IN THE SUPERIOR COURT OF THE STATE OF DELAWARE
IN AND FOR NEW CASTLE COUNTY

SUSAN DURKIN LAUGELLE, individually and as personal representative of the Estate of Joseph Laugelle, Jr., deceased, and as Next Friend to Anna Grace Laugelle and Margaret Grace Laugelle,	)	
Plaintiffs,	)	
v.	)	**C.A. N10C-12-054 PRW**
BELL HELICOPTER TEXTRON, INC., et al.,	)	
Defendants.	)	

Submitted: October 1, 2014
Decided: October 6, 2014

MEMORANDUM OPINION

Upon Defendants' Joint Motion in Limine to Exclude or Limit the Expert Opinion Testimony of Donald E. Sommer,[1]
DENIED, IN PART; GRANTED, IN PART.

Upon Defendants' Joint Motion to Exclude Certain Opinions of Plaintiffs' Expert David Young,[2]
DENIED.

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1 Dkt #404; Trans. I.D. #54061772.

2 Dkt #401; Trans. I.D. #54060146.

Upon Defendants' Joint Motion to Exclude Certain Opinions of Plaintiff's Expert Stephen Early[3]
GRANTED, IN PART; **DENIED, IN PART**.

Upon Defendants' Joint Motion to Exclude Expert Testimony of William Muzzy[4]
DENIED.

Upon Defendants' Joint Motion to Exclude Expert Testimony of Eric Van Iderstine[5]
DENIED.

Upon Plaintiffs' Motion in Limine to Preclude Reference to Irrelevant and Prejudicial Matters Concerning Plaintiffs' Expert Donald Sommer[6]
GRANTED.

Upon Defendants' Motion to Preclude Evidence of Other Accidents Without First Showing Substantial Similarity[7]
GRANTED.

Upon Defendants' Motion in Limine Regarding Evidence of Rotor Blade Damage in Other Accidents[8]
DENIED.

Upon Defendants' Motion in Limine to Exclude as Hearsay Third Party Statements Made to Donald Sommer[9]
GRANTED.

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3 Dkt #400; Trans. I.D. #54059600.

4 Dkt #380; Trans. I.D. #54049379.

5 Dkt #383; Trans. I.D. #54052436.

6 Dkt #490; Trans. I.D. #54320950.

7 Dkt #499; Trans. I.D. #54322849.

8 Dkt #496; Trans. I.D. #54322841.

9 Dkt #498; Trans. I.D. #54322846.

Upon Plaintiffs' Omnibus Motion in Limine to Preclude Impact Velocity Opinions Presented by Defense Experts Jean Slane, Robert Winn, Joe Syslo, Doug Stimpson, Vern Albert, David Laananen, Greg Feith, and C. Dennis Moore[10]

DENIED.

Gary W. Aber, Esquire, Law Offices of Gary W. Aber, Wilmington, Delaware; Bradley J. Stoll, Esquire, (pro hac vice), and Cynthia M. Devers, Esquire, (pro hac vice) The Wolk Law Firm, Philadelphia, Pennsylvania, Attorneys for Plaintiffs.

Jeffrey L. Moyer, Esquire, Travis Hunter, Esquire, Richards, Layton & Finger, PA, Wilmington, Delaware, John O'Flanagan, Esquire, (pro hac vice), L. Robert Bourgeois, Esquire, (pro hac vice), and Petra L. Justice, Esquire (pro hac vice), Banker Lopez Gassler, Tampa, Florida., Attorneys for Bell Helicopter Textron Inc. DE Corp., Bell Helicopter Textron Canada Limited, Textron Inc.[11]

WALLACE, J.

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[10] Dkt #392; Trans. I.D. #54050529.

[11] The Court earlier granted summary judgment to Defendant Rolls Royce Corporation. *Laugelle v. Bell Helicopter Textron Inc.*, 2014 WL 2699880 (Del. Super. Ct. June 11, 2014). And the Plaintiffs have settled their claims with Bristow-Air Logistics (Dkt. #746; Trans. I.D. #55969639) and Honeywell International (Dkt. #755; Trans. I.D. #56091085). Bell Helicopter is the only Defendant remaining.

I. INTRODUCTION

This Court discussed the background of this case extensively in an earlier opinion.[12] In turn, only a brief summary will be provided here. This wrongful death action arises out of a helicopter crash that occurred on December 11, 2008, in the Gulf of Mexico, off the coast of Sabine Pass, Texas. Joseph Laugelle, Jr., the helicopter's pilot ("Pilot"), was transporting four passengers to an oil rig when the helicopter went down about two miles offshore. There were no survivors.

The Pilot's wife, Susan Durkin Laugelle, brought suit against several defendants. She did so individually, as a personal representative of Mr. Laugelle's estate, and as next friend to the Laugelles' two minor daughters (collectively, "Plaintiffs").

This omnibus opinion addresses a number of motions *in limine* seeking to exclude certain accident reconstruction expert testimony arguing lack of qualification, unreliable methodology, or both. In addition, this opinion resolves certain other motions *in limine* related to that expert testimony.

II. *Daubert* Analysis

Delaware Rule of Evidence 702 governs the admission of expert testimony:

> [i]f scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an

[12] *Laugelle*, 2014 WL 2699880.

> expert by knowledge, skill, experience, training or education may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

D.R.E. 702 is substantially similar to Rule 702 of the Federal Rules of Evidence, which is governed by *Daubert v. Merrell Dow Pharmaceaticals, Inc.*,[13] and *Kumho Tire Co., Ltd. v. Carmichael*.[14] The Delaware Supreme Court has expressly adopted the holdings in *Daubert* and *Kumho*.[15]

When its admission is challenged, a trial judge must ensure that expert testimony is both reliable and relevant.[16] Expert testimony is relevant if it assists the fact finder in "understand[ing] the evidence or . . . determin[ing] a fact in issue."[17] Reliable expert testimony is premised on scientific or specialized knowledge, which requires the testimony to be grounded in scientific methods and

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13 509 U.S. 579 (1993) (addressing scientific testimony).

14 526 U.S. 137 (1999) (extending *Daubert*'s holdings to all scientific, technical, and specialized matters).

15 *Bowen v. E.I. DuPont de Nemours & Co., Inc.*, 906 A.2d 787, 794 (Del. 2006) (citing *M.G. Bancorporation, Inc. v. Le Beau*, 737 A.2d 513, 522 (Del. 1999)).

16 *Daubert*, 509 U.S. at 597 (1993).

17 *Id.* at 591 (quoting Fed. R. Evid. 702).

procedures and "supported by appropriate validation—i.e., 'good grounds,' based on what is known."[18]

The trial judge functions as a gatekeeper for relevant and reliable scientific testimony by inquiring: (1) whether the theory or technique has or can be tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) whether the technique has a rate of error and what that rate of error is; and (4) whether the theory or technique has gained a general acceptance within the relevant scientific community.[19] These four factors are not meant to be a "definitive checklist."[20] Instead, a trial judge enjoys broad latitude in determining whether expert testimony is both reliable and relevant.[21] The goal of this inquiry is not "wholesale exclusion" of testimony because it has not been "generally accepted;" rather, "cross examination, presentation of contrary evidence, and careful instruction on the burden of proof" are, more often, the appropriate methods of attacking scientific, technical, or other testimony based on specialized knowledge.[22]

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18 *Id.* at 590.

19 *Id.* at 592-94.

20 *Tumlinson v. Advanced Micro Devices, Inc.*, 81 A.3d 1264, 1269 (Del. 2013) (quoting *Daubert*, 509 U.S. at 593).

21 *Cornell Glasgow, LLC v. LaGrange Properties, LLC*, 2012 WL 6840625, at *20 (Del. Super. Ct. Dec. 7, 2012); *see also Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141-42 (1999).

22 *Daubert*, 509 U.S. at 596.

Consistent with *Daubert*, Delaware requires the trial judge to engage a five-step test to determine the admissibility of expert testimony.[23] The trial judge must determine that:

> (1) the witness is qualified as an expert by knowledge, skill experience, training or education;
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> (2) the evidence is relevant;
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> (3) the expert's opinion is based upon information reasonably relied upon by experts in the particular field;
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> (4) the expert testimony will assist the trier of fact to understand the evidence or to determine a fact in issue; and
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> (5) the expert testimony will not create unfair prejudice or confuse or mislead the jury.[24]

It is the burden of the party seeking to introduce the expert testimony to establish its admissibility by a preponderance of the evidence.[25]

At the outset, the Court notes that a rigid application of the *Daubert* factors simply cannot be engaged to determine testimonial reliability in every field of expertise.[26] For example, many scientific, technical, or specialized fields are not

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[23] *Bowen v. E.I. DuPont de Nemours & Co.*, 906 A.2d 787, 795 (Del. 2006).

