Court of King's Bench of Alberta

Citation: ATCO Energy Solutions Ltd v Energy Dynamics Ltd, 2024 ABKB 162

Date:
Docket: 1601 09573
Registry: Calgary

Between:

ATCO Energy Solutions Ltd.

Plaintiff

- and -

Energy Dynamics Ltd., Energy Dynamics Limited, EnDyn Management Corporation, EnDyn Ltd. and NGC Compression Solutions Ltd.

Defendants

Reasons for Judgment
of the
Honourable Justice M.A. Marion

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I. Introduction

[1] The Plaintiff (**ATCO**) operates a natural gas storage facility near Carbon, Alberta. On July 22, 2014, one of the engines used to power ATCO's storage compressors shut down because one of the 16 pistons in the engine fractured into multiple pieces. The piston was destroyed, and the engine required significant repair.

[2] ATCO filed a Statement of Claim against the company that supplied and installed the piston in 2012, NGC Compression Solutions Ltd (**NGC**), and the manufacturer of the pistons, Energy Dynamics Ltd (**EnDyn**).[1] Prior to trial, ATCO settled with NGC, but continued its claim against EnDyn. ATCO seeks $322,155.73 in damages against EnDyn for negligent design, manufacture and assembly of the pistons and a breach of a duty to warn of dangerous defects. EnDyn denies it was negligent or breached any duty to warn, and claims that any losses were caused or contributed to by the negligence of ATCO, ATCO's contractors, and NGC, in the

[1] In argument, the parties referred to the Defendants, Energy Dynamics Ltd, Energy Dynamics Limited, EnDyn Ltd and EnDyn Management Corporation, collectively as EnDyn. I adopt that definition in these Reasons.

installation and maintenance of the pistons, and the operation, maintenance, inspection and overhaul of the compressor engine.

[3] For the reasons that follow, I find that ATCO has proven that four of the pistons manufactured by EnDyn were defective and negligently manufactured, but it has not proven that those pistons caused the July 2014 incident or all of ATCO's repair costs or damages. Importantly, ATCO has not proven the main foundation of its case - - that the piston plug in the destroyed piston was loose in ordinary operation, or was not manufactured with the specified adhesive, and caused the incident. Subject to adjustment to reflect the settlement with NGC, ATCO is entitled to judgment only for the cost of replacement of the four defective pistons in the amount of $18,992.03 plus pre-judgment interest at the prescribed rate from October 1, 2014 to the date of judgment.

II. Background

[4] While there are numerous evidentiary issues and objections in this case, some background based on the pleadings, agreed facts or undisputed evidence provides helpful context.

A. The Carbon Facility, the Compressor and the Engine

[5] ATCO is engaged in the transport, storage and sale of natural gas. Its Carbon facility uses compressors to push natural gas off the transmission network into an underground storage reservoir. The facility has six compressors. Compressor #6 (**C6** or **Compressor**) is driven by a 16-cylinder, 2,650 horsepower "Superior 16SGTB" natural gas-fueled reciprocating engine (**Engine**). The Engine's cylinders are laid out into two rows (or banks) of 8 cylinders. Each cylinder contains a piston which connects to a crankshaft.

B. EnDyn's Business as a Replacement Part Manufacturer for Superior Engines

[6] Since at least 2001 and likely before, EnDyn operated out of Alice, Texas and was in the business of manufacturing replacement parts for Superior compressors and engines, including pistons for the Superior 16SGTB engine, under its own "Power Parts" brand. The pistons at issue have a model or part number ending in 528 (**Model 528 Piston**).

[7] EnDyn designed its replacement pistons by reverse-engineering the piston manufactured by the original equipment manufacturer (**OEM**). The cast-iron piston manufacturing process included a sand cavity to create an oil cooling chamber which required a hole in the bottom of the chamber to remove the sand. The hole was then plugged using a piston plug (**Plug**).

[8] The OEM's pre-1980 Plug design used a pipe taper thread, requiring a high torque to tighten the Plug, staking of the Plug threads, and an adhesive called "LOCTITE" on the Plug threads, to prevent in-service loosening of the Plug. During bi-annual servicing of the OEM's pistons, when the Plug had to be removed, problems were experienced both in removing the Plug and re-tightening it. As reflected in a 1980 OEM service bulletin (**Service Bulletin**), to address these problems, the OEM redesigned the Plug to be made of aluminum and to have a straight thread and shoulder setting. The Service Bulletin recommended the use of an adhesive called "LOCTITE 277" on the Plug threads.

[9] EnDyn's practice was to follow or replicate the Service Bulletin in the manufacture and installation of the Plug. Its cast-iron pistons were manufactured and machined at separate facilities and the aluminum Plug was machined and installed at the machining facility. In 2001, EnDyn changed its practice of using LOCTITE 277 because EnDyn was having an issue procuring sufficient quantities of LOCTITE 277 to meet its manufacturing demand. At that time, EnDyn's practice changed to using a different adhesive known as LOCTITE 620 in place of LOCTITE 277.

[10] On average, and at the relevant times, EnDyn manufactured approximately 400 to 600 Model 528 Pistons per year.

C. Overhaul of the C6 Compressor and the Installation of EnDyn Pistons

[11] In October 2012, ATCO retained NGC to perform a major overhaul (**2012 Overhaul**) which involved disassembling the Compressor and the Engine. The overhaul work was completed by November 2012. As part of that work, NGC obtained replacement parts for the Engine, which included 16 of the EnDyn-manufactured Model 528 Pistons (**2012 Pistons**). The 2012 Pistons appear to have been manufactured between 2007 and 2012.

D. July 22, 2014 Incident and Repairs

[12] Following the 2012 Overhaul, and before the Engine shut down on July 22, 2014, the Engine's total runtime was 7,877 hours. Early in the morning of July 22, 2014, the C6 Compressor's Engine experienced a mechanical breakdown (**Incident**) in the right bank piston #8 (**8R Piston**). The cylinder liner was noted to be cracked and the Piston had fractured into multiple pieces. The cause of the Incident is a major issue in this action.

[13] In the days following the Incident, NGC assisted ATCO in investigating the damage and the required repair work. NGC prepared a written report of its engine tear down, inspection and repair work spanning July 25 to August 20, 2014 (**NGC Report**). As part of the repair work, all 16 pistons in the Engine were replaced with EnDyn-manufactured Model 528 Pistons (**Replacement Pistons**). The cost of the repair work specifically attributable to the Incident, versus other overhaul work done at the same time, is in dispute.

[14] The Engine, with the Replacement Pistons, was put back into service in August 2014.

E. Claim Against EnDyn

[15] On October 31, 2014, ATCO's lead mechanic, an insurance adjuster from ATCO's insurer, FM Global Insurance Company (**FM Global**), and the insurer's forensic mechanical engineering consultant (Lloyd Kortbeek of E2I2 Consulting Inc (**Kortbeek**)), inspected or photographed the 2012 Pistons.

[16] On May 12, 2015, and again on July 8, 2015, FM Global advised EnDyn that it was holding EnDyn fully liable for ATCO's loss.

F. Removal and Attempted Replacement of the Replacement Pistons

[17] On December 10, 2015, ATCO conducted borescope analysis on the Replacement Pistons (**Borescope Analysis**). The admissibility or weight of the Borescope Analysis is disputed.

[18] Later in December 2015, NGC assisted ATCO and EnDyn in an inspection at the ATCO facility (**2015 Inspection**) of the Replacement Pistons as well as another set of 16 EnDyn pistons which had been ordered for the Engine (**2015 Pistons**). The 2015 Pistons were never installed in the Engine.

[19] By early 2016, the Replacement Pistons and the 2015 Pistons were returned to EnDyn.

G. The 2016 Joint Inspection, the Claim and Further Inspections and Analysis

[20] On January 27, 2016, several representatives of ATCO (including Don Lema (**Lema**)[2], a representative of NGC, and a representative of EnDyn (Geoffrey Sykes (**Sykes**)), together with Kortbeek, met at ATCO's facility to inspect the 2012 Pistons and related components (**Joint Inspection**). Kortbeek and Sykes took numerous photos of, among other things, the 8R Piston, its connecting rod, piston cylinder, the highly damaged remnant piece of the 8R Piston's Plug (**Plug Remnant**), and the other 2012 Pistons.

[21] The day after the Joint Inspection, EnDyn's Manager of Engineering and Quality Assurance, Dwayne Sleight (**Sleight**), who was not present at the Joint Inspection, prepared a written "Failure Inspection Report" (**EnDyn Report**) relating to the Incident. The admissibility or weight of the EnDyn Report, and some of Sleight's testimony at trial, is disputed.

[22] In March 2016, EnDyn's expert, Jonathan McCarthy (**McCarthy**) of Envista Forensics Ltd, discussed the Incident with EnDyn.

[23] On July 20, 2016, ATCO commenced the action against NGC and EnDyn.

[24] In August 2016, Kortbeek took more photos of the 2012 Pistons at the Carbon facility.

[25] In December 2016, McCarthy inspected the 2012 Pistons and associated components at ATCO's carbon facility.

[26] In September 2017, EnDyn and NGC filed Statements of Defence. NGC and EnDyn issued Notices to Co-Defendants to each other under rule 3.43 of the *Alberta Rules of Court*, Alta Reg 124/2010 (*Rules*).

[27] In 2018, Andrew Hockett (**Hockett**) became the maintenance manager at ATCO's Carbon facility after Lema's departure. Shortly after he started in the role, Hockett conducted his own inspection and analysis of some of the 2012 Pistons and related components. His assessment was not reduced to writing. Its admissibility or weight, and some of Hockett's testimony at trial, is disputed.

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[2] Lema was originally ATCO's corporate representative in this action.

[28] In February 2019, Wayne Moffat (**Moffat**), Manager Analytical and Instrumentation Laboratory, Department of Chemistry at the University of Alberta, conducted a comparative analysis between yellow-coloured deposits found on the Plug Remnant and an exemplar substance (**Exemplar**). Moffat prepared a report (**Moffat Report**)[3] and some supporting photos[4] which showed the two materials were similar. Moffat had been requested to do the comparison by Jordan Larson (**Larson**) of Anderson Associates Consulting Engineers. There is a dispute about whether EnDyn has proven that the Exemplar was LOCTITE 620.

[29] In March and July 2020, McCarthy prepared reports (together, the **McCarthy Report**). At trial, EnDyn adduced McCarthy as an independent expert and relies on the McCarthy Report as an expert report, but ATCO objected to it being given any weight.

[30] In November and December 2020, ATCO settled its claims against NGC (**NGC Settlement**). The Amended Amended Statement of Claim, filed on November 16, 2020, provides:

> ATCO is not claiming from EnDyn any damages attributable to the liability of NGC such that ATCO will not claim against EnDyn any sum which would require further payment by NGC to EnDyn or ATCO in this Action, including, without limitation, any amount for which NGC is or may be subsequently found by a Court to be liable to indemnify or contribute to EnDyn pursuant to the claims for contribution or indemnity advanced by EnDyn against NGC.

[31] The NGC Settlement was approved by way of a December 22, 2020 consent order.

H. Trial

[32] The parties agreed (**Exhibits Agreement**) to a list of agreed exhibits for trial (**Joint Exhibits**). Rather than only agreeing that the documents could be exhibits, which can create confusion or misunderstanding at trial if the agreement does not express the specific use for which the exhibits are agreed, the parties helpfully also agreed on the terms of the use of the Joint Exhibits. This is a useful practice in accordance with the foundational rule 1.2. Parties are encouraged to reach agreements on evidence wherever possible.

[33] The Exhibits Agreement provided that the Joint Exhibits were agreed to be entered as exhibits without the proof of their authenticity on these terms:

(a) the documents are true copies of the originals, absent any additional, explanatory or conflicting evidence;

(b) the documents were prepared on or about the dates indicated thereon (where indicated), absent any additional, explanatory or conflicting evidence;

(c) documents were authored by the person as indicated in the document and were sent and received by the parties indicated therein, on or about the date indicated and at

[3] Exhibit 25.
[4] Exhibit 26.

or about the time indicated, absent any additional, explanatory or conflicting evidence;

(d) so far as the documents speak to matters of fact, they offer evidence of the truth of their contents, but no party is deemed to admit that truth and every party is at liberty to call additional, explanatory or contradictory evidence;

(e) so far as the documents speak to matters of opinion or analysis, they reflect opinions expressed or analysis performed on or about the dates indicated therein, but no party is deemed to admit the correctness of the opinions or the analysis, and every party is at liberty to call additional, explanatory or conflicting evidence; and

(f) nothing in this agreement precludes a party from submitting to the Court that any document should be given little or no weight or that any document is not relevant.

[34] ATCO called two witnesses: Hockett and ATCO's Director of Operations (and corporate representative since Q2 2018), Jan Cracknell (**Cracknell**). Hockett testified about his initial assessment and some other matters, but he was not directly involved in the 2012 Overhaul, the Incident, the supply and use of the Replacement Pistons, the Borescope Analysis, the supply of the 2015 Pistons, the 2015 Inspection. Cracknell testified about ATCO's insurance claim and repair costs claimed against EnDyn.

[35] EnDyn called 5 witnesses: Moffat, McCarthy, Shane Guiltner (**Guiltner**), Kevin Downes (**Downes**) and Sleight. Moffat and McCarthy were proposed experts.

[36] Guiltner was NGC's President and CEO. His testimony included NGC's involvement in the 2012 Overhaul, the Incident and related inspection and repair work.

[37] Downes was EnDyn's President from 2011 to 2020. His testimony included the relationship amongst the EnDyn entities, EnDyn's business, manufacturing and quality control processes, his experience of the cause of piston failures, and the sale of EnDyn to the OEM manufacturer in 2020. Downes was not cross-examined at trial.

[38] Sleight's testimony addressed, among other things, EnDyn's Model 528 Pistons, EnDyn's manufacturing and quality control processes, EnDyn's change to using LOCTITE 620 instead of LOCTITE 277, and his preparation of the EnDyn Report.

[39] At trial, EnDyn objected to ATCO's attempted use of late-disclosed records. Further, during the trial, there were other disputes about, or objections to, evidence. However, rather than have me rule on admissibility immediately or holding *voir dires*, both parties generally agreed that I would hear the evidence and decide, as part of my deliberations, the admissibility and weight to be given to the disputed evidence.

[40] After the evidence portion of the trial, the parties submitted written closing arguments, which were followed by oral final argument. In the closing submissions, it became apparent there was a potential dispute between the parties about whether EnDyn had proven the identity of the

Exemplar analyzed by Moffat, or whether ATCO had agreed that EnDyn did not need to call Larson to provide evidence of the preparation or identity of the Exemplar.

[41] Following closing submissions, I requested and received supplemental submissions from the parties on specific questions. On August 31, 2023, in response to an inquiry from the Court, EnDyn requested that the trial be re-opened to allow EnDyn to call Larson to testify about the Exemplar preparation. On September 18, 2023, I directed EnDyn to file an application, which it did on October 3, 2023. On December 12, 2023, I heard EnDyn's application to re-open the trial and I reserved my decision. I address EnDyn's application to re-open the trial later in these reasons.

III. Issues

[42] The issues in this matter are:

(a) Is ATCO entitled to rely on late-disclosed records?

(b) Should the trial be re-opened as requested by EnDyn?

(c) Is EnDyn liable to ATCO for negligent manufacture of the 2012 Pistons?

(d) Is EnDyn liable to ATCO for negligent design of the 2012 Pistons?

(e) Is EnDyn liable to ATCO for failing to warn ATCO about the 2012 Pistons?

(f) If EnDyn is liable to ATCO, what are ATCO's damages?

(g) Was ATCO contributorily negligent?

(h) What is the effect of the NGC Settlement?

IV. Analysis

A. Is ATCO Entitled to Rely on Late-Disclosed Records?

[43] At trial, ATCO sought to rely on evidence of the performance of other EnDyn-manufactured pistons in addition to the 2012 Pistons (**Other Plug Evidence**), to show that other Model 528 Pistons manufactured by EnDyn had loose Plugs at relevant times.

