IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

COMPLAINT OF:	)	
BORGHESE LANE, LLC	)	
	)	
For Exoneration or Limitation of Liability	)	**Civil No. 2:18-cv-00533-MJH (Lead Case)**
	)	
	)	**Member and Related Cases: Civil Action Nos. 18-510; 18-178; 18-913; 18-902; 18-1647; and 18-317**

OPINION and ORDER

This action arises out of a January 13, 2018 multiple-barge breakaway, that originated at Jack's Run Fleet at approximately Mile 4 on the Ohio River and continued downriver to the Emsworth Lock and Dam. Presently before the Court is Industry Terminal & Salvage Company's (ITS) Motion in Limine, seeking to bar expert testimony of O'Donnell Consulting Engineers, citing to Fed. R. Evid. 702 and 703 and *Daubert v. Merrell Dow Pharmaceuticals*. (ECF No. 550). The matter is now ripe for decision.

Upon consideration of ITS's Motion (ECF No. 550), Allegheny County Sanitary Authority's (Alcosan) Joinder (ECF No. 552), the respective briefs (ECF Nos. 551, 609, and 626), the arguments of counsel, and for the following reasons, ITS's Motion will be denied.

I. Background

In the aftermath of the barge breakaway, several barge owners filed lawsuits against Borghese, McKees Rocks Harbor Services, LLC (MRHS), and Industry Terminal & Salvage Company (ITS), seeking recovery for damages resulting from breakaway barges that had been moored at Jack's Run Fleet.

Borghese and MRHS have proffered Thomas P. O'Donnell and Joseph M. Turek, who investigated the breakaway incident, to render an opinion on the cause of the breakway. (ECF

No. 551-3 at p. 4). In their report, O'Donnell and Turek offered the following findings, in relevant part:

a. Jacks Run Fleeting Area comprises 12 mooring cells on the right descending bank of the Ohio River, West of Pittsburgh, PA. The area is owned by Alcosan.

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c. The mooring cells at Jacks Run were constructed between 1939 and 1951. The cells are numbered from 1 to 12 starting at the most downriver cell. Cell 1 is of limited use for loaded barges due to shallow water depth conditions (shoaling) just downstream. Cell #8 was the head cell for loaded fleets at Jacks Run. Cells #9 through #12 are not collinear with the lower cell group and have some shallow water issues, making them not usable for loaded barges.

d. Extreme river conditions consisting of high water levels, high water flow rates and boulder-size ice flows were present on the Ohio River near Pittsburgh on January 12-13, 2018.

e. Ice suddenly stopped flowing around 5 am on January 13, 2021. Ice that had previously built up at the head of the fleet was flushed away by the flow of the river. Some type of upriver ice jam followed by an ice breakaway apparently occurred in the 5 am to 6 am timeframe.

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i. Two tow boats, the MV Cori Weiland, Captained by Mr. Donald Lyle and the MV James Garrett, Captained by Mr. John Pushak, III were onsite tending the fleet before and during the breakaway event.

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k. Sometime after 06:00 AM on January 13, 2018, a spark(s) was observed on left side of the fleet, starting near the bankside head. A subsequent inspection of Cell #8 by the Captain of the Garrett revealed that the lower U-bolt on Cell #8 had fractured.

l. A bump was felt by some of the deckhands at the time of the fleet breakaway.

m. Barges were secured to the U-bolt on Cell #8 by way lines attached to an oval shaped interface ring. This oval ring has a larger section diameter and shape than the U-bolt and it did not fail. The oval ring was permanently attached to the U-bolt before the U-bolt fractured.

n. U-bolts are attached to a Mooring Cell by clamping them to the cell wall. The U-bolt ends are threaded and passed through a reinforced bent channel on the inside of the cell. Flanges, in the form of welded-on thick rings act in conjunction with a double nut arrangement on each U-bolt leg to clamp the assembly to the cell. The cell interior contains rock and gravel.

o. Significant wear/erosion/corrosion occurred on the downstream leg of the lower mooring U-bolt on Cell #8. Despite the drastically reduced cross section associated with these phenomena, the U-bolt failed in a location where the full bolt diameter was available for load transfer.

p. The deteriorated state of the cells allowed for extra relative movement between the U-bolt legs, which enabled a stress state capable of producing a U-bolt failure scenario based on fracture mechanics principals to occur before a failure associated with strength of materials considerations.

q. Wear patterns from relative movement between the sheeting and the failed U-bolt indicates the mooring attachment was not monolithic with the cell, and exhibited considerable movement in service over a long period of time.