[24] *Id.*

[25] *Id.*

[26] *See, e.g., Watkins v. Telsmith, Inc.*, 121 F.3d 984, 990 (5th Cir. 1997) (noting "[n]ot every guidepost outlined in *Daubert* will necessarily apply to expert testimony based on engineering principles and practical experience").

subject to peer review and publication. That is why the test of reliability is "flexible," and the trial court has "broad latitude when it decides how to determine reliability."[27]

Accident reconstruction is one such example of an area that calls for "technical or other specialized knowledge," but is ill-suited for a strict observance of the *Daubert* factors.[28] Still, *Daubert*'s general principles for examining such experts' reliability apply. Here, particularly, the Court must evaluate whether there is "an adequate 'fit' between the [underlying] data and the opinion[s] proffered."[29] Too great of an "analytical gap" between the two, and the Court must conclude that the opinion testimony fails to meet the reliable methodology or principles

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[27] *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141-42 (1999).

[28] *See Durnan v. Butler*, 2004 WL 1790117 (Del. Super. Ct. July 21, 2004) (finding the field of accident reconstruction would not "necessarily fit all of the *Daubert* criteria" due to lack of peer review, publication, and "definitive guidelines as to the amount of training and experience necessary"). *See also Desert Falcon-Special Mar. Enter. v. E. Coast Terminal Co.*, 2004 WL 5612966, at *2 (S.D. Ga. Jan. 5, 2004) (". . . with accident re-constructionists . . . reliability is found by looking 'at the physical and factual information available, appl[ying] standard engineering principles to this information, and determin[ing] the most probable sequence of events.'") (quoting *Clay v. Ford Motor Co.*, 215 F.3d 663, 668 (6th Cir. 2000)); 5 Mod. Sci. Evidence § 44:9 (2013-2014 Edition) ("[T]he five-factor test for reliability is not always appropriate for judging some kinds of expert testimony, [especially with] accident reconstruction testimony, in which the case-specific nature of the inquiry makes it rarely publication worthy, subject to error rate calculations, or even testable in practice.").

[29] *Moore v. Ashland Chem. Inc.*, 151 F.3d 269, 276 (5th Cir. 1998) (citing *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997)).

requirement.[30] But only if the expert opinion is so fundamentally unsupported that it can offer no assistance to the jury must such testimony be excluded.[31]

III. DEFENDANTS' MOTIONS *IN LIMINE* TO EXCLUDE OR LIMIT EXPERT OPINIONS

A. Testimony of Donald E. Sommer

The Plaintiffs offer Donald E. Sommer as an expert in the field of aviation accident reconstruction, mechanical engineering, piloting, and aviation.[32] Mr. Sommer offered numerous opinions relevant to the cause of the accident in this case in a report, a supplemental report, and two sessions of deposition testimony.

Defendant Bell Helicopter Textron, Inc. ("Bell") seeks to exclude or limit three particular aspects of Mr. Sommer's proffered expert testimony: 1) his opinion that the pilot was presented with an engine failure mid-flight and attempted an autorotation—the "operational impact" and autorotation testimony; 2) his opinion on how the power turbine governor ("PTG") in the accident helicopter became contaminated—the source and "accumulation theory;" and 3) his opinion that an

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30 *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (recognizing that "[t]rained experts commonly extrapolate from existing data," but this does not warrant admitting opinion based "only by the *ipse dixit* of the expert").

31 *Perry v. Berkley*, 996 A.2d 1262, 1271 (Del. 2010) (citing *Porter v. Turner*, 954 A.2d 308, 313 (Del. 2008)).

32 *See Joint Pretrial Stipulation*, Dkt #730, Trans. I.D. 55902370, Ex. F [hereinafter "*Pretrial Stip.*"].

alternate PTG design (one including a lockout feature) could have prevented the accident—the "alternate design" theory.

1. Mr. Sommer's Qualifications

Mr. Sommer has his Bachelor of Science in mechanical engineering, and he holds many Federal Aviation Administration ("FAA") ratings, including one as a commercial pilot in rotorcraft/helicopter and one as an airframe mechanic. He has experience piloting both winged aircraft and rotorcraft, including performing an autorotation in a rotorcraft.[33] Mr. Sommer received in-flight training to operate a Bell 206 helicopter (the same model as the accident helicopter) and reviewed the "manuals, operating characteristics, operational charts, and emergency procedures for the helicopter."[34] Additionally, Mr. Sommer has investigated over 120 helicopter accidents, some of which included mid-size helicopters such as the Bell 206.[35]

2. Operational Impact and Autorotation Opinions

The Plaintiffs seek to prove through Mr. Sommer's testimony that, as a result of contamination in the PTG, the engine suffered mid-flight power failure,

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33 *See Deposition of Donald E. Sommer*, May 22, 2013, at 54:19-25; 55:1-9, Ex. C to *Defs.' Opening Br. Supp. Defs.' Mot. in Limine Exclude or Limit Expert Op. Test. Donald E. Sommer* [hereinafter "*Defs.' MIL Excluding Sommer*"].

34 *Pltfs. Br. Opp'n Defs.' MIL Excluding Sommer*, at 20.

35 *Id.*

forcing Pilot to attempt an autorotation. Mr. Sommer further opines that Pilot's reaction to the power failure was reasonable under the circumstances, and that the accident was not a product of an unintentional or controlled flight into the Gulf waters. Bell claims these opinions are not the product of objective and reliable methodology. Moreover, Bell claims that Mr. Sommer is not qualified to render an opinion as to the possibility of an autorotation being performed.

a. Mr. Sommer is qualified to render operational impact and autorotation testimony

As to Mr. Sommer's qualification, the Court finds that he is qualified to testify as to the operational impact of power loss and the need for or possibility of performing an autorotation in that situation. Additionally, Mr. Sommer is qualified to opine on the reasonableness of Pilot's reaction to the power failure and the theory that this was not a controlled flight into water. Mr. Sommer's personal experience piloting rotorcraft, including performing an autorotation in a rotorcraft,[36] and his FAA rating as a commercial pilot in Rotorcraft/Helicopter sufficiently qualify him as an expert to testify as to the procedures for and possibility of performing an autorotation under the accident circumstances.

[36] See *Deposition of Donald E. Sommer*, May 22, 2013, at 54:19-25; 55:1-9, Ex. C to *Defs.' MIL Excluding Sommer*.

b. Evidence of other helicopter crashes from the NTSB database

As to the substance of Mr. Sommer's opinions, Bell challenges Mr. Sommer's use of a set of reports of seven other helicopter crashes from the National Traffic Safety Board ("NTSB") database. Mr. Sommer references the crash reports to compare the damage to the rotor blades involved in a full engine power versus low engine power crash. This comparison is support for his theory that the condition of the rotor blades in the accident indicates low engine power at impact. Bell claims that Mr. Sommer did not take key factors into account when selecting these other accident reports. Plaintiffs counter that Mr. Sommer deliberately chose other incidents where the engine speed was known to be high power at impact, and where the helicopter class and angle of impact were comparative to those at issue here. Plaintiffs intend to offer this testimony to illustrate the differences in rotor blade damage between high and low engine power at impact. To the extent the difference in rotor blade damage is illustrative of why Mr. Sommer believes the crash occurred at low engine power, the Court finds that there is an adequate fit between the crash reports and Mr. Sommer's opinion. Bell's arguments go more toward the weight and credibility of the evidence, which are best left for cross-examination and the presentation of contrary evidence. Bell's motion to preclude testimony based on the condition of rotorblades in seven other helicopter accidents is therefore **DENIED**.

c. Service Difficulty Reports and Honeywell warranty claims

Bell further seeks to exclude Mr. Sommer's testimony that the PTG blockage could have led to low power to the extent he relies on FAA Service Difficulty Reports ("SDRs") and Honeywell warranty claims describing what Mr. Sommer calls "symptoms" of PTG failure. [37] The Court has excluded the SDRs from introduction at this trial.[38] As to the warranty reports, Plaintiffs have failed to adequately establish that they refer to the PTG.[39] Those reports, therefore, do not constitute reliable underlying data under *Daubert*. Thus, to the extent any of Mr. Sommer's opinions as to the cause of this accident are based upon the SDRs and warranty reports,[40] the Court finds this methodology unreliable because use of those particular reports as underlying data here has not been proven reliable.

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[37] Bell challenges Mr. Sommer's opinion that there were past instances of Pg Restrictors causing engine loss because he based this opinion on the SDRs, which Bell claims actually did not pertain to a power turbine governor.

[38] *See* Dkt #653; Trans. I.D. #55067702 (granting Defendants' Joint Motion *in Limine* to Exclude Reports of Unrelated Incidents Involving Power Turbine Governors ("PTGs") Including Service Difficulty Reports); and Dkt #650; Trans. I.D. #55067702 (opinion discussing inadmissibility of SDRs).

[39] Mr. Sommer's deposition testimony was that the "DP-VI" reported on the warranty claims referred to the power turbine governor. But, in fact, as Bell points out and Plaintiffs have not disputed, "DP-V1" refers to a fuel control unit, not a power turbine governor.

[40] According to the Plaintiffs, Mr. Sommer's opinions are dependent on the SDRs and Honeywell warranty claims to "confirm the propensity of the fluctuation and/or erratic fuel flow within the Power Turbine Governor (PTG) and the resulting degradation in engine power." *Joint Status Report*, at 19 (Dkt #672; Trans. I.D. #55253592) [hereinafter "*Joint Status Report*"].