[44] Some of the Other Plug Evidence was disclosed only shortly before trial. EnDyn objects to ATCO's use of photographs, thumbnail images of the Borescope Analysis, and some photographs and videos of the 2015 Inspection[5] because it was never included in an affidavit of records and was disclosed only 7 days before trial (**Late Disclosure**). EnDyn relies on rule 5.16. ATCO argues it should be permitted to use the Late Disclosure at trial. Neither party sought an adjournment of the trial to give EnDyn more time to review the Late Disclosure.

[5] Exhibits A-C for Identification; Exhibit 8.

[45] Rule 5.16 provides:

> Undisclosed records not to be used without permission
>
> 5.16 A party who
>
> (a) does not disclose a relevant and material record in an affidavit of records referred to in rule 5.6,
>
> (b) does not disclose as required by rule 5.10 a relevant and material record that is found, created or obtained, or
>
> (c) does not produce a relevant and material record in accordance with a valid request to do so under rule 5.14
>
> may not afterwards use the record in evidence in the action unless the parties otherwise agree or the Court otherwise orders on the basis that there was a sufficient reason for the failure to disclose.

[46] Rule 5.10 provides that if, after a party has served an affidavit of records on other parties, the first party finds, creates or obtains control of a relevant and material record not previously disclosed, the first party must (a) immediately give notice of it to each of the other parties; (b) upon written request provide a copy of it; and (c) prior to scheduling the date for trial, serve a supplementary affidavit of records. The expectation inherent in rule 5.10 is that relevant and material records should be located and disclosed prior to trial being scheduled.

[47] Relief under rule 5.16 is not intended to be the norm. Rule 5.16 and rule 5.10 are designed to avoid trial by ambush and its associated unfairness: ***Smith v Smith***, 2016 ABCA 376 at para 42; ***Signalta Resources Limited v Canadian Natural Resources Limited***, 2022 ABQB 89 at paras 34-35 [***Signalta***]. They are also to avoid last-minute trial adjournments and the waste of public and judicial resources.

[48] Whether to allow a party to use a record when they have not complied with rule 5.16 is in the court's discretion. However, in order exercise its discretion the court must do so "on the basis that there was a sufficient reason for the failure to disclose": rule 5.16. In this respect, I agree with ***Terrigno v Fox***, 2023 ABKB 89 at paras 77-82 [***Terrigno***]: the explanation for the non-disclosure is the first line of inquiry. A strong interpretation of rule 5.16 is necessary to fulfil its purpose of avoiding trial unfairness and wasteful delays.

[49] Even if the court is satisfied that a non-disclosing party had a sufficient reason for its late or failed disclosure, then the court may consider other factors before exercising its discretion, including whether the other party would suffer prejudice if the use of the record is permitted, whether excluding the record would prevent the determination of the issue on the merits, and whether, in the circumstances of the case, the ends of justice require that the record be admitted: ***Terrigno*** at para 78; ***Signalta*** at paras 42-49 citing ***Stone v Ellerman***, 2009 BCCA 294. This is not an exhaustive list of considerations.

[50] Hockett provided the Late Disclosure in November 2022 to ATCO's counsel who, in turn, notified EnDyn's counsel. ATCO complied with rule 5.10(a), but did not provide a supplemental affidavit of records. ATCO's counsel suggested that they had asked EnDyn's counsel if EnDyn required a supplemental affidavit of records. However, it was ATCO's responsibility to comply with the rule and there was no acknowledgment that EnDyn had waived the requirement of rule 5.16(a). Thus, ATCO must establish a sufficient reason for the failure to disclose the Late Disclosure in accordance with the *Rules*.

[51] The Late Disclosure records were created in 2015 and were located in the files of the Carbon facility's previous plant manager, Lema, who was in charge of ATCO's investigation into the Incident until he left the company in 2018. Lema's computer files were on a shared drive accessible by anyone at ATCO with appropriate clearance. In early 2018, Hockett took over as maintenance manager and was provided Lema's files including the Late Disclosure. The files were electronically accessible to Hockett and ATCO management (perhaps with some IT assistance) and were in a clearly marked file named "2015 C-5 and 6 failure". Hockett's evidence about when he first saw the files was unclear: he testified that he reviewed the file in 2018 as maintenance manager of the Carbon facility, but then also testified that he had just found the records in 2022 preparing for trial. Cracknell confirmed that he had no knowledge that anyone had searched the hard-drive of Lema's computer for any photos or videos related to this matter.

[52] I find that ATCO has not show sufficient reason for the failure to disclose. It did not provide any evidence about what it did to search for relevant and material records for its affidavit of records under rule 5.6. Under any reasonable search, Lema's hard-drive should have been included in the devices searched for relevant and material records in the course of producing an affidavit of records. Indeed, the lead investigator's hard drive should have been one of the first places ATCO looked. The exclusion of these records from the hard-drive from the affidavit of records in the first place was not explained. Further, Hockett did not explain why he did not search for or disclose the records earlier. In discovery questioning, Cracknell was asked to produce any videos related to the Incident and this alone should have instigated a review of the hard-drive, but for some unexplained reason it did not. The records were readily available to ATCO since 2015. Hockett located the documents when preparing for trial.

[53] ATCO's extended failure to take reasonable steps to locate relevant and material records in obvious places for several years, as required by the *Rules*, is not a sufficient reason for the failure to disclose: see e.g. ***Terrigno*** at paras 93-96; ***Brown v Hrt Motors Inc***, 2020 ABQB 620 at paras 53-54. Litigants must do the spade-work up front, and usually before scheduling a trial, to avoid missing relevant and material records.

[54] Even if I am wrong in my interpretation of rule 5.16, I would not otherwise exercise my discretion in ATCO's favour when factoring in other considerations. The prejudice caused to EnDyn is not outweighed by the potential probative value of the records. EnDyn prepared its case based on the disclosed records. Further, there is already Other Plug Evidence about the Replacement Pistons before the court (for example, in the Joint Exhibits). Any prejudice to ATCO is minimal and of its own making. The interests of justice do not require allowing ATCO to use the Late Disclosure.

[55] ATCO is not permitted to use the Late Disclosure and I have not considered it, nor any testimony based on it, in reaching my decision.

B. Should the Trial be Re-Opened as Requested by EnDyn?

[56] On October 3, 2023, EnDyn applied to re-open the trial so it could call Larson to provide evidence about the preparation of the Exemplar, to show the Exemplar was LOCTITE 620. EnDyn argues that it was not clear whether ATCO would be raising an objection to the identity of the Exemplar, no objection was actually made, no issue about the identity of the Exemplar was put to Moffat, and that rule 9.13 allows a court to hear more evidence when there is good reason to do so.

[57] ATCO opposes the application. It argues that rule 9.13 does not apply because there was not any "judgment or order or reasons for it" to change or modify and, even if rule 9.13 applies, there is no good reason to re-open the trial.

[58] Rule 9.13 provides:

> Re-opening case
>
> 9.13 At any time before a judgment or order is entered, the Court may
>
> (a) vary the judgment or order, or
>
> (b) on application, and if the Court is satisfied there is good reason to do so, hear more evidence and change or modify its judgment or order or reasons for it.

[59] I reject ATCO's argument that an application to re-open the evidentiary portion of a trial cannot be made prior to a judgment or order being granted. Courts have a wide discretion regarding the conduct of trials and, in my view, the rationale for allowing trials to be re-opened applies with equal (if not more) force before a decision as after it. The point is that the court's discretion continues until it is *functus officio* (subject to limited exceptions): ***Alberta (Child, Youth and Family Enhancement, Director) v BM***, 2009 ABCA 258 at para 10 [***BM***] rev'd on other grounds 2010 ABCA 240; ***Dow Chemical Canada ULC v NOVA Chemicals Corporation***, 2021 ABCA 153 at para 91 [***Dow Chemical***].

[60] The effect of ATCO's argument is that an application to re-open the evidentiary portion of a trial could only be made in the period between decision and entering of the judgment or order. I disagree. There is no rational basis to create such a distinction or curtailment of the court's discretion prior to it rendering its decision given the multitude of potential scenarios that may arise during the period between closing of the evidentiary portion of a trial and the court's decision.

[61] An application to re-open a trial was made and granted before the decision in ***MAK v TJK***, 2019 ABQB 547 at paras 14-18 and this was affirmed by the Court of Appeal ***MAK v TJK***, 2020 ABCA 196 [***MAK CA***] at paras 11-13.

[62] I find that an application to re-open the trial can be made before decision and the relevant considerations under rule 9.13 apply, either directly or (if necessary) by analogy under rule 1.7(2): ***MAK CA*** at paras 11-13; ***Dow Chemical*** at para 91.

[63] Rule 9.13 should be used sparingly and is generally not an avenue for a party to advance newly minted arguments they didn't think of before, to shore up evidentiary gaps, to reconsider a litigation strategy, to case split, or to get a "second kick at the can": ***671122 Ontario Ltd v Sagaz Industries Canada Inc***, 2001 SCC 59 at para 61; ***O'Kane v Lillqvist-O'Kane***, 2024 ABCA 32 at para 16 [***O'Kane CA***]; ***CZ v RB***, 2019 ABCA 445 at para 26 [***CZ***]; ***BM*** at para 11; ***Canada Trust Co (McDiarmaid Estate) v Alberta Infrastructure***, 2021 ABQB 873 at paras 44-49; ***Aubin v Petrone***, 2020 ABQB 708 at para 7; ***Lewis Estates Communities Inc v Brownlee LLP***, 2013 ABQB 731 at para 33; ***Tiamat Resources Inc v Procyon Resources Corp***, 2021 ABQB 646 at paras 6-8. Parties are expected to put their best foot forward at trial: ***CZ*** at para 24.

[64] Courts must consider all relevant factors at the time of a rule 9.13 application. When the reason for the application is to adduce new evidence, courts consider factors similar to the factors in considering fresh evidence applications as set out in ***R v Palmer***, 1979 CanLII 8 (SCC), [1980] 1 SCR 759 at 775. In the context of re-opening trials, this involves these questions: (1) could the evidence have been obtained earlier if due diligence had been observed? (2) is the evidence credible? (3) would the evidence have been practically conclusive in producing the opposite result to that earlier pronounced? (4) is the evidence in its present form admissible under the ordinary rules of evidence?: ***CZ*** at para 27 citing ***BM*** at para 12; ***Bains v Adam***, 2023 ABKB 491 at para 218. In the context of an application to re-open a trial before the decision is made, consideration (3) can be amended to be: will the proposed evidence, when taken with the other evidence adduced at trial, be expected to change the court's fact findings and affect the result in the trial?

[65] Considerations (2) and (4) are not in issue here. There is no doubt that Larson's evidence would be credible and admissible under ordinary rules of evidence. However, considerations (1) and (3) are a problem for EnDyn's application.

[66] Larson's evidence was well known at trial in will say statements and Larson was on EnDyn's witness list. He was available to testify. I am not satisfied that ATCO or its counsel did anything to mislead EnDyn or its counsel that ATCO somehow agreed that the Exemplar was LOCTITE 620 or that Larson did not need to be called as a witness. In fact, the evidence of the correspondence between counsel illustrates the opposite:

(a) in December 2018, a testing protocol for the substance on the Plug Remnant was accepted by ATCO's counsel, however, that testing protocol did not address the Exemplar;

(b) on November 15, 2022, EnDyn's counsel asked whether ATCO's counsel intended to raise any objection about the chain of custody of the Plug Remnant examined by Moffat;

(c) on November 17, 2022, EnDyn served a Notice to Admit Facts seeking ATCO to admit (1) that the Plug Remnant was sent to Moffat for analysis and examination, and (2) that "a sample of Loctite 620" was provided to Moffat for comparison to

the pieces of the Remnant Plug. EnDyn's counsel also provided chain of custody information, including notes that the Exemplar was LOCTITE 620 prepared by Larson in January 2019;

(d) on November 18, 2022, ATCO responded to the Notice to Admit Facts and denied both proposed admissions on the basis that ATCO had no knowledge of the proposed admissions. In my view, this is a clear indication by ATCO that it required EnDyn to prove these facts, including that a sample of LOCTITE 620 was provided to Moffat for comparison to the substance on the Remnant Plug;

(e) on November 21, 2022, EnDyn's counsel wrote:

> For clarification, we understand that you state the Plaintiff has no knowledge of these facts but are you denying the pieces of the plug examined by Mr. Moffatt [sic] came from the piston in the compressor which failed and that he analyzed it against Loctite 620? If so, we want to know the basis of this denial as we want to be able to inform the court why we are being forced to call [Larson] to only discuss how the samples were provided to Mr. Moffat.

(f) on November 23, 2022, EnDyn's counsel followed up seeking ATCO's position on "the chain of custody issue for the plug sample evaluated by Mr. Moffatt [sic]"; and

(g) by November 24, 2022, the Thursday before the trial started, counsel appear to have reached agreement that ATCO's counsel would not take issue with the fact that fragment tested by Moffat was from the Plug Remnant, but the question of the Exemplar was still open. EnDyn's counsel asked ATCO's counsel: "Please advise if you will also agree that the exemplar substance tested by [Moffat] was in fact Loctite 620. If these are agreed to, we do not see the need to call [Larson]". There was no response to this letter.

[67] EnDyn's counsel understood EnDyn needed to prove the Exemplar and made several reasonable attempts to obtain an admission to avoid calling Larson as a witness. However, ATCO's counsel never admitted or agreed to the identity of the Exemplar. ATCO was not obligated to do so. It is unknown whether the Exemplar issue was discussed by counsel during the trial prior to EnDyn closing its case or, if not, why it wasn't discussed. Ultimately, EnDyn decided not to call Larson without having the requested admission or agreement and took the risk associated with that decision. To allow EnDyn to re-open the trial would be to allow it to fill in evidentiary gaps or to reconsider its litigation strategy.

[68] In any event, after reviewing all the evidence, the proposed Larson evidence is not of sufficient materiality to warrant opening the trial. The purpose of Larson evidence was to assist EnDyn in proving that the 8R Plug had LOCTITE 620 on it. As I address later in these Reasons, based on other trial evidence, I have found on a balance of probabilities that the 8R Plug likely had LOCTITE 620 on it at the time of the Incident. There is no need to re-open the trial as requested.

[69] In the circumstances, the application to re-open the trial is dismissed.

C. Is EnDyn Liable for Negligent Manufacture of the 2012 Pistons?

[70] The general requirements in a negligence claim have been set out by the Supreme Court of Canada. Regardless of the type of loss, the plaintiff must prove that: (1) the defendant owed the plaintiff a duty of care; (2) the defendant's conduct breached the standard of care; (3) the plaintiff sustained damage; and (4) the damage was caused, in fact and in law, by the defendant's breach: ***1688782 Ontario Inc v Maple Leaf Foods Inc***, 2020 SCC 35 at para 18 [***Maple Leaf Foods***]; ***Mustapha v Culligan of Canada Ltd***, 2008 SCC 27 at para 3 [***Mustapha***]; ***Setoguchi v Uber BV***, 2023 ABCA 45 at para 32 [***Setoguchi***] citing ***Maple Leaf Foods*** at para 18.

[71] Academics and courts have described the elements of negligence with more specificity in the context of negligent manufacture claims. For example, both parties referenced Lewis N. Klar et al, *Remedies in Tort*, (Toronto: Thomson Reuters, 2021) Rel. 7, 7/2021 [*Klar*] at 23:4 as setting out the elements of a negligent manufacturing claim. That text states that the plaintiff must plead and prove the following elements to establish the cause of action: (i) the defendant owed a legal duty of care to the plaintiff in respect of the product; (ii) the product was defective; (iii) the defendant was negligent in failing to meet the requisite standard of care; (iv) the defect caused the plaintiff's injuries; and (v) the plaintiff suffered damage as a result of the defendant's negligence.

