

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF LOUISIANA

IN RE: KATRINA CANAL BREACHES  
CONSOLIDATED LITIGATION

CIVIL ACTION  
NUMBER: 05-4182 "K"(2)  
JUDGE DUVAL  
MAG. WILKINSON

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PERTAINS TO: *Robinson*  
(No. 06-2268)

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**PLAINTIFFS' MEMORANDUM OF POINTS AND AUTHORITIES IN  
OPPOSITION TO DEFENDANT'S MOTION FOR  
PARTIAL SUMMARY JUDGMENT**

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## I. INTRODUCTION

As Sherlock Holmes would say, it is elementary that if you ask the wrong the question, you invariably get the wrong answer. That is the essence of the fatal flaw in the Government's curious motion for partial summary judgment on the Plaintiffs' operation and negligence claims. For some inexplicable reason, Defendant willfully ignores the gigantic footprints of the Mississippi River-Gulf Outlet ("MR-GO") at the scene of the worst man-made disaster in American history.

Peering through the wrong end of the telescope, Defendant misperceives Plaintiffs' causation theory, myopically focuses on only two of four component parts, ignores contrary data, and then proceeds to tilt with modeling results that do not represent the Plaintiffs' negligence scenario. What is most remarkable is that the Government improbably loses its battle with this straw man.

In the discussion below, Plaintiffs demonstrate that their causation theory is predicated on settled Louisiana law, is supported by substantial evidence, and, at a minimum, must proceed to trial because of genuine disputed issues of material fact about the cause of the catastrophic flooding of Plaintiffs' properties. Plaintiffs have submitted extensive expert reports from distinguished engineers, coastal scientists, oceanographers, biologists, surveyors, and hydrodynamic computer modelers who painstakingly analyze the evidence demonstrating that the four salient adverse effects of the MR-GO caused by its negligent design, construction, operation, and maintenance—direct surge conduit from Gulf of Mexico and Lake Borgne, "funnel effect," destruction of surge absorbing wetlands, and substantially widened channel—was a substantial factor in causing the destruction of Plaintiff's homes and businesses in New Orleans East, Lower 9th Ward, and St. Bernard Parish.

In support of their conclusions, Plaintiffs performed elaborate, state-of-the-art computer modeling to test their hypothesis that it was the MR-GO that spelled the difference between localized flooding and the cataclysm that destroyed the nation's 35<sup>th</sup> largest city, killed 1,600 people, and inflicted hundreds of millions of dollars of property damage. The modeling results—reflected in the data for multiple scenarios—clearly identify the MR-GO as the prime culprit. Realizing that this conclusion is unassailable on a motion for summary judgment, the Government is forced to engage in an unscientific critique of the modeling results, thereby violating another of Sherlock Holmes' admonitions: "The temptation to form premature theories upon insufficient data is the bane of our profession." If there were ever a case congenitally unsuitable for summary judgment on the fact-intensive, expert-driven issue of cause-in-fact, it is surely this epic engineering tragedy.

## II. LEGAL STANDARDS

The disposition of this motion is largely determined by the applicable legal standards governing duty and causation under Louisiana law and summary judgment under Rule 56.

### **A. The United States Was Obligated To Build, Operate, And Maintain The MR-GO In A Safe Manner That Did Not Enhance The Risk Of Flooding Its Neighbors**

Plaintiffs' case is predicated on the legal obligation of the Army Corps to design, construct, operate, and maintain the MR-GO in a safe manner that did not enhance the risk of flooding during hurricanes, *i.e.*, the MR-GO had to be "hurricane neutral."<sup>1</sup> The pertinent inquiry

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<sup>1</sup> The familiar duty-risk analysis is the governing negligence standard for determining whether to impose tort liability under Louisiana Civil Code Article 2315. *See In re Katrina Canal Breaches Consol. Litig.*, 2007 WL 4573052, at \*2 (E.D. La. 2007) (citing *Lemann v. Essen Lane Daiquiris, Inc.*, 923 So. 2d 627, 632-33 (La. 2006)). To prevail on a claim of negligence, the plaintiff must satisfy the five elements of the duty-risk analysis: (1) the defendant had a duty to conform his conduct to a specific standard; (2) the defendant's conduct failed to conform to the appropriate standard; (3) the defendant's substandard conduct was a cause-in-fact of the plaintiff's injuries; (4) the defendant's substandard conduct was a legal cause of the plaintiff's injuries; and (5) the

on the scope of duty is “whether the plaintiff has any law—statutory, jurisprudential, or arising from general principles of fault—to support his claim.” *Faucheaux v. Terrebonne Consol. Govt.*, 615 So. 2d 289, 292 (La. 1993); *In re Katrina Canal Breaches Consol. Litig.*, 2007 WL 4573052, at \*2 (E.D. La. 2007). Under long-established Louisiana law, the United States is responsible for any loss or injuries caused by defects in the MR-GO. Louisiana Civil Code Article 2315 establishes that the United States—as owner and operator of the MR-GO—has a duty to avoid “every act whatever . . . that causes damages to another” and must compensate those “by whose fault it happened . . . .” La. Civ. Code Art. 2315. Moreover, as a landowner/proprietor, the United States is liable for any of the MR-GO’s defects “which may deprive [its] neighbor[s] of the liberty of enjoying [their] own [properties], or which may be the cause of any damage to [them].” La. Civ. Code Art. 667.

Louisiana courts have historically held landowners and proprietors liable for flooding a neighbor’s property. *See, e.g., Lombard v. Sewerage & Water Bd.*, 284 So. 2d 905, 914 (La. 1973) (damage to homes resulting from construction of drainage canal); *Branch v. City of Lafayette*, 663 So. 2d 216, 220 (La. App. 1995) (water damages to home after heavy rainfall caused by defective drainage system). Liability for causing flooding—which the landowner/proprietor is uniquely capable of preventing—implements a salutary public policy: “The persons at whose disposal society has placed the potent implements of technology owe a heavy moral obligation to use them carefully and to avoid foreseeable harm to present or future generations.” *Pitre v. Opelousas Gen. Hosp.*, 530 So. 2d 1151, 1157 (La. 1988).

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actual damages. *Ibid.* Defendant’s motion for summary judgment focuses on the “cause-in-fact” element.