Bell's motion to preclude testimony regarding Mr. Sommer's reliance on the SDRs and Honeywell warranty claims is hereby **GRANTED.**

d. Low Helicopter Speed Opinion

Bell also argues that Mr. Sommer's opinions on the helicopter's speed at impact and the resultant g force calculations should be excluded. Mr. Sommer opines that the aircraft impacted the water "at a horizontal speed of 30 knots and vertical and horizontal g-loading of 10-12 g's."[41] In support of this, Mr. Sommer points to the g force calculations set forth by Plaintiffs' experts William Muzzy and Eric Van Iderstine, whose "analysis of the crash sequence, operational parameters of the helicopter and injuries to Mr. Laugelle" he claims is "ultimately consistent with" his 30 knots opinion. Mr. Van Iderstine testified in his deposition that he began his analysis of the g forces starting with a speed of 30 knots as given to him by Mr. Sommer. [42] Bell points to Mr. Sommer's testimony given prior to

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41 *Supplemental Report of Findings of Donald Sommer*, August 5, 2013, Ex. 1-C to *Pltfs.' Resp. Defs.' MIL Excluding Sommer*.

42 *Deposition of Eric Van Iderstine*, May 31, 2013, Ex. G to *Defs.' MIL Excluding Sommer*, at 96:3-6.

> A: . . . I consulted with Mr. Sommer on what he as a pilot and reconstructionist would see as a reasonable forward speed from a failed autorotation, what realm it could be in.
> Q: Okay. So as far as this 30 knots that you used, which is the starting point for your calculations right?
> A: For the horizontal component, yes.
> Q: So as far as that 30 knots, you got that from Mr. Sommer?
> A: That's correct, yes.

Mr. Van Iderstine's, in which Mr. Sommer claims he cannot calculate the forward speed of the aircraft at impact. Yet, Mr. Sommer's opinion that the impact speed was 30 knots is the product of analyzing aspects of the wreckage, leading him to conclude that there was an attempted autorotation.[43] Based on his opinion that there was a failed autorotation, Mr. Sommer used the "normal descent rate during an autorotation in the accident helicopter . . . [of] approximately 1500 feet/min at a forward speed of 60 knots"[44] to reach the 30 knots impact speed figure. Because this was a water crash, where normal signatures of speed at impact are missing, Mr. Sommer used his experience in autorotation as a pilot and the available data known to him about the height and speed the accident helicopter would be traveling at before and during the autorotation. The Court notes that experts have "historically been allowed to testify to an assumed set of factual circumstances," as

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> Q: He said . . . ["]In my opinion he was going 30 knots full velocity when he hit the water,["] correct?
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> A: He said that that would be reasonable if there was an autorotation attempt. We certainly see from the physical evidence that there was still a forward velocity component and Mr. Sommer considered 30 knots reasonable.

Id. at 96:7-22.

[43] *Supplemental Report of Findings of Donald Sommer*, August 5, 2013, *Ex C* to *Pltfs.' Resp. Defs.' MIL Excluding Sommer* ("According to industry accepted accident investigation methodology, the relatively straight and undamaged rotor blades and the lack of rotational scoring on the compressor housing indicates that this impact occurred while the engine was not under any appreciable power. Furthermore, the rotational energy within the main rotor system had dissipated prior to impact. These are the classic signatures of an attempted pre-impact autorotation with little or no engine power.").

[44] *See id.*

long as the assumed facts are supported.[45] The Court finds that the Plaintiffs have produced sufficient evidence as to the facts Mr. Sommer utilized in forming his impact velocity opinion. Again, Bell is really challenging Mr. Sommer's conclusion and his credibility. And, again, under *Daubert*, such challenges are properly engaged through cross-examination and presentation of contrary evidence.[46] Bell's motion to preclude Mr. Sommer's opinion as to the speed of the helicopter at impact is hereby **DENIED**.

e. Remaining operational impact and autorotation opinions

As to Mr. Sommer's remaining operational impact and autorotation opinions, the Court is satisfied that the Plaintiffs have met their burden in producing sufficient evidence of the reliability of the underlying methodology. Plaintiffs produced relevant portions from the manuals and handbooks that set forth accepted aviation accident investigation methodology and that Mr. Sommer relied upon in conducting his accident reconstruction.[47] Plaintiffs have sufficiently established how Mr. Sommer followed the procedures for accident investigation in these manuals. In particular, the International Civil Aviation Organization's

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[45] *Crowhorn v. Boyle*, 793 A.2d 422, 431 (Del. Super. Ct. 2002).

[46] *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 595 (1993) (Court must focus "solely on principles and methodology, not on the conclusions that they generate"); *id.* at 596.

[47] Plaintiffs produced portions of the International Civil Aviation Organization ("ICAO") Manual on Aviation Accident Investigation, the NTSB Accident Investigation Handbook, and the methodology endorsed by the United States Navy. *See* Exs. 15-27, *Pltfs.' Resp. Opp'n Defs.' MIL Excluding Sommer*.

("ICAO") Manual of Aircraft Accident Investigation, which Mr. Sommer relied upon, describes a "Group Organization" method, where "[t]he primary purpose of the Group system is to establish the facts pertinent to an accident by making use of specialized knowledge and practical experience of the participating individuals with respect to construction and operation of the aircraft involved in the accident . . ."[48] Plaintiffs have demonstrated that Mr. Sommer collaborated with other experts specializing in materials sciences, biomechanics, and mechanical engineering (among others), in addition to relying on his own experience as a pilot and mechanical engineer to reach his causation opinions. Consistent with the procedures for accident reconstruction, Mr. Sommer also analyzed the wreckage, conducted an inspection of the aircraft, performed an "exemplar flight" of the accident flight, collected data from witnesses and flight manuals, and collaborated with other specialists, all while drawing upon his own piloting experience.

Thus, the Court finds that the Plaintiffs have met their burden in showing that Mr. Sommer's remaining opinions as to operational impact of alleged power loss and autorotation are grounded in reliable methodology. Bell's motion to preclude these opinions is hereby **DENIED**.

[48] Ex. 15, *Pltfs.' Resp. Opp'n Def's MIL Excluding Sommer.*, at APP-1166(A).

3. Source and Accumulation Theory

It is Mr. Sommer's opinion that particles accumulated at and contaminated the PTG Pg restrictor in the engine. He opines that maintenance performed, daily flights in the salt-water environment, and daily compressor washes allowed debris to accumulate in the Pg orifice of the PTG, eventually leading to complete PTG blockage.

Bell suggests that Mr. Sommer is not qualified to give these causation opinions and that these opinions are lacking in some reliably applied methodology. Additionally, Bell makes a number of specific challenges to Mr. Sommer's "accumulation theory:" (1) that it was formed only after his other "melting theory" was proven virtually impossible by defense experts; (2) that Mr. Sommer did nothing to test his theory, including evaluating the air, air flow, compressor rinsate, and how they would have moved within the PTG; and (3) that Mr. Sommer admitted that he could have, but chose not to, calculate the number of particles that would be required to fully block the Pg bleed restrictor. Essentially, Bell's challenge is that Mr. Sommer bases his opinion on the mere fact that the particles allegedly accumulated there.

In response, the Plaintiffs argue that Mr. Sommer's theory on how the Pg bleed became blocked is the product of reliable accident reconstruction methodology. According to Plaintiffs, he utilized "differential diagnosis within the

confines of mechanical engineering principles," an unchallenged material expert's test results, and the opinions of PTG and engine experts Stephen Early and David Young (whose testimony is addressed below) to reach his conclusions.[49] Thus, they say there was no need to perform testing of the particles or air and airflow as Mr. Sommer was simply piecing together the evaluations of other experts qualified to analyze that kind of testing.

The Court finds that Mr. Sommer's opinions regarding the accumulation of foreign particles in the PTG and the derivative opinions of the other experts in this area are based upon information reasonably relied upon by experts in the accident reconstruction field. As an accident reconstructionist with experience investigating other helicopter accidents, the Court also finds Mr. Sommer is qualified to piece together investigative information from other experts, such as the materials expert here. Challenges to the factual bases for Mr. Sommer's opinions go to their credibility, not their admissibility, and may be explored by Defendants' cross examination at trial.[50] Thus, Bell's motion to preclude Mr. Sommer's testimony as to the "accumulation theory" is **DENIED.**

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[49] The reliability of Mr. Sommer's opinion is derived, in part, from Messers. Early's and Young's engine and PTG function opinions. As discussed below in rendering opinions on those specific issues, the Court finds those two Plaintiffs' witnesses are qualified and engaged reliable methodology.

[50] *Perry v. Berkley*, 996 A.2d 1262, 1271 (Del. 2010) (citing *Porter v. Turner*, 954 A.2d 308, 313 (Del. 2008)) (noting cross-examination rather than exclusion can be the proper method of examining the factual basis of an expert's opinion).

4. Alternate Design Opinions

Mr. Sommer further opines that the PTG was defectively designed, and that reasonably feasible alternative designs existed and could have been implemented here.[51] Further, Mr. Sommer opines that appropriate warnings and instructions were not given to the Pilot about this condition or as to any potential remedial measures. In his view, this fell below an industry standard of care. Bell argues that Mr. Sommer is not qualified to testify that the PTG was defectively designed or to render an opinion as to standard of care in the design and post-sale defect correction. Moreover, Bell contends that even if Mr. Sommer is qualified, his conclusions do not rest on reliable methodology.