[72] In ***Williamson v Johnson & Johnson***, 2020 BCSC 1746 at para 155 [***Williamson***], the elements of a negligent manufacturing claim were described somewhat differently, as requiring: (i) the product was defective in that it was not manufactured in accordance with the specifications intended by the manufacturer; (ii) the defect resulted from the manufacturer's failure to take reasonable care in manufacturing the product; and (iii) the plaintiff sustained harm caused by the defective condition. A similar enunciation of the elements of the claim is found in ***Meisel v Tolko Industries Ltd***, 1991 CanLII 120 (BC SC) [***Meisel***].

[73] In my view, it is more appropriate to apply the test from ***Maple Leaf Foods*** and ***Mustapha***, and assess a negligent manufacture claim within the general negligence framework, as has been done in other negligent manufacture cases: ***Carter v Ford Motor Company of Canada***, 2021 ONSC 4138 at paras 85-87 [***Carter***]; ***Bhangu v Honda Canada Inc***, 2021 BCSC 794 at paras 27-28; ***Coles v FCA Canada Inc***, 2022 ONSC 5575 at paras 126-127 [***Coles***]. Any nuances to the analysis specific to a negligent manufacture claim can be addressed within the general negligence framework. For example, whether a product is defective can be addressed as part of the standard of care analysis rather than as a separate element of the claim.

[74] I now turn to the elements of the negligent manufacture claim.

1. Did EnDyn Owe ATCO a Duty of Care in the Manufacture of the 2012 Pistons?

[75] The foundation of modern negligence law is the neighbour principle established in ***Donoghue v Stevenson***, 1932 CanLII 536 (FOREP), [1932] AC 562 (HL) [***Donoghue***], under which "parties owe a duty of care to those whom they ought to reasonably to have in contemplation as being at risk when they act": ***Nelson (City) v Marchi***, 2021 SCC 41 at para 15 [***Nelson***] citing

Rankin (Rankin's Garage & Sales) v JJ, 2018 SCC 19 at paras 16-17 [***Rankin's Garage***]; ***Mustapha*** at para 4.

[76] The framework applies differently depending on whether the plaintiff's claim falls within or is analogous to an established duty of care, or whether the claim is novel because proximity has not been recognized before: ***Nelson*** at para 16.

[77] Where the duty of care at issue is not novel, there is generally no need to go through the two-stage ***Anns/Cooper*** framework, as set out in ***Anns v Merton London Borough Council***, [1978] AC 728 [***Anns***] and ***Cooper v Hobart***, 2001 SCC 79 [***Cooper***], because residual policy concerns will have already been taken into account when the duty was first established: ***Nelson*** at para 19; ***Mustapha*** at para 5.

[78] In novel duty of care cases, the court applies the full two-stage ***Anns/Cooper*** framework, as modified or clarified in ***Deloitte & Touche v Livent Inc (Receiver of)***, 2017 SCC 63 [***Livent***].

[79] At the first stage of the ***Anns/Cooper*** framework, the court asks whether a *prima facie* duty of care exists, which depends on whether the harm was a reasonably foreseeable consequence of the defendant's conduct, and whether there is a "relationship of proximity in which the failure to take reasonable care might foreseeably cause loss or harm to the plaintiff": ***Nelson*** at para 17 citing ***Rankin's Garage*** at para 18. Proximity arises in those relationships where the parties are in such a "close and direct" relationship that it would be "just and fair having regard to that relationship to impose a duty of care in law upon the defendant": ***Nelson*** at para 17 citing ***Cooper*** at paras 32 and 34.

[80] If there is sufficient proximity to ground a *prima facie* novel duty of care, it is necessary to proceed to the second stage of the ***Anns/Cooper*** test, which asks whether there are residual policy concerns outside the parties' relationship that should negate the duty of care: ***Nelson*** at para 18 citing ***Cooper*** at paras 30 and 37. The residual policy stage raises questions relating to "the effect of recognizing a duty of care on other legal obligations, the legal system and society more generally", such as whether the law already provides a remedy, whether recognition of the duty of care would create the spectre of unlimited liability to an unlimited class, and whether there are other reasons of broad policy that suggest that the duty of care should not be recognized: ***Nelson*** at para 18 citing ***Cooper*** at para 37.

[81] In this case there are two relevant potential duties of care related to the manufacture of the 2012 Pistons. The first involves a defect that causes physical harm. The second involves a defect that has not caused physical harm but poses a real and substantial danger of physical harm.

a. Duty of Care to Avoid Defects Causing Physical Injury to End Consumers

[82] It has been recognized that manufacturers owe a duty to consumers of their product to see that there are no defects in manufacture which are likely to give rise to physical injury in the ordinary course of use: ***Maple Leaf Foods*** at para 81; ***Burr v Tecumseh Products of Canada Limited***, 2023 ONCA 135 at para 53 [***Burr***] citing ***Maple Leaf Foods*** at para 81 and ***Lambert v Lastoplex***, 1971 CanLII 27 (SCC), [1972] SCR 569 at 574 [***Lambert***]; ***Carter*** at para 87; ***Coles*** at

paras 126-127; ***Daishowa-Marubeni International Ltd v Toshiba International Corporation***, 2010 ABQB 627 at para 57 [***Daishowa***].

[83] The duty to take reasonable care in the manufacture of products includes the product's component parts manufactured elsewhere and installed in the manufacturer's product: ***Farro v Nutone Electrical Ltd***, 1990 CanLII 6775 (ON CA) at paras 11-12 [***Farro***]; ***Coles*** at para 129; ***Hans v Volvo Trucks North America Inc***, 2016 BCSC 1155 at para 334(5) [***Hans***] aff'd 2018 BCCA 410, citing ***Farro*** at paras 11-12 and ***Pennock v Aerostar International, Inc***, 2012 BCSC 1422 at paras 51-52 [***Pennock***]; ***Pacific Lumber & Shipping Co v Western Stevedoring Co Ltd***, 1995 CanLII 1670 (BC SC) at para 21(d) [***Pacific Lumber***].

[84] The duty may be limited where an effective intermediate examination or test is reasonably probable at the time the product is released: ***Viridian Inc v Bovar Inc***, 2002 ABCA 173 at para 44 [***Viridian CA***]; ***376599 Alberta Inc v Tanshaw Products Inc***, 2005 ABQB 300 at paras 155-159 quoting ***Viridian CA*** at paras 44 and 48; ***Park v B & B Electronics Ltd***, 2003 ABQB 594 at para 165 citing ***Viridian CA***; ***Donoghue*** at 599.

[85] In this case, EnDyn manufactured replacement part pistons, like the 2012 Pistons, for use in Superior 16SGTB engines. As part of the 2012 Overhaul, NGC acquired the 2012 Pistons and installed them into the Engine. ATCO used the 2012 Pistons for their intended purpose. There was no reasonable opportunity for NGC or ATCO to inspect the Plugs before use.

[86] EnDyn does not seriously argue that it did not owe a duty of care to ATCO, as the end user of the 2012 Pistons, to avoid defects likely to cause physical damage to ATCO's property. I find that this is an established duty of care and find that EnDyn owed ATCO a duty of care to avoid defects in the manufacture of the 2012 Pistons which were likely to give rise to physical injury or property damage in ordinary use. The second stage of the ***Anns/Cooper*** test does not need to be undertaken with respect to this duty of care.

b. Duty of Care to Avoid Manufacturing Dangerously Defective Goods

i. Is there an Established Duty of Care?

[87] In ***Winnipeg Condominium Corporation No 36 v Bird Construction Co***, 1995 CanLII 146, [1995] 1 SCR 85 [***Winnipeg Condominium***], the Supreme Court of Canada recognized that a builder owed a duty of care to take reasonable care in the construction of building structures to avoid creating a real and substantial danger to health and safety: ***Winnipeg Condominium*** at para 36. This duty of care has been well-recognized and adopted by courts since ***Winnipeg Condominium***.

[88] In ***Maple Leaf Foods***, the majority of the Supreme Court of Canada held that there is no reason to limit the duty recognized in ***Winnipeg Condominium*** to construction of building structures. Therefore, a manufacturer of goods can owe a duty of care to avoid defects that create a real and substantial danger (i.e. imminent risk) of physical harm to persons or property, where the danger or risk would unquestionably have caused serious injury or damage if realized: ***Maple Leaf Foods*** at paras 45-50 and 57 citing ***Blacklaws v 470433 Alberta Ltd***, 2000 ABCA 175 at para

62. The majority also settled a long-standing question by confirming that there is no duty of care owed by a manufacturer to avoid non-dangerous defects: ***Maple Leaf Foods*** at para 47; ***Condominium Corporation No 0522151 (Somerset Condominium) v JV Somerset Development Inc***, 2022 ABCA 193 at para 28(e) [***JV Somerset***] at para 47.

[89] In dangerously defective construction or goods cases, even though the plaintiff may have only suffered economic losses, the law views the plaintiff as having sustained actual injury to its right in person or property because of the necessity in taking measures to put itself or its other property outside the ambit of the perceived danger: ***Maple Leaf Foods*** at para 45.

[90] Accordingly, there is an established duty of care with respect to the manufacture of dangerous goods, grounded in the liability rule recognized in ***Winnipeg Condominium***: ***Maple Leaf Foods*** at para 75.

[91] However, I must consider whether the 2012 Pistons, if defective, gave rise to a real and substantial danger to ATCO's property. Further, ***Winnipeg Condominium*** was decided in 1995 under the then-prevailing test for recognizing a duty of care, which assessed whether injury to the plaintiff is a reasonably foreseeable consequence of the defendant's negligence. The duty of care framework must now distinguish more clearly between foreseeability and proximity: ***Maple Leaf Foods*** at para 60. I therefore must conduct a more robust proximity analysis to determine whether it would be just and fair to impose a duty of care in law in this case: ***Maple Leaf Foods*** at para 63; ***JV Somerset*** at para 28. I address these other matters below.

ii. Would Defective 2012 Pistons Pose a Real and Substantial Danger of Harm?

[92] The OEM Service Bulletin speaks to the importance of avoiding "in-service loosening" of the Plug. Sleight confirmed that the end users should not be "messing with" the Plug. The purpose of the Plug is to ensure cooling oil remains in the coolant chamber to avoid overheating. Overheating can cause piston failure. The extensive damage caused by piston failure in this case, regardless of whether caused by negligent manufacturing, is evidence of the extensive damage that can be caused by piston failure in the Engine during operations.

[93] Accordingly, I find that defective pistons or Plugs in a Superior 16SGTB engine as part of the Compressor would pose a real and substantial danger (and an imminent risk) of physical harm to, at least, the Engine and its components.

iii. Is there a Proximate Relationship?

[94] Proximity is a more demanding hurdle than reasonable foreseeability: ***Maple Leaf Foods*** at para 62; ***Livent*** at para 34. In negligent manufacturing cases involving dangerously defective goods, proximity should be considered prior to assessing foreseeability of injury: ***Maple Leaf Foods*** at para 62.

[95] As noted above, assessing proximity requires asking whether, in light of the nature of the relationship at issue, the parties are in such a "close and direct" relationship that it would be "just and fair having regard to that relationship to impose a duty of care in law": ***Maple Leaf Foods*** at

para 63 citing ***Livent*** at para 25 and ***Cooper*** at paras 32 and 34; ***Centurion Apartment Properties Limited Partnership v Sorenson Trilogy Engineering Ltd***, 2024 BCCA 25 at para 57. It is a two-step analysis.

[96] In the first step of the proximity analysis, the court must ask whether the proximity can be made out by reference to an established or analogous category of proximate relationship and, if so, this will establish the requisite close and direct relationship: ***Maple Leaf Foods*** at para 64; ***Livent*** at paras 26-28.

[97] In determining whether proximity can be established based on an existing or analogous category, a court should be attentive to the particular factors which justified recognizing that prior category in order to determine whether the relationship at issue is, in fact, truly the same as or analogous to that which was previously recognized: ***Maple Leaf Foods*** at para 65; ***Livent*** at para 28. Merely because specific factors support a finding of proximity and recognition of a duty within one aspect of a relationship and for one purpose does not mean a duty will apply to all aspects of the relationship or for all purposes: ***Maple Leaf Foods*** at para 65.

[98] If the court determines that proximity cannot be based on an established or analogous category of proximate relationship, then it must conduct a full proximity analysis in which the court must examine all relevant factors present in the relationship between the plaintiff and the defendant, including but not limited to "expectations, representations, reliance and the property or other interests involved": ***Maple Leaf Foods*** at para 66; ***Cooper*** at paras 34-35. In allegedly negligent supply of dangerously defective goods, the proximity analysis must account for the reasonable availability of adequate contractual protection and whether the parties in the supply chain have addressed risks associated with the product through contractual terms: ***Maple Leaf Foods*** at paras 68 and 71.

Is there an Existing or Analogous Category of Proximate Relationship?

[99] As noted above, it is well-settled that a relationship of proximity can exist where negligent construction leaves a building in a state of real and substantial danger of causing physical harm to its occupants or property: ***Winnipeg Condominium*** at paras 35-36; ***Parks v McAvoy***, 2023 ABCA 211 at para 53 citing ***Vargo v Hughes***, 2013 ABCA 96 at paras 11-16 and 18-34.

[100] The issue is whether, since ***Winnipeg Condominium***, there is an existing or analogous category of proximate relationship that has been recognized by courts in the context of the alleged negligent manufacture of goods (rather than buildings) which pose a real and substantial danger of physical harm but have not yet caused harm.

[101] The existence of such a proximate relationship has been recognized indirectly by the Court of Appeal: ***Hyundai Auto Canada Corp v Engen***, 2023 ABCA 85 at para 43; ***Rieger v Plains Midstream Canada ULC***, 2022 ABCA 28 at para 44 [***Rieger***]. It has also been implicitly recognized by courts in their discussion of the now-settled debate about whether a duty of care existed for non-dangerous goods: see e.g. ***M Hasegawa & Co Ltd v Pepsi Bottling (Canada),*** 2002 BCCA 324, at paras 47-54 ; ***Arora v Whirlpool Canada LP***, 2012 ONSC 4642 at para 232 aff'd 2013 ONCA 657, leave to appeal to SCC refused, [2013] SCCA No 498; ***Clare v IJ***

Manufacturing Ltd, 2003 BCSC 856 at paras 142-144 and 151; ***Ducharme v Solarium de Paris Inc***, [2008] OJ No 1558 (ON Div Ct) at para 23; ***Brett-Young Seeds Ltd v Assié Industries Ltd***, 2002 MBCA 74 at para 15; ***Hughes v Sunbeam Corp (Canada) Ltd***, 2002 CanLII 45051 (ON CA), 219 DLR (4th) 467 at para 23; ***Keefer Laundry Ltd v Pellerin Milnor Corporation***, 2008 BCSC 1119 at paras 152-157; ***New Brunswick Power Corporation v Westinghouse Canada Inc and Asea Brown Boveri Inc***, 2008 NBCA 70 at para 34.

[102] In other cases, the existence of a duty of care (and therefore a proximate relationship) has been held to be sufficiently pleaded to allow amendments, to allow the court to assume jurisdiction over claims, or to avoid summary judgment: ***Del Harder v Denny Andrews Ford Sales Inc***, 1995 CanLII 9118 (AB Master) at para 17; ***Powder Creek Farms Ltd v CNH America LLC***, 2013 ABQB 622 (Master) at para 37; ***Stone Venepal (Celgar) Pulp Inc v IMO Industries (Canada) Inc***, 2002 BCSC 1368 at paras 9 and 17; ***Alliance Pipeline Limited Partnership v CE Franklin Ltd***, 2005 ABQB 102 at para 36; ***Fort Hills Energy LP v Jotun A/S***, 2019 ABQB 237 at paras 41-46.

