he] was in a consumer products company and 10 percent of the population noticed a change in the product, that would be a problem.” Id. at 2890:3-5.

In addition, the City called Steven Schindler, Director of Water Quality for the City’s Bureau of Water Supply, whose responsibilities include monitoring the City’s water supply for quality issues and investigating consumer complaints relating to water quality. Testimony of Steven Schindler (“Schindler Testimony”), Tr. at 2927:19-22; id. at 2938:17-20. Schindler testified that

consumers “expect[] their water to be relatively free of taste and odor” and that “there is a very close link between how the water tastes and smells [and] public confidence.” Id. at 2942:13-19. According to Schindler, if “10 percent of the population . . . detect[ed] taste and odor in their water. . . that’s going to undermine ultimately the public con[ference] in our water supply.” Id. at 2943:9-13.

For its part, Exxon presented the testimony of Dr. Sandra Mohr, who disputed Drs. Burns’s and Rudo’s account of MTBE’s effects on human health. Dr. Mohr testified that neither the EPA nor the National Toxicology Program has classified MTBE as a human carcinogen. Mohr Testimony, Tr. at 3055:7; id. at 3097:5-6. According to Dr. Mohr, “[t]here is no human data that MTBE is a carcinogen, and there is very limited animal data.” Id. at 3055:14-15. Indeed, in Dr. Mohr’s opinion, “MTBE is not carcinogenic in humans.” Id. at 3087:1; see also id. at 3056:3 (“I don’t think that it’s a carcinogen at all.”). As for MTBE’s mutagenic properties, Dr. Mohr testified that the scientific literature shows “that MTBE is at best a weak mutagen and may not be particularly mutagenic at all.” Id. at 3104:20-21.

b. Causation

The City advanced three theories of causation, each of which was tied to its theories of liability. First, it alleged that Exxon caused damage to the City as a “direct spiller” of gasoline containing MTBE. In this vein, the City asserted that Exxon owned or controlled underground storage tank systems at six gasoline

stations in Queens, and that MTBE leaked from these tanks into the groundwater. Tr. at 6605:1-8. The jury was instructed that it should find that Exxon was a cause of the City's injury as a "direct spiller" if the City showed by a preponderance of the evidence that (1) "[a]t the time that [Exxon] owned or controlled some or all of these underground storage systems, they leaked gasoline containing MTBE" and (2) "these leaks caused or will cause an injury to the [C]ity's Station 6 wells." Id. at 6605:8-15. The jury was also instructed that "[a]n act or omission is regarded as a cause of an injury if it is a substantial factor in bringing about the injury; that is, if it has such an effect in producing the injury that reasonable people would regard it as a cause of the injury." Id.

Second, the City alleged that Exxon caused damage to the Station Six water supply as a "manufacturer, refiner, supplier, or seller" of gasoline containing MTBE. Under this theory, Exxon could be held liable for manufacturing, refining, supplying, or selling MTBE-treated gasoline that leaked or spilled from service stations not owned or controlled by Exxon. Thus, the jury was instructed that it should find that Exxon was a cause of the City's injury as a "manufacturer, refiner, supplier or seller" of MTBE gasoline if the City showed by a preponderance of the evidence that Exxon's "conduct in manufacturing, refining, supplying or selling gasoline containing MTBE was a substantial factor in causing the [C]ity's injury."⁴

⁴ None of the parties have objected to this formulation, which varied from time to time in the district court proceedings, but which we take to address Exxon's liability as wholesale "seller" of MTBE-treated gasoline, as distinct from its liability for direct spills occurring as a retail "seller."

Id. at 6606:2-11. The jury was further instructed that, “[i]n making this decision, you should consider how much, if any, of the gasoline containing MTBE that was delivered to the locations that are the sources of the MTBE that injured or will injure the Station 6 wells came from gasoline containing MTBE that was manufactured, refined, supplied or sold by [Exxon].” Id. at 6606:12-17. And it was informed that, in deciding whether Exxon’s conduct was a significant factor in bringing about the City’s injury, it could “consider as circumstantial evidence [Exxon’s] percentage share of the retail and/or supply market for gasoline containing MTBE in Queens or [in] any other region that [it] determine[d] is relevant.” Id. at 6606:17-20.

Third, the City alleged that Exxon could be liable as a “contributor” to the City’s injury pursuant to an alternative theory — known as the “commingled product theory” or “manufacturer or refiner contribution” — developed by the District Court for purposes of the underlying MDL. Pursuant to this theory, which the jury would consider only if it rejected the City’s other two theories of liability:

when a plaintiff can prove that certain gaseous or liquid products (e.g., gasoline, liquid propane, alcohol) of many refiners and manufacturers were present in a completely commingled or blended state at the time and place that the harm or risk of harm occurred, and the commingled product caused plaintiff’s injury, each refiner or manufacturer is deemed to have caused the harm. A defendant [can] exculpate itself by proving that its product was not present at the relevant time or in the relevant place, and therefore could not be part of the commingled or blended product.⁵

⁵ MTBE VII, 644 F. Supp. 2d at 314 (internal quotation marks omitted).

Thus, the District Court instructed that jury that it “will find that [Exxon] contributed to the [C]ity’s injury in its capacity as a manufacturer or refiner” if the City showed by a preponderance of the evidence that:

[1] the MTBE that injured or will injure the [C]ity comes from many refiners and manufacturers, whether because the gasoline from any source is co-mingled at the source and includes [Exxon] MTBE product, or because the MTBE product in the ground came from multiple sources[] [o]ne of which is an [Exxon] source and is now co-mingled in the groundwater; [2] that the combined co-mingled MTBE product of many refiners and manufacturers injured or will injure the [C]ity; and [3] that when the co-mingled MTBE product injured or will injure the [C]ity, it included or will include some MTBE from gasoline containing MTBE that was manufactured or refined by [Exxon].

Id. at 6607:15-6608:6.

c. Damages

The jury was instructed that if it found Exxon liable on any of the City’s causes of action, “then [it] must award the [C]ity sufficient damages to compensate the [C]ity for losses caused by [Exxon’s] conduct.” Tr. at 6634:20-22. This damages determination took place in four stages. First, the jury was instructed to determine the “sum of money that compensates [the City] for all actual losses the [C]ity proves, by a fair preponderance of the credible evidence, that it has sustained, or will sustain in the future, as a result of MTBE in the Station 6 wells.” Id. at 6635:8-13. Next, in view of Exxon’s contention that the water in the Station Six capture zone was also polluted with non-MTBE contaminants such as

perchloroethylene,⁶ the jury was instructed to reduce the City's damage award by any amount attributable to the "cost of treating [the] other contaminants [at Station Six] in isolation." Id. at 6637:11-15. Next, the jury was provided a list of the petroleum companies that had settled with the City prior to trial and instructed to "decide the percentage of the total fault borne by these other companies as compared to [Exxon's] fault."⁷ Id. at 6638:1-4. Finally, the jury was asked to determine whether "the [C]ity was negligent in its use of gasoline containing MTBE and, if so, whether the [C]ity's negligent conduct was a substantial factor in causing its own injury." Id. at 6638:17-20. If the jury found that the City's negligence was a substantial factor in causing its own injury, then it was instructed to "apportion the fault between the [C]ity, [Exxon], and any other companies [it found] liable." Id. at 6639:7-10.

In an effort to quantify its damages, the City called Marnie Bell, a groundwater treatment expert who testified about the cost of treating the MTBE at Station Six. Bell explained that it is "standard engineering practice to design a treatment system to treat the water to below an MCL" because "[d]esigning a treatment system to treat the water to just below an MCL would place a water

⁶ Perchloroethylene (also known as "PCE," "perc," or tetrachloroethylene) is a solvent used in the dry cleaning and textile processing industries. When the City purchased the Station Six Wells, they were contaminated with PCE. Historically, the concentration of PCE in the Station Six Wells has exceeded the MCL for PCE, rendering the water non-potable.

⁷ It appears as though, in proving the percentage of fault attributable to the settling defendants, Exxon relied principally on evidence of each defendant's share of the New York gasoline market during the relevant period.

utility at risk for violating the MCL and possibly delivering contaminated water to its customers.” Testimony of Marnie Bell (“Bell Testimony”), Tr. at 5881:14-18. In addition, Bell explained, New York State “require[s] that treatment systems for the removal of organic contamination [such as MTBE] be designed to remove the contaminant to the lowest practical level.” Id. at 5881:19-22.

Bell identified two “proven and reliable technologies” for removing MTBE from groundwater: granular-activated carbon (“GAC”) and air-stripping.⁸ Id. at 5861:5-7. She estimated that, assuming the concentration of MTBE at Station Six peaked at 10 ppb, as the jury concluded during Phase II, building and operating a GAC facility would cost approximately \$250 million in 2009 dollars, id. at 5886:9-10, while building and operating an air-stripping facility would cost approximately \$127 million in 2009 dollars, id. at 5896:5-8. According to Bell, however, “[t]here are a number of factors that may make [air-stripping] less desirable,” including noise and the size of the necessary equipment. Id. at 6044:4-9.

In arriving at her estimates, Bell projected the costs of a treatment facility over a forty-year timeframe because “Terry’s modeling . . . showed MTBE concentration sustaining at significant levels out to 2040. And we projected those trends outwards to try and identify the entire timeframe in which Station 6 would need to provide MTBE treatment.” Id. at 5885:16-20. In addition, Bell testified

⁸ GAC is a type of charcoal the “extreme[] poro[sity]” of which “allows it to remove certain types of contaminants from water.” Id. at 5861:15-19. Air-stripping is a process that uses blowing air to remove contaminants from water. Id. at 5921:21-22.

that, although she understood Station Six would be used as a back-up source of drinking water (as the jury concluded during Phase I), the “only reasonable assumption to make [in projecting the cost of a treatment facility] was that the facility would need to operate continuously.” Id. at 5886:21-22. As Bell explained, “[t]he [C]ity has a number of planned repairs on its tunnels and aqueducts. There is the potential for a failure of that supply. And when the system needs to operate, it needs to operate continuously for as long as it is needed.”⁹ Id. at 5886:22-5887:1.

d. Statute of Limitations

The jury was also asked to consider Exxon’s contention that the City had failed to bring its claims within the applicable three-year statute of limitations.¹⁰ As to this issue, the jury was instructed that Exxon bore the burden of showing by a preponderance of the evidence that, at some time before October 31, 2000, i.e., more than three years before the City filed suit, (1) “there was a sufficient level of MTBE in the capture zone of the Station 6 wells such that if the wells were turned on, the level of MTBE in the combined outflow of the Station 6 wells would have injured the [C]ity at that time,” and (2) “the [C]ity knew at that time or reasonably should have known that there was a sufficient level of MTBE in the capture zone of the Station 6 wells . . . to cause an injury.” Tr. at 6631:16-6632:2.

⁹ Bell also testified that if one of the less-contaminated wells at Station Six were taken offline, the concentration of MTBE in the combined outflow of the remaining wells would reach 15 ppb. Bell Testimony, Tr. at 5860:10-20.

¹⁰ New York law imposes a three-year statute of limitations for toxic tort actions. N.Y. C.P.L.R. 214-c(2).

In support of its contention that the City's claims were time-barred, Exxon relied principally on the testimony of William Yulinsky, the Director of Environmental Health and Safety in DEP's Bureau of Waste Water Treatment. Yulinsky testified that, as early as September 1999, he received a memorandum from a City consultant who noted that, "considering that numerous potential sources of MTBE exist within [one] mile of Station 6, the need to treat for MTBE should be anticipated, particularly in conjunction with the high concentrations of PCE reported nearby." Testimony of William Yulinsky ("Yulinsky Testimony"), Tr. at 5781:24-5782:8. Yulinsky also testified that by August 2000, the City was "looking at station modifications for Station 6 to treat a variety of things," including MTBE. Id. at 5768:1-9. Yulinsky explained, however, that in 1999 and 2000 "it was way too soon to determine what we were going to need to treat for." Id. at 5772:6-8.

e. Phase III Jury Verdict

At the close of Phase III, the jury found that the City "is, or will be injured" by the MTBE that will be in the combined outflow of the Station Six Wells. Phase III Interrogatory Sheet. It also found that Exxon was a cause of the City's injury as both a direct spiller of gasoline containing MTBE and as a manufacturer, refiner, or seller of such gasoline. Id. In view of these findings, it did not consider whether Exxon could be held liable as a "contributor" to the City's injury pursuant to a "commingled product theory" of liability. Id. As for the City's substantive claims,

the jury found that the City had proven Exxon's liability for failure-to-warn, trespass, public nuisance, and negligence, but not design-defect or private nuisance.

Id.

After concluding that Exxon had failed to prove that the City's claims were untimely, the jury turned to the question of damages. Id. First, the jury concluded that the City would be fairly and reasonably compensated by an award of \$250.5 million. Id. Next, it determined that the cost associated with reducing levels of non-MTBE contaminants in the Station Six Wells was \$70 million. Id. Finally, it attributed 42 percent of the fault for the City's injury to petroleum companies other than Exxon. Id. The jury's final award to the City was therefore \$104.69 million.

F. Punitive Damages

As previously noted, the City also sought punitive damages based on Exxon's allegedly reckless disregard of the risks and dangers inherent in supplying gasoline containing MTBE. In support of its claim for punitive damages, the City pointed to certain evidence it had adduced during Phase III, as well as other evidence it proffered and intended to adduce during a punitive-damages phase of the trial. The City's evidence fell into six general categories.¹¹

¹¹ The summary provided here is drawn from the District Court's discussion of the evidence presented during Phase III and proffered for the punitive phase, see MTBE X, 2009 WL 3347214, at *1-3, as well as from the City's letter brief in support of a punitive phase, see Letter of Victor M. Sher, Oct. 8, 2009.

The first category of evidence pertained to Exxon's knowledge of the effect of MTBE on the taste and odor of drinking water. The City argued that its evidence raised an inference that Exxon knew, as early as the mid-1980s, that the presence of MTBE might render water undrinkable. For example, Robert Scala, former director of the Research and Environmental Health Division at Exxon, testified that in 1984 he drafted a paper for Exxon and the American Petroleum Institute in which he raised concerns about the taste and odor of MTBE and other gasoline-associated compounds, and that others at Exxon shared his concerns. Testimony of Robert Scala ("Scala Testimony"), Tr. at 3239:11-3239:20. The City also pointed to an internal memorandum prepared by Exxon employee Barbara Mickelson in 1984, in which Mickelson concluded that "low, non-hazardous, analytically non-detectable levels of MTBE continue to be a source of odor and taste complaints in affected drinking water." Pl. Ex. 272. In addition, the City cited a memorandum prepared by Exxon employee Jack Spell in 1984, in which Spell described to his Exxon supervisors a Shell Oil report concluding that "approximately 5 parts per billion (in water) is the lower level of detectability" for MTBE. Pl. Ex. 5506.

The second category of evidence pertained to Exxon's knowledge of the health effects of MTBE. Although the parties disagree about the impact of MTBE on human health, the City presented evidence that, construed in its favor, raised an inference that as early as the 1980s, Exxon knew that MTBE posed potential health risks. For example, the City cited a memorandum Spell forwarded to his Exxon

supervisors in early 1987, which advised that “MTBE has been identified as a health concern at the state and federal level when it is a contaminate [sic] in either ground water or air.” Pl. Ex. 5506. The City also highlighted a slideshow prepared by Exxon in 1995, in which Exxon stated that its strategy was to “continue to monitor data on MTBE in groundwater” and to participate in ongoing studies of MTBE’s toxicity. Pl. Ex. 477. In addition, the City introduced a 1999 Exxon study that observed, “With uncertain human health and environmental potential effects, public concerns about the need for control or elimination of MTBE in gasoline has accelerated.” Pl. Ex. 580.

The third category of evidence pertained to Exxon’s knowledge of the difficulties of remediating MTBE spills. For example, in the same 1984 memorandum in which she remarked upon MTBE’s taste and odor characteristics, Barbara Mickelson also noted that “MTBE, when dissolved in ground water, will migrate farther than BTX [another petrochemical] before soil attenuation processes stop the migration.” Pl. Ex. 272. In a memorandum prepared the following year, Mickelson explained that “the inclusion of MTBE in Exxon gasoline is of concern as an incremental environmental risk” in part because “MTBE has a much higher aqueous solubility than other soluble gasoline components,” “MTBE has a higher differential transport rate than other soluble gasoline components,” and “MTBE . . . cannot be removed from solution to below detectable levels by carbon adsorption and must be treated by more complicated and expensive air stripping columns.” Pl.

Ex. 292. Based on these considerations, in the 1985 memorandum Mickelson “recommend[ed] that from an environmental risk point of view[,] MTBE not be considered as an additive to Exxon gasolines on a blanket basis throughout the United States.” Id.