The Court agrees that Mr. Sommer is not qualified to render an opinion on an alternate design of the PTG here. Although a mechanical engineer with extensive piloting experience, including an FAA rating as an "Airframe" mechanic, Mr. Sommer possesses no training or experience in aircraft component design relevant to this case.[52] Furthermore, Mr. Sommer did not perform any

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[51] Specifically, Mr. Sommer opines that the engine should have been equipped with a PTG Lockout System, and that former Defendant Honeywell could have designed a guard around the Pg Restrictor in the PTG.

[52] Mr. Sommer admitted in his deposition that he had seen "other orifices" (other than Pg orifices) with guards around them, but that he did not know of any PTG that had a guard for the Pg restrictor, and had never designed a PTG or a fuel control unit. *See Deposition of Donald E. Sommer*, May 22, 2013, at 112:17-25; 113:1-9; 114:7-14, Ex. C to *Defs.' MIL Excluding Sommer*.

testing regarding any proposed alternate designs.[53] "[T]he proper methodology for proposing alternative designs includes more than just conceptualizing possibilities."[54] And while "[t]esting is not an 'absolute prerequisite' to the admission of expert testimony on alternative designs, . . . Rule 702 demands that experts 'adhere to the same standards of intellectual rigor that are demanded in their professional work.'"[55] This Court is not convinced that Mr. Sommer's knowledge, skill, education, or experience qualify him to opine on alternate designs in this case. Furthermore, though the Court need not reach the issue of whether his underlying methodology is reliable, it finds that Mr. Sommer's design suggestions are speculative and do not comport with the standard for alternate design expert testimony. Thus, Bell's motion to preclude Mr. Sommer's testimony as to alternate PTG designs, or the ability to place a guard around the Pg restrictor is hereby **GRANTED**.[56]

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[53] These alternate designs include adding a PTG Lockout System, which was available for installation at the time of the crash, and adding a "guard" around the Pg Restrictor.

[54] *Watkins v. Telsmith, Inc.*, 121 F.3d 984, 992 (5th Cir. 1997).

[55] *Id.* at 990 (citing *Cummins v. Lyle Indus.*, 93 F.3d 362, 369 (7th Cir. 1996)).

[56] The arguments in Bell's Motion *In Limine* precluding Mr. Sommer's alternate design opinions, including that a "guard" could have been installed on the Pg Restrictor, also appear in former Defendant Honeywell's Motion *In Limine* to Preclude Opinions and Argument (1) Stating that a "Guard" Could Have Been Installed Around the PG Restrictor, or (2) Offering Any Other Alternative Design for the PTG That Has Never Been Disclosed. *See* Dkt #500; Trans. I.D. #54322848. Honeywell's motion was denied as moot, as it is no longer a defendant here. *See* (Dkt #757; Trans. I.D. #56100844). But to the extent Plaintiffs attempt to offer any expert testimony by Mr. Sommer regarding an alternative PTG design or Pg Guard against Bell, this testimony is excluded, as discussed above.

B. Testimony of David Young

The Plaintiffs offer David Young as an expert in design, operation, maintenance, and failure analysis of helicopter turbine engines.[57] Mr. Young's proffered opinions focus on the impact that fuel system blockage would have on the engine, the origin of the contaminants in the pneumatic system, and the condition of the pneumatic lines in the engine.[58] He also opines that there should have been a manual override for the event of a PTG failure,[59] and how the manual override system would have been installed on the engine.[60] Bell generally objects on the grounds that Mr. Young is not qualified to render these opinions, and that he did not employ proper methodology.[61]

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57 *Pretrial Stip.*, Ex. F.

58 *See id.* at 25-28; *see also* Transcript of October 17, 2013 Hearing, at 4:18-23; 5:1-19. In more detail, Mr. Young intends to offer the following opinions at trial: (1) the manufacturer maintenance instructions are misleading and had they been proper this PTG would not have been on the subject engine; (2) pneumatic lines were worn beyond serviceable limits and susceptible to leakage detrimental to engine operation caused by improper inspections; (3) the blocked PTG would cause the engine to go to minimum flow rate; (4) the C30P series engine doesn't have an alternative backup system available to the pilot should a failure occur; there is a strong possibility the requirement not to disconnect the pneumatic line from the scroll to Pc filter during a water rinse cycle as noted in CSL 3085 would allow impurities or small fragments to enter the pneumatic system within the governor and fuel control resulting in a reduction in air flow; pneumatic lines and unions/fittings revealed wear beyond serviceable limits and should have been replaced during the recent turbine installation; (5) contamination entered the pneumatic system during turbine blade change or overhaul; and (6) contamination entered the system during compressor washes.

59 *See Report of David Young, Defs.' Op. Br. Supp. Defs.' Joint Mot. Exclude Certain Opinions Pltfs.' Expert David Young* [hereinafter "*Defs.' MIL Excluding Young*"], Ex. A at 8.

60 *See* Transcript of October 17, 2013 Hearing, at 5:13-20.

61 *Id.*; *see also Joint Status Report* at 25-29.

1. Mr. Young's Qualifications

Mr. Young's highest level of education is high school. However, Mr. Young possesses many years of experience as a mechanic in the industry, including troubleshooting power failures and working with engine accessories.[62] Additionally, he is a certified FAA Power Plant Mechanic,[63] and a Rolls Royce approved Training Instructor on all model 250 engines.[64] But still, Bell challenges his qualification to render an opinion on how the pneumatic system works.

The Court finds that Mr. Young's lack of higher education does not disqualify him from testifying as an expert here. Rather, Mr. Young is qualified to offer opinions on the power failure and engine contamination because of his experience, skill, and training as a mechanic. Mr. Young has had extensive, hands-on experience working with various engines over the course of his career.[65] Any questions regarding Young's qualifications to render those opinions are best dealt with on cross-examination.[66] As to Mr. Young's opinions on the manual override,

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62 *Defs.' MIL Excluding Young* at 4.

63 *Id.* at 3.

64 *Id.*

65 *Pltfs.' Resp. Br. Defs.' MIL Excluding Young*, at 10.

66 *Rodriguez v. State*, 30 A.3d 764, 770 (Del. 2011) ("an analyst's lack of proper training or deficiency in judgment may be disclosed in cross-examination"); *see also Minner v. American Mortg. & Guar. Co.*, 791 A.2d 826, 857 (Del. Super. Ct. 2000) (discussing that any shortcomings are best cured by cross-examination); *Jones v. Astrazeneca, LP*, 2010 WL 1267114, at *10 (Del.

the Court finds that he is qualified, as a mechanic, to opine on the installation of that system, but not on how that manual override system should or would be designed.

2. Mr. Young's Methodology

Bell challenges the factual foundation and methodology Mr. Young employs to render his opinion on the origin of material found in the Pg restrictor. Plaintiffs contend that Mr. Young followed appropriate accident reconstruction methodology used by the ICAO, the NTSB, and the United States Navy when forming his opinions.[67]

This Court finds Mr. Young's methodology both reliable and relied upon by experts in the field. Other courts have permitted experts to testify who had utilized the same sources of methodology as Mr. Young.[68] Additionally, Mr. Young's testimony will assist the fact finder in determining the cause of the crash. As to the Bell's concern with the factual foundation for Mr. Young's opinions, the Court

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Super. Ct. Mar. 31, 2010) (discussing how cross-examination, in some instances, may effectively expose a soft expert opinion).

67 *Pltfs.' Resp. Br. Defs.' MIL Excluding Young*, at 11-13.

68 *See Pease v. Lycoming Engines*, 2011 WL 6339833, at *7 (M.D. Pa. Dec. 19, 2011) (accepting an expert's methodology which was set forth in the ICAO Manual and used by the NTSB); *see also Johnson v. Avco Corp.*, 702 F.Supp.2d 1093, 1102 (E.D. Mo. 2010) (stating that the ICAO Manual was an appropriate methodology).

finds, consistent with Delaware law, that here this goes to the credibility of Mr. Young's testimony, not its admissibility.[69]

This includes Mr. Young's opinion on the *manner of installing* the manual bypass system in the engine.[70] As he bases this opinion on his experience as an engine mechanic, the Court finds he may testify, from a "maintenance technician standpoint," [71] about how a manual bypass system would be installed in the subject engine.

Bell's motion to preclude Mr. Young's testimony is therefore **DENIED**.

C. Testimony of Stephen Early

The Plaintiffs offer Stephen Early as an expert in design, operation, maintenance, and failure analysis of a helicopter engine's power turbine governor.[72] Generally, Mr. Early's testimony relates to the fuel control system—

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69 *Perry v. Berkley*, 996 A.2d 1262, 1271 (Del. 2010) (citing *Porter v. Turner*, 954 A.2d 308, 313 (Del. 2008)) ("[A]s a general rule, the factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is for the opposing party to challenge the factual basis of the expert opinion on cross examination.").