[103] Further, the potential existence of the duty of care is often addressed in class proceedings certification applications when considering whether a proposed class proceeding discloses a cause of action for negligent manufacture of goods: see e.g. ***Fakhri et al v Alfalfa's Canada Inc cba Capers***, 2003 BCSC 1717 at para 37; ***Reid v Ford Motor Company***, 2003 BCSC 1632 at paras 26 and 31; ***Sorotski v CNH Global NV***, 2007 SKCA 104 at paras 34-37, leave to appeal to SCC refused, [2007] SCCA No 590; ***Chartrand v General Motors***, 2008 BCSC 1781 at para 48; ***Thorpe v Honda Canada Inc***, 2011 SKQB 72 at paras 37-38; ***Evans v General Motors of Canada Company***, 2019 SKQB 98 at para 35; ***Spring v Goodyear Canada Inc***, 2020 ABQB 252 at paras 28-29, rev'd on other grounds 2021 ABCA 182; ***Kett v Mitsubishi Materials Corporation***, 2020 BCSC 1879 at para 74; ***Nissan Canada Inc v Mueller***, 2022 BCCA 338 at para 41, leave to appeal to SCC refused, 40479 (4 May 2023) [***Nissan Canada***].

[104] Numerous class proceedings decisions state that "manufacturers have a duty of care to compensate consumers for the cost of repairing a dangerous product that presents a real and substantial danger", or words to that effect: see e.g. ***Coles*** at para 127; ***Wise v Abbott Laboratories, Ltd***, 2016 ONSC 7275 at para 339; ***Vester v Boston Scientific Ltd***, 2015 ONSC 7950 at para 5; ***Harris v Bayerische Motoren Werke Aktiengesellschaft***, 2020 ONSC 1647 at paras 88 and 99; ***Spring v Goodyear***, 2020 ABQB 252 at para 29 rev'd on other grounds, 2021 ABCA 182; ***Bhangu v Honda Canada Inc***, 2021 BCSC 794 at para 28; ***Palmer v Teva Canada Ltd***, 2022 ONSC 4690 at para 160.

[105] Notwithstanding the numerous cases noted above, there are only a few cases where the question of a proximate relationship in the context of dangerously defective goods has been assessed substantively.

[106] In ***TransCanada Pipelines Ltd v Solar Turbines Inc***, [1998] OJ No 3594 (Ct J (GD)), the plaintiff claimed lost profits associated with leaky steam generators which caused a power generating plant to shut down. At para 28, the Court noted that there was a specific exception to the limit on pure economic loss claims based on danger of harm to persons or property posed by a defendant's product, citing ***Rivtow Marine Ltd v Washington Iron Works***, 1973 CanLII 6 (SCC)

[***Rivtow Marine***] and ***Winnipeg Condominium***. The court summarily dismissed the claim in part because there was no evidence of any danger posed by the defect.

[107] In ***Edmonton (City of) v Lovat Tunnel Equipment Inc***, 2000 ABQB 882 [***Lovat***], the City of Edmonton entered into a contract with Lovat Tunnel Equipment Inc for the purchase of a tunnel boring machine and a spare bearing. Both the original bearing and the spare bearing were manufactured by Rotek Incorporated, with whom Edmonton had no direct relationship. Edmonton claimed against Rotek for negligent manufacture of the spare bearing. The facts are somewhat analogous to this case.

[108] In assessing whether Rotek owed a duty of care, Justice Lee engaged in the two-part analysis using the ***Anns*** test. He concluded that, because there was no allegation that the bearing posed a danger to persons or property, there was no duty of care. However, had there been a danger to persons or property Justice Lee concluded that "I do not believe it could be argued that there was an insufficient proximity for a duty of care to arise", due in large part to the fact that Rotek was aware that the bearings were used in Lovat's customers' tunnel boring machines: ***Lovat*** at para 235. Justice Lee did not need to find whether residual policy concerns would have negatived a *prima facie* duty of care.

[109] In ***Plas-Tex Canada Ltd v Dow Chemical of Canada Limited***, 2004 ABCA 309 [***Plas-Tex***], dangerously defective resin was knowingly supplied by the defendants to the plaintiffs and the Court of Appeal held that the manufacturer owed a duty "to take reasonable care not to manufacture and distribute a product that is dangerous": ***Plas-Tex*** at para 90. In ***Maple Leaf Foods***, the majority held, at para 77, ***Plas-Tex*** was not an analogous case because it was not really dealing with pure economic loss but consequential economic loss following actual physical damage.

[110] In ***North Sydney Associates v United Dominion Industries Ltd***, 2005 NSSC 206, aff'd 2006 NSCA 58, leave to appeal to SCC refused, 31564 (7 December 2006), the owner of a shopping mall sued the manufacturer of steel joists used to support the roof of a mall. The joists were found to have serious welding defects which constituted a real and substantial danger. The trial judge held the manufacturer liable in negligence for the costs to repair the defective joists, relying on ***Winnipeg Condominium*** without engaging in a detailed duty of care or proximity analysis. In upholding the trial decision, the Court of Appeal did not engage in a detailed duty of care analysis.

[111] ***Lovat*** and ***North Sydney Associates*** are sufficient to find that there is an existing recognized proximate relationship between a manufacturer of a good and its end user when that product is known to be used in a structure or an industrial operation. However, given that both cases are dated, and neither engaged in the proximity analysis contemplated by ***Maple Leaf Foods***, a full proximity analysis is appropriate.

Does a Full Proximity Analysis Support a **Winnipeg Condominium** ***Duty of Care in this case?***

[112] Defining the relationship between a plaintiff and a defendant may involve looking at the nature of the relationship, expectations, representations, reliance, and the property or other

interests involved; namely factors that allow the court to evaluate the closeness of the relationship: ***Cooper*** at para 34; ***Maple Leaf Foods*** at paras 73 and 85.

[113] The nature of the relationship between ATCO and EnDyn is that of a manufacturer of reverse-engineered pistons intended to be replacement parts for the Engine, on the one side, and the end-user of the pistons and that Engine for industrial purposes, on the other side. Their relationship is not direct, as NGC was an intermediary, but neither is it remote.

[114] As pointed out in ***Maple Leaf Foods***, in the case of dangerous defects, there is little difference between a defective product that actually causes injury and one that does not but can be repaired to avoid the injury. As stated in ***Winnipeg Condominium*** at para 36 (emphasis added):

> In my view, the reasonable likelihood that a defect in a building will cause injury to its inhabitants is also sufficient to ground a contractor's duty in tort to subsequent purchasers of the building for the cost of repairing the defect if that defect is discovered prior to any injury and if it poses a real and substantial danger to the inhabitants of the building. In coming to this conclusion, I adopt the reasoning of Laskin J. in *Rivtow*, which I find highly persuasive. **If a contractor can be held liable in tort where he or she constructs a building negligently and, as a result of that negligence, the building causes damage to persons or property, it follows that the contractor should also be held liable in cases where the dangerous defect is discovered and the owner of the building wishes to mitigate the danger by fixing the defect and putting the building back into a non-dangerous state.** In both cases, the duty in tort serves to protect the bodily integrity and property interests of the inhabitants of the building. See *Dutton*, *supra*, at p. 396, per Lord Denning M.R.

[115] With respect to expectations or representations, there were no express representations from EnDyn to ATCO or direct evidence of specific reliance. However, end users of industrial engine parts reasonably expect that a manufacturer of replacement parts for specific industrial engines will manufacture products that are free of dangerous defects. Further, consumers reasonably rely on manufacturers to construct safe products, particularly where there is no opportunity for intermediate inspection: ***Bow Valley Husky (Bermuda) Ltd v Saint John Shipbuilding Ltd***, 1997 CanLII 307 (SCC) at para 22; ***St Isidore Co-Op Limited v AG Growth International Inc***, 2019 ABQB 763 at para 56, aff'd 2020 ABCA 447 [***St Isidore***] at para 34. In my view, this is particularly the case when the parts are components of large, complex and expensive machines used in industrial operations. EnDyn, as manufacturer, must be taken to reasonably know that its pistons were to be used in the Superior 16SGTB Engine in a variety of industrial operations and that piston failure can result in significant physical damage.

[116] With respect to the possibility of addressing the risk of piston failure through contract, it is not realistic that ATCO would be able to do that directly with EnDyn, as the parties did not deal with each other. It may have been possible for ATCO to address that with NGC when NGC supplied the 2012 Pistons, but there is no evidence that this was done and any contractual records from the 2012 Overhaul are not in evidence. NGC was in the business of building and servicing compressors and compressor engines. There is no evidence NGC was an expert in piston manufacture or that it would or could contractually assume all risk associated with the defective

manufacture of parts that NGC might use to service its clients. This is evident by the fact that when the Replacement Pistons and the 2015 Pistons were returned by ATCO, NGC only agreed to pass on to ATCO any "warranty consideration" NGC received from EnDyn.

[117] In all the circumstances, I find that there was a relationship of proximity such that it is fair to impose a duty of care on EnDyn to the end user of the 2012 Pistons if the pistons were negligently manufactured with defects which posed a real and substantial danger of physical harm.

iv. Conclusion: Duty of Care to Avoid Dangerous Defects

[118] In conclusion, I find that there is an established duty of care not to negligently manufacture products with defects which pose a real and substantial danger of physical harm. The proximity analysis in this case confirms the relationship of proximity justifying that the scope of the ***Winnipeg Condominium*** rule of liability to this case.

[119] In the circumstances, I need not further assess the first stage of the ***Anns/Cooper*** test to assess proximity in the "neighbourhood/foreseeability" sense: ***Centurion Apartment Properties Limited Partnership v Sorenson Trilogy Engineering Ltd***, 2024 BCCA 25 at para 38. Nor do I need to assess the second stage of the ***Anns/Cooper*** test to assess residual policy considerations. Even if I am wrong in that, in the circumstances I would have found that EnDyn owed a duty of care to ATCO under the first stage of the ***Anns/Cooper*** test and that there are no residual policy concerns that ought to negative or reduce EnDyn's duty. There is no concern about indeterminate liability to an indeterminate class; only to the end users of its products using them as intended. No other policy concerns have been raised.

[120] I find that EnDyn owed ATCO a duty of care not to negligently manufacture the 2012 Pistons with defects posing a real and substantial danger of physical harm.

c. Conclusion re Duty of Care

[121] I have found that EnDyn owed ATCO two duties of care in respect of the manufacture of the 2012 Pistons: (1) to avoid defects causing physical harm to persons or ATCO's property; and (2) to avoid defects that pose a real and substantial danger of physical harm. I now turn to whether EnDyn breached the standard of care.

2. Did EnDyn's Conduct Breach its Standard of Care?

a. The Standard of Care Analysis and Use of Inferences in a Negligent Manufacture Claim

[122] Conduct breaches the standard of care and is negligent where it creates an unreasonable risk of harm: ***Mustapha*** at para 7; ***Setoguchi*** at para 53 citing ***Mustapha*** at para 7.

[123] There is no strict liability in a negligent manufacture claim; the standard of care is to use "reasonable care in the circumstances and nothing more": ***Lovat*** at para 251; ***Johansson v General Motors of Canada Ltd***, 2012 NSCA 120 [***Johansson CA***] at para 101 citing ***Phillips et al v Ford***

Motor Co of Canada Ltd et al, 1971 CanLII 389 (ON CA) at 653; ***Baker v Suzuki Motors Co***, 1993 CanLII 7293 (AB KB) at para 116.

[124] As part of the standard of care element of the claim, a plaintiff generally must plead and prove: (1) the product was defective; and (2) the manufacturer was negligent in allowing the defect to occur: *Klar* at 23:18; ***Burr*** at para 53 citing ***Lambert*** at 574; ***Meisel***; ***International Piping Inc v Polytubes (West) Inc***, 2002 ABQB 1135 at para 74 [***International Piping***]; ***Benoit v General Motors of Canada Limited***, 2008 ABQB 42 at para 4 [***Benoit***]; ***Viridian Inc v Dresser Canada Inc***, 2000 ABQB 707 [***Viridian QB***] at paras 275-279 aff'd ***Viridian CA***; ***Williamson*** at para 155; Lawrence G Theall et al, *Product Liability: Canadian Law and Practice,* (Toronto: Thomson Reuters, 2021) at 2:19 and 2:22.

[125] A plaintiff may prove a defect in the context of a negligent manufacture claim by establishing that the product was not assembled properly or for some reason does not meet the manufacturer's design standards or specifications: ***Daishowa*** at paras 57-58; ***Williamson*** at para 155. Where the rights of the plaintiff depend on a defect, that defect must be proven: ***527353 Alberta Ltd v Stedelbauer Chevrolet Oldsmobile (1975) Ltd***, 2001 ABQB 909 at para 19.

[126] Direct evidence is often unavailable in product liability cases, for example, in cases like this one where the product is damaged or destroyed in an accident or product failure. Often, either or both of proof of the defect or proof of negligence must be established by inferences drawn from circumstantial evidence.

[127] Inferences must be drawn from the positive proven (i.e. accepted) facts which are reasonably supported by the record, because otherwise they are speculative or conjecture and give rise to error in the inference-drawing process: ***Chavez-Salinas v Tower***, 2022 BCCA 43 at para 24 citing ***Housen v Nikolaisen***, 2002 SCC 33 at paras 19-23; ***Gray v McNeill***, 2017 ABCA 376 at para 18; ***Grafikom Speedfast Limited v Heidelberg Canada Graphic Equipment Limited***, 2013 ABCA 104 at para 16 [***Grafikom***]; ***656621 BC Ltd v David Moerman Painting Ltd***, 2022 BCSC 1683 at paras 32-35 [***656621 BC Ltd***]; ***Montreal Tramways Co v Leveille***, [1933] SCR 456 at 469.

[128] Further, an inference cannot be made when competing inferences are equally probable and fair: ***Winnipeg Electric Ry Co v Schwartz***, 1913 CanLII 64 (SCC), 49 SCR 80 at 85; ***United Motors Services, Inc v Hutson et al***, 1937 CanLII 5 (SCC), [1937] SCR 294 at 297; ***Wilcox v Cavan***, 1974 CanLII 188 (SCC), [1975] 2 SCR 663 at 675; ***MacLachlan & Mitchell Homes Ltd v Frank's Rentals & Sales Ltd***, 1979 ABCA 258 at para 17 [***MacLachlan & Mitchell***]; ***Fontaine v British Columbia (Official Administrator)***, 1998 CanLII 814 (SCC), [1998] 1 SCR 424 at para 24 [***Fontaine***]; ***Neal Forest Products Ltd v Wix Canada Ltd and Auto Machinery & General Supply Co Ltd***, 1983 CanLII 4024 (NB CA) at para 8. An inference also may not be made if there is evidence establishing the contrary proposition: ***Daishowa*** at para 18 citing Sopinka, Lederman & Bryant, *The Law of Evidence in Canada*, 3rd ed (LexisNexis: Markham, 2009) at 135.

[129] Historically, in product liability cases, the need to draw inferences often engaged the doctrine of *res ipsa loquitor*, or the "thing speaks for itself": ***Fontaine*** at para 17.

[130] In ***Fontaine***, the Supreme Court of Canada confirmed that the plaintiff bears the burden of proving negligence on the part of the defendant on a balance of probabilities, and described the

procedural interplay between the plaintiff's burden and the drawing of inferences from circumstantial evidence at para 24:

> Should the trier of fact choose to draw an inference of negligence from the circumstances, that will be a factor in the plaintiff's favour. Whether that will be sufficient for the plaintiff to succeed will depend on the strength of the inference drawn and any explanation offered by the defendant to negate that inference. If the defendant produces a reasonable explanation that is as consistent with no negligence as the *res ipsa loquitur* inference is with negligence, this will effectively neutralize the inference of negligence and the plaintiff's case must fail. Thus, the strength of the explanation that the defendant must provide will vary in accordance with the strength of the inference sought to be drawn by the plaintiff.

[131] The Supreme Court went on to confirm *res ipsa loquitor* is "expired and no longer used as a separate component in negligence actions," at para 27:

> After all, [*res ipsa loquitor*] was nothing more than an attempt to deal with circumstantial evidence. That evidence is more sensibly dealt with by the trier of fact, who should weigh the circumstantial evidence with the direct evidence, if any, to determine whether the plaintiff has established on a balance of probabilities a *prima facie* case of negligence against the defendant. Once the plaintiff has done so, the defendant must present evidence negating that of the plaintiff or necessarily the plaintiff will succeed.