Applying these norms to our case, the Army Corps had a duty to assure that the MR-GO did not enhance the risk of flooding during hurricanes.<sup>2</sup> A public authority is charged with a duty to design, construct, operate, and maintain its facilities to avoid “presenting an unreasonable risk of injury” to the public. *Faucheaux, supra*, 615 So. 2d at 293. Defendant’s legal duty to prevent the MR-GO from causing flood damages has already been determined. In *Graci v. United States*, 435 F. Supp. 189, 195-96 (E.D. La. 1977), Chief Judge Heebe concluded that as a matter of law:

6. Under Louisiana law, the United States is responsible for the damage it occasions not only by its acts, but also by its negligence, imprudence and want of skill. LSA C.C. Art. 2316.

7. The United States as grantee of the right of way, builder and maintainer of the MRGO assumed a high standard of care with relations to damages caused by the works to neighboring lands and individuals. LSA C.C. Art. 667; *Carr v. City of Baton Rouge*, 314 So. 2d 527 (La. App. 1975).

8. The failure to exercise that degree of care ordinarily expected of a reasonably prudent person under similar circumstances constitutes negligence. *Fire & Gas Ins. Co. of Conn. v. Garick*, La. App., 312 So. 2d 103, writs denied, 313 So. 2d 845 (La. 1975).<sup>3</sup>

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<sup>2</sup> In addition to the duty not to create a hazard in the first instance, “a landowner owes a plaintiff a duty to discover any unreasonably dangerous conditions and to either correct the condition or warn of its existence.” *Socorro v. City of New Orleans*, 579 So. 2d 931, 939 (La. 1991); *see also Shelton v. Aetna Cas. & Sur. Co.*, 334 So. 2d 406, 410 (La. 1976) (citations omitted.); *Faucheaux, supra*, 615 So. 2d at 29 (duty of parish in maintaining an automatic canal gate and providing warnings of perilous conditions). Thus, Government agencies like the Army Corps have a duty to repair defective conditions and warn of known defects. *Indian Towing Co. v. United States*, 350 U.S. 61, 69 (1955). This is particularly true where the agency’s own construction activities have created the dangerous situation. *See Brandon v. State, Through Dept. of Highways*, 367 So. 2d 137, 143 (La. App. 1979) (“It is a breach of that duty for the Department to undertake construction, partially complete the project, and then leave the project unfinished with hazardous conditions existing for an unreasonable period of time, particularly when it is within the capacity of the Department to complete the project and eliminate the hazard.”)

<sup>3</sup> This duty to prevent flooding is also imposed by federal law. “Congress has mandated that the Secretary of the Army, acting through the Corps of Engineers, has the responsibility to provide flood protection for the City of New Orleans. *See* 33 U.S.C. §701 *et seq.*” *In re Katrina Canal Breaches Consol. Litig.*, 2007 WL 4573052, at \*3 (E.D. La. 2007). Similarly, the Government has a duty to avoid causing flooding in building, operating, and maintaining federal projects such as the MR-GO. *See, e.g., Kennewick Irrig. Dist. v. United States*, 880 F.2d 1018 (9th Cir. 1989)

**B. The MR-GO Was A Cause-In-Fact If It Was A “Substantial Factor” In Contributing To The Flooding Of Plaintiffs’ Properties**

Cause-in-fact is a factual determination that may be proven by direct or circumstantial evidence.<sup>4</sup> Typically, expert testimony can supply the necessary proof. *Torregano v. Cross*, 2008 WL 4059573, at \*2-\*3 (E.D. La. 2008) (citing *Donaghey v. Ocean Drilling & Exploration Co.*, 974 F.2d 646, 649 (5th Cir. 1992) (plaintiff’s summary judgment motion denied because defendant’s expert offered competent evidence as to the cause of the accident to rebut plaintiff’s claim)).

It is well settled that “[t]here can be more than one cause in fact, making multiple wrongdoers liable.” *Hennigan v. Cooper/T. Smith Stevedoring Co., Inc.*, 837 So. 2d 96, 102 (La. App. 2002). Here the parties offer competing causes: Hurricane Katrina all by itself regardless of the MR-GO (Government) vs. MR-GO substantially contributing to the catastrophic flooding (Plaintiffs). *See In re Katrina Canal Breaches Consol. Litig.*, Order Denying Motion for Summary Judgment (May 2, 2008) (Document 12946), p. 36 (“had it just been the force of Katrina, without the force of man’s negligence, plaintiffs maintain there would have been significantly less damage—that is to say localize[d] flooding rather . . . than cataclysmic flooding

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(U.S. Bureau of Reclamation built defective irrigation canal whose breaks caused property damage and personal injuries; *see also Alabama Elec. Co-op, Inc. v. United States*, 769 F.2d 1523 (11th Cir. 1985) (Army Corps caused property damage due to defective construction of a dike); *Seaboard Coast Line R.R. Co. v. United States*, 473 F.2d 714 (5th Cir. 1973) (Army Corps-designed drainage system diverted water that damaged railroad right-of-way). As the Fifth Circuit has held, “[t]he United States may be liable under the Federal Tort Claims Act for negligent provision of services upon which the public has come to rely.” *Gill v. United States*, 429 F.2d 1072, 1075 (5th Cir. 1970) (citing *Indian Towing Co.*, *supra*, 350 U.S. at 76).

<sup>4</sup> The duty-risk analysis requires that the negligence be both a cause-in-fact of the plaintiff’s injury and a legal cause of the injury. *See In re Katrina Canal Breaches Consol. Litig.*, 2007 WL 4573052, at \*4 (E.D. La. 2007). The issue of “legal cause”—also expressed as “scope of duty”—is a purely legal question for the Court. *Ibid.* Clearly, the risk of serious property damage is easily associated with a duty not to cause flood damage to “neighboring lands and individuals.” *Graci, supra*, 435 F. Supp. at 195-96; *see also Roberts v. Benoit*, 605 So. 2d 1032, 1054 (La. 1991); *Faucheaux, supra*, 615 So. 2d at 294.

that occurred.”) While Plaintiffs must prove that the MR-GO was a substantial factor, “[a] substantial factor need not be the only causative factor; *it need only increase the risk of harm.*” *Hennigan, supra*, 837 So. 2d at 102 (citing *Spinks v. Chevron Oil Co.*, 507 F.2d 216 (5th Cir. 1975)) (emphasis added).

In cases involving concurrent causes of damages, “the proper inquiry is whether the conduct in question was a substantial factor in bringing about” plaintiff’s damages. *Chaisson v. Avondale Indust., Inc.*, 947 So. 2d 171, 187-88, (La. App. 2006) (quoting *Perkins v. Entergy Corp.*, 782 So. 2d 606, 611-12 (La. 2001)). In determining whether an incident or act was a “substantial factor,” the Louisiana Supreme Court has analyzed whether “each of the multiple causes played so important a role in producing the result that responsibility should be imposed upon each item of conduct, *even if it cannot be said definitively that the harm would not have occurred ‘but for’ each individual cause.*” *Ibid.* (emphasis added).