70 Upon the Court's review of the briefing, hearing transcript, and Joint Status Report, Mr. Young does not offer an "alternate design" opinion *per se*; rather, his opinion is that there was no manual override system. *See* "Opinion 4" in *Joint Status Report,* at 27. Counsel argued in the October 17, 2013 hearing that Mr. Young will "be addressing the manner of installing [the manual override system], how it could have been installed on this engine. Not that there was a requirement or a rule broken for not having it." Transcript of Hearing, October 17, 2013, at 5:14-17. If, however, Mr. Young opines as to the *need* or *requirement* for an alternate engine design, Mr. Young will be precluded from doing so at trial.

71 *See Pltfs.' Resp. Br. Defs.' MIL Excluding Young*, at 16-17.

72 *Pretrial Stip.*, Ex. F.

that it was improperly overhauled and inspected, and that the blockage in the Pg bleed led to engine failure.[73] Mr. Early also offers opinions on the implications of the rotor blade damage. Bell challenges his qualifications to render an opinion on the implications of rotor blade damage, or the origin of the material found blocking the Pg restrictor.[74] Bell also challenges his methodology regarding the source of the material and that the helicopter suffered an "unscheduled and catastrophic reduction in power."[75] They do not dispute his testimony that a complete blockage of the Pg restrictor will cause the PTG to reset to minimum fuel flow, or his testimony on how the fuel control system works generally.

1. Mr. Early's Qualifications

Mr. Early's highest level of education is high school. He has 40 years of aviation experience, 33 of which he specialized in fuel controls and related systems. Plaintiffs cite his "intensive" experience with Honeywell fuel systems

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[73] According to the Parties' Joint Status Report, there are seven opinions that Mr. Early intends to offer: (1) an explanation of the basic operation of the fuel system of the subject engine; (2) the initial attempt at disassembling the PTG was improper; (3) upon proper disassembly of the PTG a blockage was noted in the Pg bleed; (4) the pneumatic line fittings were worn and in a condition of leaking detrimental to engine operation due to improper inspection; (5) the blockage of the PG bleed caused the PTG to reset the fuel control to a minimum flow position; (6) the engine on the accident/incident helicopter suffered an unscheduled and catastrophic reduction in power, which is demonstrated by the lack of leading edge damage or damage incurred by rotational impact on the rotor blades and the airframe damage incurred on impact with the water; and (7) PTG bleeds have been contaminated in the past.

[74] *See Defs.' Br. Supp. Defs.' Mot. in Limine Exclude Certain Op. Pltfs.' Expert Stephen Early* [hereinafter "*Defs.' MIL Excluding Early*"], at 3-4.

[75] *Id.* at 4, 11.

and engines in particular.[76] According to his employment history, Mr. Early has instructed on the proper assembly, calibration, and mode of operation of a variety of fuel systems, including those included in this lawsuit. Mr. Early also had technical training in aviation quality management, helicopter management, and construction of hydraulic hoses for aviation.[77] Additionally, Mr. Early's accident reconstruction experience consists of investigating three helicopter accidents while being employed in South America.[78] During one of those investigations, Mr. Early consulted with an accident reconstructionist about the rotor blades' damage.[79]

The Court finds that Mr. Early's extensive experience working with fuel control systems, including the type at issue here, sufficiently qualifies him to render opinions on the fuel system and foreign contaminant's impact on the engine

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[76] *See Pltfs.' Resp. Br. Opp'n. Defs.' MIL Excluding Early*, at 5.

[77] *See Deposition of Stephen Early*, Ex. B *Def's MIL Excluding Early*, at 12:4-13.

[78] *See Pltfs.' Resp. Br. Opp'n. Defs.' MIL Excluding Early*, at 7.

[79] *See Deposition of Stephen Early*, Ex. B *Def's MIL Excluding Early*, at 111-114.

> Q: So it would be fair to say that your knowledge of rotor blade analysis is–comes from what this [accident reconstructionist in Colombia] said to you on that day?
> A: From what the trained accident investigator . . . said to me, yes.
> Q: Beyond that do you have any training in rotor blade damage analysis?
> A: No, I do not.

Id. at 113:17-24.

power.[80] The Court does not find, however, that he is qualified to render opinions interpreting rotor blade damage. Other than the one prior investigation, Plaintiffs cite no specific experience or training relating to rotor blades in Mr. Early's qualifications. This, standing alone, is insufficient to qualify Mr. Early to give this opinion. Thus, the Court finds Mr. Early sufficiently qualified to opine on the workings of and findings regarding the engine fuel system but not the rotor blade damage.

2. Mr. Early's Methodology

Mr. Early utilizes methodology similar to Mr. Young's in this case. Mr. Early appears to have used the materials engineer's expert opinion along with his own expertise in the fuel control system to render his opinion that the obstruction in the Pg bleed caused power loss.[81] As the Court has previously discussed, this reliance on other experts working as a team to investigate the crash is a reliable methodology generally accepted in the field of accident reconstruction. Though the Court notes Mr. Early is not himself an accident reconstructionist, his opinion

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[80] Mr. Early's testimony regarding instances of past PTG bleed contamination will be limited to his own observations or experience. He will be precluded from discussing any unidentifiable reports of such from others. *See id.* at 74:13-5; 75:1-9 (discussing "reports that go back as far as the '70s and '80s of the contamination and engine problems as a result of the contamination of the PG bleed").

[81] *See Pltfs.' Resp. Br. Opp'n. Defs.' MIL Excluding Early*, at 17-21.

on the fuel system's blockage fits into the reconstruction of the accident as a whole.

Bell's motion to preclude Mr. Early's testimony is therefore **GRANTED** as to his rotor blade damage opinions, and **DENIED** as to his opinions on the operation of the fuel system and reduction in power.

D. Testimony of William Muzzy

Plaintiffs offer William Muzzy as an expert in the field of mechanical engineering, biomechanics, and occupant kinematics. Mr. Muzzy intends to testify on the g loading forces Pilot's body experienced, in support of Plaintiff's theory that the helicopter impacted the water at low velocity.[82] Additionally, Mr. Muzzy will testify that Pilot's injuries are evidence that he was subject to pain and suffering before he died.[83] Bell challenges the relevance and reliability of Mr. Muzzy's g load force opinions, and they argue Mr. Muzzy is not qualified to render any opinions on Pilot's injuries due to his lack of a medical degree or degree in biomechanical engineering.[84]

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82 *Letter from Counsel* (Dkt #758; Trans. I.D. #56100937); *Joint Status Report*, at 49-51. Plaintiffs proffer four opinions in the Joint Status Report for Mr. Muzzy: 1) "assessment of the G forces to the body of [Pilot];" 2) the forward deceleration of the helicopter was in the range of 10 to 13 Gs; 3) the vertical G load, exerted on Pilot's seat, was in the range of 10-12 Gs; and 4) the forward G load was 10-12G.

83 *Letter from Counsel* (Dkt #758; Trans. I.D. #56100937).

84 *See Letter from Counsel* (Dkt #759; Trans. I.D. #56104007). Bell originally moved to exclude Mr. Muzzy's opinions on the helicopter's crashworthiness and testimony that Pilot would have otherwise survived the crash on the grounds that he was not qualified and his opinion

1. Mr. Muzzy's Qualifications

Mr. Muzzy holds a Bachelor of Science degree in mechanical engineering. He does not hold a degree in biomechanical or biomedical engineering,[85] but he has extensive experience researching, conducting, and supervising impact acceleration studies on humans. He states in his report that he has 24 years of crash injury testing experience with human volunteers and 22 years of experience "analyzing the effectiveness of occupant restraints in automotive and aircraft crashes."[86] Mr. Muzzy has also published numerous articles on human tolerance to crash forces.

Plaintiffs have produced sufficient evidence demonstrating Mr. Muzzy's qualifications to render crash force opinions in this case. Although lacking a degree in biomedical or biomechanical engineering, Mr. Muzzy's research and studies have contributed much to his field. Additionally, Mr. Muzzy's work with human subjects in analyzing their tolerance to forces while in various restraint systems sufficiently qualifies Mr. Muzzy here. Under Rule 702's liberal standard,

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was unreliable. As this Court has granted Bell summary judgment on the crashworthiness issue, and as Plaintiffs do not proffer Mr. Muzzy's crashworthiness opinions in the Joint Status Report or correspondence to the Court, the Court need not address this argument.

[85] Mr. Muzzy stated in his deposition that such a degree did not exist when he began his research in 1967.

[86] *Report of William H. Muzzy, III*, Ex. A to *Defs.' Br. Supp. Mot. Exclude Expert Testimony of William Muzzy*, [hereinafter "*Defs.' MIL Excluding Muzzy*"], at 4.

an expert may be sufficiently qualified by skill or experience.[87] Thus, the Court finds Mr. Muzzy is qualified to testify as to the g forces Pilot's body experienced.

2. Mr. Muzzy's Methodology

Mr. Muzzy consulted Pilot's autopsy report and photographs of the wreckage to conclude that the impact was not a high velocity impact due to the bruising and wreckage patterns. He also concluded that the g loading to Pilot's back was 10 to 12 g's based on the severity of Pilot's spinal injury and Mr. Muzzy's experience with human tolerance testing. Bell argues that Mr. Muzzy is employing prohibited methodology by working "backwards" from the known injuries to estimate the amount of force needed to inflict them. They argue that is it improper for a biomechanical engineer to opine as to the cause of a plaintiff's injuries, and that because Mr. Muzzy is attempting to work this link backwards—taking known injuries and rendering an opinion as to the forces necessary to create them—this line of reasoning is inadmissible.[88] Yet, in Delaware,

> a trial judge may admit biomechanical expert opinion that a particular injury did (or did not) result from the forces of an accident only where the trial judge determines that the testimony reliably creates a connection between the reaction of the human body

[87] *See In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 741 (3d Cir. 1994) (discussing "Rule 702's liberal policy of admissibility extend[ing] to the substantive as well as the formal qualification of experts" and "eschew[ing] imposing overly vigorous requirements of expertise").