The fourth category of evidence pertained to Exxon’s knowledge that its own underground storage tanks leaked gasoline. For example, in a 1984 memorandum to his supervisors, Jack Spell identified a series of “ethical and environmental concerns that are not too well defined at this point,” including the “possible leakage of SS [service station] tanks into underground water systems of a gasoline component that is soluble in water to a much greater extent.” Pl. Ex. 247.

Similarly, Barbara Mickelson noted in another 1984 memorandum that Exxon had “62 ground water clean up activities underway.” Pl. Ex. 271. The following year, in a memorandum in which she “reviewed the environmental risks from retail service station underground storage systems associated with the addition of MTBE,” Mickelson noted that MTBE’s elevated aqueous solubility “can be a factor in instances where underground storage tanks develop a leak which ultimately may find its way to the underground aquifer.” Pl. Ex. 283. For his part, Robert Scala testified that he was aware by the 1980s that Exxon had begun to replace underground storage tanks “[p]resumably because they either leaked or had a potential to leak.” Scala Testimony, Tr. at 3229:5-8; see also Pl. Ex. 228 (Underground Tank Failure Report 1982 Year-End Summary); Pl. Ex. 782

(Underground Tank Program). These tank problems extended well into the 1990s. In March 1998, for example, Exxon prepared a slide show in which it noted that “268 UST [underground storage tank] system releases occurred between 1993-1996.” Pl. Ex. 1026. The slides reflect both Exxon’s belief that future MTBE releases were likely through tank failure, and that the company had plans and training in place to minimize the risk of releases.

The fifth category of evidence pertained to Exxon’s knowledge of MTBE contamination in New York. On this score, the City offered a 1998 survey, completed by Exxon employee Mike Meola, of MTBE contamination levels at potable and monitor wells near 98 retail sites in the state. Pl. Ex. 3074. The survey showed average MTBE concentrations of 50,000 to 100,000 ppb, with peak concentrations reaching 1,000,000 ppb in some monitor wells. Id. The survey did not suggest, however, that Exxon understood precisely how MTBE contamination would affect groundwater located some distance away from a leaking tank. Indeed, a 1987 Exxon memorandum introduced by the City suggests that at that time Exxon theorized that MTBE’s “apparent faster migration . . . is mitigated by the rapid dilution of the material and its faster disappearance from a site.” Pl. Ex. 2636. Nor did the City present evidence suggesting that, before 1998, Exxon knew that MTBE contamination in New York State occurred at significant levels.

The final category of evidence pertained to Exxon’s candor about its knowledge regarding MTBE. The City presented disputed evidence that, construed

in the City's favor, suggested Exxon hid its knowledge of MTBE's deleterious characteristics from regulators, gas station owners and operators, and others. For example, when asked in deposition whether Exxon informed independent station owners that its gasoline contained MTBE, Robert Larkins, the Exxon executive who approved MTBE's use in the mid-1980s, responded that Exxon "didn't uninform them." Deposition of Robert P. Larkins, 467:23-468:04, Mar. 6, 2008 (emphasis added). The City also offered evidence suggesting that Exxon minimized MTBE's dangers in public statements. For example, in 1987, the Oxygenated Fuels Association's MTBE Committee, acting on behalf of Exxon and others, told the EPA that "there is no evidence that MTBE poses any significant risk of harm to health or the environment." Pl. Ex. 5507.

At the close of Phase III of the trial, Exxon moved to preclude the jury from considering an award of punitive damages, arguing that the City's evidence was insufficient as a matter of law to establish the requisite degree of malice, recklessness, or wantonness. The District Court granted Exxon's motion, reasoning that the City had not shown that Exxon's conduct "created either significant actual harm or a substantial risk of severe harm to the Station Six wells."¹²

G. Juror Misconduct

During the jury's Phase III deliberations, the District Court received a telephone call from Juror No. 2, who reported that Juror No. 1 had "cursed,"

¹² See MTBE X, 2009 WL 3347214, at *8.

“insulted,” and threatened to “cut” her. Tr. at 6994:10-13. Juror No. 2 also reported that “[e]verybody is afraid of” Juror No. 1 and “[n]obody is willing to stand up to her.” Id. at 6995:1-2. The next day, Exxon moved to excuse Juror No. 1 from further service, and requested that the District Court ask the remaining jurors whether, in Juror No. 1’s absence, they felt “they [could] reach a decision based on their own views, own conscientious views, rather than on threats, coercion or duress.” Id. at 6992:11-22.

After observing that Juror No. 1 “has been a worrisome juror for a long time” and suggesting that “she is the juror whose voice we can hear through the doors as being loud and being abusive,” the District Court proceeded to ask each juror individually whether he or she felt able to deliberate without fear of duress or threat. Id. at 6993:1-7. After several jurors denied feeling threatened and responded unequivocally that they could reach their own verdicts, the District Court stated that it had “occurred” to the court “that Juror No. 2 is very fragile and that rather than excusing Juror No. 1, it might be Juror No. 2 has an overblown view of what’s occurring,” recalling a prior occasion when Juror No. 2 had cried in court. Id. at 7007:13-24. The District Court then questioned Juror No. 2, who stated, “I can’t make my own decision.” Id. at 7011:2.

After completing the interviews, the District Court concluded that it was “absolutely confident that nobody feels threatened other than Juror No. 2, [who] says she no longer feels she can reach her own verdict[,] [s]o it strikes me that she

ought to be excused.” Id. at 7013:2-5. Counsel for Exxon agreed that “if [Juror No. 2] cannot go forward, then she needs to be excused,” id. at 7013:24-25, but moved for the dismissal of Juror No. 1 “for threatening [Juror No. 2] with physical violence,” id. at 7014:3-4. The District Court denied the motion, expressing its view that the “violence”

may partly be in [Juror No. 2’s] mind. There were ten people deliberating and nobody felt threatened at all. I watched their demeanor. They seemed calm. They seemed reasonable. They really thought it was, you know, just almost surprising that I was talking to them. I sensed no concern on any other juror’s part.

Id. at 7014:5-10; see also id. at 7015:15-17 (“If there had been a threat of violence, somebody else would have reported it. Nobody did.”).

At defense counsel’s request, the District Court then agreed to re-interview Juror No. 2 so that the contents of the previous night’s telephone call could be placed on the record. During this second interview, Juror No. 2 recounted that the previous day the other members of the jury “said I was stupid, I can’t form my own opinion because it doesn’t match the rest of them. And I feel — I feel that I’m not safe.” Id. at 7017:9-12. She also stated that she had been “threatened to be cut” earlier in the week, and “threatened with a fork” one to two weeks earlier. Id. at 7017:17-7018:21.

After formally dismissing Juror No. 2, the District Court summoned the other jurors for a “talk about civility” during which it instructed them to “[m]ake every attempt . . . to reach a verdict, and to do so without . . . shouting, without cursing,

without any threatening, if that has happened, and I can't know that, I wasn't there." Id. at 7020:11-7022:9. After the jury resumed its deliberations, counsel for Exxon moved for a mistrial "based on the further developing facts that in fact there wasn't a threat of violence but an actual instrument was used in the jury room, at least in the mind of [Juror No. 2]." Id. at 7022:14-17. The District Court denied the motion. Defense counsel then observed that the court had never asked Juror No. 1 if she had in fact threatened violence, to which the District Court responded, "That's true. [Juror No. 1] is going to deny that. People usually don't admit to crimes." Id. at 7023:2-3.

H. Post-Trial Motions

Following the conclusion of Phase III, Exxon moved for judgment as a matter of law and in the alternative for a new trial or remittitur. The District Court denied the motion.¹³ As relevant here, the District Court held that the City's claims were not preempted and were ripe for adjudication; that the City's claimed injury was legally cognizable; that the jury's verdicts as to injury and damages were supported by sufficient evidence; that it was not unreasonable for the jury to reject Exxon's statute of limitations defense; and that the incident of alleged juror misconduct did not warrant a new trial. Exxon renews these arguments on appeal, and we turn to them now.

¹³ See MTBE XII, 739 F. Supp. 2d at 614.

II. DISCUSSION

A. Preemption

Exxon contends that, in light of the jury's verdict in its favor with regard to the City's design-defect claim, the City's remaining state law tort claims conflict with and are therefore preempted by the Reformulated Gasoline Program established by the Clean Air Act Amendments of 1990 (the "RFG Program" or the "1990 Amendments"). Its argument proceeds in three main parts. First, Exxon emphasizes that federal law required it to add an oxygenate to its gasoline. Second, Exxon proposes that the jury's rejection of the City's strict liability, design-defect claim amounts to an affirmative finding that no safer, feasible alternative to MTBE existed as a means to comply with the RFG Program. Finally, because adding MTBE to its gasoline was, Exxon argues, the "safest feasible means" of complying with the federal oxygenate requirement, the jury's \$104.6 million verdict impermissibly penalized the company for merely following federal law, and runs contrary to the Congressional purpose and objective of the 1990 Amendments to improve air quality while remaining sensitive to costs.

We are not persuaded. In the Clean Air Act Amendments of 1990, Congress did not require Exxon to use MTBE in its gasoline. The jury's rejection of the City's design-defect claim in this litigation is not equivalent to an affirmative finding that MTBE was the safest feasible oxygenate — much less that MTBE was the only available oxygenate. But even if Exxon had no safer, feasible alternative to MTBE

as a means of complying with the RFG Program's oxygenate requirement, the jury did not impose liability solely because of Exxon's use of MTBE in its gasoline. Rather, to hold Exxon liable on every claim other than design-defect, the jury was required to find not only that the company used MTBE, but that it engaged in additional tortious conduct, such as failing to exercise ordinary care in preventing and cleaning up gasoline spills. For these reasons, and as detailed further below, we reject Exxon's argument that the jury's verdict conflicts with and is therefore preempted by the Clean Air Act Amendments of 1990.

1. Federal Preemption of State Law

We review a district court's preemption analysis de novo. N.Y. SMSA Ltd. P'ship v. Town of Clarkstown, 612 F.3d 97, 103 (2d Cir. 2010).

The Supremacy Clause of the United States Constitution provides that federal law "shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding." U.S. Const. art. VI, cl. 2. From this constitutional principle, it follows that "Congress has the power to preempt state law." Arizona v. United States, 132 S. Ct. 2492, 2500 (2012). In every preemption case, accordingly, we ask whether Congress intended to exercise this important and sensitive power: "the purpose of Congress is the ultimate touchstone." Wyeth v. Levine, 555 U.S. 555, 565 (2009) (internal quotation marks omitted).

The Supremacy Clause and our federal system contemplate, of course, a vital underlying system of state law, notwithstanding the periodic superposition of federal statutory law. Thus, as the Supreme Court has repeatedly instructed, “in all pre-emption cases . . . we start with the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress.” *Id.* (internal quotation marks and alterations omitted). In light of this assumption, the party asserting that federal law preempts state law bears the burden of establishing preemption. See *id.* at 569; *Silkwood v. Kerr-McGee Corp.*, 464 U.S. 238, 255 (1984). Imposing state tort law liability for negligence, trespass, public nuisance, and failure-to-warn — as the jury did here — falls well within the state’s historic powers to protect the health, safety, and property rights of its citizens. In this case, therefore, the presumption that Congress did not intend to preempt state law tort verdicts is particularly strong. See, e.g., *U.S. Smokeless Tobacco Mfg. Co. v. City of N.Y.*, 708 F.3d 428, 432-33 (2d Cir. 2013).

The Supreme Court has recognized three typical settings in which courts will find that Congress intended to preempt state law. First, when Congress expressly provides that a federal statute overrides state law, courts will find state law preempted if, applying standard tools of statutory construction, the challenged state law falls within the scope of Congress’s intent to preempt. See, e.g., *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 484 (1996). Second, when Congress legislates so

comprehensively in one area as to “occupy the field,” we may infer from the federal legislation that Congress intended to preempt state law in that entire subject area. Crosby v. Nat’l Foreign Trade Council, 530 U.S. 363, 372 (2000) (internal quotation marks omitted). Third, when neither of the first two categories applies but state law directly conflicts with the structure and purpose of a federal statute, we may conclude that Congress intended to preempt the state law. In the latter case, we will find a conflict with preemptive effect only in two circumstances: first, when “compliance with both federal and state regulations is a physical impossibility,” and second, when the state law “stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.” Arizona, 132 S. Ct. at 2501 (internal quotation marks omitted).

The parties agree that the Clean Air Act and its 1990 Amendments contain no explicit preemption directive expressing a Congressional intent to override state tort law, and Exxon does not argue that Congress intended to occupy any field relevant here.¹⁴ Rather, Exxon relies on the third form of preemption analysis — conflict preemption — to sustain its preemption argument. Accordingly, we address the two branches of conflict preemption in turn.

¹⁴ The Clean Air Act (apart from the now-repealed 1990 Amendments) does speak to related state law in one subsection, which provides (with certain exceptions) that “no State (or political subdivision thereof) may prescribe or attempt to enforce, for purposes of motor vehicle emission control, any control or prohibition respecting any characteristic or component of a fuel or fuel additive in a motor vehicle or motor vehicle engine.” 42 U.S.C. § 7545(c)(4)(A). Exxon does not argue that this provision has any bearing on this case; nor do we see it as relevant to our analysis.

2. Conflict Preemption: the Impossibility Branch

The Supreme Court has adopted various formulations of the “impossibility” branch of conflict preemption. In an early expression of the doctrine, the Court endorsed a narrow view: that federal law will preempt state law on this theory only when “compliance with both federal and state regulations is a physical impossibility.” Florida Lime & Avocado Growers, Inc. v. Paul, 373 U.S. 132, 142-43 (1963). In recent years, the Court has applied a more expansive analysis and found “impossibility” when “state law penalizes what federal law requires,” Geier v. American Honda Motor Co., 529 U.S. 861, 873 (2000), or when state law claims “directly conflict” with federal law, American Telephone & Telegraph Co. v. Central Office Telephone, Inc., 524 U.S. 214, 227 (1998) (“AT&T”). See generally Wyeth, 555 U.S. at 589-90 (Thomas, J., concurring) (tracing the Court’s use of the impossibility doctrine). Even understood expansively, “[i]mpossibility preemption is a demanding defense,” Wyeth, 555 U.S. at 573, and we will not easily find a conflict that overcomes the presumption against preemption.

Exxon argues that the 1990 Amendments effectively required it to use MTBE, yet the jury’s verdict in effect prohibits the use of MTBE and consequently subjects Exxon to requirements with which it is impossible to comply. This argument is unavailing. State law here neither “penalizes what federal law requires” nor “directly conflicts” with federal law.

As an initial matter, the 1990 Amendments did not require, either expressly or implicitly, that Exxon use MTBE. Although the 1990 Amendments required that gasoline in certain geographic areas contain a minimum level of oxygen, see 42 U.S.C. § 7545(k)(2)(B) (2000), they did not prescribe a means by which manufacturers were to comply with this requirement. The EPA identified MTBE as one additive that could be used to “certify” gasoline, see MTBE V, 488 F.3d at 114, but certification of a fuel meant only that it satisfied certain conditions in reducing air pollution, see 42 U.S.C. § 7545(k)(4)(B). Neither the statute nor the regulations required Exxon to use MTBE, rather than other oxygenates, such as ethanol, in its gasoline.¹⁵

Conceding, as it must, that federal law did not explicitly mandate its use of MTBE, Exxon contends that, as a practical matter, it had no choice but to use MTBE to comply with the federal oxygenate requirement, because MTBE was in fact the “safest, feasible” oxygenate available to satisfy its federal obligation. Appellants’ Br. at 27. In support, it relies on the jury’s rejection of the City’s design-defect claim.

¹⁵ This case is therefore distinguishable from Geier, 529 U.S. at 865, on which Exxon relies. In Geier, the Court concluded that federal motor vehicle safety standards preempted a tort suit against a car manufacturer based on the car’s lack of a driver’s side airbag. The federal regulation there at issue “deliberately provided the manufacturer with a range of choices among different passive restraint devices.” Id. at 875. Here, the choice of oxygenate options is a means towards improving air quality, and the existence of the choice itself is not critical to furthering that goal. See Williamson v. Mazda Motor of America, Inc., 131 S. Ct. 1131, 1137 (2011) (“[U]nlike Geier, we do not believe here that choice is a significant regulatory objective.”).

a. The Import of the Jury's Finding on the City's Design-Defect Claim

As noted above, the City's design-defect theory was that Exxon bore strict liability for the City's damages because of the "unreasonably dangerous and foreseeable risk to groundwater" posed by Exxon's treatment of its gasoline with MTBE. Am. Compl. ¶ 131. Thus, the jury was asked the following on a special verdict form: "Has the City proven, by a fair preponderance of the credible evidence, that there was a safer, feasible alternative design at the time [Exxon's] gasoline containing MTBE was marketed?" Phase III Interrogatory Sheet. The jury responded by checking the box labeled, "No." Id. Exxon would have us construe this finding as an affirmative determination that the company could not comply with federal law without using MTBE. This argument is flawed for two reasons.