Defendant’s articulation of Louisiana cause-in-fact law is seriously flawed and infects its entire attack on Plaintiffs’ proof. While Plaintiffs must demonstrate that the Army Corps’s negligent management of the MR-GO was a substantial factor in causing their damages (Defendant’s Motion at 9), it is not true that they must also demonstrate that “‘but for’ the widening of the waterway and the loss of the wetlands the alleged damages would have been less or would not have occurred at all.” *Ibid.* Defendant’s attempt to impose a “but for” requirement is flatly contrary to controlling Louisiana law as expressed in *Chaisson*, and is belied by its own cases.<sup>5</sup>

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<sup>5</sup> For example, in *Westchester Fire Ins. Co. v. Haspel-Kansas Inv. P’ship*, the 5th Circuit stated:

In *Roberts v. Benoit*, the Louisiana Supreme Court noted that cause-in-fact is usually a “but for” inquiry, but “[a]n alternative method for determining cause in fact, which is generally used when multiple causes are present, is the ‘substantial factor’ test.” 605 So. 2d 1032, 1042 (La.1991). The Louisiana

Accordingly, Plaintiffs need only establish a genuine issue of material fact as to whether the Defendant's negligent actions with regard to the MR-GO were a substantial factor ("had something to do") in causing their damages. As demonstrated below, Plaintiffs' expert reports and other evidence, at a minimum, create a genuine material factual dispute on the cause-in-fact issue.

### **C. Summary Judgment On Causation Is Improper Where Plaintiffs Offer Credible Factual And Scientific Evidence In Support Of Their Theory**

Under controlling precedent, the Government cannot meet its arduous burden under Rule 56 to extinguish Plaintiffs' right to a trial on its operation and maintenance claims. It is axiomatic that summary judgment is proper only when the moving party shows that there is literally *no* genuine issue of material fact and that the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c); *Celotex v. Catrett*, 477 U.S. 317, 322-23 (1986); *McLaurin v. Noble Drilling (US) Inc.*, 529 F.3d 285, 288 (5th Cir. 2008). All doubt as to the existence of a genuine issue of material fact must be resolved against the moving party. *Gross v. Southern R.R. Co.*, 414 F.2d 292, 297 (5th Cir. 1969). The nonmoving party's case may not be arbitrarily

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Supreme Court further noted the following: We recognize the very limited scope of the cause in fact inquiry in *Hill v. Lundin & Associates, Inc.*, 260 La. 542, 256 So. 2d 620 (1972). There, we held that *to the extent* the defendant's actions had something to do with the injury the plaintiff sustained, the test of a factual, causal relationship is met. *Id.* (emphasis added). . . . Determining cause-in-fact, particularly in a multi-causal context, however, requires a substantial factor inquiry.

*Westchester Fire Ins. Co. v. Haspel-Kansas Inv. P'ship*, 342 F.3d 416, 420 (5th Cir. 2003) (emphasis added in first sentence); *see also Bonin v. Ferrellgas, Inc.*, 877 So. 2d 89, 94 (La. 2004) ("[c]ause-in-fact is generally a "but for" inquiry, which tests whether the accident would or would not have occurred but for the defendant's substandard conduct. However, where there are *concurrent causes of an accident*, the proper inquiry is whether the conduct in question was a substantial factor in bringing about the accident.") (emphasis added, citation omitted); *Fowler v. Roberts*, 556 So. 2d 1, 5 n.6 (La. 1989) ("[a]nother technique for determining cause-in-fact is the "substantial factor" inquiry, which is useful when the combined active conduct of two separate parties operates to cause harm.")

segmented or mischaracterized. *Limone v. Condon*, 372 F.3d 39, 46 (1st Cir. 2004). And the Court’s search for genuine issues of material fact must canvass “the record taken as a whole . . . .” *United States v. Robinson*, 78 F.3d 172, 174 (5th Cir. 1996); *see also Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986).<sup>6</sup>

Typically, summary judgment on causation is disfavored because it is an intensely fact sensitive issue reserved for trial. *Tidewater Marine, Inc. v. Sanco Int’l, Inc.*, 1997 WL 543108, at \*6-\*7 (E.D. La. 1997) (Vance, C.J.); *see also Staff IT, Inc. v. United States*, 482 F.3d 792, 798 (5th Cir. 2007) (“Determination of the presence of the elements required to prove . . . cause . . . is a question of law, but determination whether those elements are present in a given situation is a question of fact.”); *Exxon Co., U.S.A. v. Sofec, Inc.*, 517 U.S. 830, 840-41 (1996) (“The issues of proximate causation and superseding cause involve application of law to fact, which is left to the factfinder, subject to limited review.”). Since causation is the most hotly disputed issue in this case, its resolution must await trial “to resolve the parties’ differing versions of the truth . . . .” *First Nat. Bank of Arizona v. Cities Service Co.*, 391 U.S. 253, 289 (1968).

The Government has filed a “no evidence” summary judgment motion, claiming that Plaintiffs have no evidence—particularly no expert testimony—to establish the causation element of their case with respect to the MR-GO’s adverse effects from ongoing operation and maintenance—namely, loss of wetlands and channel widening. To defeat this gambit, Plaintiffs

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<sup>6</sup> All of the evidence must be viewed in the light *most favorable* to the nonmoving party. *McLaurin*, 529 F.3d at 288 (“The evidence and inferences from the summary judgment record are viewed in the light most favorable to the nonmovant.”). The Court must draw all reasonable inferences in favor of the opposing party. *Hunt v. Rapides Healthcare System, L.L.C.*, 277 F.3d 757, 764 (5th Cir. 2001). Practically, that means “[t]he party opposing a motion for summary judgment, with evidence competent under Rule 56, is to be believed.” *Leonard v. Dixie Well Service & Supply, Inc.*, 828 F.2d 291, 294 (5th Cir. 1987). When deciding a motion for summary judgment, the Court must avoid a “trial on affidavits. Credibility determinations, the weighing of the evidence, and the drawing of legitimate inferences from the facts” are tasks for the trier-of-fact. *Anderson, supra*, 477 U.S. at 255.

need only demonstrate, as they do in the discussion below, the existence of competent evidence—particularly by experts—establishing material fact issues on proof of causation. *See Torregano, supra*, 2008 WL 4059573 at\*2-3 (plaintiff’s summary judgment motion denied because defendant’s expert offered competent evidence as to the cause of the accident to rebut plaintiff’s claim).