[132] Once a *prima facie* case is made out the defendant must present evidence to answer: ***Nice v Calgary (City)***, 2000 ABCA 221 at paras 45-46, leave to appeal to SCC refused, [2000] SCCA No 483. This process has been explained recently by the Ontario Court of Appeal in ***Metropolitan Toronto Condominium Corporation No 1100 v A & G Shanks Plumbing & Heating Limited***, 2020 ONCA 67 at paras 17-18 [***Metropolitan Toronto Condominium Corporation***] (emphasis added):

> [17] In other words, **where circumstantial evidence has been adduced, the trial judge must consider whether that evidence gives rise to an inference, or a series of inferences, that support a finding of a breach of the standard of care or of causation**. **The trial judge must then weigh any such inferences along with any direct evidence to determine whether, on a balance of probabilities, the plaintiff has established a breach of the standard of care or causation**. Where a plaintiff has done so, the defendant bears a strategic burden to present its own evidence to rebut the plaintiff's case. The "legal burden of proof, of course, remains on the plaintiff throughout*": Marchuk v. Swede Creek Contracting Ltd.* (1998), 1998 CanLII 6280 (BC CA), 116 B.C.A.C. 318, at para. 10.
>
> [18] Where, as here, the plaintiff has done nothing to cause the fire, and the defendant is effectively in control of the place or thing that is the source of the fire, an inference of a breach of the standard of care, or of factual causation, or of both, may arise from the very happening of the fire. **The defendant can rebut those inferences by adducing evidence that undermines the plaintiff's case, points to**

> **other non-negligent causes of the fire, or supports the exercise of reasonable care. The precise nature of the evidence required to do so will be different in every case, depending on the relative strength of the plaintiff's evidence in support of the finding**.

[133] The nature of the inferences engaged in a negligent manufacture case will depend on the specific factual context and may be interrelated. In the context of a standard of care analysis in a negligent manufacture claim, the possibility of drawing inferences may be engaged as to one or both of (1) the existence of a defect and (2) the existence of negligent conduct.

[134] For example, a court may be asked to infer that the specific product at issue was defective (or not defective) because other similarly-manufactured products are proven to be defective (or not defective): ***Schreiber Brothers Ltd v Currie Products Ltd et al***, 1980 CanLII 11 (SCC) at 80 [***Schreiber***]; ***Canadian Pacific Forest Products Ltd v Conamara Ltd***, 1996 CanLII 1687 (BC CA) at paras 22-23 [***Canadian Pacific Forest Products***]; ***Canadian Natural Resources Limited v Arcelormittal Tubular Products Roman SA (Mittal Steel Roman SA)***, 2013 ABQB 439 at para 30 [***CNRL QB***] aff'd 2013 ABCA 425 at para 3; ***Tachit v Versatile Manufacturing Ltd***, 1978 CanLII 3310 (AB KB) at 545-546; ***Trans Border Plastics Ltd v Leavens Air Charter Ltd***, 1982 CanLII 1962 (ON SC); ***Kotylak v McLean's Agra Centre Ltd***, 2000 SKQB 383 at paras 13-16; ***MacDonald v Scotia Chrysler (2010) Limited***, 2021 NSSC 289 at para 43.

[135] A court may also infer that the specific product at issue was defective because it finds that the product failed in its ordinary and intended use: ***Schreiber*** at 82; ***LeBlanc v Marson Canada Inc***, 1995 NSCA 206 (CanLII) [***LeBlanc***]; ***International Piping*** at paras 75-79; ***Pennock*** at para 55; SM Waddams, Products Liability, 5th ed (Toronto: Carswell, 2011) [*Waddams*] at 65.

[136] A related scenario involves an inference that a product is defective because the product is found to have caused the accident, injury or damages suffered by the plaintiff: ***Farro*** at paras 18-20; ***Bussey v Bon L Canada Inc***, 2001 CanLII 33762 (NL SC) at para 5; ***McHugh v Reynolds Extrusion Co Ltd et al***, 1974 CanLII 837 (ON SC) aff'd 1976 CanLII 714 (ON CA); ***Newfoundland Light and Power Co Ltd v Furlong Estate***, 2005 NLCA 25 at paras 43-45 and 76-79 [***Newfoundland Power***].

[137] Further, if a product is defective, courts may infer negligent conduct by the manufacturer. For example, if the plaintiff establishes a defect in the product that existed at the time the product left the manufacturing plant, where there was no reasonable probability of an effective intermediate examination at the time the product was released, the court may draw an inference that the manufacturer has negligently breached the standard of care without proof of industry practices, benchmarks, or exactly how the defect arose or accident occurred: *Klar* at 23:18; ***Hans*** at paras 328-334; ***Johansson CA*** at paras 80-85; ***Daishowa*** at para 58; ***Lovat*** at paras 273-275; ***Graci v New Steel Roofers Inc***, 2011 ONSC 2384 at para 118 [***Graci***]; ***Viridian QB*** at paras 277-279; ***Meisel***; ***Farro*** at para 19 citing ***Smith v Inglis Ltd***, 1978 CanLII 2148 (NS CA), 83 DLR (3d) 215 at 218-219 [***Smith v Inglis***]; ***Pacific Lumber*** at paras 21(b) and (c), citing ***Grant v Australia Knitting Mills, Limited and Others***, 1935 CanLII 428 (UK JCPC), [1936] AC 85 (PC) at 101, ***Zeppa v Coca-Cola Ltd***, 1955 CanLII 160 (ON CA), [1955] DLR 187 at 191; and ***McMorran v Dominion Stores Ltd***, 1977 CanLII 1196 (ON SC), 74 DLR (3d) 186 at 191 [***McMorran***].

[138] In these latter cases, the inference arises because either the manufacturer's system was at fault or the people carrying out the system were negligent, but the plaintiff need not prove exactly how the defect arose: *Klar* at 23:18; ***Hans*** at para 334(3); ***Johansson* CA** at para 85; ***Graci*** at para 117; ***Lovat*** at para 275.

[139] Inferences can be resisted or neutralized, particularly where the connection between the product's manufacture and the accident, failure or damages is weakened by the intervention of third parties or unforeseen or prolonged use of the product: ***Viridian QB*** at para 279; ***MacLachlan & Mitchell*** at paras 41-42; ***Grafikom*** at para 21; ***Daishowa*** at para 30; ***Fong v Mercedes-Benz Canada Inc***, 2005 CanLII 36042 (ON SC) at para 35 [***Fong***]; ***LeBlanc***; ***Phillips v Chrysler Corporation of Canada Ltd and Roxburgh Motors Ltd***, 1962 CanLII 218 (ON SC), 32 DLR 92d) 347 at 360 [***Phillips***].

[140] As can be seen from the many cases assessing circumstantial evidence in the context of negligent manufacture claims, there is often an overlap between the assessment of factual causation and the standard of care, because factual causation may be necessary or relevant to an inference that the product was defective or that the manufacture acted negligently: ***Johansson CA*** at para 58; Dean F Edgell, *Product Liability Law in Canada* (Markham: Butterworths, 2000) [*Edgell*] at 20.

[141] EnDyn relies on a line of cases for the proposition that when a plaintiff is forced to prove its case from presumptive or circumstantial evidence, the plaintiff's evidence should "exclude the possibility of the accident having been occasioned by any other cause than those relied upon by the plaintiff": ***Daishowa*** at para 27; ***Rentway Canada Ltd v Laidlaw Transport Ltd***, [1989] OJ No 786, 49 CCLT 150 at paras 58-59 aff'd [1994] OJ No 50, 45 ACWS (3d) 373; ***Tilley v Man Roland Canada Inc***, 1999 ABQB 364 at para 145 aff'd 2002 ABCA 309; ***Chabot v Toronto General Trusts Corporation***, 1953 CanLII 621 (MB KB) [***Chabot***]; ***Kinsman v Thomas***, 1995 CanLII 18024 (AB KB) at 189; ***Hanke v Resurfice Corp***, 2003 ABQB 616 at paras 62-63 [***Resurfice QB***] aff'd 2007 SCC 7 [***Resurfice SCC***]; ***Benoit*** at para 5.

[142] In my view, these cases do not stand for the proposition that a plaintiff's case *must* fail if there is any other *possible* explanation for the accident, injury or damages. Other cases and authorities more clearly state that each case turns upon whether the evidence excludes, on the balance of probabilities, other *probable* or *likely* causes or fair inferences: ***Schreiber*** at 85; ***Oland Breweries Limited v Leblanc***, 1994 CanLII 6464 (NB CA) at 5 citing ***Cohen v Coca-Cola Ltd***, 1967 CanLII 79 (SCC) at 288; ***Smith v Inglis*** at 218 and 221 citing Fleming on the Law of Torts, 4th ed p 447; ***MacLachlan & Mitchell*** at paras 20-21; ***Edmonton (City of) v Westinghouse Canada Inc***, 2000 ABCA 80 [***Westinghouse***] at para 15 (Fraser CJ, in dissent); *Edgell* at 21; ***Farro*** at 19; ***Atlantic Speedy Propane v PRO Holdings***, 2001 NBCA 5 at para 11; ***Blackstrap Hospitality Corporation v Aztec Amusements (1992) Ltd***, 2009 ABQB 74 at paras 97-99; ***Lamont Health Care Centre v Delnor Construction Ltd***, 2003 ABQB 998 at para 138; ***656621 BC Ltd*** at paras 32-34; ***McLaughlin Brothers Farming Operations Ltd v Dow Agrosciences Canada Inc***, 2023 NBKB 138 at para 138-140; ***Johansson v General Motors of Canada Ltd*****,** 2011 NSSC 352 at paras 19-20 rev'd on other grounds ***Johannson CA***; ***Hashey v CFM***, 2020 NBQB 159 at para 35.

[143] Proposed causes or theories that are merely conjecture, speculation, or guesses, or based on imagination, are insufficient to avoid liability – instead, proposed causes must arise fairly out

of the actual circumstances established in evidence: *Klar* at 23:18; ***MacLachlan & Mitchell Homes Ltd*** at para 43; ***Ashabi v Lemaire***, 2002 BCSC 914 at para 68 aff'd 2003 BCCA 527 citing ***Walker v Coates***, [1968] SCR 599; ***Chabot*** at 343-344; ***Farro*** at para 19; ***Pennock*** at paras 67-68; ***656621 BC Ltd*** at para 35.

[144] In my view, none of these cases create binding or hard-and-fast rules, since whether an inference is possible or negated will depend on the specific facts of each case: see e.g. ***Johansson CA*** at para 83; ***Hans*** at para 329. Rather, the cases relied on by EnDyn, and noted in the previous paragraphs, are best considered to be illustrations of the general point made by the Supreme Court of Canada in ***Fontaine***, at para 27, namely whether the defendant has produced a "reasonable explanation that is as consistent with no negligence" that will effectively neutralize an inference of negligence.

[145] Ultimately, even if potentially available, whether to draw an inference is up to the trier of fact and is not mandatory: ***Grafikom*** at para 21; ***Westinghouse Canada Inc*** at paras 5-6 and 21; ***Metropolitan Toronto Condominium Corporation*** at paras 17-19.

[146] ATCO's claim that EnDyn breached the standard of care in the manufacture of the 2012 2012 Pistons, including the manufacture and installation of their Plugs. More specifically, ATCO argues that some or all the 2012 Pistons were defective because their Plugs did not have the specified LOCTITE adhesive on them, because some or all them failed because their Plugs became loose in normal operations, and/or because the loose 8R Plug specifically caused the 8R Piston to fail and caused the Incident.

[147] In making its claim, ATCO relies, in part, on evidence about the performance of the Replacement Pistons and the 2015 Pistons, and whether they were defective. I address the use of that evidence before I address ATCO's arguments that the 2012 Pistons were defective.

b. Is Plug Performance Evidence from Other EnDyn Model 528 Pistons Admissible?

[148] ATCO sought to rely on the Other Plug Evidence to show that other EnDyn-manufactured pistons, in addition to the 2012 Pistons, had loose or defective Plugs at relevant times. In particular, ATCO asserts the Replacement Pistons and the 2015 Pistons were discovered by December 2015 to have loose Plugs.

[149] EnDyn objected to the Other Plug Evidence, generally, because it says it was presumptively inadmissible as similar fact evidence and, specifically, because there was no evidence that any of the Replacement Pistons or 2015 Pistons failed. EnDyn raised other grounds in opposition to some specific Other Plug Evidence.

[150] ATCO argued that the Other Plug Evidence was not similar fact evidence because it was being adduced to show direct evidence that EnDyn's manufacturing process was not working, and because it was adduced to rebut EnDyn's manufacturing process evidence.

[151] The principles for similar fact evidence in the context of civil product liability cases in Alberta is settled, and the parties do not appear to disagree with the test: the court may exercise its

discretion to receive similar fact evidence if it is logically probative and its admission would not be unfair or oppressive to the other party: ***Canadian Natural Resources Limited v Arcelormittal Tubular Products Roman SA (Mittal Steel Roman SA)***, 2013 ABQB 439 at para 30[6] [***CNRL QB***] aff'd 2013 ABCA 425. Similar fact evidence is admitted because of an objective improbability of coincidence: ***R v Arp***, 1998 CanLII 769 (SCC) at paras 43-44. Therefore, an important factor is whether there is a real and substantial nexus between an act or an allegation in the case and the facts surrounding the similar event or transaction: ***CNRL QB*** at para 30.

[152] For example, in ***CNRL QB***, the court held that manufacturing issues or defects experienced in the same pipe manufactured by the defendant in the same time-frame as the pipe at issue was relevant and logically probative evidence that could give rise to an inference regarding the manner of production: ***CNRL QB*** at paras 39-41. Several other cases have noted or held that manufacturing problems or defects experienced with the same product and in the same manner as experienced by a plaintiff can be potentially logically probative to a claim that the product in question was defective: ***KN v Alberta***, 1999 ABQB 270 at para 23; ***Tachit v Versatile Manufacturing Ltd***, 1978 CanLII 3310 (AB KB); ***Trans Border Plastics Ltd v Leavens Air Charter Ltd***, [1982] OJ No 2565, 36 OR (2d) 731 (SC); ***Kotylak v McLean's Agra Centre Ltd***, 2000 SKQB 383 at paras 13-16; ***MacDonald v Scotia Chrysler (2010) Limited***, 2021 NSSC 289 at para 43.

[153] While the real and substantial nexus will be a question of fact, in ***R v Handy***, 2002 SCC 56, at para 82, in the context of a sexual assault case where the accused's identity was at issue, the Supreme Court of Canada provided a useful list of factors for courts to consider in determining whether the similar evidence is sufficiently linked or similar to be logically probative. I find the ***Handy*** factors useful as modified to a civil product liability case. The factors (as modified) are: (1) proximity in time of the similar evidence; (2) extent to which the similar evidence is similar in detail to the allegedly defective product at issue; (3) number of occurrences of the similar evidence; (4) circumstances surrounding or relating to the similar evidence; (5) any distinctive feature unifying the incidents; (6) intervening events; and (7) any other factor which would tend to support or rebut the underlying unity of the similar evidence. Not every factor will be applicable in every case.

[154] Considering the factors in this case:

(a) the 2012 Pistons appear to have been manufactured between 2007 and 2012. The potential for a significant time difference in manufacturing of the 2012 Pistons, the Replacement Pistons and the 2015 Pistons, could militate against the usefulness of evidence about issues with those pistons. However, Sleight testified that the EnDyn manufacturing process for all Model 528 Pistons was the same, and there was no evidence the process materially changed since EnDyn's switch to LOCTITE 620. The use of the very same process increases the linkage between the 2012 Pistons and the other EnDyn Model 528 pistons;

(b) the Replacement Pistons and 2015 Pistons were the exact same model of piston as the 2012 Pistons, manufactured the same way, with the same Plug. The Other Plug

[6] The CanLII online version of this decision has an error in the paragraph numbering. Paragraph references herein are to the PDF version of the decision linked to the CanLII online version.