First, Exxon commits a logical fallacy in assuming that the jury's rejection of the City's design-defect claim amounted to an affirmative finding that MTBE was the safest, feasible oxygenate. To prevail on its design-defect claim, the City bore the burden of proving, by a preponderance of the evidence, the existence of a safer, feasible alternative to MTBE. In rejecting the City's claim, the jury found only that the evidence was not sufficient to meet the City's burden. It did not also find, affirmatively, that MTBE was the safest feasible oxygenate available to satisfy the federal oxygenate requirement.¹⁶

¹⁶ Indeed, had neither party introduced any evidence regarding oxygenates other than MTBE, the jury would have had no choice but to arrive at the same verdict. Carried to its logical

Second, the standard for establishing the absence of a “safer, feasible design” and thereby defeating strict liability in tort is different from, and less demanding than, the standard for establishing impossibility preemption. The District Court instructed the jury that in evaluating the City’s design-defect claim, it was to consider “the risks, usefulness, and costs of the alternative design as compared to the product the defendant did market.” Tr. at 6611:23-6612:2. This instruction correctly stated New York law, which requires jurors to consider the costs of alternative designs when assessing a products liability claim. See, e.g., Cover v. Cohen, 61 N.Y.2d 261, 266-67 (1984) (holding that liability in a design-defect case requires a balancing of “the product’s risks against its utility and costs and against the risks, utility and cost of the alternatives”); Lancaster Silo & Block Co. v. Northern Propane Gas Co., 427 N.Y.S.2d 1009, 1014 (4th Dep’t 1980) (“In a design defect case the court is concerned with the balancing of the alternative designs available against the existing risk while taking into account the cost of the proposed alternative.”).

The standard for establishing impossibility preemption is different. See Wyeth, 555 U.S. at 573. The party urging preemption must do more than show that state law precludes its use of the most cost-effective and practical means of complying with federal law — it must show that federal and state laws “directly

conclusion, Exxon’s argument implies that even in such a case — that is, even in the total absence of evidence one way or the other — a jury verdict against the City on this count would be equivalent to an affirmative finding that in fact there was no safer, feasible alternative to MTBE. This cannot be so. The jury’s verdict simply does not stretch that far.

conflict.” AT&T, 524 U.S. at 227. If there was any available alternative for complying with both federal and state law — even if that alternative was not the most practical and cost-effective — there is no impossibility preemption. Thus, the District Court correctly held that “[i]mpossibility does not depend on whether events in the physical world would have made it difficult to comply with both standards, but on whether the two standards are expressly incompatible.”¹⁷ The jury’s rejection of the City’s design-defect claim, without more, does not satisfy the impossibility standard for conflict preemption.

Exxon responds that it could have met the heightened impossibility standard had the jury been properly instructed. The company sought the following instruction: “If you find that [Exxon] has shown, by a preponderance of the credible evidence, that ethanol was not a safer or feasible alternative to MTBE at the time that [Exxon] was deciding what oxygenate to use to comply with the federal Clean Air Act Amendments, then you will find that the City’s defective design product liability claim is preempted by federal law and that the City cannot recover on that claim against [Exxon].” Supp. App. 82. The District Court declined to give this instruction, citing its concerns about explaining the concept of preemption to the jury. The court also noted that preemption was partially a legal issue, and concluded that the design-defect interrogatory — which asked whether the City had

¹⁷ MTBE III, 457 F. Supp. 2d at 335.

proven the existence of a safer, feasible alternative — would resolve any relevant factual questions.

Exxon was not entitled to its proposed instruction because that instruction misstated the law. See PRL USA Holdings, Inc. v. U.S. Polo Ass’n, Inc., 520 F.3d 109, 117 (2d Cir. 2008). The proposed instruction borrowed the “safer or feasible alternative” language from the design-defect instruction. But, as we have explained, the design-defect standard — which required the jury to balance the costs and utility of alternative designs as they compared to MTBE — is different from the standard for impossibility preemption.¹⁸

b. Considering Ethanol as a Possible Alternative to MTBE

To meet its burden with respect to the impossibility branch of conflict preemption, Exxon needed to demonstrate that it could not comply with the federal oxygenate requirement by using a compound other than MTBE. At trial, the City argued that Exxon could have used ethanol to comply with federal law. On appeal, Exxon offers three reasons to support its position that it could not have used ethanol in its gasoline: the supply of ethanol was insufficient; suppliers could not

¹⁸ Exxon also argues that the District Court “flip-flop[ped],” by initially agreeing that preemption was a question of fact, but then reversing course once the jury found in Exxon’s favor on the design-defect claim. We do not read the transcript of the charging conference in this way. Nowhere did the District Court suggest that a jury finding of “no safer, feasible alternative” would establish preemption. Quite the contrary: the court was justifiably skeptical that “feasibility” was the appropriate standard to establish a conflict sufficient to find that state law was preempted. Similarly, the District Court reasonably questioned the significance (for preemption purposes) of a jury finding that Exxon had “no safer, feasible alternative.” See Tr. at 5513:7-9 (explaining that, by asking the jury whether the City has proven the existence of a safer, feasible alternative, Exxon “will have at least preserved the factual finding of this jury, for what it is worth”); id. at 5515:9-11 (“[M]y leaning is to have the fact issue preserved, not the legal issue, so to speak.”).

ship ethanol through pipelines; and ethanol-containing gasoline could not be mixed with other manufacturers' MTBE-containing gasoline. Even when viewed in the light most favorable to Exxon, however, the evidence adduced at trial was insufficient to support these proffered reasons for finding impossibility preemption.

First, Exxon's expert conceded that the supply of ethanol could adjust to meet increased demand. O'Brien Testimony, Tr. at 4467:4-13, 4484:7-10. Second, he testified that ethanol could be transported using trains, trucks, or barges, and that, at the time of trial, producers were using trains to ship ethanol across the country. Id. at 4458:19-24, 4484:22-25. Another Exxon witness testified that in early 1995, the company began using ethanol to meet its Clean Air Act obligations at gas stations in the Midwest; until that time, the company had been using MTBE in that region.¹⁹ Testimony of Raymond McGraw ("McGraw Testimony"), Tr. at 4799:14-23. Finally, although Exxon points to no part of the record in which it offered evidence quantifying the costs of using ethanol, the City introduced evidence regarding a 1993 study performed by an industry trade group, at the behest of the federal government, to determine the cost of using ethanol as an oxygenate. The study concluded that using ethanol instead of MTBE during the relevant time period would increase the cost of manufacturing gasoline by 6.2 cents per gallon; a similar study by the EPA put the cost at 1.9 cents per gallon, and the City's expert

¹⁹ In addition, since New York banned MTBE in 2004, Exxon has used ethanol rather than MTBE in the state. Eizemberg Testimony, Tr. at 5624:16-5625:24.

estimated the cost as 3.5 cents per gallon.²⁰ Tallett Testimony, Tr. at 4274:13-18; id. at 4275:15-4276:2; id. at 4276:16-4277:3.

One can imagine a case in which a state law imposes such enormous costs on a party that compliance with a related federal mandate is effectively impossible. But this is not such a case. At most, the evidence adduced at trial showed that using ethanol instead of MTBE would have increased Exxon's production costs to an extent that was far from prohibitive.²¹ Exxon has not shown that economic and logistical hurdles rendered compliance with the federal mandate by using ethanol instead of MTBE impossible for the purposes of preemption analysis.²²

3. Conflict Preemption: the Obstacle Branch

The second branch of conflict preemption — the obstacle analysis — is in play when state law is asserted to “stand[] as an obstacle to the accomplishment and

²⁰ The City's expert also testified that the “national average cost of the type of gasoline which was supplied into the Northeast in 1995” was \$1.22 per gallon. Tallett Testimony, Tr. at 4274.

²¹ The Supreme Court's recent decision in Mutual Pharmaceutical Co. v. Bartlett, 133 S.Ct. 2466 (2013), is therefore distinguishable. In that case, the Court held that the plaintiff's New Hampshire-law design-defect claim against a drug manufacturer was preempted by federal laws that prohibited the manufacturer from modifying the chemical composition or labeling of the allegedly defective drug. In so holding, the Court rejected the notion that the drug manufacturer could avoid the impossibility of complying with both federal and state law “by simply leaving the market” for the drug at issue. Id. at 2478. In this case, by contrast, we specifically conclude that Exxon could have used compounds other than MTBE to oxygenate its gasoline in compliance with federal law. Exxon thus was not required to leave the relevant market in order to comply with both federal and state law.

²² Of course, as we have already noted and as we explain further in the text, Exxon incurred tort liability not for the mere use of MTBE, but because it engaged in additional tortious conduct, such as failing to exercise reasonable care in storing gasoline at service stations it owned or controlled. The jury's verdict is not equivalent to a state law prohibition on the use of MTBE.

execution of the full purposes and objectives of Congress.” Arizona v. United States, 132 S. Ct. 2492, 2505 (2012) (internal quotation marks omitted).

Obstacle analysis — which appears to us only an intermediate step down the road to impossibility preemption — precludes state law that poses an “actual conflict” with the overriding federal purpose and objective. Mary Jo C. v. N.Y. State & Local Ret. Sys., 707 F.3d 144, 162 (2d Cir. 2013). Obstacle analysis has been utilized when federal and state laws said to conflict are products of unrelated statutory regimes. What constitutes a “sufficient obstacle” is “a matter of judgment, to be informed by examining the federal statute as a whole and identifying its purpose and intended effects.” Id. (internal quotation marks omitted). As with the impossibility branch of conflict preemption, “the purpose of Congress is the ultimate touchstone,” Wyeth, 555 U.S. at 565 (internal quotation marks omitted), and “the conflict between state law and federal policy must be a sharp one,” Marsh v. Rosenbloom, 499 F.3d 165, 178 (2d Cir. 2007) (internal quotation marks omitted). A showing that the federal and state laws serve different purposes cuts against a finding of obstacle preemption. See id. at 180 (“On a fundamental level, [the federal law] and [state law] serve different purposes, reinforcing our conclusion that they do not actually conflict.”).

The burden of establishing obstacle preemption, like that of impossibility preemption, is heavy: “[t]he mere fact of ‘tension’ between federal and state law is generally not enough to establish an obstacle supporting preemption, particularly

when the state law involves the exercise of traditional police power.” Madeira v. Affordable Hous. Found., Inc., 469 F.3d 219, 241 (2d Cir. 2006). Indeed, federal law does not preempt state law under obstacle preemption analysis unless “the repugnance or conflict is so direct and positive that the two acts cannot be reconciled or consistently stand together.” Id. (internal quotation marks omitted and emphasis added).

To determine whether a state law (or tort judgment) poses an obstacle to accomplishing a Congressional objective, we must first ascertain those objectives as they relate to the federal law at issue. The Supreme Court’s decision in Wyeth is instructive in this regard. In holding that FDA approval of a prescription drug’s label did not preempt a failure-to-warn claim asserted under state law, the Court relied in large part on the legislative history of the relevant federal law. The Court noted, for instance, that Congress declined to enact an express preemption provision for prescription drugs, although it had enacted such a provision for medical devices in the same statute. The Court also explained that it was appropriate to give “some weight to an agency’s views about the impact of tort law on federal objectives when the subject matter is technical and the relevant history and background are complex and extensive.” 555 U.S. at 576 (internal quotation marks and alteration omitted).

The purpose of the 1990 Amendments was to achieve a “significant reduction in carbon monoxide levels.” S. Rep. No. 101-228, at 3503 (1989). Exxon agrees but

asserts that “Congress made clear that feasibility mattered,” and that the 1990 Amendments sought to reduce air pollution without imposing economic burdens on gasoline manufacturers. Appellants’ Br. at 29. Through its verdict, Exxon argues, the jury effectively concluded that Exxon should have used ethanol rather than MTBE.²³ But ethanol was costly. By — in effect — mandating its use retrospectively, the State (speaking through the jury’s verdict) has imposed substantial financial burdens on Exxon, a result that conflicts with Congress’s purpose in passing the Amendments. Ergo, the jury’s verdict under state tort law is preempted by the 1990 Amendments to the Clean Air Act.

In support of its argument, Exxon cites two statutory provisions reflective of Congressional concern about the costs of complying with the Amendments. First, Exxon emphasizes that, in the statute, Congress instructed the EPA to take “into consideration the cost of achieving . . . emissions reductions” when drafting regulations under the Clean Air Act Amendments at issue in this case. 42 U.S.C. § 7545(k)(1) (2000). Immediately following this language, however, Congress also instructed the EPA to consider “any nonair-quality and other air-quality related health and environmental impacts.” *Id.* At the heart of the City’s suit is the claim that Exxon’s use of MTBE caused adverse “health and environmental impacts” on the City. That Congress instructed the EPA to take into account “nonair-quality”

²³ The record does not appear to demonstrate why Exxon could not have used any of the other additives identified in the RFG Program Amendments, but the parties do not dispute that ethanol was the primary available alternative to MTBE as an oxygenate.

effects on the environment suggests a Congressional intent to permit — not preempt — suits like this one.

Second, Exxon cites a provision of the Amendments that authorized the EPA to waive the oxygenate requirement if the Administrator determined it would be “technically infeasible” to manufacture gasoline that also met the emission standard for a different pollutant, oxides of nitrogen, or “NO_x.”²⁴ 42 U.S.C. § 7545(k)(2)(A) (2000). But, as already described, Exxon has not shown that use of an oxygenate other than MTBE would have been “technically infeasible” as opposed to simply somewhat more expensive. And in any event, Exxon offers nothing to suggest that by using the phrase “technically infeasible,” Congress really meant “more expensive.”

We also note that in 1999, the EPA concluded that a Nevada proposal effectively banning MTBE did not conflict with the Clean Air Act. See EPA,

²⁴ The provision to which Exxon cites reads in full as follows:

(A) NO_x emissions

The emissions of oxides of nitrogen (NO_x) from baseline vehicles when using the reformulated gasoline shall be no greater than the level of such emissions from such vehicles when using baseline gasoline. If the Administrator determines that compliance with the limitation on emissions of oxides of nitrogen under the preceding sentence is technically infeasible, considering the other requirements applicable under this subsection to such gasoline, the Administrator may, as appropriate to ensure compliance with this subparagraph, adjust (or waive entirely), any other requirements of this paragraph (including the oxygen content requirement contained in subparagraph (B)) or any requirements applicable under paragraph (3)(A).

42 U.S.C. § 7545(k)(2)(A) (2000) (emphases added).

Approval and Promulgation of Implementation Plans; Nevada State Implementation Plan Revision, Clark County, 64 Fed. Reg. 29573, 29578-79 (June 2, 1999). Additionally, in the Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified at 42 U.S.C. § 13389), Congress considered including a safe harbor provision that would have immunized MTBE producers and distributors from state tort liability, but ultimately chose not to do so. See 149 Cong. Rec. S15212 (daily ed. Nov. 20, 2003) (statement of Sen. Dianne Feinstein); 151 Cong. Rec. H6949 (daily ed. July 28, 2005) (statement of Rep. Bart Stupak) (“I am happy that the ‘safe harbor’ provisions for manufacturers of MTBE that were in the House bill were dropped.”). Of course, neither of these actions necessarily reflects the intent of Congress as a whole when it amended the Clean Air Act in 1990. But this evidence provides further circumstantial support for our conclusion that Exxon has not established Congressional objectives sufficiently at odds with state law to require that state law be set aside under the doctrine of conflict preemption. See Wyeth, 555 U.S. at 567, 576-77 (considering subsequent federal legislative history, as well as the relevant agency’s views, in analyzing whether state law was subject to conflict preemption). In sum, although these legislative materials demonstrate that Congress was sensitive to the magnitude of the economic burdens it might be imposing by virtue of the Reformulated Gasoline Program and perhaps sought to limit them, they hardly establish that Congress had a “clear and manifest intent” to preempt state tort judgments that might be premised on the use of one approved

oxygenate over a slightly more expensive one. Madeira, 469 F.3d at 249 (internal quotation marks omitted).

4. Tortious Conduct Beyond Mere Use of MTBE

Even were we to accept Exxon's argument that the 1990 Amendments preclude imposition of a post hoc state law penalty based on its use of MTBE, the judgment of the District Court would not be preempted because the jury's verdict did not rest solely on the company's use of MTBE in its gasoline. Rather, all of the City's successful claims required the jury to find that Exxon both used MTBE and committed related tortious acts, such as failing to exercise reasonable care when storing gasoline that contained MTBE. We agree with the City that "Exxon could have complied with federal and state law by using MTBE without engaging in tortious acts." Appellees' Br. at 38.