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t. The failed U-bolt was manufactured at a time before ductile-to-brittle material behavior transitions were well understood.

u. The impact energy as measured using standard sized Charpy V Notch (CVN) specimens confirmed the broken U-bolt exhibited nil-ductility (< 15 ft-lbf at 16º F) at ambient temperature at the time of fracture. These results confirm that the failed Cell 8 U-bolt material was notch sensitive and susceptible to impact loading at 16º F, the temperature at the time of the breakaway.

v. No inherent material defects were identified in the failed U-bolt. Inclusion ratings on the failed U-bolt material indicated the metal exhibited poor micro-cleanliness at the time of manufacture.

w. Metallographic examinations performed on the failed U-bolt 8E1 and exemplar U-bolt 3J1 confirmed the presence of laps and seams that formed notches in the deformed bearing surfaces. The notches are fracture initiation sites for brittle fracture under impact and non-impact types of loading.

x. A 10-wide barge configuration of the fleet early in the early hours of January 13, 2018 did not cause Cell #8 or any other mooring hardware failure, despite the deteriorated condition of the same.

y. Analyses demonstrated that tensile stresses capable of driving a crack through the U-bolt could be generated at the site of the fracture initiation by the applied loading. Further analyses showed that stress intensity levels at the tip of a crack postulated based on inspection of the failed U-bolt could exceed the critical value for a sudden brittle fracture.

z. The head mooring line receives a slightly larger proportion of a load applied to the head of the fleet (such as due to ice/impact loading) than one that is uniformly distributed over each barge in the fleet (such as due to flow loading).

(ECF No. 551-3 at pp. 104-106). Based upon these findings, O'Donnell and Jurek offered the following conclusions and opinions:

1. Extreme weather and river conditions existed at the time of a barge fleet breakaway from the Jacks Run Fleeting Area on January 13, 2018. Predictions of changes in river level tended to be non-conservative in comparison to actual behavior. Drastic temperature changes occurred as did variable ice flow conditions on the Ohio River.

2. The catalyst for breakaway of the fleet from the mooring cells was the failure of the lower mooring U-bolt on mooring Cell #8 that was a primary restraint for the head of the fleet.

3. Failure of the U-bolt released all of the load acting in lines/wires attached to the same. These loads were critical for the restraint of the fleet. The loads that were in the mooring lines/wires attached to the oval ring on the failed U-bolt were transferred to other mooring lines/wires at the time of U-bolt failure. This load transfer was sudden and resulted in overload and subsequent failure of those other restraints. A chain reaction of failures occurred.

4. Observation of sparks during the breakaway event is consistent with the breaking of steel components such as the U-bolt and wire ropes. Multiple wire rope failures were found to have occurred. Multiple sparks events/locations were observed.

5. The U-bolt on Cell #8 failed because of its physical and metallurgical conditions.

6. The failed U-bolt material had an inherent weakness that manifested itself in cold temperatures. In particular, the material had a relatively high brittle-to-ductile transition temperature. The cold temperatures on the morning of the failure enabled a brittle-type fracture mechanism of the U-bolt to manifest itself under the applied loading. This type of deficiency is a known problem for steels made in the time period of the mooring cells construction.

7. Due to years of use and exposure to the elements, the failed U-bolt exhibited very heavy plastic deformation on the bearing surfaces with accompanying notches oriented transverse to the bolt axis. The notches act as crack starters for component fracture and are considered primary contributors to the brittle failure of the Cell #8 U-bolt.

8. Significant wear erosion of the fractured U-bolt was found and was caused by relative movement between the U-bolt and Cell Wall/bent channel and reinforcing plate that took place on the downstream leg of the mooring U-bolt on Cell #8 over many decades. Despite the drastically reduced cross section associated with this erosion, the U-bolt failed in a location where the full bolt diameter was available for load transfer. This occurred because the cold temperatures changed the limiting failure mode from ductile overload with material yielding to a brittle failure mode with insignificant material yielding and rapid crack propagation.