Evidence ATCO seeks to rely on is that the Replacement Pistons and 2015 Pistons had loose Plugs; and

(c) the Replacement Pistons were installed into the very same Engine as the 2012 Pistons and operated as part of that Engine from August 2014 to December 2015. There is no evidence of any intervening events in respect of the Replacement Pistons.

[155] On balance, I find that the Other Plug Evidence is sufficiently connected to 2012 Pistons and logically probative to be considered. While I agree with EnDyn that there is no evidence that the Replacement Pistons or the 2015 Pistons physically failed (even if they are proven to have had loose Plugs), ATCO does not rely on the Other Plug Evidence to prove causation – ATCO relies on it to prove that the 2012 Pistons were defective and, in particular, that the 8R Plug was loose at the time of the Incident. I find the Other Plug Evidence to be logically probative of those issues and can be considered and given appropriate weight, along with the other evidence, in determining if the 2012 Pistons were defective.

[156] I have considered whether admitting the Other Plug Evidence would be unfair or oppressive to EnDyn, including whether the prejudicial effect of the evidence outweighs its probative value. I conclude that it would not be unfair or oppressive to admit the Other Plug Evidence, for several reasons.

[157] First, there is already Other Plug Evidence in the agreed Joint Exhibits, so Other Plug Evidence is not a surprise to EnDyn, and it is fair to allow both parties to provide further explanatory evidence as contemplated by their Exhibits Agreement.

[158] Second, EnDyn presented evidence about its manufacturing and quality control process to rebut the inference that the 2012 Pistons were defective. Given that EnDyn's evidence is that the process did not change during the relevant times, it is appropriate that ATCO is entitled to adduce evidence about other pistons created by that same process.

[159] Third, any fairness concerns about the Other Plug Evidence can be addressed by ensuring the evidence is given appropriate weight having regard to its limits and that it is put in the context of all the evidence. That context includes EnDyn's evidence that it had not experienced issues with loose Plugs in other Model 528 Pistons.

[160] Accordingly, I will review the Other Plug Evidence as part of my assessment of whether the 2012 Pistons had defective Plugs.

c. Were the 2012 Pistons Defective Because They Did Not Have the Specified LOCTITE Adhesive on Them?

[161] In this section, I assess the question of which LOCTITE product was the required adhesive, and then whether that adhesive was present on the Plugs in the 2012 Pistons.

i. What Was the Specified Adhesive?

[162] ATCO argues that the required adhesive for the Plugs was LOCTITE 277, and that the 2012 Pistons had defective Plugs because LOCTITE 277 was not used. It heavily relies on the OEM's Service Bulletin, which expressly refers to LOCTITE 277 being required to ensure the Plug does not experience in-service loosening.

[163] EnDyn's practice was to reverse engineer the OEM products, and to follow the OEM's recommended Plug installation process. However, the undisputed or objectively documented evidence is that, in 2001, EnDyn changed its process to use LOCTITE 620. This is reflected on its available design documentation and "traveller" process documentation. The fact is that EnDyn was not manufacturing the OEM's products; it was manufacturing its own replacement "Power Part" branded products based on the OEM's products, with its own modifications. As noted above, in order to show a defect based on not following the design or manufacturing specifications, it is the *manufacturer's* intended design and manufacturing specifications that are important: ***Daishowa*** at paras 57-58; ***Williamson*** at para 155. Here, EnDyn is the designer and manufacturer and so it is EnDyn's design and process that defines whether the 2012 Pistons were defective. The question of whether EnDyn's design was negligent is addressed later.

[164] Therefore, I find that EnDyn's design and intended manufacturing specification and process required the application of the LOCTITE 620 adhesive to the Plugs, not LOCTITE 277.

ii. Was the Required Adhesive Used on the 2012 Pistons' Plugs?

[165] ATCO asserts that, even if LOCTITE 620 was the specified adhesive, that EnDyn did not use LOCTITE 620 on some or all the 2012 Pistons.

8R Plug's Adhesive

[166] The 8R Plug was significantly damaged in the Incident and was broken into pieces. The largest remaining Plug Remnant had some of its threads remaining, and the photographs indicate a yellow substance in those threads. In his work, Moffat removed some of that substance and confirmed it was yellow.

[167] ATCO argues that the yellow substance is unidentified and that EnDyn has not proven that it was LOCTITE 620 because EnDyn did not prove at trial that the Exemplar provided to Moffat was in fact LOCTITE 620. Moffat's report clearly proceeded on the basis that the Exemplar was LOCTITE 620, but he did not prepare the Exemplar and he based his evidence on what Larson told him about the Exemplar. Earlier in these Reasons I denied EnDyn's application to re-open the trial to allow Larson to testify about his preparation of the Exemplar.

[168] Sleight's evidence was undisputed that, since 2001, EnDyn's practice was to use LOCITITE 620. This is strong evidence that any substance on the Plug Remnant was LOCITITE 620. ATCO points to its colour, and asserts that LOCTITE 620 is green, not yellow, based on a 2015 LOCTITE 620 Technical Data Sheet that indicates that its "Appearance (uncured)" is "Green Liquid^{LMS}". The fact that a Technical Data Sheet specifically qualifies the colour as green liquid

when "uncured" suggests that the appearance may not be the same after it cures. Further, there is no evidence about the colour of LOCTITE 620 prior to 2015 when the 2012 Pistons were manufactured. Hockett testified that, in his experience, LOCTITE only has three colours (red, green and blue) and its colour does not change when it cures. However, Hockett's evidence was cursory: he did not provide a time-frame, he did not explain what types of LOCTITE he had experience with specifically, he did not give any specific examples, and he did not testify that he had experience with the specific colour or appearance of cured LOCTITE 620.

[169] Based on Sleight's uncontradicted evidence of EnDyn's practice of using LOCTITE 620 since 2001, and the implication of the Technical Data Sheet that the cured LOCTITE 620 may have a different appearance than its liquid form, I am satisfied on a balance of probabilities and infer that the substance on the Plug Remnant was likely LOCTITE 620. ATCO has not neutralized that inference. Further, ATCO's suggested inference that the substance on the Plug Remnant was not LOCTITE but something else is not persuasive, or is neutralized by EnDyn's evidence. Based on the work Moffat did, there was a method by which the Plug Remnant substance could likely have been confirmed as LOCTITE 620 or not, but neither party adduced that evidence at trial.

[170] In the circumstances, on the record before me, I find on the balance of probabilities that the substance on the Plug Remnant was LOCTITE 620, which was consistent with EnDyn's manufacturing specifications for the 2012 Pistons. Therefore, the 8R 2012 Piston was not defective on the basis that the 8R Plug did not have LOCTITE 620 on it.

Other Plugs' Adhesive

[171] In addition to the 8R Plug, there is some indication that some of the other 2012 Pistons may have had Plugs that did not have LOCTITE, or properly applied LOCTITE, on them.

[172] For example, some of the photographs of the 2012 Pistons and their Plugs in the Joint Exhibits appear to show a lack of LOCTITE on them. At least one of the Plugs from the 2012 Pistons does not appear to have any adhesive on it. However, without a witness to explain which photographs are of which Plugs, it is impossible to tell whether there are several pictures of the same Plug or multiple Plugs with apparently missing LOCTITE.

[173] Hockett specifically identified, in the Joint Exhibits, two photographs of the 2012 Piston Plugs from the Joint Inspection as not having any adhesive on them – those Plugs appear not to be two pictures of the same Plug as one which appears to have been loose in the box and the other appeared to have been just removed with a tool.[7]

[174] ATCO also adduced Exhibit 21, which on its face was a spreadsheet recording observations of the 2012 Pistons and Plugs at the Joint Inspection, prepared by Kortbeek in the presence of representatives of ATCO, NGC and EnDyn (Sykes). Guiltner was not at the Joint Inspection and did not remember the document, but remembered being told about it. Sleight was also not at the Joint Inspection, but remembers it happening and confirmed he likely received a copy of the

[7] Ex 1.17, 6th and 8th photos, which are from Ex 1.21(b)(Photo 14) and 1.21(b)(Photo 25).

document. McCarthy was also provided a copy of Exhibit 21 (likely by EnDyn or someone on EnDyn's behalf) and he relied on it in preparing the McCarthy Report.

[175] EnDyn objected to Exhibit 21 being entered as an exhibit. It is perplexing why or how EnDyn objected to one of the records it appears to have provided to its expert, and that its expert specifically referenced, discussed, and relied on in reaching his opinion.

[176] Nobody involved in the Joint Inspection testified, even though both parties had representatives there. Accordingly, to the extent it is being relied on for the truth of its contents, it is hearsay. I do not have enough information about why the people present at the Joint Inspection did not testify, or were not available to testify, to admit Exhibit 21 under the principled exception to hearsay based on necessity and threshold reliability: ***R v Philip***, 2022 ABCA 39 at para 22 citing ***R v Bradshaw***, 2017 SCC 35 at para 1.

[177] However, I find that Exhibit 21 can be admitted for some proof of the truth of its contents pursuant to the common law business records exception to hearsay pursuant to the principles as recently summarized by Justice Feasby in ***Rooney v GSL Chevrolet Cadillac Ltd***, 2022 ABKB 813 at paras 28-30:

> [28] GSL tendered a memorandum to file prepared by one of Mr. Rooney's supervisors, Les Huber, concerning an incident for which Mr. Rooney was suspended without pay. GSL did not call Mr. Huber to testify. GSL submits that the memorandum is a business record that may be admitted pursuant to the business records exception to the hearsay rule in accordance with the principles stated in ***Ares v Venner***, 1970 CanLII 5 (SCC), [1970] SCR 608.
>
> [29] Laycraft CJA in ***R v Monkhouse***, 1987 ABCA 227 at para 23 adopted Wigmore's seven criteria for the admission of hearsay business records as modified and restated by J.D. Ewart, Documentary Evidence in Canada (Toronto: Carswell, 1984) at 54. To be admissible, a business record must be:
>
> (1) an original entry;
>
> (2) made contemporaneously;
>
> (3) in the routine;
>
> (4) of business;
>
> (5) by a recorder with personal knowledge of the thing recorded as a result of having done or observed or formulated it;
>
> (6) who had a duty to make the record; and
>
> (7) who had no motive to misrepresent.

> [30] The ***Monkhouse*** approach to business records, including the requirement for there to be no motive to misrepresent, was affirmed in ***R v Ta***, 2010 ABCA 145 at para 9.

[178] In this case, I am satisfied that Kortbeek's recording of observations made during an inspection conducted in the presence of representatives of all interested parties, meets this test and it can be used as some proof of the truth of its contents, failing any contrary evidence to suggest he had some motive to misrepresent or that he inaccurately recorded the inspection.

[179] Exhibit 21 indicates that four of the 16 Plugs from the 2012 Pistons were visually inspected at the Joint Inspection. Three appeared to have been previously removed (2R, 2L and 8L) and one was removed during the Joint Inspection (4L). Of the four, two had "clean threads", one had residual LOCTITE on the first few threads only, and one is referenced as having residual LOCTITE on the threads.

[180] Based on this evidence, the lack of evidence to suggest that anyone had altered the already-removed Plugs prior to the Joint Inspection, and my findings earlier about the substance on the 8R Plug, I am satisfied that it can be inferred that at least two of 16 of the 2012 Pistons' Plugs had LOCTITE on them – the 8R Plug and the 2R Plug (as referred to in Exhibit 21).

[181] I am also satisfied that it can be inferred that at least three of 16 of the 2012 Pistons' Plugs (referred to as 2L, 4L and 8L in Exhibit 21) did not have the specified LOCTITE on them at the time they were manufactured by EnDyn and I find, on the balance of probabilities, that they were defective for that reason.

[182] There was no expectation that EnDyn's customers or end-users would, or would be able to, inspect or check the Plugs to see if it they been installed properly (in particular whether LOCTITE had been applied). Until EnDyn changed its procedure, there was no way to know whether LOCTITE had been used or not.

[183] In these circumstances, it is not necessary for ATCO to adduce expert or industry standard evidence - the inference of negligence is strong and has been described as "practically irresistible": ***Daishowa*** at para 58; ***Klar*** at 23:18; ***Meisel***; ***Johannson CA*** at para 85; ***Hans*** at para 334(3); ***Lovat*** at para 275; ***Newfoundland Power*** at paras 44-47; ***McMorran*** at 191. However, it is open to EnDyn to neutralize the inference of negligence.

[184] Sleight testified about EnDyn's quality control process, including its ISO standards, sampling procedures, and traveller document instructions for the manufacturing facility. However, its process did not prevent these defects from occurring. Further, EnDyn did not provide sufficient expert, industry standard, or other evidence of what reasonable quality control processes in this industry would be for the manufacture of pistons and installation of Plugs. In the circumstances, I am not persuaded that EnDyn has neutralized the inference of negligence with respect to these three pistons and I find that EnDyn breached its standard of care in their manufacture.

[185] With respect to the other 11 of the 2012 Pistons (namely those referred to as 1R, 3R, 4R, 5R, 6R, 7R, 1L, 3L, 5L, 6L and 7L in Exhibit 21), it is unknown why they were not removed during the Joint Inspection to determine if they had LOCTITE on them. Without any direct

evidence about whether the remaining 11 Plugs had LOCTITE on them, I have considered whether the evidence supports an inference that these other pistons' Plugs also did not have any LOCTITE on them.

[186] The evidence is that three of the five inspected Plugs in the 2012 Pistons did not have LOCTITE on them, and that two out of five did have LOCTITE on them. The three Plugs that were missing LOCTITE were also unacceptably loose. There is no example in the evidence of one of the "hand-tight" Plugs not having LOCTITE on it. Sleight's evidence was that EnDyn applied LOCTITE 620 (although at least two of the 2012 Pistons' Plugs did not appear to have LOCTITE applied).

[187] Further, there is no evidence to suggest that EnDyn was aware of problems with its manufacturing process respecting the application of LOCTITE at the time the 2012 Pistons were manufactured.

[188] On balance, I am not persuaded that the evidence of a lack of LOCTITE in the three visually inspected Plugs provides a reasonable basis to infer whether the remaining 11 Plugs had LOCTITE on them or not.

[189] ATCO also argues that, after the Incident, EnDyn changed its process for applying LOCTITE to Plugs, because it began using a painted line together with an applied drop of LOCTITE next to the Plug to indicate that LOCTITE had been applied. EnDyn did not object to the admissibility of this evidence, but argues that it did not in fact change its process as a remedial measure to address any defects. EnDyn argues the changes were made to improve its process, to instill confidence in EnDyn's customers given ATCO's claims, and to provide a tamper-proof seal in the process.

[190] Post-incident conduct is admissible if it is logically probative, but is rarely properly considered an admission of a defect or negligence, or enough to prove a defect on its own. For example, recall notices, service bulletins, or warning letters, while not determinative, can provide some basis in fact that a defect exists across a class of products: ***Spring v Goodyear***, 2020 ABQB 62 at para 99; ***Willar v Ford***, 1991 CanLII 2631 (NB KB) at paras 7-8; ***Adams v Canada (Attorney General)***, 2015 ABQB 527 at para 72. Evidence of repairs, improvements, removal, substitution or the like done after the occurrence of an accident may be admissible as logically relevant even if it is not an admission of negligence: ***Steele v Burgos***, 2010 ABQB 327 at para 77; ***Canadian Pacific Railway Co v City of Calgary***, 1966 CanLII 440 (AB CA) at 645; ***Jetz v Calgary Olympic Development Association***, 2002 ABQB 887 at para 67; ***Anderson v Maple Ridge (District)***, 1992 CanLII 2389 (BC CA) at IV(b); ***Hartlen v Atlantic Wholesalers Ltd***, 1996 CanLII 5403 (NS SC).

[191] I do not treat EnDyn's post-Incident LOCTITE application process changes as an admission that their pistons were previously defective. It is, at best, weak evidence that EnDyn produced defective pistons that did not have LOCTITE on the Plugs. EnDyn's explanation for the reason they made the change is equally plausible. For example, marking the Plug with LOCTITE under the new process would help eliminate the potential problem of not knowing whether an installed Plug had LOCTITE on it without physically removing the Plugs – the precise problem that has arisen with respect to the other 11 Plugs in the 2012 Pistons.