As we have observed, the jury considered six claims: direct-spiller negligence, failure-to-warn, trespass, public nuisance, private nuisance, and design-defect. Five of these claims (all but design-defect) required the jury to find that Exxon engaged in additional tortious conduct; as to these claims, the mere use of MTBE would not have caused the company to incur liability. See Tr. at 6629:18-20 (direct-spiller negligence); id. at 6615:18-24 (failure-to-warn); id. at 6618:7-11 (trespass); id. at 6628:5-9 (public nuisance); id. at 6621:5-6 (private nuisance).²⁵

²⁵ Only on the remaining claim, design-defect, could Exxon have been held liable solely for its use of MTBE. But the jury found that Exxon was not liable under a design-defect theory.

Tellingly, Exxon adopted this view earlier in the litigation. Indeed, the company's proposed jury instructions stated that if the jury found that "ethanol was not a safer or feasible alternative to MTBE," then it "will find that the City's defective design product liability claim is preempted by federal law and that the City cannot recover on that claim against [Exxon]." Deferred Joint Supp. App. at 82 (emphasis added). And Exxon initially argued to the District Court that "Congress and EPA preempted only in the narrow area of fuel design, while preserving participation in the federal administrative process and state remedies against those who spill gasoline."²⁶ Although Exxon has since reversed course, we think the company had it right the first time.

For these reasons, we affirm the District Court's determination that the claims on which the jury returned a verdict for the City are not preempted by federal law.

B. Legal Cognizability of Injury

Exxon contends that, as a matter of law, the presence of MTBE at levels below the MCL cannot constitute cognizable injury. According to Exxon, because the jury found at the conclusion of Phase II that MTBE concentrations in the Station Six outflows will peak at 10 ppb — a level equal to the current MCL — the

²⁶ MTBE V, 488 F.3d at 135 (quoting Opp'n to Remand 29).

City has not been injured.²⁷ It is not entirely clear whether Exxon’s argument is that the City therefore lacks standing or that the City therefore fails to state a claim under New York law. Framed either way, however, we find the argument unpersuasive.

To pursue a claim in federal court, a plaintiff must satisfy the requirements of constitutional standing, a principle established by the “case or controversy” requirement of Article III of our Constitution. See Lujan v. Defenders of Wildlife, 504 U.S. 555, 560 (1992). Constitutional standing makes three demands: First, “the plaintiff must have suffered an ‘injury in fact.’” Id. Second, “there must be a causal connection between the injury and the conduct” of which the plaintiff complains. Id. And third, “it must be likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision.” Id. at 561 (internal quotation marks omitted). These demands “function[] to ensure, among other things, that the scarce resources of the federal courts are devoted to those disputes in which the parties have a concrete stake.” Friends of the Earth, Inc. v. Laidlaw Env’tl. Servs. (TOC), Inc., 528 U.S. 167, 191 (2000).

The injury-in-fact requirement is satisfied when the plaintiff has suffered “an invasion of a legally protected interest, which is (a) concrete and particularized and (b) actual or imminent, not conjectural or hypothetical.” Lujan, 504 U.S. at 560

²⁷ The jury’s 10 ppb finding in Phase II informed its conclusion in Phase III that a reasonable water provider in the City’s position would remediate the MTBE contamination at Station Six.

(internal footnote, citations, and quotation marks omitted). As our prior opinions have explained, however, “[t]he injury-in-fact necessary for standing need not be large[;] an identifiable trifle will suffice.” LaFleur v. Whitman, 300 F.3d 256, 270 (2d Cir. 2002) (internal quotation marks omitted).

Standing is “the threshold question in every federal case.” Disability Advocates, Inc. v. N.Y. Coalition for Quality Assisted Living, Inc., 675 F.3d 149, 156 (2d Cir. 2012) (internal quotation marks omitted). Once this threshold is crossed, a plaintiff must still establish the elements of its causes of action to proceed with its case. Cf. Denney v. Deutsche Bank AG, 443 F.3d 253, 264 (2d Cir. 2006) (“[A]n injury-in-fact need not be capable of sustaining a valid cause of action under applicable tort law.”). To prevail on most of its claims, the City was required to show that it suffered an injury actionable under New York law. See Atkins v. Glens Falls City Sch. Dist., 53 N.Y.2d 325, 333 (1981) (noting that injury is an element of a negligence claim); Copart Indus. v. Consolidated Edison Co. of N.Y., 41 N.Y.2d 564, 568-70 (1977) (same as to public nuisance claim); Howard v. Poseidon Pools, Inc., 72 N.Y.2d 972, 974 (1988) (same as to failure-to-warn claim); cf. Hill v. Raziano, 880 N.Y.S.2d 173, 175 (2d Dep’t 2009) (noting that “nominal damages are presumed from a trespass even where the property owner has suffered no actual injury”).

Whether a plaintiff has standing to sue is a question of law, and accordingly we review the District Court’s ruling de novo. Disability Advocates, 675 F.3d at

156. Whether contamination at levels below the applicable MCL is actionable under New York law also presents a question of law accorded de novo review. See Ins. Co. of N. America v. Pub. Serv. Mut. Ins. Co., 609 F.3d 122, 127 (2d Cir. 2010).

1. Standing

Before trial, the District Court concluded that the City had standing to bring its claims even if the alleged contamination did not exceed the MCL. The court reasoned that, “while the MCL may serve as a convenient guidepost in determining that a particular level of contamination has likely caused an injury, the MCL does not define whether an injury has occurred.”²⁸

We agree with the District Court that, for standing purposes, the MCL does not define whether injury has occurred. It strikes us as illogical to conclude that a water provider suffers no injury-in-fact — and therefore cannot bring suit — until pollution becomes “so severe that it would be illegal to serve the water to the public.” Appellees’ Br. at 54. This is especially so in view of a New York water provider’s statutory duty and commonsense obligation to protect or remediate groundwater before contamination reaches the applicable MCL. See 10 N.Y. Comp. Codes R. & Regs. tit. 10 § 5-1.12(a) (requiring water suppliers to take certain remedial actions after determining that one or more MCLs “are or may be exceeded” or that “any deleterious changes in raw water quality have occurred” (emphases

²⁸ MTBE IV, 458 F. Supp. 2d at 158.

added)); see also id. at § 5-1.71(a) (requiring water suppliers to exercise “due care and diligence in the maintenance and supervision of all sources of the public water systems to prevent, so far as possible, their pollution and depletion”). We decline to hold that the MCL constitutes a bar beneath which a water provider can never suffer injury-in-fact.

That the MCL does not define whether a water provider has suffered injury for standing purposes is confirmed by the City’s identification of several specific, deleterious effects of MTBE at below-MCL levels. For example, the City offered testimony from a toxicologist, who opined that “even at the lowest levels of exposure . . . in drinking water,” MTBE is a mutagen “that can cause a mutation which can possibly lead to cancer.” Rudo Testimony, Tr. at 3267:21-24. It also offered testimony from a taste and odor expert, who opined that “25 percent of the population would detect [MTBE] at 3 to 4 parts per billion, and that 10 percent of the population would detect it down at 1 or 2 parts per billion.” Lawless Testimony, Tr. at 2889:20-22. And it presented testimony from the City’s Director of Water Quality, who noted that “the public [is] accustomed to receiving water that is . . . free of taste,” and that, if it served water at MTBE levels as low as 1 or 2 ppb, the City would be adversely affected by consumer complaints from the “10 percent of the population that can detect taste and odor in their water” at those levels, thereby undermining public confidence in the City’s water supply. Schindler Testimony, Tr. at 2943:9-13.

Our conclusion as to the proper lens through which to view the MCL as it relates to the question of standing finds further support in LaFleur v. Whitman, 300 F.3d 256 (2d Cir. 2002), where we held that a plaintiff may suffer injury-in-fact from air pollution that falls below federal regulatory pollution thresholds. In LaFleur, a private plaintiff brought suit under the Clean Air Act, seeking review of the EPA’s decision not to object to the state’s issuance of an operating permit to a facility that converted municipal waste and sewage sludge into ethanol and carbon dioxide. Id. at 259. The facility operator challenged plaintiff’s standing on the ground that “the ambient level of the regulated air pollutant to be released by the facility . . . would be well below” the applicable regulatory standards. Id. at 269. We rejected the challenge, concluding that the plaintiff, who worked in an adjacent shopping center and was likely to be exposed to the facility’s emissions, had sufficiently alleged an injury-in-fact. Id. at 270. This was so, we held, “even if the ambient level of air pollution does not exceed” the relevant regulatory standards. Id. at 271.

The standing cases cited by Exxon neither bind nor persuade us. For example, Exxon cites City of Greenville, Ill. v. Syngenta Crop Protection, Inc., 756 F. Supp. 2d 1001 (S.D. Ill. 2010), for the proposition that “the city’s claimed remediation costs did not establish standing because they were unnecessary to meet the city’s statutory obligation to provide clean water.” Appellants’ Br. at 44. But Exxon’s gloss on City of Greenville is inaccurate. In fact, the City of Greenville

court held that “a water provider may demonstrate an injury in fact even if its finished water does not exceed an MCL if its use of the water to meet its statutory obligations to the public [to provide clean water] becomes more costly because of a defendant’s conduct.” 756 F. Supp. 2d at 1007 (expressing “agree[ment]” with MTBE IV). As the City of Greenville court aptly explained, “it seems an extremely bad rule to require a public water supplier to provide overly contaminated water to the public before it can seek redress from one responsible for the contamination.” Id. Although the court later mused that it might be difficult to establish injury where the cost to remediate drinking water is not tied to a “specific, imminent threat of [contamination] in excess of the MCL,” it did not establish the bar that Exxon urges us to adopt. Id. at 1008.

Exxon’s reliance on Iberville Parish Waterworks District No. 3 v. Novartis Crop Protection, Inc., 45 F. Supp. 2d 934 (S.D. Ala. 1999), is also unavailing. In Iberville, two public water providers sued a producer of herbicide for contamination allegedly caused by the herbicide’s chemical component, atrazine. Id. at 936. In finding that the public water providers lacked constitutional standing, the Iberville court asserted that “[b]ecause both [water providers] are in compliance with [the applicable] drinking water standards, it cannot be said that either has suffered any actual invasion of a legally protected interest.” Id. at 941-42. But this conclusion was unsupported by any discussion or analysis, so we find it unpersuasive. Indeed, it is doubly unpersuasive in view of the factual differences between that case and

this one. Although the plaintiffs in Iberville sought recovery for costs associated with monitoring and remediating atrazine contamination, the evidence showed that a significant proportion of those costs were unrelated to the alleged contamination. Id. at 939-42. For example, one of the plaintiffs had installed a filtration system, not to remove atrazine, but rather “to improve the taste and clarity of [the] water and, in [so] doing, to maintain [its] competitive edge over bottled water manufacturers.” Id. at 941. Here, by contrast, the costs incurred and projected by the City to treat the water at Station Six are directly related to MTBE contamination.

2. Injury As a Matter of New York Law

Of course, to recover on most of its state-law claims, the City was required to do more than establish standing — it was required to show, among other things, that it suffered actual injury as a matter of New York tort law. See Atkins, 53 N.Y.2d at 333 (negligence); Copart Indus., 41 N.Y.2d at 568-70 (public nuisance); Howard, 72 N.Y.2d at 974 (failure-to-warn); cf. Hill, 880 N.Y.S.2d at 174 (no injury requirement for trespass claim). To the extent Exxon argues that New York law (as distinguished from the doctrine of constitutional standing) bars recovery where the alleged contamination does not exceed the MCL, that argument, too, fails.

We agree with the District Court that, in determining whether the City had established injury as a matter of New York law, the relevant question for the jury was whether “a reasonable water provider in the [C]ity’s position would treat the

water to reduce the levels or minimize the effects of the MTBE in the combined outflow of the Station 6 wells in order to use that water as a back-up source of drinking water.” Tr. at 6604:5-10. This standard strikes a proper balance. On the one hand, it recognizes that “even clear, good-tasting water contains dozens of contaminants at low levels,” and therefore demands more than de minimis contamination before a water provider may establish injury.²⁹ The standard requires that plaintiffs adduce evidence demonstrating that the contamination rose to a level requiring treatment for various reasons pertaining both to the City’s general water supply needs and the specific water well in question. On the other hand, it recognizes that, as the City showed at trial, a public water provider may be injured by contamination at levels below the applicable MCL.

Several New York state-court decisions in the lead-paint context support this conclusion by holding that whether a plaintiff has suffered injury from contamination at levels below an applicable regulatory threshold is a question of fact for the jury. In Cunningham v. Spitz, 630 N.Y.S.2d 341, 341 (2d Dep’t 1995), for example, the court found “triable issues of fact as to whether the plaintiff . . . was injured as a result of his exposure to lead, notwithstanding the fact that his

²⁹ MTBE VI, 2007 WL 1601491, at *6 (“On its journey through the water cycle as rain, surface water, and groundwater in an aquifer, water collects many contaminants of various types: bacteria, parasites, heavy metals, organic compounds (including MTBE), inorganic compounds, and even radioactive substances. This water is eventually pumped from a well to a treatment facility, where many of these contaminants are removed or reduced in concentration before the water is pumped to a consumer’s home.”).

blood-lead level did not fall within scientifically accepted definitions of lead poisoning.” Likewise, in Singer v. Morris Avenue Equities, 895 N.Y.S.2d 629, 631 (N.Y. Sup. Ct. Jan. 5, 2010), the court rejected the contention that the plaintiff had not been injured as a matter of law where her blood-lead level was lower than the level defined by the New York City Health Code as constituting lead poisoning.³⁰ See also Peri v. City of New York, 798 N.Y.S.2d 332, 339-40 (N.Y. Sup. Ct. Mar. 28, 2005) (same), aff’d, 843 N.Y.S.2d 618 (1st Dep’t 2007), aff’d, 11 N.Y.3d 756 (2008). Here, too, it was for the jury to determine whether for New York law purposes the City had been injured by MTBE contamination.

The state-law injury cases to which Exxon cites do not alter our conclusion. For example, in City of Moses Lake v. United States, 430 F. Supp. 2d 1164 (E.D. Wash. 2006), the court granted summary judgment to defendants on tort claims arising out of their alleged contamination of Moses Lake’s drinking wells with the chemical trichloroethylene. Id. at 1167. In holding that, under Washington law, Moses Lake had not been injured, the court observed that the contamination giving rise to suit fell below the applicable MCL. Id. at 1185. But in Moses Lake, the MCL served as simply one factor in the court’s analysis. The court also noted that

³⁰ We reject Exxon’s suggestion that Cunningham and its progeny are no longer good law in New York. The two cases upon which Exxon relies for this proposition — Santiago v. New York City Board of Health, 779 N.Y.S.2d 474 (1st Dep’t 2004), and Arce v. New York City Housing Authority, 696 N.Y.S.2d 67 (2d Dep’t 1999) — do not overrule Cunningham. The Santiago court never dealt with the merits of the claim presented there, and instead dismissed it on res judicata grounds. 779 N.Y.S.2d at 476. And in Arce, the court set aside a verdict where the record contained no reliable evidence showing that plaintiff’s blood-lead level was actually elevated at all. 696 N.Y.S.2d at 68-69.

the level of trichloroethylene in the affected aquifers was “imperceptible to human senses” and that Moses Lake “continue[d] to supply drinking water via its [allegedly affected] wells.” Id. at 1184. In addition, Moses Lake failed to adduce “any evidence of an actual existing danger” posed by the contamination. Id. Here, by contrast, the City presented extensive evidence showing that a reasonable water provider in the City’s position would treat the Station Six Wells before using them as a back-up water supply.

Exxon’s reliance on Rhodes v. E.I. du Pont de Nemours & Co., 636 F.3d 88 (4th Cir. 2011), is similarly infirm. In Rhodes, private plaintiffs sought recovery for du Pont’s alleged contamination of the municipal water supply with perfluorooctanoic acid and “the resulting presence of [the chemical] in their blood.” Id. at 93. In affirming the district court’s grant of summary judgment to du Pont on plaintiffs’ negligence claim, the Fourth Circuit held that “[t]he presence of [the chemical] in the public water supply or in the plaintiffs’ blood does not, standing alone, establish harm or injury for purposes of proving a negligence claim under West Virginia law.” Id. at 95. “In such situations,” according to the Fourth Circuit, “a plaintiff also must produce evidence of a detrimental effect to the plaintiffs’ health that actually has occurred or is reasonably certain to occur due to a present harm.” Id. Here, by contrast, the City has adduced evidence showing the specific injuries it suffered as a result of MTBE contamination at Station Six: that MTBE is a probable human carcinogen, that it can be detected at 1-2 ppb by ten percent of

the population, and that even if only ten percent of the population taste it, the confidence of the public in the water supply would be undermined. And, based on this evidence, a jury could easily determine that a reasonable water provider in the City's position would treat the water in the Station Six Wells to reduce the levels or minimize the effects of MTBE in order to use the water as a back-up source of drinking water.

In sum, we reject Exxon's contention that the New York MCL for MTBE determines whether the City has been injured either for standing purposes or for purposes of establishing injury as a matter of New York tort law. We decline Exxon's invitation to adopt a bright-line rule that would prevent a water provider from either bringing suit or prevailing at trial until its water is so contaminated that it may not be served to the public. The MCL does not convey a license to pollute up to that threshold.