### **1. Establishing Plaintiffs’ Actual Causation Theory**

The essence of the Government’s argument is that the reports of Plaintiffs’ expert, Dr. Robert Bea, failed to establish that the loss of wetlands and channel widening (standing alone) caused any incremental surge or waves that contributed to the catastrophic flooding. In refuting this argument, Plaintiffs are permitted to point out that such an analysis was in fact performed—not only by Dr. Bea but also by Dr. Paul Kemp whose expert report is mysteriously ignored by the Government. The fallacy of the Government’s assertion can be exposed by “a supplemental report that merely further explains the expert’s initial opinion” without changing or adding new opinions. *Hockerson-Halberstadt, Inc. v. Saucony, Inc.*, 2005 WL 1432376, at \*4 (E.D. La. 2005) (Fallon, J.) (citing *Beller v. United States*, 221 F.R.D. 689 (D.N.M. 2003)). Classically, such additional expert reports are appropriate where, as here, the expert “seeks only to point out that his report does in fact address the bases for plaintiff’s contention” about an essential element of proof. *Cornell Research Foundation, Inc. v. Hewlett-Packard Co.*, 2007 WL 4349135, at \*20 (N.D. N.Y. 2007). Likewise, a supplemental expert report can address criticisms of the initial report. *U.S. ex rel. Ironhorse, Ltd. v. Travelers Cas. and Sur. Co. of America*, 2006 WL 5349215, at \*1 n.3 (W.D. Okla. 2006).

The materiality of facts is framed by the plaintiff’s theory of causation. In our case, contrary to the Government’s truncation of Plaintiffs’ claims to merely the vicissitudes of the

MR-GO's negligent operation and maintenance, Plaintiffs have alleged that the MR-GO was defective in *four* different, critical respects. As the Court has acknowledged: "These plaintiffs maintain that the negligent design, construction, maintenance and operation of the Mississippi River Gulf Outlet ("MRGO") caused the catastrophic flooding which damaged their property." MSJ Order, p. 1; *see also* Plaintiffs' Statement of Uncontested Facts ("PUF") No. 1.

## **2. The Government Mischaracterizes Plaintiff's Causation Theory**

Summary judgment is not a game where the moving party can mislead the Court about the plaintiff's causation theory to garner victory. Courts must be vigilant "not to permit a defendant to hijack the plaintiff's complaint and recharacterize its allegations so as to minimize his or her liability." *Limone, supra*, 372 F.3d at 46; *see also Am. Cas. Co. of Reading, Pennsylvania v. F.D.I.C.*, 39 F.3d 633, 636-37 (6th Cir. 1994) (impermissible in summary judgment motion to attempt to recharacterize plaintiff's complaint). As demonstrated below, the Government's motion is deeply flawed because "it rests on a self-serving mischaracterization of the factual allegations set out in the amended complaints" and the supporting evidence and expert opinions offered by Plaintiffs. *Limone, supra*, 372 F.3d at 46.

In particular, Defendant has selectively carved out, and attempted to isolate, the allegations and expert testimony about the MR-GO's operation and maintenance. This slice-and-dice approach—to set up and knock down a straw man—is patently impermissible. The Government conveniently omits the adverse effects of the MR-GO's design and its construction as well as the synergistic causative effect of all four activities. This alone is fatal to its summary judgment motion. *See Limone, supra* 372 F.3d at 46 ("As the district court put it, the 'individual allegations of non-disclosure' are not meant to be self-sustaining, but, rather, 'are an integral part of the overall story.'" (citation omitted)).

### III. FACTS

Defendant's motion to jettison Plaintiffs' negligent operation and maintenance claims is entirely predicated on the assertion that Plaintiffs have failed to present evidence, and their experts have not offered opinions, "as to the breaching and flooding that would have occurred if the MRGO had been perfectly maintained and operated." Defendant's Memorandum, p. 3. This is simply not true. The Government has grossly mischaracterized Plaintiffs' causation theory; advanced an unscientific critique of Plaintiffs' evidence; ignored Plaintiffs' experts' opinions on the decisive contribution of negligent operation and maintenance (lost wetlands and widened channel), standing alone, to the flooding; failed to discuss several critical factors in a competent flood analysis; fixated on the wrong modeling scenario; and totally ignored numerous facts and expert testimony creating genuine issues of material fact that the MR-GO was a substantial factor in causing catastrophic flooding.<sup>7</sup> As the accompanying declarations of Dr. Bea and Dr. Kemp and other documents and testimony make abundantly clear, Plaintiffs' evidence is more than sufficient to establish that the four major defects of the MR-GO were a cause-in-fact of the flooding of Plaintiff's properties.

#### A. **Plaintiffs Allege That The Negligent Design, Construction, Operation, and Maintenance of the MR-GO Were Cumulatively A Substantial Factor in Causing Catastrophic Flooding**

From the outset, Plaintiffs have alleged that the MR-GO was negligently designed, constructed, operated, and maintained. PUF 1. At no time have Plaintiffs asserted that operation and maintenance, standing alone, was a substantial factor in causing the catastrophic destruction of their properties. PUF 2. While these activities were in fact a substantial factor, Plaintiffs' causation theory is predicated on the claim that the cumulative effect of the MR-GO's negligent

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<sup>7</sup> In support of this Opposition, Plaintiffs have filed Plaintiffs' Response To Defendants' Statement of Uncontested Facts, Plaintiffs' Separate Statement of Undisputed Facts, Declaration of Dr. Robert Bea, Declaration of Dr. G. Paul Kemp, and Appendix of Exhibits.



design, construction, operation, and maintenance—and the resulting dangerous conditions caused by the unimpeded surge conduit from the Gulf of Mexico and Lake Borgne, the geometry of the funnel, destroyed surge buffering wetlands, and channel widening by 300 to 400%—was a substantial factor in causing the flooding of Plaintiffs’ properties. PUF 3. Accordingly, Plaintiffs’ experts analyzed the cumulative impact of all four dangerous conditions on the catastrophic flooding, properly not detaching the effects of operation and maintenance from the effects of design and construction. PUF 4.