[192] On balance, and even considering EnDyn's LOCTITE application process change, I am not prepared to draw the inference that the other 11 Plugs in the 2012 Pistons were missing the required LOCTITE. ATCO has not discharged its burden to show that they were defective because they were missing the required LOCTITE.

d. Were the 2012 Pistons Defective Because Their Plugs Were Loose?

[193] In its Amended Amended Statement of Claim, ATCO pleads that, in addition to the 8R Plug, the 8L Plug and three other Plugs were loose. ATCO argues that these 2012 Pistons were defective because their Plugs were loose in normal operations.

[194] As part of the manufacturing process, the Plugs are installed and become part of the piston before they leave EnDyn's facilities. The Service Bulletin and EnDyn's evidence, including that of Sleight, make it quite clear that the Plugs are an integral part of the piston, are meant to be tight, are not intended to experience in-service loosening, and should not be unreasonably tampered with by end users.

[195] A key issue, both on the standard of care and causation, is whether the 8R Plug was loose at the time of the Incident. The 8R Plug being loose is a foundational aspect of ATCO's claim. The question is whether I should infer that it was loose based on all the direct and circumstantial evidence.

[196] ATCO argues that the threads on the Plug Remnant show that the 8R Plug had experienced in-service loosening prior to the Incident. ATCO also relies on other circumstantial evidence based on the other 2012 Pistons and the Other Plug Evidence.

[197] With respect to the Plug Remnant threads evidence, ATCO relies on Hockett's review of photographs of the Plug Remnant (including one with a pitch gauge on the threads). Hockett testified that some of the 8R Plugs threads survived the Incident and they showed damage to those threads that showed in-service loosening of the 8R Plug prior to the Incident. However, Hockett did not inspect the Plug Remnant, only photographs, and he did not himself use a thread pitch gauge to measure the surviving threads. McCarthy physically inspected the Plug Remnant and testified that its threads were too damaged to ascertain if the threads were damaged prior to the Incident. Later in these Reasons I address the admissibility and weight of the evidence of both Hockett and McCarthy. However, in respect of this issue, given the extensive damage of the Plug Remnant after the Incident, and notwithstanding Hockett's evidence, I am not persuaded that it can be reliably determined, one way or the other, that any thread damage on the Plug Remnant was caused by pre-Incident loosening of the Plug or the 8R Plug being tossed around as part of or after the Incident, before the Engine shut-down.

[198] Therefore, I am not satisfied on a balance of probabilities that ATCO has established that the Plug Remnant had thread damage indicative of in-service loosening prior to the Incident.

[199] With respect to evidence of looseness in the other 2012 Pistons' Plugs, the letters from FM Global[8] are not admissible to prove the truth of the contents regarding the inspection of the 2012 Pistons on October 31, 2014. However, the July 22, 2014 entry of the Maintenance Log, which is part of the Joint Exhibits, states that "[a]fter inspection we found that the piston plugs were not tight in piston. several [sic] were visually loose without trying to turn them". Further, Exhibit 21 corroborates that four of 16 of the 2012 Pistons' Plugs were likely loose at the Joint Inspection (2R, 2L, 4L, and 8L). Those four pistons were manufactured at different times (in 2007, 2011 and 2012).

[200] Based on this evidence, I find that ATCO has established on the balance of probabilities that these four of the 2012 Pistons' Plugs were likely loose at the time of the Incident, but not the 8R Plug. The 2R Plug's likely looseness notwithstanding it likely had LOCTITE on it, provides at least some evidence that it is possible for a Plug to be loose notwithstanding the presence of LOCTITE. But that is just not enough to support an inference in ATCO's favour.

[201] Again, here, there is no evidence as to why the other 11 Plugs which were referenced as "tight past hand tight" were not tested with a torque wrench to determine if they were unacceptably loose, and I am not prepared to draw an inference that they were unacceptably loose at the time of the Incident based on the Joint Inspection or Exhibit 21.

[202] With respect to the Other Plug Evidence, ATCO argues that loose Plugs were found in the C-5 Compressor in September 2015, although I find this was not proven on a balance of probabilities on the admissible evidence.

[203] ATCO also argues that all 16 of the Plugs in both the Replacement Pistons as well as the 2015 Pistons were loose. Some of the relevant evidence on this question is considered below.

[204] First, ATCO relies on a December 11, 2015, email from ATCO to NGC by which ATCO sent NGC borescope pictures of the Replacement Pistons (Exhibit 12). Neither the person who conducted the Borescope Analysis (or took the borescope photos) nor the author of the email testified at trial. However, this email was produced by NGC in the action.

[205] Rule 5.15(2) provides that a party who makes an affidavit of records or on whose behalf an affidavit of records is filed and a party on whom an affidavit of records is served are both "presumed to admit" that (a) a record specified or referred to in the affidavit is authentic and (b) if a record purports or appears to have been transmitted, the original was sent by the sender and was received by the addressee. The meaning of "authentic" includes that a document that is said to be an original was printed, written, signed or executed as it purports to have been, and a document that is said to be a copy is a true copy of the original: rule 5.15(1). It also includes that a record is what it purports to be and is not a forgery: ***Mikisew Cree First Nation v Canada***, 2002 ABCA 110 at para 21; ***Canadian Natural Resources Limited v Wood Group Mustang (Canada) Inc (IMV Projects Inc)***, 2017 ABQB 106 at para 446, rev'd in part on other grounds 2018 ABCA 305 [***Wood Group CA***], leave to appeal to SCC refused, 38396 (23 May 2019).

[8] Ex 22 and 23.

[206] I find that Exhibit 12 is admissible to prove that it authentically reflects borescope photos of three of the Replacement Pistons. Those photos are blurry and grainy, and of limited value. They do, however, provide some evidence that at least three of the Replacement Pistons' Plugs were loose, and one of which appears to have had a yellow substance on its threads.

[207] Second, a December 21, 2015 email from an ATCO employee to NGC (Exhibit 13) says that all 32 of the Replacement Pistons and 2015 Pistons had loose Plugs. However, that email is not admissible to prove the truth of those statements. Its author did not testify, and ATCO has not established that it is necessary (in the sense the author or some person was not available) or sufficiently reliable based on other evidence. Further, it is not admissible for the truth of its contents as a business record because it was not made contemporaneously with the 2015 Inspection (which was conducted on December 16 and 17, 2015), but rather sets out the understanding of an ATCO employee several days later in circumstances where it has not even been proven that the author was present at or involved in the 2015 Inspection.

[208] Third, the Joint Exhibits support that there were at least some loose Plugs in the Replacement Pistons and the 2015 Pistons.

[209] With respect to the Replacement Pistons, NGC's daily service time tickets indicate that "multiple"[9] or "several"[10] of the Replacement Pistons were visually loose, were releasing Plugs with less force than should have been required, and that EnDyn's representative (Sykes) was to arrange for "good pistons".[11]

[210] With respect to the 2015 Pistons, NGC's daily service time tickets indicate that two of the Plugs released[12] and the plan to replace the Replacement Pistons with the 2015 Pistons was "u-turned".[13] None of the NGC notes describe how many of the 2015 Pistons Plugs were loose, although Sykes instructed all the 2015 Pistons' Plugs to be removed.

[211] Contrary to ATCO's assertion, the admissible evidence does not disclose, or permit a finding, as to exactly how many of the Replacement Pistons or the 2015 Pistons had loose Plugs. None of the parties produced any witness that was involved in or could speak to the results of the Borescope Analysis or the 2015 Inspection or to the emails describing the results of the 2015 Inspection.

[212] The Joint Exhibits further illustrate that NGC's invoice referenced the replacement of pistons "due to the findings of piston plugs coming loose", and that in reference to that same invoice EnDyn noted it had sent 16 no charge replacement pistons, in discussing what it was prepared to do as part of a "settlement" with NGC. NGC viewed EnDyn's settlement as providing a warranty for the pistons and passed through a credit to ATCO. At least 32 pistons appear to have been shipped from ATCO to EnDyn. In my view, while relevant, this evidence is not an admission by EnDyn that all 32 pistons had loose Plugs or were defective, or of its liability or negligence.

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[9] Ex 1.19 (page NGC00427).
[10] Ex 1.19 (page NGC000503).
[11] Ex 1.19 (page NGC00427).
[12] Ex 1.19 (page NGC000502).
[13] Ex 1.19 (page NGC000502).

There are many business reasons why companies reach settlements, including maintaining goodwill with customers as EnDyn's witnesses testified about.

[213] Based on the foregoing, I find that several of the Replacement Pistons and the 2015 Pistons had loose Plugs. Given Sleight's evidence that the manufacturing process was effectively the same throughout the relevant time-frames, loose Plugs in other pistons is logically probative of the question of whether the 8R Plug was loose at the time of the Incident.

[214] In my view, however, if the court is to consider the Other Plug Evidence, it is also appropriate to consider the other evidence of Model 528 Piston performance adduced by EnDyn: see e.g. ***International Piping*** at para 79; ***Canadian Pacific Forest Products*** at paras 22-24; ***Schreiber*** at 80.

[215] EnDyn manufactured several hundred Model 528 Pistons every year, and Sleight had never had a complaint about those pistons, or Plugs coming loose, before ATCO's complaint, and neither he nor Downes had ever seen a piston fail due to loose Plugs (although they had experienced some piston tops come off due to operational issues). Further, after ATCO's complaint was made, EnDyn inspected the pistons it had in its warehouse and found no issues with loose Plugs (although the evidence on this point was quite vague).

[216] On balance, considering all the evidence, I find that the theory that the 8R Plug was loose, and the theory that the 8R Plug was not loose, to be equally plausible and probable. The proposed inferences are of equal strength, and I cannot choose one as more likely than the other. In the circumstances, I am not prepared to draw the inference that the 8R Plug was loose at the time of the Incident and ATCO has not discharged its burden to prove that the 8R Plug was defective because it was loose.

[217] Accordingly, ATCO has only established, on a balance of probabilities, that the 2R, 2L, 4L, and 8L pistons had loose Plugs at the time of the Incident. To infer that they were defective at the time of manufacture, I also must consider whether they became loose in their "ordinary and intended use" or whether there is some other reasonable and probable explanation as to why they became loose other than the way they were manufactured: ***Schreiber*** at 82; ***LeBlanc***; ***International Piping*** at paras 75-79; ***Pennock*** at para 55; *Waddams* at 65.

[218] As noted earlier, it is appropriate to consider, and I have considered, the length of time that the product has been in operation, or other factors that may weaken an inference of negligence: ***Viridian QB*** at para 279; ***MacLachlan & Mitchell*** at paras 41-42; ***Grafikom*** at para 21; ***Daishowa*** at para 30; ***Fong*** at para 35; ***LeBlanc***; ***Phillips*** at 630.

[219] A portion of the daily log (**Daily Log**)[14] and maintenance log (**Maintenance Log**)[15] for the C6 Compressor were in the Joint Exhibits. Hockett testified about ATCO's normal procedures in the operation of compressor engines, including the Engine, and it was not objected to. Hockett could not say whether ATCO had followed the regular annual or semi-annual maintenance of the

[14] Ex 1.5.
[15] Ex 1.3.

2012 Pistons, however, none of the recommended maintenance from the OEM's maintenance manual suggests any maintenance specific to the Plugs.

[220] Further, there is insufficient evidence to find, and EnDyn did not argue, that the Plugs in the 2012 Pistons were used in an abnormal way, or that ATCO operated the 2012 Pistons in a way that would cause the Plugs to come loose absent a defect in the Plugs. EnDyn did not provide any theory or admissible evidence to explain why the 2R, 2L, 4L and 8L pistons were loose.

[221] The Daily Log is missing some substantive entries of the C6 Compressor's operations from June 20, 2014, to the time of the Incident on June 22, 2014, likely because the Engine was shut-down for repair of an oil leak on the turbo charger on June 20. After that period, the Engine operated for 16 hours before it shut down on June 22, 2014. There is no evidence of any shut-down alarms or abnormal use of the Engine during those 16 hours before it failed.

[222] Accordingly, I infer that the 2R, 2L, 4L and 8L pistons (**Defective Pistons**) were defective because there was no reasonable opportunity for the Plugs to be inspected by NGC or ATCO, there is no evidence that they were tampered with before being employed in the Engine, and the Plugs became loose during normal operations. For the reasons set out earlier, including that EnDyn did not provide any expert, industry standard, or other evidence of what reasonable quality control processes in this industry would be for the manufacture of pistons and installation of Plugs, I also infer that EnDyn breached its standard of care with respect to the manufacture of the Defective Pistons.

e. Were the 2012 Pistons Defective Because They Caused the Incident?

[223] As noted earlier, it may be possible for a court to infer that a product is defective if it finds that the product is the cause of the accident, injury or damages suffered by the plaintiff.

[224] In this case, this possible avenue to establish an EnDyn breach of its standard of care is limited to the 8R Piston because ATCO does not advance a theory that any of the other 2012 Pistons caused the Incident. As just noted, I am not satisfied that ATCO has proven, on a balance of probabilities, that the 8R Plug was loose in operations at the time of the Incident, or lacking specified LOCTITE, one or both of which is the foundation for ATCO's theory that EnDyn negligently caused the Incident. ATCO has not asserted or provided sufficient evidence of any other cause of the Incident that could found an inference that the 8R Plug was defective or that EnDyn negligently manufactured the 8R Piston.

[225] I have considered all the admissible evidence and, absent a finding that the 8R Plug was loose, find no other reasonable basis to infer or find that the 8R Piston was defective.

f. Conclusion re Standard of Care

[226] In conclusion, ATCO has proven that EnDyn breached its standard of care with respect to the manufacture of the four Defective Pistons only. The 2L, 4L and 8L pistons were defective and negligently manufactured because they did not have LOCTITE on them and because their Plugs

became loose in normal operations. The 2R piston was defective and negligently manufactured because it became loose in normal operations.

3. Did a Defect in the 2012 Pistons Cause the Incident or Damages?

a. Negligence Causation Framework

[227] The causation analysis in a negligence claim involves two distinct inquiries. First, the defendant's breach must be the factual cause of the plaintiff's loss, and second, the breach must be the legal cause of the loss, meaning that the harm must not be too remote in the sense that the actual injury was the reasonably foreseeable result of the defendant's conduct: ***Nelson*** at paras 96-97; ***LR v Semenjuk***, 2021 ABCA 318 at para 27 [***LR***].

[228] Factual causation is generally assessed using the "but-for" test, which means that the plaintiff must show on a balance of probabilities that the harm would not have occurred but for the defendant's negligent act: ***Nelson*** at para 96; ***Clements (Litigation Guardian of) v Clements***, 2012 SCC 32 at paras 8 and 13 [***Clements***]; ***Resurfice SCC*** at paras 21-22.

[229] In certain specific exceptional circumstances, "proof of factual causation can be replaced by proof of a material contribution to the risk that gave rise to the injury": ***Clements*** at para 33; ***Resurfice SCC*** at paras 24-28; ***Athey v Leonati***, 1996 CanLII 183 (SCC) at paras 15-17. In those instances, a plaintiff may succeed by showing that the defendant's conduct materially contributed to risk of the plaintiff's injury where (a) the plaintiff has established that her loss would not have occurred "but for" the negligence of two or more tortfeasors, each possibly in fact responsible for the loss; and (b) the plaintiff, through no fault of its own, is unable to show that any one of the possible tortfeasors in fact was the necessary or "but for" cause of the injury, because each can point to one another as the possible "but for" cause of the injury, defeating a finding of causation on a balance of probabilities against anyone: ***Clements*** at para 46. The critical threshold for the application of the material contribution to risk approach is the impossibility of proving which of two or more possible tortious causes is in fact a cause of the injury: ***West v Knowles***, 2021 ONCA 296 at para 38 citing ***Donleavy v Ultramar Ltd***, 2019 ONCA 687 at para 69.