C. Ripeness and Statute of Limitations

Exxon contends that the City's claims are unripe because "it is deeply uncertain whether the City's usufructuary interest in Station 6 will ever suffer an injury."³¹ Appellants' Br. at 34. Exxon points out that Station Six is not currently being used, and in fact cannot be used until the City builds a facility to treat preexisting PCE contamination. According to Exxon, the City's case "thus requires

³¹ Under New York law, the City does not actually own the water in Station Six; it simply owns the right to use that water. See Sweet v. City of Syracuse, 129 N.Y. 316, 335 (1891). This is referred to as a "usufructuary" interest. Id.

proof of a series of contingent and factually intensive predictions about the distant future” that render the City’s injury unripe for resolution. Id. We disagree, principally because Exxon’s argument conflates the City’s injury with its damages.

“Ripeness’ is a term that has been used to describe two overlapping threshold criteria for the exercise of a federal court’s jurisdiction.” Simmonds v. INS, 326 F.3d 351, 356-57 (2d Cir. 2003). The first such requirement — which we refer to as “constitutional ripeness” — is drawn from Article III limitations on judicial power. Id. at 357; see also Reno v. Catholic Social Servs., Inc., 509 U.S. 43, 57 n.18 (1993). The second such requirement — which we refer to as “prudential ripeness” — is drawn from prudential reasons for refusing to exercise jurisdiction. Simmonds, 326 F.3d at 357; see also Reno, 509 U.S. at 43 n.18. Both constitutional ripeness and prudential ripeness “are concerned with whether a case has been brought prematurely.” Simmonds, 326 F.3d at 357.

The doctrine of constitutional ripeness “prevents a federal court from entangling itself in abstract disagreements over matters that are premature for review because the injury is merely speculative and may never occur.” Ross v. Bank of America, N.A. (USA), 524 F.3d 217, 226 (2d Cir. 2008) (internal quotation marks omitted). This aspect of the ripeness doctrine overlaps with the standing doctrine, “most notably in the shared requirement that the plaintiff’s injury be imminent rather than conjectural or hypothetical.” Id. (internal quotation marks and alterations omitted). In most cases, that a plaintiff has Article III standing is

enough to render its claim constitutionally ripe. See Simmonds, 326 F.3d at 358; Ross, 524 F.3d at 226. Here, our determination above that the City has satisfied the requirements of Article III standing leads us easily to conclude that its claims are constitutionally ripe; we therefore focus only on prudential ripeness. Ross, 524 F.3d at 226.

The doctrine of prudential ripeness “constitutes an important exception to the usual rule that where jurisdiction exists a federal court must exercise it,” and allows a court to determine “that the case will be better decided later.” Simmonds, 326 F.3d at 357 (emphasis omitted). Prudential ripeness is “a tool that courts may use to enhance the accuracy of their decisions and to avoid becoming embroiled in adjudications that may later turn out to be unnecessary.” Id. In determining whether a claim is prudentially ripe, we ask “whether [the claim] is fit for judicial resolution” and “whether and to what extent the parties will endure hardship if decision is withheld.” Id. at 359; see also Thomas v. Union Carbide Agric. Prods. Co., 473 U.S. 568, 581 (1985). A district court’s “ripeness determination is . . . a legal determination subject to de novo review.” Conn. v. Duncan, 612 F.3d 107, 112 (2d Cir. 2010).

According to Exxon, the District Court effectively “asked the jury to peer into a crystal ball and make myriad predictions about what might or might not occur decades from now depending on how the [City] uses a facility that it has not yet started to build and that it might never complete.” Appellants’ Br. at 35. The

speculative nature of the jury's task demonstrates, Exxon says, that the claims are prudentially unripe for adjudication. As we observed above, however, this argument mistakenly conflates the nature of the City's claimed damages with its injury.

The City's theory of its legal injury is that, by contaminating the water in the Station Six Wells with MTBE, Exxon interfered with the City's right to use that water. Exxon's extensive discussion of the current disuse of the Station Six Wells and the future steps required to use them addresses the scope of the damages flowing from the injury, not whether there is an injury at all. The City's claims are prudentially ripe. It brought suit only after testing showed the presence of MTBE in the Station Six Wells. The Amended Complaint therefore alleged a present injury — namely, that Station Six had already been contaminated with MTBE. As we have explained, whether that injury was significant enough for the City to prevail on its claims under New York law was a question for the jury.

In addition, although in bringing suit the City sought to recover past, present, and future damages flowing from Exxon's conduct, there is nothing unusual about such a claim. See, e.g., Davis v. Blige, 505 F.3d 90, 103 (2d Cir. 2007) (“When [an] injury occurs, the injured party has the right to bring suit for all of the damages, past, present and future, caused by the defendant's acts.” (internal quotation marks omitted)). Nor is the City's claim rendered prudentially unripe by

the possibility that its damages may prove too speculative to support recovery.³²

Whether a particular damages model is supported by competent evidence sufficient to render it non-speculative is analytically distinct from whether the underlying claim is ripe for adjudication.

We also note that dismissing the City's claims as unripe would work a "palpable and considerable hardship." Thomas, 473 U.S. at 581 (internal quotation marks omitted). Under New York law, a plaintiff asserting a toxic-tort claim must bring suit within three years of discovery (or constructive discovery) of its injury. See N.Y. C.P.L.R. 214-c(2). In Jensen v. General Electric Co., 82 N.Y.2d 77 (1993), the New York Court of Appeals held that the common law "continuing-wrong" doctrine — pursuant to which a recurring injury is treated as "a series of invasions, each one giving rise to a new claim or cause of action" — does not reset the statute of limitations in the toxic-tort context. Id. at 85 (internal quotation marks omitted). As the District Court observed, "the City brings a traditional recurring injury claim" in the sense that its injury is continuing: MTBE is in the Station Six Wells and will be for the foreseeable future.³³ Under Jensen, the statute of limitations began to run as to all of the City's claims arising out of its continuing injury — past, present,

³² To the extent Exxon argues that the City's claims are unripe because the City has yet to use the Station Six Wells, we note the jury's finding in Phase I that the City has a good faith intent to use those wells within the next fifteen to twenty years. Phase I Interrogatory Sheet. Exxon, which had ample opportunity to convince the jury otherwise, does not challenge this finding on appeal.

³³ MTBE IX, 2009 WL 2634749, at *4.

and future — when the City first discovered that it had been injured. Id. at 82-83. In light of this single trigger for the statute of limitations, dismissing the City’s claims as unripe would effectively foreclose the possibility of relief — a hardship and inequity of the highest order.

Exxon responds that even if the City’s claims are ripe, they are barred by the statute of limitations because the City first discovered that it had been injured more than three years before bringing suit. See N.Y. C.P.L.R. 214-c(2). As we have explained, the City contends that it was injured when the concentration of MTBE at Station Six rose to a level at which a reasonable water provider would have treated the water. At trial, Exxon bore the burden of establishing that the City knew or should have known before October 31, 2000 — i.e., three years before the City filed suit — that it had been injured. See id.; Bano v. Union Carbide Corp., 361 F.3d 696, 709-10 (2d Cir. 2004). Ultimately, the jury rejected Exxon’s statute-of-limitations argument, concluding at the end of Phase III that Exxon failed to prove “that the City did not bring its claims in a timely manner.” Phase III Interrogatory Sheet. On appeal, we understand Exxon to contend that no reasonable juror could have reached such a conclusion.

In support of this contention, Exxon draws our attention to two pieces of evidence which, it says, establish that the City’s suit was time-barred. The first piece of evidence came from William Yulinsky, Director of Environmental Health and Safety in DEP’s Bureau of Waste Water Treatment, who testified that as early

as 1999 the City recognized that because “numerous potential sources of MTBE exist[ed] within [one] mile of Station 6, the need to treat for MTBE should be anticipated.” Yulinsky Testimony, Tr. at 5781:17-5782:15. But Yulinsky’s testimony that the City anticipated a future need to remediate MTBE does not prove that the City knew in 1999 that Station Six had already been contaminated or that the contamination was significant enough to justify an immediate or specific remediation effort.

The second piece of evidence to which Exxon points is the City’s April 2000 discovery that one of the Station Six Wells had experienced “some exposure” to MTBE. Specifically, the City conceded that “MTBE was first detected in raw water drawn from Well 6D on April 18, 2000 at a concentration of 1.5 [ppb]” and that “MTBE was first detected in raw water drawn from Well 33 on April 18, 2000 at a concentration of 0.73 [ppb].” Phase III JPTO, Statement of Undisputed Facts ¶¶ 108, 111. But Exxon has not identified sufficient evidence to establish that, in a case such as this involving a core municipal function and implicating an unusually compelling public interest, a reasonable juror was required to find that a reasonable water provider would have treated groundwater containing MTBE at these concentrations. We therefore conclude that a reasonable juror could have found that Exxon failed to show that the City learned of its injury before October 31, 2000.

D. Sufficiency of the Evidence as to Injury and Causation

We turn now to Exxon's challenge to the sufficiency of the evidence underlying the jury's verdict as to injury and causation. Exxon argues that the jury's peak MTBE finding and its damages calculation are based on speculation, and that the District Court erred in permitting the jury to consider "market share evidence" as circumstantial proof of Exxon's role in causing the City's injury. For these reasons, according to Exxon, the District Court should have granted its motion for judgment as a matter of law. As discussed below, we reject these challenges.

"We review a district court's denial of a motion for judgment as a matter of law de novo." Manganiello v. City of New York, 612 F.3d 149, 161 (2d Cir. 2010). "In so doing, we apply the same standards that are required of the district court." Id. (internal quotation marks and brackets omitted). A court may grant a motion for judgment as a matter of law "only if it can conclude that, with credibility assessments made against the moving party and all inferences drawn against the moving party, a reasonable juror would have been compelled to accept the view of the moving party."³⁴ Piesco v. Koch, 12 F.3d 332, 343 (2d Cir. 1993).

³⁴ Exxon also moved in the District Court for a new trial or remittitur. The District Court denied the motions, and we review its decision for abuse of discretion. See Leibovitz v. New York City Transit Auth., 252 F.3d 179, 184 (2d Cir. 2001) (new trial); Cross v. New York City Transit Auth., 417 F.3d 241, 258 (2d Cir. 2005) (remittitur). A district court "ordinarily should not grant a new trial unless it is convinced that the jury has reached a seriously erroneous result or that the verdict is a miscarriage of justice." Hygh v. Jacobs, 961 F.2d 359, 365 (2d Cir. 1992) (internal quotation marks omitted). As for remittitur, where, as here, the damages at issue are awarded in connection with state law claims, the district court is "obliged to review the award under [state] law."

1. The Jury’s 10 ppb MTBE Peak Concentration Finding

The only expert witness to quantify the amount of MTBE that will be in the Station Six outflow was hydrogeologist David Terry, who employed multiple analyses to do so, as described above. Using one analysis — Analysis 1 — Terry opined that MTBE concentration would peak at 35 ppb in 2024. Using a different analysis — Analysis 2 — Terry opined that, depending on spill volume, the peak concentration could range from de minimis levels to approximately 23 ppb, and could last through at least 2040. For its part, the jury concluded in Phase II that the concentration of MTBE at Station Six will peak at 10 ppb in 2033.

On appeal, Exxon challenges the jury’s conclusion on two grounds. First, it notes that, notwithstanding the jury’s Phase I finding that the City will use Station Six as a back-up source of drinking water, Terry based his models on the assumption that Station Six will operate on a continuous basis. According to Exxon, this allegedly erroneous assumption renders Terry’s models fatally flawed and the jury’s verdict without any evidentiary basis. Second, Exxon argues that because Terry’s expert opinion and the jury’s verdict differ, the latter must have been based on impermissible speculation.

Cross, 417 F.3d at 258. Under New York law, a damages award must be reduced if it “deviates materially from what would be reasonable compensation.” N.Y. C.P.L.R. § 5501(c); see also Cross, 417 F.3d at 258. As we explain in the text, we reject Exxon’s challenge to the sufficiency of the evidence underlying the jury’s verdict. For the same reasons, we also reject Exxon’s new-trial and remittitur arguments.

As for Exxon's first argument, it is true that the jury concluded during Phase I that the City would use the water from the Station Six Wells "as a back-up source of drinking water if needed due to shortages in other sources of supply." It is also true that Terry's analyses assumed that Station Six would run on a continuous basis for twenty-four years. Terry Testimony, Tr. at 2155:11-25; id. at 2212:22-2213:13. But that assumption is not necessarily inconsistent with the jury's back-up source finding. Indeed, several City witnesses testified that, given the unpredictability of water emergencies and the need to repair existing infrastructure periodically, water providers customarily plan, as a matter of prudent practice, for continuous use of back-up water facilities. For example, Terry himself testified that it is the "normal[]" practice to assume continuous use when planning for back-up wells "because no one really knows at the outside how they're going to use the well. They might think it's a standby well or something and something happens and they need to use the well, so in that case you want to have enough treatment for that scenario." Id. at 2213:8-13. Steven Schindler, Director of Water Quality for the City's Bureau of Water Supply, testified that "[y]ou never know how long a backup supply is going to be needed," especially given the City's plans to "tak[e] components of [its] system off line for long periods of time, meaning years." Schindler Testimony, Tr. at 2945:7-19. And Marnie Bell, called by the City to describe the costs of designing a treatment facility at Station Six, testified that the "[p]lanned replacement of tunnels, aqueducts, emergencies, [and] failure of these

facilities” required the City “to plan for the worst case in designing and costing a treatment plant.” Bell Testimony, Tr. at 6017:16-6018:4. Given this evidence, a rational juror could conclude that Terry’s analyses were probative of peak-MTBE concentrations at Station Six — even though the analyses assumed a continuous-pumping scenario.³⁵

Exxon’s second argument is that the jury’s peak-MTBE verdict was “irrational,” and must be set aside, because it did not mirror Terry’s peak-MTBE prediction. Appellants’ Br. at 55. We disagree. The role of an expert is not to displace the jury but rather to “provid[e] the groundwork . . . to enable the jury to make its own informed determination.” United States v. Duncan, 42 F.3d 97, 101 (2d Cir. 1994). Accordingly, the jury is “free to accept or reject expert testimony, and [is] free to draw [its] own conclusion.” Berger v. Iron Workers Reinforced Rodmen, Local 201, 170 F.3d 1111, 1121 (D.C. Cir. 1999); see also Schroeder v. The Tug Montauk, 358 F.2d 485, 488 (2d Cir. 1966) (“[I]t was within the province of the [trier of fact] to weigh [conflicting expert evidence] and accept or reject the whole or

³⁵ For the same reason, we reject Exxon’s contention that the City’s proof of its damages was somehow faulty because, in calculating the cost of a treatment facility, Bell assumed that Station Six would operate continuously. The jury was entitled to credit Bell’s testimony that in designing and building such a facility, a prudent water provider would assume continuous use, even if Station Six is to serve as a back-up source of drinking water. Bell Testimony, Tr. at 6017:16-6018:4. Further, the jury’s measure of damages — \$250.5 million, before the offsets for proportional liability for other tortfeasors and damage attributable to preexisting contamination — was consistent with the City’s evidence that the net present value of maintaining and operating a treatment system at Station Six to remove MTBE present at 10 ppb was approximately \$250 million. See, e.g., id. at 5886:9-10 (“For the 10 ppb [scenario], the total cost would be approximately \$250 million.”). The District Court therefore did not abuse its discretion in denying Exxon’s motion for a new trial on damages or, in the alternative, remittitur.

a part of each [expert's] testimony.”). And we have consistently held that expert testimony that “usurps . . . the role of the jury in applying [the] law to the facts before it” by “undertak[ing] to tell the jury what result to reach” or “attempt[ing] to substitute the expert’s judgment for the jury’s” is inadmissible. Nimely v. City of New York, 414 F.3d 381, 397 (2d Cir. 2005) (internal quotation marks and alteration omitted).

As an initial matter, we note, as did the District Court, that the jury’s peak-MTBE finding fell within the range of possible outcomes predicted by Terry’s analyses. Terry testified that because he lacked perfect information about the amount of gasoline spilled in the vicinity of Station Six, he based his analyses on a range of variables. For example, in Analysis 1, Terry predicted future MTBE concentrations using groundwater quality information taken in 2004 for sample locations near Station Six. And in Analysis 2, he predicted future MTBE concentrations and the duration of such concentrations by identifying known spill sites and assuming spill volumes of 50 gallons, 500 gallons, and 2,000 gallons. Analysis 1 suggested peak MTBE concentrations of 35 ppb, while Analysis 2 suggested peak MTBE concentrations ranging from de minimis levels (assuming spill volumes of 50 gallons) to approximately 23 ppb (assuming spill volumes of 2,000 gallons).³⁶ The jury’s finding that the concentration of MTBE at Station Six

³⁶ Although Terry explained that the principal purpose of Analysis 2 was to estimate “how long the MTBE concentrations will be present [at Station Six] in the future,” Terry Testimony, Tr. at 2015:14-15, nothing in his testimony suggests that he meant for the jury to disregard Analysis 2’s peak-MTBE figures.

would peak at 10 ppb falls squarely within Terry's range. This strikes us as highly persuasive evidence that the jury's finding was not irrational. Cf. Robinson v. Shapiro, 646 F.2d 734, 744 (2d Cir. 1981) (upholding damage award greater than figure calculated by plaintiff's expert).