### **B. The Government’s Critique Is Unscientific**

From a scientific standpoint, it is inappropriate to separate out only the effects of two challenged activities (MR-GO’s operation and maintenance) from the complex and interdependent hydraulic system that was created by the project’s design and construction. PUF 5. Defendant’s rigorous (and arbitrary) separation of the components (evaluating impacts of only widened banks and wetlands loss) is not plausible because we are dealing with linked system responses throughout the entire hydraulic system at different locations (*e.g.* breaching of the Reach 2 ESBs caused by excessive wave characteristics versus breaching of the Reach 1 ESBs caused by excess surge and overtopping).<sup>8</sup> By focusing on how the entirety of critical changes caused by the MR-GO cumulatively contributed to the catastrophic flooding, Plaintiffs properly do not sever operation and maintenance from design and construction. PUF 6. Therefore, isolating only these two factors and ignoring the MR-GO’s combined dynamic

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<sup>8</sup> Limiting its critique to flooding along Reach 2, the Government fails to discuss any flooding or their causes in the New Orleans East polder and totally ignores the causes of the floodwall breaching along the eastern side of the IHNC and the resulting substantial contribution of flood waters from those breaches to the total destruction of the Lower 9th Ward. Plaintiffs’ experts analyzed these issues. *See, e.g.*, Bea Supplemental Declaration, p. 17, Table 1 (“Lower 9th Ward”); Kemp Supplemental Declaration ¶¶23, 25, 32 Table 1, Figures 3 & 4. Therefore, the motion for partial summary judgment as to the three Plaintiffs who live in these communities (Norman Robinson and Lucille and Anthony Franz) must be denied for this additional reason.

hydraulic influences is an artificial construct that ignores sound scientific principles and the reality on the ground. PUF 4-6.

Furthermore, the performance of the Reach 1, Reach 2, and IHNC flood protection and navigation structures during Hurricane Katrina is an integrated effect of the entire life-cycle of activities over the MR-GO's history from the time of its inception through its design, construction, operation, and maintenance to the time of Hurricane Katrina. PUF 7. Moreover, their performance is a function of the hydrologic "system" of which the MR-GO is a critical component, including the Gulf of Mexico, Lake Borgne, the Gulf Intracoastal Water Way (GIWW), the Inner Harbor Navigation Canal (IHNC), and their connections to Lake Pontchartrain. PUF 8. In light of the fact that the MR-GO is "a dynamic, on-going project,"<sup>9</sup> any analysis of the its contribution to the catastrophic flooding must address the multiple, interconnected, and interactive elements constituting the MR-GO and the associated hydrologic system from the time of its inception to the time that the Plaintiffs' properties were flooded. PUF 9.

Given the MR-GO's multiple elements that interacted with a regional hydrologic system over a half century, analysis of its role in causing flooding during Hurricane Katrina must necessarily assess more than its negative impacts on the neighboring wetlands. PUF 10. Therefore, Plaintiffs' experts analyzed the associated hydrodynamic impacts (surge, currents, and waves) on the adjacent Reach 1 and Reach 2 flood control structures, the MR-GO channel geometry, the Gulf of Mexico – Lake Borgne - MRGO – GIWW – IHNC – Lake Pontchartrain hydrologic "system", and the geometry of the adjacent hurricane flood protection structures and navigation structures. PUF 11. These investigations yielded a comprehensive understanding of

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<sup>9</sup> *In re Katrina Canal Breaches Consol. Litig.*, Order Denying Motion for Summary Judgment (May 2, 2008) (Document 12946), p. 36.

how the MR-GO affected the performance of the hurricane flood protection and navigation structures. PUF 12.

In terms of computer modeling, Plaintiffs' experts performed multiple analytical simulations (parametric studies) to develop a fundamental understanding of how the various factors and parameters influenced the performance of the hurricane flood protection and navigation structures along Reach 2 and Reach 1. PUF 13 (An overview of the modeling methodology is attached to Dr. Kemp's Supplemental Declaration as Appendix A). Those results are stated in three Plaintiffs' expert reports by scientists at Delft University and Svasek Hydraulics in the Netherlands. PUF 13. In short, as discussed in Section III.E.1., *infra*, the modeling demonstrates that the negative impacts of the MR-GO channel went far beyond maintenance of the channel at its design dimensions and/or loss of surge-buffering wetlands. PUF 14.

**C. Plaintiffs' Experts Analyzed The Impact of Negligent Operation and Maintenance On The Flooding**

While the Government has impermissibly truncated Plaintiffs' causation theory, it is simply incorrect to assert that their experts failed to conclude that the absence of tens of thousands of surge reducing wetlands and presence of a 2,000' to 3,000' channel—caused by negligent operation and maintenance—was a substantial factor in causing the flooding. As Dr. Bea and Dr. Kemp<sup>10</sup> testify in their extensive expert reports and explanatory declarations filed in

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<sup>10</sup> The Government attacks only Dr. Bea's expert report, inexplicably failing even to mention Dr. Kemp's 227-page expert report. To understand why the Government has misstated Plaintiffs' causation theory and ignored substantial supporting evidence, both expert reports must be considered. Defendant's Sphinx-like silence on Dr. Kemp's analyses may be attributable to the fact that his detailed report flatly contradicts Defendant's claims in this motion. Dr. Kemp is a highly-respected coastal geologist and oceanographer who has taught at Louisiana State University, was the principal author of the Team Louisiana Report, and is presently Vice President, National Audubon Society. PUF 15. In his expert report, Dr. Kemp offers a comprehensive expert analysis supporting his conclusion that the MR-GO's four major adverse

support of this opposition, Plaintiffs' experts' analyses demonstrated that absence of surge buffering wetlands and the three to four times expansion of the Reach 2 channel—even when evaluated in isolation—(1) materially affected performance of the flood control structures along both Reach 1 and Reach 2 and the IHNC and (2) was a substantial factor in the overtopping and failures occurring during Hurricane Katrina and the inundation of New Orleans East, Lower 9th Ward, and St. Bernard Parish with ten feet or more of water. PUF 17.<sup>11</sup> These facts create a genuine dispute requiring denial of partial summary judgment on the negligent operation and maintenance claims.

As discussed below, Scenario 3 is not Plaintiffs' "no negligence" scenario. PUF 20.<sup>12</sup> Nevertheless, the flood modeling results for Scenario 3 in fact demonstrate that the loss of

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effects —creation of a direct surge conduit from the Gulf of Mexico, the "funnel effect," destroyed wetlands, and substantial channel widening—were "a substantial contributing factor to the catastrophic flooding of the Robinson plaintiffs' homes and communities." PUF 16. Defendant's omission of Dr. Kemp's testimony is indefensible.

<sup>11</sup> Dr. Kemp makes the point succinctly:

The presence of the MRGO channel as it existed on 29 August 2005 . . . increased the wave energy impinging on the MRGO Reach 2 levees and led to greater surge discharges in the funnel, particularly in Reach 1 and the IHNC, than would have occurred if the authorized dimensions had been maintained . . . MRGO channel size matters. The operations and maintenance program executed by the USACE, consisting primarily of channel dredging, increased the total oceanographic stresses to which the LPV structures were exposed during Katrina, and significantly increased the likelihood of breaching and catastrophic flooding of Plaintiffs' properties. PUF 18, 19.