[88] Bell looks to *Kelly v. McHaddon*, 2001 WL 209858, at *2 (Del. Super. Ct. Jan. 24, 2001), for the proposition that a biomechanical engineer cannot opine as to the cause of a plaintiff's particular injuries.

> generally to the forces generated by the accident and the specific individual allegedly injured or another determinative fact in issue.[89]

The Court finds that Mr. Muzzy reliably applied his extensive experience in analyzing crash forces on humans to Pilot's injuries here. Therefore, Bell's motion to preclude his testimony is **DENIED.**

E. Testimony of Eric Van Iderstine

The Plaintiffs have identified Mr. Van Iderstine as an expert in mechanical engineering and structural analysis.[90] Mr. Van Iderstine's proffered opinions support Plaintiffs' accident reconstruction of the helicopter's speed at impact and include an impact force analysis based on the assumed impact speed of 30 knots.[91] Bell does not challenge his qualifications to render the speed and force opinions, but they do argue that his methodology is based on unreliable data.[92]

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[89] *Eskin v. Carden*, 842 A.2d 1222, 1230 (Del. 2004). "*Admissible* biomechanical testimony bridges the gap between the general forces at work in an accident determined by physical forces analysis (whether it be 'physics' or 'engineering') and the specific injuries suffered by the particular person who was affected by those forces." *Id.* at 1228.

[90] *See Pretrial Stip.*, Ex. F.

[91] *See Letter from Counsel* (Dkt #758; Trans. I.D. #56100937); *Joint Status Report*, at 29-30. Specifically, Mr. Van Iderstine's opinions include: (1) "assessment of the structural break up of the helicopter in the water accident;" (2) that the impact force, based on an impact speed of 30 knots, was about 6.04G's (max of 12.07G's for horizontal component, and the downward load, based on a vertical speed of 1500 feet per minute, averaged 4.6G's (max of 9.25G's); and (3) that defense expert Slane's sheer force calculations and reconstruction are inaccurate.

[92] Defendants also challenged Mr. Van Iderstine's qualification to render opinions regarding the Pilot's injuries because Mr. Van Iderstine did not have a background in biomechanics. Plaintiffs do not state in the Joint Status Report or in their correspondence to the Court that Mr. Van Iderstine will be testifying as to this particular opinion. Thus, the only

Mr. Van Iderstine collaborated with Mr. Sommer and Mr. Muzzy to reach an opinion on the impact force. According to the Plaintiffs, "[t]he impact calculation opinion comes from the collaboration of a biomechanical expert, Mr. Muzzy, and a mechanical engineer and structures expert, Eric Van Iderstine."[93] Mr. Van Iderstine testified in his deposition that Mr. Muzzy gave him the vertical and downward acceleration the Pilot experienced, and that Mr. Van Iderstine was "interested in doing a calculation to try to ascertain what the craft would have experienced."[94] To perform this equation, Mr. Van Iderstine needed to know the speed at which the helicopter was traveling, so he "went to Mr. Sommer for input on the speeds in order to plug [them] into the calculations."[95] Mr. Sommer then provided him with the speeds, based on his belief that the Pilot had attempted an autorotation: 30 knots horizontally and 1500 feet per minute vertically downward.[96]

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opinions that the Court will address in ruling on the Defendants' Motion *In Limine* are those regarding the helicopter's force and impact speed.

93 *Pltfs.' Resp. Defs.' Mot. Exclude Expert Tesimony Eric Van Iderstine*, (Dkt #428; Trans. I.D. #54270351), at 4.

94 *Deposition of Eric Van Iderstine*, May 31, 2013, Ex. 6 to *Pltfs.' Resp. Defs.' Mot. Exclude Expert Testimony Eric Van Iderstine*, (Dkt. # 428; Trans. I.D. #54270351), at 105:15-20.

95 *Id.* at 20-21.

96 *Id.* at 102:6-11; 105:22-25; 106:1-4.

The Court finds Mr. Van Iderstine's collaborative methodology reliable in the field of accident reconstruction. Mr. Van Iderstine contributed his area of expertise – calculating the forces on the aircraft – after consulting with other experts who could provide him components of his calculations. As long as the proper foundation is laid, "[a]n expert may apply the results of another expert's calculations."[97] That is what Mr. Van Iderstine did here. "[M]ere disagreements with the assumptions an expert makes or the choice of which variables to consider are not grounds for exclusion."[98] The Court is satisfied that Plaintiffs have demonstrated that Mr. Van Iderstine's methodology was proper and thus, focusing on the methodology rather than conclusions generated,[99] Mr. Van Iderstine's impact force analysis is admissible. Bell's Motion to preclude Mr. Van Iderstine's testimony on impact forces is **DENIED**.

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97 *Johnson v. Avco Corp.*, 702 F. Supp. 2d 1093, 1103 (E.D. Mo. 2010).

98 *Id.*

99 *See Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 595 (1993); *see also In re Asbestos Litig.*, 911 A.2d 1176, 1200-01 (Del. Super. Ct. 2006) ("Proponents do not need to demonstrate to the judge by a preponderance of the evidence that the assessments of their experts are correct, they only have to demonstrate by a preponderance of the evidence that their opinions are reliable.") (citing *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 733 (3d Cir. 1994); *Gen. Elec. Co. v. Ingram*, 513 U.S. 1190 (1995)).

IV. MOTIONS *IN LIMINE* RELATED TO DONALD E. SOMMER

A. Plaintiffs' Motion to Preclude Reference to Irrelevant and Prejudicial Matters Concerning Plaintiffs' Expert Donald E. Sommer

Plaintiffs seek to preclude the following evidence relating to their expert, Mr. Sommer: (1) a settlement agreement with the FAA following a suspension of his certificate[100] for failing to include a form connected with an inspection in an aircraft file; (2) an investigation into the truthfulness of Mr. Sommer's application to the International Society of Air Safety Investigators ("ISASI"); and (3) the *Younan v. Rolls-Royce Corp.* case.[101] Plaintiffs argue that the FAA suspension occurred over 20 years ago and is not probative of Mr. Sommer's truthfulness or qualifications. Additionally, they contend that the ISASI investigation was prompted by a false allegation of another expert witness and lawyer involved in a separate lawsuit, and that Mr. Sommer's standing with the ISASI was never affected by this allegation. Finally, Plaintiffs claim that the *Younan* case involved a disqualification of Mr. Sommer's testimony regarding helicopter flight training, which is irrelevant to the issues in this case.

Under the Delaware Rules of Evidence, relevant evidence is any evidence having any tendency to make the existence of a fact in question more or less likely

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[100] Plaintiffs claim the suspension was for 90 days, while Bell alleges the suspension was for 180 days.

[101] 2013 WL 1899919 (S.D. Cal. May 7, 2013).

to be true.[102] All relevant evidence is admissible, unless it is excluded by another evidentiary rule or statute, and all irrelevant evidence is inadmissible.[103] And the Court must exclude even relevant evidence where its "probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues or misleading the jury, or by considerations of undue delay, waste of time or needless presentation of cumulative evidence."[104]

As applied here, although evidence of Mr. Sommer's suspension might be relevant toward his qualification, and although credible evidence of a lack of truthfulness in an application to a professional organization such as the ISASI is also relevant and probative for truthfulness, the Court finds that any value of the impeachment evidence here is substantially outweighed by the danger of unfair prejudice and misleading the jury. The FAA suspension is too remote in time, and the evidence of the application to the ISASI invites the danger of a mini-trial on that issue, thus misleading and confusing the jury. As to the *Younan* case, which also involved a helicopter accident case in which Mr. Sommer served as Plaintiffs' expert witness, cross examination into what Mr. Sommer could and could not testify to in that case will also likely confuse and mislead the jury. Thus,

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[102] D.R.E. 401.

[103] *See* D.R.E. 402.

[104] D.R.E. 403.

Plaintiffs' motion to preclude Bell from referencing the FAA suspension, the ISASI investigation, and the *Younan* case is **GRANTED**.

B. Bell's Motion to Preclude Evidence of Other Accidents Without First Showing Substantial Similarity

Bell seeks to preclude Plaintiffs from offering "any and all references to any other aviation accidents" unless Plaintiffs can prove those accidents are substantially similar to the accident at issue.[105] Bell first claims that references to other aviation accidents are irrelevant under Delaware Rules of Evidence 401 and 402, and, in the alternative, that the probative value of this evidence is substantially outweighed by the danger of unfair prejudice, confusion of the issues, and misleading the jury under Rule 403.