Further, Terry's models only predicted future MTBE concentrations at Station Six. These predictions were based on a set of assumptions about a number of factors, including spill volume, timing, and the uses to which Station Six would be put. The jury evidently accepted some of Terry's assumptions and rejected others, which it was entitled to do. Exxon's contrary argument would threaten to "denigrate[] the historic and practical abilities of the jury," Medcom Holding Co. v. Baxter Travenol Laboratories, Inc., 106 F.3d 1388, 1398 (7th Cir. 1997), by forcing upon it a binary choice: either accept Terry's testimony in whole or reject it in whole. This is not the law. See Berger, 170 F.3d at 1121; Schroeder, 358 F.2d at 488.

For these reasons, we reject Exxon's contention that the jury's peak MTBE finding was based on impermissible speculation.

2. The Jury's Consideration of Market Share Evidence

According to Exxon, the jury's Phase III verdict as to Exxon's liability as a manufacturer, refiner, supplier, or seller of gasoline containing MTBE must also be

reversed because it was impermissibly based on a market-share theory of liability.³⁷

“Market share liability provides an exception to the general rule that in common-law negligence actions, a plaintiff must prove that the defendant’s conduct was a cause-in-fact of the injury.” Hamilton v. Beretta U.S.A. Corp., 96 N.Y.2d 222, 240 (2001). Where the theory of proof called market-share liability is permitted, a defendant may be held liable absent any showing that it caused or contributed to the plaintiff’s injury; instead, a defendant may be presumed liable to the extent of its share of the relevant product market. Hymowitz v. Eli Lilly & Co., 73 N.Y.2d 487, 511-12 (1989).

According to Exxon, the District Court permitted the imposition of market-share liability in contravention of New York law when it instructed the jury that in evaluating whether Exxon’s conduct in manufacturing, refining, supplying or selling gasoline containing MTBE was a substantial factor in causing the City’s injury, the jury could “consider as circumstantial evidence [Exxon’s] percentage share of the retail and/or supply market for gasoline containing MTBE in Queens or [in] any other region that you determine is relevant.” Tr. at 6606:17-20. We disagree with Exxon and conclude that the instruction appropriately applied New

³⁷ As explained above, the jury ultimately considered two theories of causation. Under the first theory — which the District Court called “direct spiller causation” — the jury was asked to consider whether Exxon-owned underground storage tanks located in the vicinity of Station Six leaked gasoline containing MTBE and, if so, whether these leaks injured the City. Under the second theory — which the District Court called “manufacturer, refiner, supplier, or seller causation” — the jury was asked to consider whether MTBE from gasoline that was manufactured, refined, supplied, or sold by Exxon was a cause of the City’s injury. The jury found that the City had proven by a fair preponderance of the evidence that Exxon was a cause of the City’s injury as a direct spiller and as a manufacturer, refiner, supplier, or seller. Phase III Interrogatory Sheet.

York law. The District Court did not impose market-share liability upon Exxon; it simply permitted the jury to draw upon market-share data as one piece of circumstantial evidence that Exxon caused the City's injury.

As an initial matter, we note that the City did not rely on a market-share theory of liability. To the contrary, it identified the "exact defendant whose product injured" it — Exxon. Cf. Hymowitz, 73 N.Y.2d at 504 (allowing recovery notwithstanding plaintiffs' inability to identify the manufacturer of injurious product). Indeed, as explained below, the City adduced testimony establishing that Exxon gasoline found its way into every underground storage tank in Queens during the relevant period. This is a case in which a defendant faces liability because of evidence linking its own product to the plaintiff's injury.

Under New York law, an act or omission is regarded as a legal cause of an injury "if it was a substantial factor in bringing about the injury." Schneider v. Diallo, 788 N.Y.S.2d 366, 367 (1st Dep't 2005). The word "substantial" means that the act or omission "had such an effect in producing the injury that reasonable people would regard it as a cause of the injury." Rojas v. City of New York, 617 N.Y.S.2d 302, 305 (1st Dep't 1994) (internal quotation marks omitted). In endeavoring to prove that Exxon's conduct as a manufacturer, refiner, supplier, or seller of gasoline was a "substantial factor" in bringing about its injury, the City adduced three principal pieces of evidence. First, the City presented expert testimony that, because gasoline from different manufacturers was commingled

before distribution, Exxon gasoline “ended up in each of the retail gas stations in Queens and in their underground storage tanks” between 1985 and 2003.

Testimony of Bruce Burke (“Burke Testimony”), Tr. at 4103:7-10. As a result, when “there were leaks from those tanks and MTBE gasoline came through those leaks . . . there was some Exxon MTBE gasoline in the tanks [that] presumably went into the leaks.” Id. at 4104:14-20. Second, the City presented expert testimony that Exxon supplied approximately twenty-five percent of the gasoline sold in Queens between 1986 and 2003. Testimony of Martin Tallett, Tr. at 4278:9-10; id. at 4281:8-11. And third, the City presented expert testimony that “[l]eaks happen at gas stations . . . on a fairly routine basis.” Testimony of Marcel Moreau (“Moreau Testimony”), Tr. at 1115:15-16.

Viewed in context, the market share data adduced by the City served merely as some proof that sufficient quantities of Exxon gasoline were delivered to gas stations in the vicinity of Station Six to make it more likely than not that Exxon gasoline played a substantial role in bringing about the City’s injury. Like the District Court, we perceive a difference between employing market-share data in this fashion and imposing liability based solely on a defendant’s share of the market for a dangerous product, absent any evidence that the defendant’s own product directly caused some of the harm alleged. Here, the City did not use market share data as a substitute for showing that Exxon contributed to the contamination of

Station Six. Cf. Hymowitz, 73 N.Y.2d at 504. Instead, it used such data to help quantify the scope of that contribution.³⁸

The cases upon which Exxon relies are distinguishable. In Tidler v. Eli Lilly & Co., 851 F.2d 418 (D.C. Cir. 1988), the D.C. Circuit declined to allow plaintiffs to employ a market-share theory of liability in connection with their state-law claims for DES exposure where the relevant state courts had not squarely addressed the availability of market-share liability. Id. at 425. In City of St. Louis v. Benjamin Moore & Co., 226 S.W.3d 110, 115-16 (Mo. 2007), the Supreme Court of Missouri held that, under Missouri law, a plaintiff may not employ a market-share theory of liability in lieu of identifying the precise defendant whose product injured it. And in Martinez v. Skirmish, U.S.A., Inc., No. 07-5003, 2009 WL 1437624 (E.D. Pa. May 21, 2009), the court reached a similar result under Pennsylvania law. Id. at *4. Neither Tidler, City of St. Louis, nor Martinez deal with the different question presented here: whether market-share data can serve as part of the mosaic of circumstantial evidence that helps the jury determine the scope of the defendant's contribution to the plaintiff's injury.

Under the circumstances of this case, we find that the District Court's instruction was not improper. We also find that, based on the evidence described above, a reasonable jury could conclude that Exxon's conduct as a manufacturer,

³⁸ For its part, Exxon appears to have relied on market share evidence to prove the percentage of fault attributable to other tortfeasors.

refiner, supplier, or seller of gasoline containing MTBE was indeed a substantial factor in bringing about the City's injury.³⁹

E. New York Law Claims

Exxon contends that even if we reject its arguments as to preemption, legal cognizability, and ripeness, and its challenge to the sufficiency of the evidence of injury and causation, the judgment below must be reversed because the jury's verdicts as to the City's claims of negligence, trespass, nuisance, and failure-to-warn are unsupported by the evidence. We disagree and conclude that, viewed in the light most favorable to the City, the evidence supported the jury's verdict. See Chin v. Port Auth. of N.Y. & N.J., 685 F.3d 135, 150-51 (2d Cir. 2012) ("In reviewing the sufficiency of the evidence in support of a jury's verdict, we examine the evidence in the light most favorable to the party in whose favor the jury decided, drawing all reasonable inferences in the winning party's favor." (internal quotation marks omitted)).

1. Negligence

To prevail on a negligence claim under New York law, a plaintiff must show "[1] a duty on the part of the defendant; [2] a breach of that duty by conduct

³⁹ We need not address Exxon's challenge to what it describes as the District Court's "novel 'commingled product 'alternative liability theory.'" Appellants' Br. at 61. That independent, alternative theory dispensed with the substantial-factor requirement and would have permitted the City to establish causation based on evidence that Exxon manufactured or refined any amount of commingled MTBE gasoline contaminating Station Six. See, e.g., MTBE XII, 739 F. Supp. 2d at 608-09; MTBE VII, 644 F. Supp. 2d at 314-15, 318-19; MTBE II, 379 F. Supp. 2d at 377-79. Because the jury never rendered a verdict on the commingled product theory, it is not at issue here.

involving an unreasonable risk of harm; [3] damages suffered by the plaintiff; and [4] causation, both in fact and proximate, between the breach and the plaintiff's harm." McCarthy v. Olin Corp., 119 F.3d 148, 161 (2d Cir. 1997) (internal quotation marks and citations omitted).

At trial, the City argued that Exxon was negligent as a "direct spiller" of gasoline containing MTBE because Exxon failed to ensure that such gasoline was properly stored and dispensed at service stations it owned or controlled. According to the City, gasoline leaked from Exxon's underground storage tanks, causing MTBE to enter the soil, the groundwater, and the Station Six Wells. Exxon argues that the evidence was insufficient to show that it breached its duty of care. In Exxon's view, the evidence showed that the technology it used to prevent leaks and contain spills was consistent with measures that other station owners used. Additionally, Exxon asserts, gasoline stations inevitably spill gasoline into the surrounding environment, even when employees exercise great care. Because the City failed to distinguish between negligent and non-negligent spills, Exxon argues, the jury's verdict is unsupported by the evidence.

Viewed in the light most favorable to the City, the evidence supported the jury's negligence verdict. The record provided ample evidence of gasoline spills and leaks at Exxon-controlled stations, and the jury could have concluded that these releases were negligent. For example, the jury heard testimony about a series of gasoline releases from an Exxon service station located at 113-21 Merrick

Boulevard in Queens, within the “capture zone” of the Station Six Wells. In 1996, an inexperienced employee caused a gasoline leak when changing filters on a gasoline dispenser. Three years later, one of the station’s tanks failed a “vacuum” test, meaning that the tank was leaking and required repairs. And in 2001, employees encountered gasoline-contaminated soil when working on the station’s piping system; upon further exploration, they discovered six 550-gallon storage tanks buried under the station — tanks that were unregistered, and that the station owner did not know existed. An earlier test of the groundwater underneath the station revealed an MTBE concentration of 1,500 ppb — thirty times the then-current MCL.

The jury also heard testimony about steps Exxon could have taken to prevent, or at least mitigate the damage from, these contamination incidents. Marcel Moreau, the City’s expert on underground gasoline storage, explained that Exxon could have implemented “vapor monitoring,” which would have permitted station operators to detect leaks more quickly. Moreau Testimony, Tr. at 3378:22. He also explained that Exxon could have installed remediation systems at its stations, which would have permitted station operators to begin the clean-up process as soon they detected a gasoline leak. *Id.* at 3379:3-10. Moreau testified that, to his knowledge, Exxon did not implement either of these measures at its stations. *Id.* at 3380:15-17. In addition, according to Moreau, after the 1996 leak at the Merrick Boulevard station from an improperly-installed filter, Exxon employees

did not perform a “chemical analysis or anything else to determine what was contaminated and what was not. They just went by nose.” Id. at 1270:16-19.

The jury was entitled to credit this testimony and conclude that the exercise of reasonable care required Exxon to implement the measures identified by Moreau. Contrary to Exxon’s argument, these devices were not simply a “wish list.” Moreau testified that vapor detection technology was available in the 1980s, and that, in a 1986 paper recognized by at least one petroleum trade group, he and others warned about the dangers of MTBE and emphasized the importance of effective leak-detection systems. Id. at 3345:2-14. An internal Exxon memorandum from 1984 explained that MTBE migrated farther in groundwater than other contaminants and had lower “odor and taste thresholds.” Pl. Ex. 272. A memorandum dated two years later observed that federal and state authorities had identified MTBE as a health concern. Pl. Ex. 5506. Evidence of Exxon’s timely knowledge of the particular dangers of MTBE, combined with evidence about remedial measures available as early as the 1980s, was sufficient to allow the jury to determine that Exxon breached the standard of ordinary care.

2. Trespass

To prevail on a trespass claim under New York law, a plaintiff must show an “interference with [its] right to possession of real property either by an unlawful act or a lawful act performed in an unlawful manner.” New York State Nat’l Org. for Women v. Terry, 886 F.2d 1339, 1361 (2d Cir. 1989) (citing Ivancic v. Olmstead, 66

N.Y.2d 349, 352 (1985)). “[W]hile the trespasser, to be liable, need not intend or expect the damaging consequence of his intrusion, he must intend the act which amounts to or produces the unlawful invasion, and the intrusion must at least be the immediate or inevitable consequence of what he willfully does, or [what] he does so negligently as to amount to willfulness.” Phillips v. Sun Oil Co., 307 N.Y. 328, 331 (1954). In a trespass case involving the “underground movement of noxious fluids,” a plaintiff must show that the defendant “had good reason to know or expect that subterranean and other conditions were such that there would be passage [of the pollutant] from defendant’s to plaintiff’s land.” Id.

Exxon asserts that the City failed to establish the first element of trespass — an interference with its water rights. We address this assertion only briefly because it simply repackages two arguments we have already rejected. First, Exxon contends that an interference has not occurred because, according to the jury, the peak MTBE concentration in the Station Six Wells will not exceed 10 ppb. But as already explained, New York courts have held that a plaintiff may suffer injury from contamination at levels below an applicable regulatory threshold. See Cunningham v. Spitz, 630 N.Y.S.2d 341, 341 (2d Dep’t 1995); Peri v. City of New York, 798 N.Y.S.2d 332, 339-40 (N.Y. Sup. Ct. Mar. 28, 2005), aff’d, 843 N.Y.S.2d 618 (1st Dep’t 2007), aff’d, 11 N.Y.3d 756 (2008). Here, the jury found that a reasonable water provider would have treated the MTBE-contaminated water at Station Six. And the record contains sufficient evidence to support this conclusion.

Second, Exxon contends that it did not interfere with the City's water rights because the City has never actually used Station Six. Again, however, Exxon conflates the City's injury with its damages. The City alleged, and proved to the jury's satisfaction, that the City intends to use the Station Six Wells, that MTBE will be within the capture zone of those wells when they begin operation, and that a reasonable water provider would treat the water to remove the MTBE. An interference has occurred. Whether the City actually uses Station Six goes to the calculation of its damages. *Cf. Hill v. Raziano*, 880 N.Y.S.2d 173, 175 (2d Dep't 2009) (“[N]ominal damages are presumed from a trespass even where the property owner has suffered no actual injury to his or her possessory interest.”).

Exxon also contends that the District Court erred by failing to instruct the jury that a defendant is liable for trespass only if it “had good reason to know or expect that subterranean and other conditions were such that there would be passage [of the pollutant] from defendant's to plaintiff's land.” Appellees' Br. at 73 (quoting *Phillips*, 307 N.Y. at 331) (alteration in original). In fact, the District Court's instruction conveyed this element of trespass. The relevant portion of the that instruction, which is set out in the margin,⁴⁰ required the jury to find that

⁴⁰ After explaining the element of causation and then defining “intent,” the District Court gave the following instruction:

In this case, if you find that [Exxon] did not know that the gasoline containing MTBE that it manufactured, refined, sold and/or supplied would be spilled, and that the property of MTBE would cause it to spread widely and rapidly in groundwater, or that although [Exxon] knew these things, these things did not make it substantially certain that its gasoline containing MTBE would leak from the gasoline distribution system and enter groundwater, including the groundwater in the capture zone of the Station 6 wells,

Exxon knew (1) “the gasoline containing MTBE that it manufactured, refined, sold and/or supplied would be spilled,” (2) “the propert[ies] of MTBE would cause it to spread widely and rapidly in groundwater,” and (3) as a result, it was “substantially certain that [Exxon’s] gasoline containing MTBE would leak from the gasoline distribution system and enter groundwater, including the groundwater in the capture zone of the Station 6 wells.” Tr. at 6620:1-15. These instructions, particularly the third requirement, satisfy Phillips.