<sup>12</sup> None of the Plaintiffs' expert reports used the term "no negligence." PUF 21. This term has been coined by the Defendants and should not be attributed to the Plaintiffs' expert Declarations or Technical Reports because none of Plaintiffs' experts use this term to describe Scenario 3 (MR-GO at authorized width and pristine wetlands) because that is not a set of conditions that would constitute "no fault" on the part of the Defendant with regard to the design, construction,

wetlands and channel widening *by themselves* had a material impact on the amplitude of surge, wave generation, onset of flooding, duration of flooding, and rate of overtopping and thereby the extent of flooding in the three polders. PUF 23. These effects in turn contributed substantially to increased vulnerabilities and degraded performance characteristics of the Reach 2 earthen berms/spoil banks (“EBSBs”), the navigation structures at Bayous Dupre and Bienvenue, and the Reach 1 flood protection structures along Reach 1. PUF 24.

It is well known that healthy wetlands have a positive effect in reducing the height and intensity of storm surge—anywhere from 1 foot per 2.75 miles (0.36 feet/mile) to 1 foot per 1.4 milers (0.71feet/mile) depending on the type of vegetation. PUF 25. With healthy cypress forests and marshlands, surge across the Central Wetlands Unit between the MR-GO and the 40 Arpent Canal Levee is reduced by *a critical three feet*. PUF 26. The Government’s own expert, Dr. Robert Dalrymple, attributes over three feet of additional storm surge against Reach 2 EBSBs because of the destroyed adjacent wetlands.<sup>13</sup> PUF 27. On this record, it has been established that if the cypress forests and marshlands had not been destroyed by the MR-GO,

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operation, and maintenance of the MR-GO over its half century life cycle. For example, Scenario 3 does not take into account the fact that Reach 2 of the MR-GO is a potential conduit of storm surge from the Gulf of Mexico and from Lake Borgne and that there is a potential for “funneling” of surge down Reach 1/GIWW and into the IHNC, thereby omitting any provision for surge barriers. PUF 22.

<sup>13</sup> So much for the Government’s mocking of Plaintiff’s lead trial counsel for asserting at oral argument in March that the defective MR-GO caused three feet of additional surge. Defendant’s Memorandum at p. 12, note 3. This is precisely what is admitted by Defendant’s expert and is shown by the above-referenced modeling for St. Bernard Parish flooding—a finding totally consistent with Dr. Kemp’s pre-modeling conclusion in his Section 702c Expert Report that the MR-GO created three feet of additional surge along Reach 1 and into the IHNC. PUF 26. And, of course, the final modeling runs establish that the cumulative impact of the MR-GO’s four defects in fact increased surge elevation along Reach 1/GIWW and the IHNC by at least three feet. PUF 28.

nature's defenses would have reduced surge caused by Hurricane Katrina by about three feet and spared Greater New Orleans from catastrophic flooding. PUF 29.

Channel widening and the resultant destruction of protective vegetation on the water side promoted prolonged, severe wave side attack of the Reach 2 earthen berms/spoil banks ("EBSBs"). PUF 30. The modeling data for Scenarios 1 and 3 also establishes that the waves crossing the MR-GO grew significantly due to the depth of the channel and its fetch. PUF 31. The widening of Reach 2 by 300 to 400%—from 650' to 2,000' and 3,000'—created a broader expanse and volume of water enabling the generation of higher and more intense waves and currents that directly attacked the EBSBs' exposed surfaces (protected and unprotected sides) and caused wave attack scour and erosion of the EBSBs before overtopping. PUF 32. This wave side attack proved to be an important and pervasive—and primary—mechanism that led to early and catastrophic breaching of these hurricane protection structures due to unprotected side scour, erosion, and subsequent breaching combined with overtopping by the Hurricane Katrina surge. PUF 33.

The reduction in protective wetlands (both in the Golden Triangle and Central Wetlands Unit and immediately in front of the LPV structures) and increase in channel width had demonstrable effects on flooding levels. PUF 34. Waves generated by Katrina winds in Lake Borgne would have traversed a much narrower channel and buffering wetlands and been greatly diminished before striking the Reach 2 embankments if the MRGO navigation channel had not destroyed tens of thousands of acres of wetlands due to construction, bank erosion, and saltwater intrusion. PUF 35. The data shows that the wider channel materially increased storm surge intensity and overtopping rates. PUF 36.

All in all, Plaintiffs have presented facts that a perfectly operated and maintained MR-GO—with pristine wetlands and “as authorized” channel width—is still a major conveyer of surge and a major source of devastating overtopping flows. PUF 37.

**D. Defendant’s Exclusive Focus on Maximum Surge And Wave Height Is An Incomplete Analysis**

The Government’s critique of Plaintiffs’ evidence is founded on a quicksand of faulty premises and pseudo-science.<sup>14</sup> Among other things, Defendant focuses on only two measurements of the MR-GO’s impact (maximum surge and wave height), ignores three more reliable measurements (time of onset, duration, and rate of structure overtopping by surge), and mischaracterizes Plaintiffs’ modeling data demonstrating that the MR-GO had a direct effect on substantially increasing oceanographic stresses on the LPV flood control structures due to earlier onset and more prolonged duration of surge above a critical elevation. PUF 41-43. Defendant

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<sup>14</sup> Perhaps the best illustration of Defendant’s specious reasoning is the sophistry of wrenching operation and maintenance from the integrated effects of the waterway’s life-cycle developments (concept development, design, construction, operation, and maintenance). As Dr. Bea has observed:

[The MR-GO’s operation and maintenance] cannot be decomposed because of their interactive and interdependent effects on what existed at the time of Hurricane Katrina and on what could and should have existed at the time of Hurricane Katrina as performed “with the utmost care.” The attempted decomposition of the life-cycle effects of the MRGO by the Defendants is a classic mistake in development of accurate and realistic understandings of the behavior of real complex “systems.” Synthesis – or understanding the behavior of the entire system (assembly of components) – must take place before there are attempts to decompose the system to develop additional insights into workings of components and their interactive and interdependent relationships with other components. In the science of analysis of complex systems, the mistake of premature decomposition is expressed as “you can not cut a cow in half and have two cows.” PUF 38-40.

also glosses over the role of wave side attack before overtopping in the failure of the ESBs along Reach 2.<sup>15</sup> PUF 44.