Plaintiffs claim that they will be able to lay a foundation that the evidence of other accidents is substantially similar to the accident at issue, and that they are relevant because they will show that Bell was on notice of a defect in the PTG and Pg bleed restrictor. To support this claim, however, the Plaintiffs point to the Affidavit of their accident reconstructionist, Donald Sommer, who says he relied on FAA Service Difficulty Reports ("SDRs") and Honeywell warranty claims.[106]

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105 *Defs.' Mot. In Limine*, Dkt #499, Trans. I.D. 54322849) at 1.

106 *See Affidavit of Donald E. Sommer*, Ex. 1 to Pltf's Response to Deft's Motions *In Limine*, at ¶ 19. His Affidavit states that he reviewed "over a 1000 of pages of accident reports relating to helicopter crashes in the Gulf of Mexico." *Id.* Of these reports, Mr. Sommer mentions Honeywell warranty claims and FAA SDRs.

The Court's earlier ruling[107] that the SDR evidence is inadmissible to prove that Bell was on notice of a potential defect in the PTG system is thus applicable here: the Plaintiff's cannot present testimony of other helicopter accidents to the extent that testimony is based on the SDRs. And for the reasons discussed earlier, any reliance on the Honeywell warranty claims discussed by Mr. Sommer in his May 22, 2013 deposition[108] is misplaced.[109] Thus, Bell's motion is **GRANTED**.

C. Bell's Motion to Exclude Evidence of Rotor Blade Damage in Other Accidents

Bell also takes issue with the set of seven other helicopter accidents that Mr. Sommer references to support his theory that the condition of the rotor blades indicate low engine power at impact. The Court incorporates its analysis set forth more fully above in Part III.A.2.b addressing the issue of operation impact and autorotation. To the extent Mr. Sommer uses these seven other helicopter accidents to illustrate his opinion on rotor blade damage impacted by low versus high engine power, Bell's Motion *In Limine* to preclude reference to these other incidents is hereby **DENIED**.

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107 *See* Order (Dkt #653; Trans. I.D. #55067702) and Opinion (Dkt #650; Trans. I.D. #55067702).

108 *Deposition of Donald E. Sommer*, May 22, 2013, Ex. C to *Defs.' MIL Excluding Sommer*, 114:15-24; 115:12-18; 117:6-11; 119-127 (discussing warranty reports in relation to symptoms of blocked Pg bleeds in what he believed were PTG units).

109 *See* Part III.A.2.c of this opinion.

D. Bell's Motion to Exclude as Hearsay Third Party Statements Made to Donald E. Sommer

Bell anticipates Plaintiffs' expert Mr. Sommer will testify at trial as to certain statements made to him by helicopter pilots in the Gulf of Mexico area. Plaintiffs claim that these conversations include information that serves as "basis evidence" for Mr. Sommer's opinions. Plaintiffs make no further showing, however, as to which of Mr. Sommer's opinions are based on these conversations, or how he relied upon them in forming his opinions.

Experts may rely on hearsay while forming their opinions, as long as that hearsay evidence is reasonably relied upon by experts in the field.[110] But, experts are not to serve as a "conduit" for otherwise inadmissible hearsay statements.[111] Knowing nothing more as to how Mr. Sommer relied upon these conversations, or whether it is reasonable for Mr. Sommer to rely on conversations with other

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[110] *See Brandt v. Rokeby Realty Co.*, 2005 WL 1654362l, at *4 (Del. Super. Ct. May 9, 2005) (finding expert's reliance on inadmissible hearsay evidence is limited by Rule 703's requirement that it also be reasonably relied upon by others in the field).

[111] *See id.* at *5 ("An expert may not, however, rely on hearsay evidence alone to substantively prove the truth of his statement or opinion. If the expert is merely acting as a mouthpiece or conduit for another's opinions or statements, he cannot be said to be acting in his capacity as an expert in the matter and the hearsay evidence is inadmissible."); *United States v. Mejia*, 545 F.3d 179, 197 (2d Cir. 2008) ("The expert may not . . . simply transmit . . . hearsay to the jury"). *See also Gannett Co. v. Kanaga*, 750 A.2d 1174, 1187-89 (Del. 2000) (cautioning against allowing experts to bring in "back-door" hearsay and finding "[i]nadmissible facts that form the basis for an expert's opinion are not simply elements of proof subject to the jury's 'weighing' option").

helicopter pilots in the Gulf area, Bell's motion to preclude these "conversations" is **GRANTED**.

V. PLAINTIFFS' MOTION *IN LIMINE* TO PRECLUDE IMPACT VELOCITY OPINIONS

A. Plaintiffs' Challenges to "Examination and Experience" Methodology

Plaintiffs seek to preclude certain defense experts from testifying that: (1) the impact speed was 90 knots forward and 600 to 800 feet per minute vertically downward; (2) the condition of the wreckage indicates a higher impact velocity than the 30 knots opinion Plaintiffs' experts proffer and, in fact, indicates a high velocity impact; (3) the high velocity theory is supported by the rotor blades skipping off the water surface and an immediate fuel interruption.[112] They claim that calculating an impact velocity cannot be established through examination of the wreckage and reliance on decades of experience in aviation accident reconstruction.[113] Plaintiffs challenge a number of Bell's experts whose testimony is used to support Bell's reconstruction of the accident.

Bell counters that its experts are not offering a specific impact velocity speed, and that Plaintiffs thus mischaracterize the extent of its proffered expert

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112 *See Pltfs.' Omnibus Mot. in Limine Preclude Impact Velocity Opinions* [hereinafter "*Pltfs.' MIL*"] at 32.

113 *See id.*

testimony. Rather, Bell argues, its impact velocity experts draw on their experience in analyzing specific features of the wreckage to estimate that the impact velocity was high versus low. The Court's reading of the briefs and the supplemental submissions is that the defense impact velocity experts are not offering an opinion as to the specific speed of 90 knots and are instead opining that the impact velocity was high—higher than the Plaintiffs' experts' 30 knots opinion.[114] Therefore, the Court will consider whether Bell's experts followed an acceptable methodology to reach their high velocity impact opinion.

B. Opinions and Testimony of Jean Slane (and Robert Winn)[115]

Bell offers Jean Slane as an expert in aeronautical and mechanical engineering.[116] Ms. Slane intends to testify that the Plaintiffs' low-speed impact theory is inconsistent with the damage and injuries presented, and that the helicopter impacted the water at a high speed.[117] To reach her conclusions, she inspected and reviewed photographs of the wreckage, academic literature, and

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[114] *See* Transcript of Hearing, October 17, 2013, at 85:17-20 ("And for the plaintiffs to actually ask this Court to enter an order saying, look, they can't say 90 knots. I agree with you they can't say 90 knots and they are not saying 90 knots.").

[115] Robert Winn reviewed and signed the reports Ms. Slane submitted. *See Investigative Reports* of 7/3/13 and 8/19/13, Exs. 1 and 2, *Defs.' Opp'n Plf.'s Omnibus Mots. In Limine Preclude Ops. Regarding Impact Velocity Jean Slane and Robert Winn*, Dkt #425; Trans. I.D. #54270111 [hereinafter "*Defs.' Opp'n Slane*"]. In its response, Bell refers only to Dr. Slane who is expected to testify at trial.

[116] *Pretrial Stip.*, Ex. G.

[117] *See Joint Status Report*, at 103-09.

reports by various experts, including Plaintiffs' experts.[118] She analyzed and re-performed Plaintiffs' expert's load and g force calculations.[119] She based her opinions on these calculations, her observation of the wreckage, and her experience in reconstructing aircraft flight paths.[120] Plaintiffs specifically challenge her "subjective observation" that the impact speed of 90 knots is more consistent with the extent of the damage she observed, rather than the Plaintiffs' experts' figure of 30 knots.[121] Plaintiffs do not challenge Ms. Slane's qualifications to render her impact velocity opinion.

C. Opinions and Testimony of Joe Syslo

Bell offers Joe Syslo as an expert in aviation accident investigation and reconstruction.[122] Mr. Syslo investigated the helicopter wreckage and proffers opinions concerning the speed, direction, and sequence of the impact.[123] Plaintiffs challenge his impact velocity opinions to the extent that he relies on his experience

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118 *See Investigative Reports* of 7/3/13 and 8/19/13, Exs. 1 and 2, *Defs.' Opp'n Slane*.

119 *See id.*

120 *See id.*; *Jean H. Slane Curriculum Vitae,* Ex. 3 Defs.' Opp'n Slane.

121 *See Pltfs.' MIL* at 15.

122 *Pretrial Stip.*, Ex. G.

123 *Joint Status Report*, at 63-79.

and observation of the wreckage.[124] They do not challenge his qualification as an aviation accident investigator and reconstructionist.

Bell argues that Mr. Syslo's methodology is "used repeatedly in accident reconstructions."[125] His methodology includes physically inspecting the aircraft wreckage, observing impact signatures and damage patterns on the wreckage, and drawing on his 32 years of investigating helicopter accidents.[126] Because this crash occurred on water, Mr. Syslo lacks other data that would normally be used in calculating the impact velocity.

D. Opinions and Testimony of Doug Stimpson

Bell offers Doug Stimpson as an expert in aviation accident investigation, reconstruction, aviation maintenance, piloting, and aviation operations.[127] Mr. Stimpson opines that the helicopter's speed at impact was 90 knots with a vertical descent rate of 600-800 feet per minute.[128] He bases this opinion on more than 30 years of aviation accident investigation and reconstruction, as well as his

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124 *See Pltfs.' MIL* at 15-16, 27-31.