9. Cold temperatures were a primary contributor to the brittle failure of the U-bolt.

10. Impact loading on the fleet and thereby of the U-bolt on Cell #8 was a primary contributor to the failure of the U-bolt. Impact loading was apparently caused by ice striking the fleet at Jacks Run.

11. The mooring cells were in a significantly deteriorated condition. Flaws introduced in the U-bolt over its 80 years of use acted as notches for fracture initiation and contributed to its failure.

12. The presence of the duck pond did not significantly contribute to the breakaway event. The fleet broke away as a whole, versus coming apart in sections/pieces such as due to a weakness introduced by a duck pond.

13. A Fitness-for-Service (FFS) assessment of the mooring cells and hardware at Jacks Run should have been performed by Alcosan when it purchased this property.

14. Alcosan or ITS should have performed an FFS assessment of the cells and fleeting area in general, including the need for dredging, prior to offering the facility for use/commerce by third parties.

15. If the U-bolt had been fabricated a decade or two later than it was, this failure most likely would not have occurred. A material assessment completed as part of an FFS investigation could have flagged the U-bolts as susceptible to cold weather conditions.

16. The evidence indicating a severe lack of attention to maintenance was overwhelming given the severely degraded condition of the mooring cells. It is the opinion of the Authors that the lack of preventative maintenance and repairs, specifically on the Cell #8 U-bolt, was a primary contributor to the accident.

17. It is the opinion of the Authors that the U-bolt failure on Cell #8 resulted from a combination of conditions as follows;

    a. The 16ºF temperature at the time of the accident was below the nil-ductility temperature for the failed U-bolt material meaning it was notch sensitive and susceptible to brittle fracture under impact loading.

    b. The failed U-bolt exhibited very heavy plastic deformation on the bearing surfaces that also exhibited notches that were oriented transverse to the bolt axis.

    c. Due mostly to corrosion and wear, the failed U-bolt was loose relative to the cell and allowed relative, undesirable movements due to the deteriorated condition of these components.

    d. The failed U-bolt was apparently not inspected for an extended period of time.

    e. Lack of maintenance allowed the U-bolt bearing surface to develop laps and seams that contained atomic radii crack tip notches and crack extensions given normal service.

    f. Impact loading of the U-bolt, likely associated with: a) ice impact, b) movement of the U-bolt under load or c) movement of the mooring ring under load, and some combination thereof.

Id. at pp. 107-108.

In its *Daubert* Motion, ITS seeks to exclude the trial testimony of proffered expert witnesses Thomas P. O'Donnell, Ph.D., P.E. and Joseph M. Turek because O'Donnell failed to consider and analyze alternative causes of the break-away rendering O'Donnell's opinions inadmissible and unreliable.

II. Relevant Standard

Under Federal Rule of Evidence 702, the District Court is to act as a gatekeeper to, "ensure that any and all expert testimony or evidence is not only relevant, but also reliable." *United States v. Schiff*, 602 F.3d 152, 172 (3d Cir. 2010). Federal Rule of Evidence 702 provides

in part that: "A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if,

> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
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> (b) the testimony is based on sufficient facts or data; research;
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> (c) the testimony is the product of reliable principles and methods; and
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> (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

The Supreme Court in *Daubert v. Merrell Dow Phamaceuticals*, 509 U.S. 579 (1993) changed the criteria for the admissibility of expert testimony and charged trial courts to act as "gate-keepers" to ensure that the proffered testimony is both relevant and reliable. *Id*. at 592-93. In *Daubert*, the Supreme Court articulated the following two-prong test for determining the admissibility of expert testimony:

> Faced with a proffer of expert scientific testimony, then, the trial judge must determine at the outset, pursuant to Rule 104(a), whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue. This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.