The Government's exclusive emphasis on surge and wave height is misplaced because these measurements do not reflect the reality of the total universe of interactive hydrodynamics during a hurricane. PUF 47. Once the combined surge and waves reach the top of a flood control structure, they cannot and do not rise any higher. Instead, the water overflows the crown and continues to do so until the water level recedes below the crown. This is like a bathtub that overflows once the water reaches the top and continues to overflow until the water is turned off. While the water level remains constant, the volume of water and rate of overflowing are more indicative of the amount and extent of flooding. Catastrophic flooding is similarly a function of when the levee (bathtub) overflows, how long it overflows (time of onset and duration), and the intensity (rate) of water flow. Thus, the water's elevation is not the most predictive or sensitive factor, but merely an indicator of the mean crown elevation of the flood protection works (assuming that they do not breach). PUF 48.

By evaluating the more predictive factors of time of onset, duration, and rate of structure overtopping by surge, Plaintiffs' experts concluded that the addition of the MR-GO channel, whether at its authorized dimensions or at swollen cross-section during Hurricane Katrina<sup>16</sup>, significantly increased the rate of surge water introduction into MR-GO Reach 1 and

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<sup>15</sup> This myopia is not surprising in light of the Army Corps's historic institutional "blind spot" about predictable increase in surge-induced oceanographic stresses on flood protection structures caused by the MR-GO. Over five decades, the agency ignored the MR-GO's known potential for exacerbating hurricane-driven surge and waves and increasing overtopping flows when the MRGO bank lines were not stabilized, and when no effort was made to counteract the ruinous effect of the channel on buffering wetlands or, ultimately, on the more rapid propagation of surge leading to earlier and more catastrophic flooding of developed areas. PUF 45-46.

<sup>16</sup> Not only did Reach 2 massively erode from 650' to 2,000 to 3,000', but critical Reach 1/GIWW widened beyond its authorized width. PUF 50.



the IHNC and thereby caused more water to inundate Plaintiffs' neighborhoods when the flood control structures were overtopped or breached before overtopping. PUF 49.

In a vain attempt to divert attention from the relevant data, the Government creates a straw man by focusing on the modeling results for Scenario 3. PUF 51. This is a false comparison. PUF 51. Perfect maintenance of the MR-GO would not have eliminated the significant attendant negative hydrodynamic and hydrologic system impacts, including water flow from the Gulf of Mexico and Lake Borgne affecting surge elevations, wave generation, and the lack of appropriate defenses to effectively neutralize these negative effects. PUF 52. Plaintiffs' experts therefore pursued a more intellectually defensible analytical approach by evaluating a range of assumed conditions to test the sensitivity of relevant variables on the flooding outcome. PUF 53. The three most pertinent scenarios are Scenario 1 (what actually happened during Hurricane Katrina), Scenario 2c (pristine wetlands before 1958 and no MR-GO surge and "funnel effect" impact), and Scenario 3 (pristine wetlands before 1958 and channel at authorized width [650' top width] but no surge or "funnel effect" reduction/prevention safeguards). PUF 54.<sup>17</sup>

## **E. The Record Is Brimming With Facts Demonstrating That The MR-GO Was A Substantial Factor in Causing The Destruction of Plaintiffs' Properties**

### **1. Plaintiffs' Experts' Testimony**

As demonstrated in Section III.C., *supra*, Plaintiffs have raised genuine issues of material fact on the operation and maintenance claims. Worse yet for the Government, the record is brimming with facts demonstrating that the MR-GO in all of its destructive fury—considerably deeper and wider than authorized, denuded of adjacent surge buffering wetlands, and without

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<sup>17</sup> In addition to Scenarios 1, 2c, and 3, Plaintiffs' experts performed other scenarios and parametric sensitivity studies to gain an understanding of how the various parts of this complex system interacted in the Hurricane Katrina 'as is' MRGO condition (Scenario 1) and in the Hurricane Katrina "do no harm"/"Neutral MR-GO" condition (Scenario 2c). PUF 55.

any surge inhibitors—was a substantial factor in overtopping, breaching before overtopping, and breaching LPV structures and thereby causing the destruction of Plaintiffs’ properties. PUF 56. As Dr. Bea summarizes: “It was the combined effects of the integrated combination of MR-GO life-cycle negative environmental impacts that adversely affected the performance of the Reach 1 and Reach 2 hurricane protection structures during Hurricane Katrina.” PUF 57. Likewise, Dr. Kemp concludes that “our studies demonstrate that the cumulative impact of all four defects [no surge barriers, “funnel effect,” loss of wetlands, and channel widening] is synergistic, *i.e.*, acting in combination, they not only significantly increased surge and waves but also materially influenced additional, more sensitive indicators of the MRGO’s impact such as time of onset, duration, and rate of overtopping by surge.” PUF 58.

In testing their hypothesis, Plaintiffs’ experts conducted the previously-described flood modeling. Scenario 1 is the “Katrina as is” base case—what actually happened during Hurricane Katrina. Scenario 2c is the set of conditions that Plaintiffs established for “no negligence”/“hurricane neutral” MR-GO in the sense that the waterway does no harm to adjacent flood protection structures, property, and population because the pre-1958 wetlands are intact (and not destroyed by salt water intrusion) and the MR-GO has no affect on surge either in terms opening Greater New Orleans to surge from the Gulf of Mexico or funneling surge into Reach 1/GIWW and the IHNC.<sup>18</sup> PUF 59. This scenario represents the Plaintiffs’ expert assessment of a valid set of reference hydrodynamic characterizations for “perfect” life-cycle conception,

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<sup>18</sup> This Scenario 2c is also described as the “No MRGO” scenario because it tests the effect of the absence of any channel and whether it introduced increased volumes of water and surge. PUF 60. This “Neutral MRGO” condition has no trace of the MR-GO project, or the wetland destruction that it caused, but retains all of the levees, EBSBs, and other flood prevention structures added over the years in the pre-Katrina condition, all of which are presumed beyond reproach in the condition in which they were tested by Hurricane Katrina. PUF 61

design, operation and maintenance characterizing the MR-GO in a do “no harm” configuration for assessment of the performance of the hurricane flood protection structures along Reach 2 and Reach 1. PUF 62.<sup>19</sup> Contrasting the modeling results of Scenario 2c (benign MR-GO) with Scenario 1 (lethal MR-GO) is striking in terms of mitigating the harmful effects of the MR-GO:

\*Overtopping is reduced by 80% for all three polders that experienced catastrophic flooding. PUF 64.

\*Surge discharge into the IHNC via Reach 1/GIWW decreased by 274%. PUF 65.

\*Surge velocity diminishes by 246%. PUF 66.