125 *Defs.' Resp. Opp'n Pltfs.' Mot. Preclude Joseph Syslo,* Dkt #419; Trans. I.D. #54269141, at 4.

126 *See id.*

127 *Pretrial Stip.*, Ex. G.

128 *Affidavit of Douglas E. Stimpson*, Ex. A to Def.'s Br. Op., at ¶8.

inspection of the helicopter wreckage.[129] Plaintiffs do not challenge his qualifications to render this opinion, but dispute its reliability. They argue that due to a supposed lack of analysis, calculations, and testing, Mr. Stimpson's impact speed opinion is simply guesswork and not based on reliable methodology.[130] Bell contends that Mr. Stimpson's experience, including investigating and reconstructing land and water Bell Model 206 accidents, and observation of the wreckage condition is generally accepted methodology in the field of aviation accident reconstruction.[131]

E. Opinions and Testimony of Vern Albert

Bell offered Vern Albert as an expert in piloting and aviation operations. The parties have agreed that Mr. Syslo will address the issues covered in the expert report of Vernon Albert.[132] Mr. Albert was expected to offer testimony on his investigation of the crash, the accident mission and the Gulf conditions, and the Pilot's actions and reactions under the control inputs. The Plaintiffs do not challenge his qualifications. But, Plaintiffs challenge Mr. Albert's use of the 90

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129 *Id.* (noting condition of the fuselage, control tube, vertical fins, rotor blades, skid assembly and flotation system, and windscreens).

130 *See Pltfs.' MIL*, at 16-17; *Pltfs. Reply Br.*, at 8-9.

131 *See Defs.' Resp. Opp'n Pltfs.' Mot. Preclude Doug Stimpson*, Dkt #431; Trans. I.D. #54270668, at 3-4.

132 *See* Order of September 15, 2014, Dkt #750; Trans. I.D. 56030658 (confirming parties' agreement).

knot figure and opinion that the floats would have ripped off had they deployed before impact.[133] Bell argues that Mr. Albert had no independent opinion on the helicopter's speed and that he simply explained that a higher velocity at impact will lead to more damage to the aircraft, including ripping off deployed floats.[134] Bell further contends that his methodology—combining his 35 years of experience investigating aviation accidents and his observations of the wreckage conditions—is generally accepted in the field.[135]

F. Opinions and Testimony of David Laananen

Bell offered David Laananen as an expert in mechanical engineering.[136] His opinions generally relate to how the damage to seat pan, cushion, and safety lap belt indicate an accident with "a significant frontal component."[137] Plaintiffs specifically challenge his use of the 90 knots figure to conclude that the subject helicopter met applicable crashworthy standards. Bell argues in response that he did not need to rely on this specific 90 knots figure to reach his survivability opinion, and that his crashworthiness opinions are derived separately from the 90

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133 *See Pltfs.' MIL* at 18.

134 *Defs.' Resp. Opp'n Pltfs.' Mot. Preclude David Laananen*, Dkt #429; Trans. I.D. #54270476, at 9.

135 *Id.* at 4, 9.

136 *Pretrial Stip.*, Ex. G.

137 *See Joint Status Report*, at 102-03. The Court will not consider Mr. Laananen's opinions to the extent they relate to the crashworthiness of the aircraft, as this issue is now moot.

knots figure. As the Court cannot discern which opinions Mr. Laananen intends to offer that are separate from the Bell's crashworthiness arguments – which are now moot – the Court will consider Plaintiffs' motion to preclude impact velocity opinions **MOOT** as to Mr. Laananen.

G. Opinions and Testimony of Gregory Feith

Bell offers Gregory Feith as an expert in aviation safety and "aircraft accident reconstruction investigation."[138] Among other various opinions, Mr. Feith's proffered testimony in the area of impact velocity is that the wreckage shows horizontal, forward movement, consistent with Bell's theory of high velocity at impact.[139] Plaintiffs challenge Mr. Feith's opinions on the basis that he did not perform speed calculations, conduct an assessment of the wreckage to determine forces imparted to the structure, or engage any otherwise reliable methodology. Bell argues in response that Mr. Feith did, in fact, perform a detailed study of the wreckage, including many key "damage signatures."[140] Furthermore, Bell counters that testing was not required in this accident investigation.

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138 *Pretrial Stip.*, Ex. G.

139 Mr. Feith's opinions are set out more fully in the Parties' Joint Status Report, at 129-153.

140 *See Defs.' Resp. Pltfs.' Mot. in Limine to Preclude Gregory Feith*, Dkt #439; Trans. I.D. #54272307, at 9.

H. Opinions and Testimony of C. Dennis Moore

Bell offers C. Dennis Moore as an expert in aerospace and mechanical engineering, and "aviation accident investigation and reconstruction."[141] His proffered testimony is primarily offered as rebuttal to the Plaintiffs' expert testimony that the aircraft was cruising at an estimated 700 foot altitude and 105 knots of airspeed.[142] Plaintiffs seek to preclude his opinion that the wreckage indicates a high speed, powered impact with no evidence of autorotation on the grounds that they are, in Plaintiffs' estimation, "nothing but guesswork" and devoid of any calculations or testing in support.[143] In response, Bell argues that Mr. Moore uses the very same methodology as Plaintiffs' own accident reconstructionist, Mr. Sommer's.

I. Analysis of Impact Velocity Opinion Testimony

Plaintiffs argue that for an expert to opine about the speed of a vehicle at impact, that expert must consider certain factors, such as the co-efficient of friction. They argue that merely looking at post-impact photographs of or examining the wreckage is not, itself, reliable methodology for an accident reconstructionist. Plaintiffs cite numerous cases where courts have disallowed

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141 *Pretrial Stip.*, Ex. G.

142 *See Joint Status Report*, at 195-203.

143 *See Pltfs.'* MIL, at 19.

accident reconstructionist testimony where the expert did not use the appropriate factors in calculating speed.[144] These cases primarily involve land accidents where such data as coefficient of friction, or skid marks were available, but not employed, by the experts, thus warranting their exclusion. As both parties note, the accident at issue here occurred on water, not land, making a precise calculation of the impact velocity nearly impossible given the lack of indicators typically used to calculate speed for land-based crashes. And courts have accepted the use of "crush analysis" where the expert has only photographs of the wreckage to rely on in estimating speed.[145] Moreover, while an expert's opinions on time and distance may be "shaky," this presents more of a credibility issue for the fact finder.[146]

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[144] *See, e.g., Johnson v. Attkisson*, 722 S.W.2d 390, 392-93 (Tenn. Ct. App. 1986) (requiring expert to state for record facts necessary to estimate speed of vehicle based on length of skid marks); *Fairley v. Clarke*, 2004 WL 877102 (E.D. La. Apr. 22, 2004) (questioning basis of accident reconstructionist's post impact speed calculations where he did not inspect vehicle, bumper was straightened post-accident, he only reviewed photographs of vehicle's damage, and he did not use skid marks to determine co-efficient of friction); *Maslankowski v. Beam*, 259 So. 2d 804, 813 (Ala. 1972) ("Skid marks before impact, the point of impact and the damage to the vehicles are three factors upon which an expert can validly predicate his opinion as to speed."); *Texas Dep't of Transp. V. Martinez*, 2006 WL 1406571, at *6-7 (Tex. App. May 24, 2006) (accident reconstructionist's opinion on the road's uneven friction coefficient was unreliable); *Smithers v. C&G Custom Module Hauling*, 172 F.Supp.2d 765, 771-72 (E.D. Va. Apr. 25, 2000) (finding expert misapplied momentum analysis to calculate vehicle's pre-impact speed and disallowing testimony).

[145] *See, e.g., Furtado v. Levrault*, 2010 WL 3160177 (Mass. Dist. Ct. Aug. 2, 2010) (vehicles no longer available for inspection; expert performed "crush analysis" based on graph and damage photographs to calculate vehicle speeds).

[146] *See Denham v. Holmes ex rel. Holmes*, 60 So. 3d 773, 786 (Miss. 2011) (accident reconstructionist was permitted to calculate time and distance using basic mathematics where there was a lack of physical evidence).

The testimony challenged here is technical in nature, and will assist the jury in understanding the evidence and determining facts in issue, particularly whether this accident occurred at low or high velocity. Although courts should be careful not to allow "evidentiary weaknesses stemming from a lack of physical evidence . . . [to] induce the introduction of unreliable expert testimony,"[147] the Court finds that here, there is sufficient underlying information in the wreckage to warrant a general opinion that the speed of the aircraft at impact was either "high" or "low." The Court further finds that, to the extent the defense experts rely on their extensive and unchallenged experience to render these opinions, Bell must first lay a foundation at trial as to what, exactly, from their experience allows them to draw their conclusions.

Plaintiff's motion to preclude these various impact velocity opinions is hereby **DENIED.**

IT IS SO ORDERED.

/s/ Paul R. Wallace
PAUL R. WALLACE, JUDGE

Original to Prothonotary
cc: All counsel via File & Serve

147 *Id.*