Id. at 593-94. Both prongs of the *Daubert* test must be satisfied before the proffered expert testimony may be admitted. *Id*. at 595. The Third Circuit has explained that Rule 702 "embodies a trilogy of restrictions" that expert testimony must meet for admissibility: qualification, reliability and fit. *Schneider ex rel. Estate of Schneider v. Fried*, 320 F.3d 396, 404 (3d Cir. 2003). The Third Circuit has explained:

> Rule 702 requires that the expert testimony must fit the issues in the case. In other words, the expert's testimony must be relevant for the purposes of the case and must assist the trier of fact.

Id. at 404. When expert testimony is challenged under *Daubert*, "the proponents of the expert must establish admissibility by a preponderance of the evidence." *Bruno v. Bozzuto's*, Inc., 311 F.R.D. 124, 135 (M.D. Pa. 2015).

III. Discussion

ITS argues that O'Donnell's opinions are unsupported by the evidence and ignored an alternative cause of the breakaway. Specifically, ITS maintains that when witnesses observed the "initial spark" seen in the vicinity of Cell #8, the same was caused by the parting of a wire rope; whereas, O'Donnell attributed the sparks with the breaking of steel components such as a U-bolt on Cell #8. Thus, ITS contends that, by ignoring the parting of the wire rope as a cause of the breakaway, O'Donnell's opinions are unreliable.

In response, Borghese, Ohio River Salvage, Inc. (ORS), and MRHS contend ITS' arguments are unfounded and unsupported by any evidence of record other than the subjective opinions of ITS' expert, Bartley Eckhardt and lay witness testimony. These responding parties argue that ITS misleads this Court by asserting that the precipitating cause of the breakaway was a failed wire line rather than the anchor U-bolt on mooring Cell #8.

In evaluating expert testimony under *Daubert*, the District Court does not serve as the finder of fact. *Vilkofsky v. Specialized Loan Servicing, LLC*, 2018 WL 2937693, at *5 (W.D. Pa. 2018). Instead, the focus appropriately goes to the methodology of the expert to "satisfy itself that 'good grounds' exist for the expert's opinion." *United States v. Mitchell*, 365 F.3d 215, 244 (3d Cir. 2004) (citing *Daubert*, 509 U.S. at 590); *In re TMI Litigation*, 193 F.3d 613, 713 (3d Cir. 1999) (district court should not conflate "its gatekeeping function with the fact-finders' function as the assessor of credibility"). "The District Court has broad discretion in determining the admissibility of evidence, and 'considerable leeway' in determining the reliability of particular

expert testimony under *Daubert*." *Walker v. Gordon*, 46 Fed. Appx. 691, 694 (3d Cir. 2002) (citing *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 152-53 (1999)). Rule 702 "has a liberal policy of admissibility." *Kannankeril v. Terminix Intern., Inc.*, 128 F.3d 802, 806 (3d Cir. 1997). The party that proffers the expert testimony is not required to prove to the court that the expert's conclusion is correct. *See Mitchell,* 365 F.3d at 244 (citation omitted).

Here, the parties have a fundamental factual dispute regarding whether the barge breakaway was initiated by the "parting of the wire rope" or by the breaking of the U-bolt. In resolving said dispute, a jury will need to determine the credibility of eyewitnesses and competing experts. The record, as reviewed and discussed by O'Donnell, demonstrates that a broken U-bolt on Cell #8 and the breaking of the wire ropes occurred in the sequence of events. O'Donnell's opinions on the cause of the breakaway are adequately grounded by the physical evidence reviewed in his report, such that the same is sufficient for this Court to conclude that his opinions are admissible and reliable. ITS's contentions boil down to a disagreement on expert conclusions and interpretations of witnesses' testimony, plus other data. Parsing out differences in opinions and testimony involve credibility issues that are within the province of the factfinder to resolve. Therefore, O'Donnell's opinions and testimony are not barred under Rule 702 and *Daubert*.

Accordingly, ITS's Motion in Limine Barring Expert Testimony of O'Donnell Consulting Engineers will be denied.

ORDER

Following consideration of ITS's Motion (ECF No. 550), Allegheny County Sanitary Authority's (Alcosan) Joinder (ECF No. 552), the respective briefs (ECF Nos. 551, 609, and 626), the arguments of counsel, and for the foregoing reasons, ITS's Motion is denied.

Dated: March 2, 2023

Marilyn J. Horan
United States District Judge