\*Wave height is reduced by more than 50%. PUF 67.

\*Wave period plummets about 60%. PUF 68.

\*Wave energy eroding the EBSBs along Reach 2 dissipates by 300%. PUF 69.

In sum, Plaintiffs’ experts have identified numerous facts requiring denial of Defendant’s motion for partial summary judgment.

## **2. Plaintiffs’ Evidence In Addition To Expert Testimony**

The record is replete with additional evidence supporting Plaintiffs’ causation theory that the MR-GO was a substantial contributing factor to the catastrophic flooding in New Orleans East, Lower Ninth Ward, and St. Bernard Parish. These additional facts—many of which are established by Army Corps documents and witnesses—support one or more elements of Plaintiffs’ case as summarized below:

\*Four decades before Hurricane Katrina, the Army Corps acknowledged and was informed that the MR-GO was a direct, efficient route for hurricane surge into the heart of

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<sup>19</sup> The rationale for the “no harm” assumption is that the Army Corps had a Congressionally-directed responsibility to manage the MR-GO navigation project so that it caused no added unmitigated impact on the ability of the LPV hurricane protection structure to fulfill its other Congressionally-mandated mission to protect the City of New Orleans and St. Bernard Parish from hurricane induced flooding. PUF 63; *see also* Section II. A., *supra*.

Greater New Orleans, created undesirable effects of excessive, high velocity, and erosive currents in the IHNC and significant salinity increases, and had the potential to deliver storm surges that would cause catastrophic property damage and loss of human life. PUF 83, 85, 87

\*In 1988, the Lower Mississippi Valley Division of the Army Corps recommended that completely closing the MR-GO should be evaluated in order to “reduce the possibility of catastrophic damage to urban areas by a hurricane surge coming up this waterway [the MR-GO]. . . .” PUF 84

\*On at least three occasions, the Army Corps considered construction of two “floodgates” to control hurricane surge at Bayou Bienvenue and Bayou Dupre along Reach 2 of the MR-GO and/or the construction of a hurricane surge barrier from the GIWW to Reach 2 of the MR-GO in order to prevent hurricane surge from Lake Borgne entering the combined GIWW/MRGO Reach 1 and the IHNC west of Paris Road. PUF 86, 88

\*Thirty years before Hurricane Katrina, the Army Corps acknowledged that a storm surge barrier from the GIWW to Reach 2 of the MR-GO “would have provided hurricane protection for the industrial development along the IHNC outside the authorized protective works” and “[a] relatively safe harbor, during hurricane conditions, would be provided in the IHNC and the MR-GO/GIWW since the navigation structures would control the ingress of hurricane tides and reduce wave action.” PUF 89.

\* From the time the MR-GO was being constructed and thereafter, the Army Corps knew that the MR-GO created a funnel that could enhance surge, waves, and currents during hurricanes and create a serious flooding risk. PUF 90, 91, 93

\* The Army Corps-commissioned IPET investigation of the causes of the catastrophic flooding during Hurricane Katrina acknowledged the funneling of water in the IHNC from the GIWW during hurricanes and recommended a surge barrier be constructed. PUF 80, 92

\* Long before Hurricane Katrina, the Army Corps knew that the MR-GO was destroying tens of thousands of acres of cypress forests, grasses, marshes, swamps, trees, shrubs and other wetlands (“wetlands”) that provided a natural barrier and sponge for storm surge and that the loss of these wetlands reduced storm surge protection for New Orleans and St. Bernard Parish. PUF 94.

\* Long before Hurricane Katrina, the Army Corps knew that erosion of the unarmored banks of Reach 2 of the MR-GO had vastly widened the channel beyond its authorized 650’ top width, caused large breaches in the rapidly dwindling marsh buffer between the navigation channel and the open waters of Lake Borgne and Breton Sound, and exposed neighboring people and property to direct hurricane attacks from Lake Borgne. PUF 95.

Finally, perhaps the most damning piece of evidence is the fact that in the wake of the devastating flooding of New Orleans East and Lower 9th Ward due to overtopping and breaches caused by the funneling of water into Reach 1/GIWW and the IHNC,<sup>20</sup> the Army Corps is constructing the IHNC Surge Reduction Barrier across the mouth of the funnel and the Golden Triangle between the GIWW and Reach 2. PUF 70. The purpose of the IHNC Surge Reduction Barrier—built to withstand 24’ to 26’ storm surge from the Gulf of Mexico and Lake Borgne—is

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<sup>20</sup> Designed to dramatically reduce or eliminate dangerous funneling, the surge barrier was recommended by IPET “[t]o prevent storm surge in Lake Borgne from influencing water levels experienced in the IHNC or GIWW/MRGO sections of waterway . . . .” PUF 80, 81. IPET’s urgent recommendation was based on its finding that that as a result of storm surges from Lake Borgne propagating down the GIWW/MR-GO into the IHNC, the water elevation during Hurricane Katrina rose seven feet higher in the IHNC (water level of three feet plus waves up to 4 feet high). PUF 82.

to reduce risk of storm damage to some of the region's areas most vulnerable to flooding (New Orleans East, metro New Orleans, the 9th Ward, and St. Bernard Parish) which are exposed to the "imminent and continuing threat to life, health, and property posed by flooding from hurricanes and other tropical storm events." PUF 71, 72, 74, 75. The Army Corps selected the IHNC Surge Reduction Barrier over the alternative of raising the existing hurricane protection system to the 100-year level of protection because the raised levee and floodwall system would still be vulnerable to "potentially catastrophic consequences resulting if any portion of the system fails" and the IHNC Surge Reduction Barrier "would instead provide a first line of storm surge defense, providing risk redundancy for many miles of levees and floodwalls." PUF 73.<sup>21</sup>

This subsequent remedial measure—which conspicuously contradicts the Government's position in this motion—is compelling, admissible proof of a critical element of Plaintiffs' causation theory. *See Brazos River Authority v. GE Ionics, Inc.*, 469 F.3d 416, 429 (5th Cir. 2006); *Bailey v. Kawasaki-Kisen, K.K.*, 455 F.2d 392, 396 (5th Cir. 1972).

#### **IV. CONCLUSION**

For the foregoing reasons, Defendant's Motion for Partial Summary Judgment should be denied.

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<sup>21</sup> An emergency, expedited project costing more than \$800 million and the largest civil works project in Army Corps history, the IHNC Surge Reduction Barrier is the "linchpin" of the Army Corps' efforts to provide a 100-Year Level of Protection by 2011. PUF 76, 77, 78, 79.

Dated: October 22, 2008

Respectfully submitted,

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