Finally, we reject Exxon’s argument that its actions as a “mere refiner and supplier” of gasoline were “too remote from any actual spills or leaks to be deemed an ‘immediate or inevitable’ cause of any trespass.” Appellants’ Br. at 73-74 (quoting Phillips, 307 N.Y. at 331). In State v. Fermenta ASC Corp., 656 N.Y.S. 2d 342 (2d Dep’t 1997), plaintiff Suffolk County Water Authority determined that several of its wells had been contaminated by a chemical known as TCPA, a natural byproduct of a widely-used herbicide called Dacthal. The water authority sued the exclusive manufacturer and distributor of Dacthal on several legal theories, including trespass. In affirming the trial court’s denial of summary judgment to the manufacturer on the trespass claim, the Second Department explained that “it is

then [Exxon] did not commit a trespass.

If you find, however, that [Exxon] acted with the requisite intent; namely, [Exxon] knew that its conduct made it substantially certain that MTBE would enter the groundwater, including the groundwater in the capture zone of the Station 6 wells, then [Exxon] did commit a trespass.

Tr. at 6620:1-15.

enough that the defendants' actions in directing consumers to apply Dacthal to the soil [were] substantially certain to result in the entry of TCPA into [Suffolk County Water Authority] wells." Id. at 346.

Fermenta is squarely on point. Just as the manufacturer in Fermenta knew that consumers would apply its product to the soil, here the jury concluded that Exxon "knew that the gasoline containing MTBE that it manufactured, refined, sold and/or supplied would be spilled." Tr. at 6620:2-3. And just as the actions of the manufacturer in Fermenta were substantially certain to cause contamination, here the jury concluded that it was "substantially certain that [Exxon's] gasoline containing MTBE would leak from the gasoline distribution system and enter groundwater, including the groundwater in the capture zone of the Station 6 wells."⁴¹ Id. at 6620:7-9.

3. Public Nuisance

A public nuisance "is an offense against the State and is subject to abatement or prosecution on application of the proper governmental agency." Copart Indus. v. Consolidated Edison Co. of N.Y., 41 N.Y.2d 564, 568 (1977). To prevail on a public nuisance claim under New York law, a plaintiff must show that the defendant's

⁴¹ Exxon cites Abbatiello v. Monsanto Co., 522 F. Supp. 2d 524, 542 (S.D.N.Y. 2007), which summarily dismissed a trespass claim against a manufacturer of products containing harmful chemicals, even though the complaint alleged that the manufacturer knew its products would enter plaintiffs' land. Relying on Phillips, the court in Abbatiello concluded without explanation that the contamination was not the "immediate or inevitable consequence" of the manufacturer's actions. Id. (quoting Phillips, 307 N.Y. at 331). Here, as we have already explained, the jury's finding that Exxon was "substantially certain that its gasoline containing MTBE would leak from the gasoline distribution system and enter groundwater," Tr. at 6620:6-8, satisfied the requirements set forth in Phillips.

conduct “amounts to a substantial interference with the exercise of a common right of the public,” thereby “endangering or injuring the property, health, safety or comfort of a considerable number of persons.” 532 Madison Ave. Gourmet Foods v. Finlandia Ctr., 96 N.Y.2d 280, 292 (2001).

Exxon argues that the jury’s rejection of the City’s design-defect claim forecloses the City’s public-nuisance claim because it establishes that Exxon acted in the safest feasible way, and that Exxon therefore did not “substantially” interfere with a public right.⁴² Again, however, Exxon overreads the jury’s design-defect verdict. The jury concluded that the City failed to establish that a safer, feasible alternative design existed — a determination, which, as we have explained, required the jury to balance the costs of using MTBE against the alternatives. Exxon overreaches insofar as it construes this verdict as an affirmative finding that MTBE was the safest available oxygenate.

We also reject Exxon’s contention that its conduct as a supplier of gasoline was too “remote from Station 6” to support the jury’s public nuisance verdict. Appellants’ Br. at 74. Under New York law, “[e]very one who creates a nuisance or participates in the creation or maintenance thereof is liable for it.” Penn Cent. Transp. Co. v. Singer Warehouse & Trucking Corp., 447 N.Y.S.2d 265, 267 (1st Dep’t 1982) (internal quotation marks omitted); see also Restatement (Second) of

⁴² Exxon also argues that the jury’s finding that MTBE concentrations in Station Six will never exceed the MCL establishes as a matter of law that Exxon’s “interference” was not “substantial.” Here, Exxon simply reiterates its earlier argument about the legal significance of the MCL. We are unpersuaded for the reasons already discussed.

Torts § 834 (“One is subject to liability for a nuisance caused by an activity, not only when he carries on the activity but also when he participates to a substantial extent in carrying it on.”). As we have explained, the City adduced evidence showing that Exxon manufactured gasoline containing MTBE and supplied that gasoline to service stations in Queens. In addition, the City offered testimony that Exxon knew station owners would store this gasoline in underground tanks that leaked, and introduced evidence that Exxon knew specifically that tanks in the New York City area leaked. The record also shows that Exxon was aware of MTBE’s tendency to spread quickly once released into groundwater. In sum, the evidence supports a finding that Exxon knew that MTBE gasoline it manufactured would make its way into Queens, where it was likely to be spilled, and once spilled, would likely infiltrate the property of others.

Despite this evidence, Exxon argues that the City failed to show that Exxon’s operations occurred “near the relative geographic areas of the plaintiffs’ wells.” Appellants’ Br. at 74 (internal quotation marks omitted). In support of this position, Exxon relies on In re Nassau County Consolidated MTBE (Methyl Tertiary Butyl Ether) Products Liability Litigation, 918 N.Y.S.2d 399, 2010 WL 4400075 (N.Y. Sup. Ct. Nassau County 2010) (unpublished table decision) (“Nassau County”), a decision also addressing MTBE contamination in public water supplies by various gasoline suppliers. In Nassau County, the trial court concluded that to be liable for a public nuisance, the defendant (or its agent) must have participated

in the nuisance-causing activity while on land that was “neighboring or contiguous” with the plaintiff’s property. Id. at *9. The court therefore held that only those defendants who “conduct[ed] . . . operations near the relative geographic areas of the plaintiffs’ wells” could be liable for public nuisance and dismissed public nuisance claims against defendants whose “operations terminate before reaching Nassau County or Suffolk County (where the alleged contamination has taken place), and [whose] link to the plaintiffs’ injury is that they supplied most of the gasoline that was eventually transported near the plaintiffs’ wells.” Id. at *8, 10.

Nassau County has not been subjected to the scrutiny of any higher state court, and we question whether, on further review, New York law will be found to support liability for public nuisance only if the defendant engaged in the nuisance-causing conduct from land that directly adjoins the plaintiff’s land.⁴³ But even

⁴³ Our sister Circuits have reached differing conclusions when presented with common law nuisance claims against a manufacturer who was not in geographic proximity to the plaintiff. Compare Tioga Pub. School Dist. No. 15 v. U.S. Gypsum Co., 984 F.2d 915, 920 (8th Cir. 1993) (holding that, under North Dakota law, “nuisance . . . does not afford a remedy against the manufacturer of an asbestos-containing product to an owner whose building has been contaminated by asbestos following the installation of the product in the building”), and City of Bloomington, Ind. v. Westinghouse Elec. Corp., 891 F.2d 611, 614 (7th Cir. 1989) (holding that, under Indiana law, a manufacturer of electrical equipment was not liable for nuisance when third parties disposed of its products incorrectly, causing contamination); with Team Enters., LLC v. W. Inv. Real Estate Trust, 647 F.3d 901, 912 (9th Cir. 2011) (“A defendant may be liable [under California law] for assisting in the creation of a nuisance if he either (1) affirmatively instructs the polluting entity to dispose of hazardous substances in an improper or unlawful manner, or (2) manufactures or installs the disposal system.” (citations omitted)). These cases turn in large part, however, not on the geographic proximity of the defendant to the nuisance but on whether the defendant knew that its product would endanger public health, and whether the defendant took steps to mitigate the risks associated with its product. See City of Bloomington, 891 F.2d at 614 (“The uncontested record shows that when alerted to the risks associated with PCBs, [the defendant] made every effort to have [the third party] dispose of the chemicals safely.”); cf. Tioga, 984 F.2d at 920 (“[L]iability for damage caused by a nuisance thus turns on whether the defendant is in control of the instrumentality alleged to constitute a nuisance, since without control a defendant cannot abate the nuisance.”). As we have explained, in this case the jury could have concluded (and evidently did conclude) that Exxon knew of

assuming the trial court's interpretation of public nuisance doctrine is correct, Nassau County does not undermine the jury's verdict.

We note, as an initial matter, that the City sought to hold Exxon liable as both a direct spiller of MTBE gasoline and as a manufacturer, refiner, supplier, and seller of MTBE gasoline, and that the jury's verdict on public nuisance did not distinguish between these theories of causation. Nassau County's discussion of geographic proximity is relevant only to the extent that the jury held Exxon liable for public nuisance as a manufacturer of MTBE gasoline; Nassau County permitted claims to go forward against direct-spiller defendants, *i.e.*, defendants who "had gasoline discharges near the plaintiff[']s wells." *Id.* at *10.

But even if we assume the jury held Exxon liable only as a manufacturer of MTBE, Nassau County is distinguishable. Here, unlike in Nassau County, the evidence showed that Exxon conducted "operations near the relative geographic areas" of the Station Six Wells. Exxon owned or controlled multiple service stations near Station Six; Exxon's gasoline "ended up in each of the retail gas stations in Queens and in their underground storage tanks" between 1985 and 2003, Burke Testimony, Tr. at 4103:7-10; and, based on that activity alone, the jury could have found that Exxon marketed gasoline to retail customers in Queens. Exxon's extensive involvement in the Queens gasoline market belies any claim that its conduct was too geographically remote to sustain liability for public nuisance.

the dangers of MTBE and failed to take actions to mitigate MTBE contamination.

4. Failure to Warn

Under New York law, a plaintiff may recover in strict products liability “when a manufacturer fails to provide adequate warnings regarding the use of its product.” Rastelli v. Goodyear Tire & Rubber Co., 79 N.Y.2d 289, 297 (1992). This is because a manufacturer “has a duty to warn against latent dangers resulting from foreseeable uses of its products of which it knew or should have known.” Id. The duty to warn extends “to third persons exposed to a foreseeable and unreasonable risk of harm by the failure to warn.” McLaughlin v. Mine Safety Appliances Co., 11 N.Y.2d 62, 68-69 (1962).

Exxon argues that the District Court erred when it “instructed the jury that [Exxon] had a duty to warn, inter alia, ‘the city water providers and the public’ of dangers arising from the addition of MTBE into gasoline.”⁴⁴ Appellants’ Br. at 67-68. We reject Exxon’s suggestion that, as a categorical matter, neither the City nor the public are reasonably foreseeable users of gasoline containing MTBE, and therefore that Exxon owed the City and the gasoline-using public no duty to advise them of the hazards of use. Cf. Moreau Testimony, Tr. at 3380:3-17 (testifying that

⁴⁴ We note that Exxon mischaracterizes the District Court’s instruction. The District Court did not instruct the jury that Exxon owed a duty to warn; it merely noted that “[t]he [C]ity . . . contends that” Exxon failed to warn “distributors, customers, station owners, its employees, gasoline truck drivers, and the city water providers and the public” of the dangers of gasoline containing MTBE. Tr. at 6613:24-14:3 (emphasis added). In more general instructions on the duty to warn, the District Court properly instructed the jury that the “manufacturer of a product that is reasonably certain to be harmful if used in a way that the manufacturer should reasonably foresee, is under a duty to use reasonable care to give adequate warnings to foreseeable users of the product of any danger known to it or which in the use of reasonable care it should have known and which the reasonable user of the product ordinarily would not discover.” Tr. at 6615:4-10.

“a public education campaign,” informing “everybody who was pumping gas” about the dangers of MTBE, was necessary to reduce MTBE contamination).

In any event, the focus of the City’s evidence on its failure-to-warn claim pertained not to warnings Exxon gave the City or the general public but rather to warnings it gave to gas station operators. Although Exxon disputes whether a warning to station operators would have reduced MTBE contamination, a contention we address below, nowhere does Exxon argue that it lacked a duty to warn station operators of the special dangers of its product. And the evidence showed that although operators were warned generally about the risks of spilling gasoline, they were not warned about the special risks associated with gasoline containing MTBE. For example, Michael J. Roman, an Exxon employee at the time of his testimony, said that Exxon did not advise its customers to test for the presence of MTBE when they discovered gasoline contamination at a spill site; nor did Exxon provide any information to operators about the environmental problems associated with MTBE in particular. Testimony of Michael J. Roman (“Roman Testimony”), Tr. at 3496:17-3497:3. Roman explained that Exxon “did not want to confuse our customers” and that “the real issue is gasoline, that we do not want it leaking or spilled into the ground.” *Id.* at 3494:16-3495:20.

We are also unpersuaded by Exxon’s argument that it had no duty to warn anyone because the dangers of spilling gasoline are common knowledge. The City’s claim is not that it was injured by spilled gasoline but rather that it was injured by

spilled gasoline containing MTBE. The evidence at trial showed that MTBE has an unusual propensity to spread widely in groundwater if spilled, and that it is especially difficult to clean up. The harmful effects of spilling gasoline containing MTBE are therefore different (and more severe) than the effects of spilling untreated gasoline. Given the unique properties of MTBE, we reject the suggestion that a gasoline supplier complies with its duty to warn of the dangers of gasoline containing MTBE by complying with its duty to warn of the dangers of gasoline that does not contain MTBE. See Liriano v. Hobart Corp., 92 N.Y.2d 232, 242 (1998) (“[T]he open and obvious defense generally should not apply when there are aspects of the hazard which are concealed or not reasonably apparent to the user.”).⁴⁵

Finally, Exxon argues that the jury’s failure-to-warn verdict must be rejected because the City did not establish that gas station operators and other foreseeable users would have changed their behavior had they been warned of the dangers of MTBE. To the contrary, the record contains ample evidence from which the jury could have concluded that warnings about MTBE would have reduced contamination in the Station Six Wells. For example, the jury heard testimony that gas stations chose not to replace leaky underground storage systems in the 1980s and 1990s because they believed that doing so would be more costly than paying for

⁴⁵ We also reject Exxon’s argument that it had no duty to warn the City about the dangers of MTBE because, by 1997, the City was aware of these dangers. Exxon began using MTBE in its gasoline long before 1997, and the City’s eventual knowledge did not relieve Exxon of its duty to provide adequate warnings before 1997 (to say nothing of its continuing duty to warn gas station owners).

the consequences of continued leakage. We think the jury could have inferred that station owners would have acted differently had they been warned specifically about the dangers of MTBE. As one City expert testified: “Without MTBE, a-gallon-a-day leak most of the time isn’t going to get you in very big trouble. But a-gallon-a-day leak with MTBE is a whole different animal; it changes the game. You are now in a whole different ballpark. You need to pay attention to those kinds of releases, and no one was really paying attention on that scale in the 1980s and through most of the 1990s.”⁴⁶ Moreau Testimony, Tr. at 3350:22-51:3. It is not surprising that the jury credited this evidence; indeed, the testimony accords with common sense.

F. Juror Misconduct

Finally, Exxon argues that it is entitled to a new trial because the District Court failed to dismiss Juror No. 1. According to Exxon, after the District Court dismissed the threatened juror (Juror No. 2), it was “incumbent” upon it “to dismiss the threatener” or, at a minimum, to ask Juror No. 1 whether she had actually threatened Juror No. 2. Appellants’ Br. at 75-76. The District Court’s failure to dismiss Juror No. 1 was prejudicial, Exxon contends, because Juror No. 2 was, it

⁴⁶ The court in In re Nassau County, 2010 WL 4400075, at *16, dismissed the plaintiffs’ failure-to-warn claim after concluding that (1) the defendants “did not manufacture the product or have any superior knowledge regarding the risk of harm,” (2) “there is no duty to warn generally of public dangers or a duty to warn public officials,” and (3) “it is unlikely that additional warnings to end-users regarding the specific characteristics of MTBE would have been effectual in preventing injury to the plaintiff water districts.” Here, the evidence was sufficient for the jury to find that Exxon manufactured the gasoline, that Exxon had superior knowledge regarding the risk of harm, and that additional warnings would have been effective in preventing harm. To the extent that In re Nassau County suggests a different conclusion, we find its reasoning unpersuasive.

alleges, “a holdout juror and it is inconceivable that another juror would dare disagree with Juror [No.] 1 after seeing the fate of Juror [No.] 2.” Id. at 75.

We “review a trial judge’s handling of alleged jury misconduct for abuse of discretion.” United States v. Gaskin, 364 F.3d 438, 463 (2d Cir. 2004). In so doing, we bear in mind that “[c]ourts face a delicate and complex task whenever they undertake to investigate reports of juror misconduct . . . during the course of a trial.” United States v. Thomas, 116 F.3d 606, 618 (2d Cir. 1997). A trial judge enjoys especially “broad flexibility” when the allegations of misconduct “relate to statements made by the jurors themselves, rather than to outside influences.” United States v. Sabhnani, 599 F.3d 215, 250 (2d Cir. 2010) (internal quotation marks omitted). Even if a party moving for a mistrial shows that the court abused its discretion, however, it must also demonstrate that “actual prejudice” resulted. United States v. Abrams, 137 F.3d 704, 709 (2d Cir. 1998) (per curiam).

We see no abuse of discretion in the District Court’s decision to dismiss Juror No. 2 and not Juror No. 1, and certainly no prejudice. After diligently and exhaustively inquiring of each juror individually whether he or she felt under any threat, pressure, or coercion to render a verdict in either party’s favor, the District Court, relying on its observations of the jurors’ demeanors as well as their responses to its careful questioning, concluded with “absolute[] confiden[ce] that nobody feels threatened other than Juror No. 2.” Tr. at 7013:2-3. The record amply supports that conclusion, and there is no cause for us to second-guess it. Moreover, given the

District Court’s dismissal — with the agreement of both sides — of Juror No. 2, its decision not to ask Juror No. 1 whether she actually threatened Juror No. 2 was reasonable. After all, the court had not only ensured that each remaining juror felt capable of rendering an independent decision, but also had instructed each to vote his or her own conscience. In any event, the District Court’s conclusion that none of the remaining jurors felt he or she was deliberating under threat, pressure, or coercion is fatal to Exxon’s argument that “it is inconceivable that another juror would dare disagree with Juror [No.] 1 after seeing the fate of [holdout] Juror [No.] 2” — and, with it, Exxon’s theory of prejudice. Appellants’ Br. at 75. With this established, we easily conclude that the relief Exxon sought — removal of Juror No. 1 — would have done nothing to change the outcome of the case; it would simply have left an eight- rather than nine-person verdict. For these reasons, we affirm the judgment of the District Court denying Exxon’s motion for a mistrial.

G. The City’s Cross-Appeals for Further Damages

We turn now to the City’s arguments on cross-appeal. The City first argues that the jury should not have been instructed to reduce its compensatory damages award to account for the cost to the City of treating pre-existing contamination at Station Six. It further contends that the court erred in ruling that, as a matter of law, the City was not entitled to recover punitive damages from Exxon.

1. Compensatory Damages Offset

At trial, Exxon argued that any compensatory damages awarded to the City should be reduced by the necessary cost of remediating the other contaminants, such as PCE, present in the Station Six capture zone. The District Court agreed, and instructed the jury:

[i]f you find that [Exxon] has shown, by a fair preponderance of the credible evidence, that the costs of treating the other contaminants in isolation can be fairly estimated, then you must reduce the [C]ity's damage award for treating MTBE by the cost of treating these other contaminants in isolation.

Tr. at 6637:11-15. The jury found that the cost of removing pre-existing contamination — namely, PCE — was \$70 million, and reduced its \$250.5 million compensatory damages award accordingly.

The City argues that the District Court's instruction to the jury to reduce any compensatory damages award to account for the pre-existing PCE contamination was a legal error that "unfairly rewarded Exxon and penalized the City for a mere fortuity."⁴⁷ Appellees' Br. at 90. Because the wells in which Exxon caused MTBE contamination happened also to be contaminated with PCE, the City asserts, the \$70 million damages reduction results in a windfall for Exxon which, as the tortfeasor, should bear the entire cost of decontamination as a matter of principle. Moreover, the City argues, no offset should be available because the MTBE

⁴⁷ "We review jury instructions de novo to determine whether the jury was misled about the correct legal standard or was otherwise inadequately informed of controlling law." Crigger v. Fahnestock & Co., Inc., 443 F.3d 230, 235 (2d Cir. 2006) (internal quotation marks omitted).

treatment costs are costs to “remedy a trespass,” and permitting an offset “sanctions continuation of the trespass.” Id. at 93.

We disagree. The City’s argument misapprehends the nature of compensatory damages, which are designed not to punish the wrongdoer, but to compensate the victim for injuries actually suffered or expected to be suffered. See McDougald v. Garber, 73 N.Y.2d 246, 253-54 (1989) (“The goal is to restore the injured party, to the extent possible, to the position that would have been occupied had the wrong not occurred.”). Here, it is undisputed that the PCE that is present at Station Six precludes the City from serving the water, even absent any MTBE contamination. Indeed, the City purchased the Station Six Wells from the Jamaica Water Supply Company in response to complaints about the quality of Company-supplied water, intending to use the wells as a back-up water supply. The pre-existing contamination of that source required the City to build a treatment plant before it could effectuate its purpose in purchasing the wells — i.e., serving potable water in the future. Thus, the City expected to incur the cost of PCE decontamination.⁴⁸ The jury fixed that cost at \$70 million. Awarding \$250.5 million in “compensatory” damages to the City (before apportioning liability to other parties responsible for the MTBE contamination) would therefore result in a windfall to the City, not to Exxon. On these facts, we have little trouble concluding

⁴⁸ Indeed, were drinking water wells purchased in fully efficient markets, one would expect the price at which the City purchased the wells to be discounted by the cost a reasonable water supplier could expect to incur when later decontaminating the water.

that the District Court's instruction to the jury to reduce the City's damages award by the cost of treating other pre-existing contaminants was correct.

2. Punitive Damages

We review de novo a district court's determination that the evidence is insufficient to permit a reasonable jury to consider awarding punitive damages. Farias v. Instructional Sys., Inc., 259 F.3d 91, 101 (2d Cir. 2001). We will uphold that determination if, drawing all inferences in the plaintiff's favor, there is no genuine issue of material fact and the defendant is entitled to judgment foreclosing a punitive damages award as a matter of law. See Schonfeld v. Hilliard, 218 F.3d 164, 172 (2d Cir. 2000).

"Punitive damages, in contrast to compensatory damages, are awarded to punish a defendant for wanton and reckless or malicious acts and to protect society against similar acts." Rivera v. City of New York, 836 N.Y.S.2d 108, 117 (1st Dep't 2007). In New York, the standard for conduct warranting an award of punitive damages "has been variously described but, essentially, it is conduct having a high degree of moral culpability which manifests a conscious disregard of the rights of others or conduct so reckless as to amount to such disregard." Home Ins. Co. v. American Home Prods. Corp., 75 N.Y.2d 196, 203 (1990) (internal quotation marks and citations omitted). Such conduct "need not be intentionally harmful but may consist of actions which constitute wilful or wanton negligence or recklessness." Id. at 204. Punitive damages are appropriate where the defendant "acted with actual

malice involving an intentional wrongdoing” or where such conduct amounted to a “wanton, willful or reckless disregard of plaintiffs’ rights.” Ligo v. Gerould, 665 N.Y.S.2d 223, 224 (4th Dep’t 1997).⁴⁹

Our Court has observed that “the recklessness that will give rise to punitive damages [under New York law] must be close to criminality.” Roginsky v. Richardson-Merrell, Inc., 378 F.2d 832, 843 (2d Cir. 1967) (Friendly, J.); accord Home Ins. Co., 75 N.Y.2d at 203 (referring to punitive damages as “a sort of hybrid between a display of ethical indignation and the imposition of a criminal fine” (internal quotation marks omitted)). Such recklessness may be found where the defendant “is aware of and consciously disregards a substantial and unjustifiable risk that such result will occur or that such circumstance exists.” Roginsky, 378 F.2d at 843 (internal quotation marks omitted). We focus on the “nature and degree” of the risk and ask whether “disregard thereof constitutes a gross deviation from the standard of conduct that a reasonable person would observe in the situation.” Id. (internal quotation marks omitted).

A punitive damages award cannot be sustained under New York law unless “the very high threshold of moral culpability is satisfied,” Giblin v. Murphy, 73 N.Y.2d 769, 772 (1988), because punitive damages are “a social exemplary remedy,

⁴⁹ The Appellate Divisions in New York are divided over whether punitive damages must be shown by clear and convincing evidence or a preponderance of the evidence. Compare Randi A. J. v. Long Island Surgi-Ctr., 842 N.Y.S.2d 558, 568 (2d Dep’t 2007), and Munoz v. Puretz, 753 N.Y.S.2d 463, 466 (1st Dep’t 2003) (requiring clear and convincing evidence), with In re Seventh Judicial Dist. Asbestos Litig., 593 N.Y.S.2d 685, 686-87 (4th Dep’t 1993) (requiring preponderance of the evidence). The standard of proof does not affect our disposition of the City’s cross-appeal.

not a private compensatory remedy,” Garrity v. Lyle Stuart, Inc., 40 N.Y.2d 354, 358 (1976) (internal quotation marks omitted). See also State Farm Mut. Auto. Ins. Co. v. Campbell, 538 U.S. 408, 416 (2003) (observing that punitive damages “are aimed at deterrence and retribution”). Accordingly, to warrant imposing punitive damages, the reckless conduct at issue must be “sufficiently blameworthy” that punishing it “advance[s] a strong public policy of the State.” Randi A. J. v. Long Island Surgi-Ctr., 842 N.Y.S.2d 558, 564 (2d Dep’t 2007) (internal quotation marks omitted). To analyze “the egregiousness of a tortfeasor’s conduct, and the corresponding need for deterrence,” courts must “take into account the importance of the underlying right or public policy jeopardized by the tortfeasor’s conduct.” Id. at 565. “[T]he more important the right at issue, the greater the need to deter its violation.” Id.

At the close of Phase III of the trial, Exxon moved to preclude the jury from considering an award of punitive damages, arguing that the City’s evidence was insufficient as a matter of law to establish the requisite degree of malice, recklessness, or wantonness. The District Court granted the motion, concluding that the City had not shown that Exxon’s conduct created either severe actual harm or a severe risk of potential harm to the Station Six Wells. Throughout its analysis, the court discounted the City’s evidence of Exxon’s “general awareness of the dangers of MTBE” because “the narrow question presented by this motion is whether the City has produced or proffered sufficient evidence to allow a reasonable

jury to conclude that [Exxon's] conduct with respect to Station Six" warranted the imposition of punitive damages.⁵⁰ The court observed that "the vast majority of the conduct that produced the City's injury led to persistent levels of MTBE in the capture zone of Station Six that are well below the MCL in place at the time the conduct occurred."⁵¹ This fact was relevant because, although a reasonable jury could conclude that the City was injured by MTBE levels below the MCL, "punishing [Exxon] for its contribution to this injury would not advance a strong public policy of the State or protect against a severe risk to the public."⁵² The District Court also noted the lack of "credible evidence from which a jury could conclude that the risk of harm to the City, resulting from [Exxon's] conduct, significantly outstripped the actual harm caused by that conduct."⁵³

The City offers a number of reasons in support of its contention that the District Court erred in ruling on its punitive damages claim as a matter of law instead of submitting it to the jury. The City contends that "[t]he fact that Exxon's conduct also had nationwide effects does not eliminate its status as conduct 'with respect to Station Six'" and that the court was wrong "to consider only the ultimate outcome of Exxon's conduct" given that the jury "clearly could have viewed Exxon's

⁵⁰ MTBE X, 2009 WL 3347214, at *5.

⁵¹ Id. at *6.

⁵² Id.

⁵³ Id. at *7.

conduct as meriting punishment and deterrence.” Appellees’ Br. at 87-88. The City further argues that the jury’s finding that the combined outflow of the wells will not exceed the MCL is irrelevant because that “outcome” was “fortuitous,” and the inactivity of the Station Six Wells “does nothing to mitigate Exxon’s harmful conduct.” Id. at 88-89 (emphasis added). Finally, the City contends that whether a jury could conclude that the risk of harm significantly exceeded the actual harm caused was irrelevant because “the actual harm that Exxon caused was severe.” Id. at 89.

In response, Exxon argues that punitive damages must be precluded because, at all relevant times, its use of MTBE in gasoline was authorized by law; the jury found that there was no “safer, feasible alternative” to MTBE (an assertion we have already rejected); and, in any event, the City offered no evidence that any member of the public has ever been harmed by MTBE in the Station Six Wells. Exxon observes that there is no “genuine dispute” that the presence of MTBE in Station Six’s capture zone was well below the 50 ppb MCL in place until December 2003, and that “New York’s public policy, as expressed in its regulations, permits the presence of MTBE in drinking water at the level found by the jury.” Appellants’ Reply Br. at 54. Exxon further argues that there is no need to deter further conduct specifically relating to the use of MTBE in New York because New York banned MTBE in 2004 and Congress repealed the oxygenate requirement in 2005. Finally, in response to the City’s evidence of Exxon’s “general awareness that exposure to

high concentrations of MTBE over long periods of time could cause injury,” Exxon argues that such general awareness “cannot prove that [Exxon] knew years earlier, when it was making the decision to use MTBE, that its MTBE gasoline would cause some still-future injury to Station 6.” Appellants’ Reply Br. at 56.

We believe that Exxon has the better of this argument and that the District Court properly held that no reasonable jury could conclude, by at least a preponderance of the evidence, that Exxon was “aware of and consciously disregard[ed] a substantial and unjustifiable risk” that a reasonable water provider would, as a result of Exxon’s manufacture and supply of MTBE-containing gasoline in New York, be forced to treat its water supply for MTBE contamination.

Roginsky, 378 F.2d at 843 (internal quotation marks omitted) (emphasis added).

Exxon was required by law to use an oxygenate in the gasoline it manufactured and supplied. The vast majority of the evidence marshaled by the City related to Exxon’s knowledge of the potential effects of MTBE on the odor and taste of water and on the health of those consuming it, as well as MTBE’s tendency to spread quickly upon leakage through underground storage tanks or spills. But there is no evidence demonstrating that Exxon understood precisely how MTBE contamination at spill sites — including the contamination it discovered in New York in 1998 — would affect groundwater located some distance away from those sites. In fact, the City’s evidence suggests that Exxon originally believed MTBE would dissipate to extremely low contaminant levels in groundwater. On these facts, no reasonable

jury could conclude that Exxon recklessly disregarded a known risk that its conduct in the vicinity of Station Six, taken alone, would result in contaminant levels exceeding those that a reasonable water provider would tolerate — the relevant risk to be considered in determining whether Exxon’s conduct constituted “a gross deviation from the standard of conduct that a reasonable person would observe in the situation.” Id.

What is especially telling on this issue is the jury’s projection that the concentration of MTBE at Station Six would peak at 10 ppb in 2033. This projection speaks not only to the “ultimate outcome of Exxon’s conduct,” Appellees’ Br. at 89, but also to the substantiality of the risk, inherent in supplying and distributing MTBE-containing gasoline, that a reasonable water provider would one day be required to decontaminate its water of MTBE. In light of this projection, we do not believe that a reasonable jury could also find that Exxon’s conduct created a substantial and unjustifiable risk that the persistent levels of MTBE in Station Six would exceed a reasonable water provider’s tolerable MCL, thereby risking substantial injury to the interest of New York residents in potable drinking water. This is particularly so in the context of Congress’s mandate to use an oxygenate and the City’s tolerance of a 50-ppb concentration of MTBE in its drinking water during the time when most of Exxon’s allegedly reckless conduct occurred.⁵⁴ For these

⁵⁴ We express no view on and do not consider the propriety of penalizing Exxon for its conduct at other sites in other states, for a New York jury may punish only the acts giving rise to plaintiff’s injury. Frankson, 886 N.Y.S.2d at 721-22. Nor does our conclusion as to the availability of punitive damages in this bellwether case on this particular record foreclose the availability of

reasons, we affirm the District Court's determination that the evidence was insufficient as a matter of law to permit the jury to consider an award of punitive damages.

III. CONCLUSION

To summarize: We conclude that the state law tort verdict against Exxon is not preempted by the federal Clean Air Act. We conclude that the jury's finding that the MTBE levels in Station Six Wells will peak at 10 ppb in 2033 — the MCL for MTBE since 2004 — is not inconsistent with a conclusion that the City has been injured. We conclude that the City's suit was ripe because the City demonstrated a present injury, and that the City's suit was not barred by the statute of limitations. We conclude that the jury's verdict finding Exxon liable under state tort law theories is not precluded by the jury's concurrent conclusion that the City had not carried its burden, in the design-defect context, of demonstrating a feasible, cost-reasonable alternative to MTBE available to satisfy the standards of the now-repealed Reformulated Gasoline Program. We conclude that Exxon's demand for a retrial because of an incident of juror misconduct is unavailing. And we conclude that the jury properly offset the gross damages award by amounts it reasonably attributed to cleanup of contaminants other than MTBE, and that the City was not entitled to a jury determination of Exxon's liability for punitive damages.

punitive damages in other MTBE cases before the District Court.

For the foregoing reasons, we AFFIRM the judgment of the District Court in its entirety.