[230] Although ATCO claimed NGC was blameworthy in the Amended Amended Statement of Claim, ATCO settled its claim against NGC. EnDyn defended ATCO's claim on the basis that NGC contributed to any losses through its own negligence, and EnDyn filed a Notice of Claim against Co-Defendant against NGC. However, NGC did not participate in the trial (other than through Guiltner's witness testimony). Neither ATCO nor EnDyn adduced evidence to suggest that NGC was negligent in the installation of the 2012 Pistons during the 2012 Overhaul, in any subsequent maintenance, or its 2014 repair work. A trial judge has discretion about whether to draw inferences from an absence of evidence, provided that the overall record justifies the drawing of such an inference: ***Hudson King v Lightstream Resources Ltd***, 2020 ABQB 149 at para 334 citing ***Stikeman Elliott LLP v 2083878 Alberta Ltd***, 2019 ABCA 274 at para 51 and ***Pfeifer v Westfair Foods Ltd***, 2004 ABCA 422 at para 20. Accordingly, I infer that NGC was not negligent and, therefore, there is no impossibility of proving which of two or more possible tortious defendants was in fact the cause of the Incident. The material contribution framework is not engaged. The applicable factual causation test is the but-for test.

[231] The but-for test must be applied in a robust, common sense and pragmatic fashion and there is no need for scientific evidence of the precise contribution the defendant's negligence made to the injury: ***Clements*** at paras 9-11 and 46; ***Snell v Farrell***, [1990] 2 SCR 311 at 328 and 330 [***Snell***]; ***LR*** at para 28.

[232] In cases where the exact circumstances of the problem or accident cannot be adduced by direct evidence, evidence connecting the breach of the duty to the injury suffered may permit the judge, depending on the circumstances, to infer that the defendant's negligence probably caused the loss: ***Clements*** at paras 10-11; ***Athey*** at para 16; ***Snell*** at 330; ***Resurfice QB*** at paras 54-58; ***Daishowa*** at paras 17-18. As noted earlier, whether to draw an inference is a matter for the trial judge based on the strength of the evidence on both sides, including a consideration of whether the evidence excludes, on the balance of probabilities, other probable or likely causes or fair inferences except the inference that the defendant's negligence caused the accident or injury: see the cases cited at paras [127] to [145] above.

[233] Finally, causation is not mutually exclusive. There can be more than one "but-for" cause in fact: ***Peppler Estate v Lee***, 2020 ABCA 282 at para 171; ***Resurfice SCC*** at para 21. Therefore, it is possible that both defendant and plaintiff theories of causation could co-exist.

[234] Within the causation framework, I consider below several issues that are raised in this case.

b. Did Defective 2012 Pistons Cause the Incident?

[235] As noted earlier, there is insufficient evidentiary basis to infer or conclude that the Four Defective Pistons caused the Incident, and neither party asserted that they did. In the circumstances, based on the absence of evidence, I draw the inference that the Four Defective Pistons do not meet the but-for test in respect of the Incident.

[236] Further, I have already determined that ATCO did not discharge its onus to show that the 8R Plug was loose or defective, or that the 8R Piston otherwise caused the Incident. However, in case I am wrong, I assess below whether ATCO would have established, on a balance of probabilities, factual causation of the Incident if it is assumed the 8R Piston was defective because the 8R Plug was loose at the time of the Incident.

c. If it is Assumed the 8R Plug was Loose, did it Cause the Incident?

[237] Much of the trial dealt with whether a loose 8R Plug caused the Incident. That is ATCO's position. EnDyn's position is that ATCO did not meet its burden to prove that and, further, the likely cause of the Incident was detonation, not a loose 8R Plug. Simplistically put, detonation (sometimes referred to as a "knock") involves unintended and unwanted combustion of the air/fuel mixture in the piston cylinder before it normally would. ATCO argues that, even if the Incident was caused by detonation, it does not mean that it was not also caused by the loose Plug.

[238] There are several evidentiary issues raised by the parties' approach to causation, which are addressed below.

i. Hockett and Sleight as "Witnesses with Expertise"

[239] ATCO did not use an independent expert in this case. Its causation case relies heavily on Hockett's evidence. EnDyn also relies on Sleight's evidence. Both Hockett and Sleight may be "witnesses with expertise" who are in some respect witnesses of fact and in some respects opinion witnesses.

[240] In ***Kon Construction Ltd v Terranova Developments Ltd***, 2015 ABCA 249 at para 35 [***Kon Construction***], the Court of Appeal noted that there are at least three categories of "witnesses with expertise":

> (a) Independent experts who are retained to provide opinions about issues in the litigation, but were not otherwise involved in the underlying events. This is the category of expert witness contemplated by ***White Burgess*** and ***Mohan***.
>
> (b) Witnesses with expertise who were involved in the events underlying the litigation, but are not themselves litigants. An example is the family physician in a personal injury case who is called upon to testify about his or her observations of the plaintiff, and the treatment provided.
>
> (c) Litigants (including the officers and employees of corporate litigants) who have expertise, and who were actually involved in the events underlying the litigation. ...

[241] For witnesses in the third category, it is unnecessary to prove that such a witness is "impartial, independent and unbiased", as discussed in ***White Burgess Langille Inman v Abbott and Haliburton Co***, 2015 SCC 23 [***White Burgess***], because litigants are no longer disqualified as witnesses because of their obvious interest in the case: see also ***Kon Construction*** at para 38; *Alberta Evidence Act*, RSA 2000, c A-18, sections 3 and 4. It is also unnecessary to qualify these witnesses as experts under the procedure in ***R v Mohan***, [1994] 2 SCR 9 [***Mohan***]: ***Kon Construction*** at para 40. Parties to litigation are entitled to testify and the witnesses are subject to pre-trial questioning: ***Kon Construction*** at para 39.

[242] The Court of Appeal's recognition of litigants having expertise must be regarded with some caution and in the context of the facts of ***Kon Construction***. In that case, the litigant witnesses with expertise were involved in the very matters that were at issue in the litigation, and their testimony, including perhaps some opinion evidence, was required to explain why they acted the way they did. ***Kon Construction*** was never stated or intended to be a less expensive or more expeditious back-door to supplant the need for independent expert evidence.

[243] In my view, opinion evidence offered by litigant witnesses with expertise has several limitations as evident from ***Kon Construction*** and other cases interpreting it since, including ***O'Kane v Lilliqvist-O'Kane***, 2021 ABQB 925 at paras 25-26 [***O'Kane QB***] aff'd ***O'Kane CA***; ***Signalta Resources Limited v Canadian Natural Resources Limited***, 2023 ABKB 108 at paras 399-404; ***Annett v Enterprise Rent-A-Car Canada Ltd***, 2019 ABQB 734 at paras 207-213; ***Racette v Saskatchewan***, 2020 SKCA 2 at para 61, leave to appeal to SCC refused, 39060 (7 May 2020). In my view, the limitations include that (1) the opinion must be relevant to an issue in the

action; (2) the opinion must be based on the witness' actual involvement in, or observations made at the time of, the underlying facts in the action, not on other facts that they review for the purposes of the prosecution or defence of the action; and (3) the court may give the opinion little or no weight, depending on the other evidence before the court and the purpose for which the opinion is sought to be used.

[244] ATCO also suggests that Hockett's evidence is separately supported as lay opinion evidence under ***R v Graat***, [1982] 2 SCR 819, as "opinions that are merely compilations of ordinary observations": ***Kon Construction*** at para 21. As recently explained in by Justice Feasby in ***O'Kane QB*** at para 10 (footnotes omitted):

> [10] Following ***Graat***, leading texts have distilled four criteria for admitting lay evidence under the compendious statement of facts exception that have, in turn, been accepted by courts. Lay opinion evidence may only be accepted if:
>
> (1) the lay witness is in a better position than the trier of fact to form the conclusion;
>
> (2) the conclusion is one that persons of ordinary experience are able to make;
>
> (3) the witness, although not expert, has the experiential capacity to make the conclusion; and
>
> (4) the opinions being expressed are merely a compendious mode of stating facts that are too subtle or complicated to be narrated as effectively without resort to conclusions.

[245] I now turn to consider Hockett and Sleight's evidence pursuant to these principles.

ii. Hockett's Opinion Evidence on Causation

[246] Although ATCO did not provide an expert report in Form 25 as required for an independent expert under rule 5.34, ATCO did provide EnDyn significant advance notice of Hockett's opinion in the form of a will-say statement (which was not an exhibit in the trial).

[247] EnDyn objects to Hockett providing opinion about the cause of the Incident, but does not object to his providing factual evidence of his observations.

[248] In 2018, almost four years after the Incident, Hockett started his new role as maintenance manager at the Carbon facility. Part of his job was to ensure the Carbon facility's equipment ran properly and safely. Early on in that role, he came across and inspected the 2012 Pistons and some related components in boxes in the facility. His evidence is that he did this to ensure a similar failure did not occur again.

[249] Based on Hockett's initial observations, he concluded that the cause of the 8R Piston failure was unlikely detonation. He concluded the cause was mechanical failure.

[250] Sometime after that, he was asked by ATCO's external legal counsel to "get involved in the case". It is not clear from his evidence when he was asked to get involved in the case – at one point he testified that it was in late 2018 or 2019, and at another point he suggested it was shortly after he first looked at the 2012 Pistons (which he testified he inspected shortly after he started in his Maintenance Manager position in early 2018). Therefore, it is not clear from his evidence what exactly Hockett reviewed before or after he was "involved in the case", beyond the 2012 Pistons themselves. For example, his evidence is vague as to whether he reviewed ATCO's Daily Log and Maintenance Log as part of his involvement in ensuring the proper operation and safety of the Carbon facility, or as part of his involvement in the prosecution of the case, or both.

[251] Further, Hockett did not describe why his inspection of the 2012 Pistons in 2018 was relevant to ensuring the safe operation of the Carbon facility. By that time, the damage caused by the Incident had long been repaired, the Replacement Pistons had themselves been replaced, and, by the time of trial, ATCO did not have any EnDyn pistons left in ATCO's stock.

[252] In my view, it stretches the concept of the litigant witness with expertise beyond its reasonable limits to suggest that Hockett, almost four years after the Incident, and almost two years after the action was started, was involved in the "underlying events" in the litigation after he became "involved in the case" in 2018 or 2019. ATCO's operations of the Carbon facility from late 2018 or 2019, and later, and ATCO's prosecution of its action, is not an issue or underlying event in the action. ATCO's creative attempt to use ***Kon Construction*** to permit it to have one of its employees offer opinion evidence long after-the-fact is not persuasive.

[253] I am also concerned that Hockett's opinion evidence strays beyond his skill, experience, training or expertise. Hockett's experience is as a heavy-duty mechanic. He has experience from his various roles dealing with engine and piston failures, although the extent of his experience in those areas was not explained in detail. Further, Hockett is not an engineer and is not qualified to provide opinions requiring mechanical engineering training.

[254] Finally, I am not satisfied that many, if any, of Hockett's observations are conclusions that persons of ordinary experience are able to make, to allow him to provide lay opinion as contemplated by ***Graat***.

[255] Accordingly, based on the foregoing, I only give any weight to Hockett's initial opinion formed when he first inspected the 2012 Pistons in 2018, and to his general factual observations of what he observed. I also give some limited weight to his general evidence about piston failures based on his experience, but in the context that he had no particular training on failure mechanisms and testified that ATCO generally engaged "others that have the technical knowledge." I also give some weight to his evidence of normal maintenance and operation procedures for ATCO's compressors based on his experience. But I give little-to-no weight to Hockett's opinion about the cause of the Incident and, in particular, whether a loose Plug from the 8R Piston caused the Incident.

iii. Sleight's Opinion Evidence on Causation and the EnDyn Report

[256] Sleight has an engineering degree with a "priority" on internal combustion engines. He has significant experience in the manufacture, operation, quality control and failure of pistons for the type of Engine at issue, as it was a core aspect of EnDyn's business.

[257] Sleight's causation evidence included the EnDyn Report that he competed in January 2016, one day after the Joint Inspection. Sleight was involved once EnDyn was notified of ATCO's claim against EnDyn in mid-2015. He did not attend the 2016 Joint Inspection, but he based the EnDyn Report partly on the results of that inspection. The purpose of the EnDyn Report was to attempt to confirm FM Global's preliminary failure analysis which suggested that the Incident was due to loose Plugs. (FM Global's preliminary failure analysis was not before the court, and I give no weight to its conclusions).

[258] Sleight's work more clearly falls within the ambit of ***Kon Construction***, as it was after EnDyn was made aware of ATCO's position that the Incident was caused by EnDyn. On the other hand, the need for Sleight to explain why he did what he did (namely the preparation of the EnDyn Report) is not clear.

[259] In any event, I give the EnDyn Report little-to-no weight for several reasons. First, as the quality control manager, Sleight had a direct interest in disproving ATCO's proposed causation of the Incident. Second, Sleight did not personally inspect the 2012 Pistons or the Plug Remnant, but relied on Sykes' participation in the Joint Inspection. Third, Sleight told Sykes that Sleight was "not that interested" in inspecting the other 2012 Pistons. Fourth, the EnDyn Report relies on a computer model which was not adequately explained or verified. Fifth, the EnDyn Report's model was not a dynamic model and did not model the failure in operation. Sixth, the EnDyn Report was finished the very next day following the Joint Inspection which suggests it was made with haste (or had been previously prepared before the Joint Inspection, which might suggest the conclusion had already been reached or was subject to confirmation bias). Finally, the EnDyn Report does not actually offer any opinion as to the causation of the Incident.

[260] In the circumstances, as with Hockett, I only given material weight to Sleight's factual observations and his general evidence about piston failures based on his experience. I give little-to-no weight to his opinion reflected in the EnDyn Report about whether the Incident was caused by a loose Plug from the 8R Piston or something else.

[261] ATCO objected at trial to the EnDyn's use of the EnDyn Report at trial due its late disclosure, including based on rule 5.16. The EnDyn Report was expressly referenced or included in the McCarthy Report which was signed in June 2021 based on the Form 25. It was also included in a late supplemental affidavit of records before trial. I am satisfied that it had been previously disclosed well before trial, ATCO was likely aware of it and had the opportunity to address it in discovery prior to trial if it so desired. This is quite different than the Late Disclosure that ATCO sought to rely on. In any event, ATCO did not seek to have the EnDyn Report declared inadmissible and unusable during the trial, but rather chose to deal with it in cross-examination and to have me rule on its admissibility and use after trial. Further, ATCO's objection is moot, in any event, as I have already decided not to give the EnDyn Report material weight.

iv. McCarthy's Opinion Evidence

[262] EnDyn sought to have McCarthy qualified as an expert in mechanical engineering. He was not tendered as an expert in piston failure, causation or failure analysis, or piston detonation.

[263] Admission of expert evidence depends on the application of the four threshold requirements set out in ***Mohan***, namely relevance, necessity in assisting the trier of fact, the absence of an exclusionary rule, and a properly qualified expert: ***Mohan*** at 20-25; ***White Burgess*** at para 19.

[264] ATCO objected to the qualification of McCarthy as an expert but sought to proceed directly to cross-examination on the report rather than on his qualifications. Based on the evidence presented, I qualified McCarthy as an expert in mechanical engineering and, with the agreement of counsel, deferred the determination of the use or weight of his evidence until after trial.

[265] Even if qualified as an expert, external independent witnesses must limit their testimony to their area of expertise: ***R v McPhail***, 2019 ABCA 427 at para 4 citing ***R v Sekhon***, 2014 SCC 15 at para 46. Further, they are expected to display a basic level of independence and objectivity: ***Kon Construction*** at para 36. They must provide evidence that is unbiased, "fair, objective and nonpartisan": ***White Burgess*** at paras 10 and 32.

[266] I have carefully reviewed the McCarthy Report and McCarthy's testimony. I have serious concerns about giving weight to McCarthy's opinion on the cause of the Incident, for several reasons, including a lack of expertise, inherent bias, partiality, advocacy, and unreliable work product.

[267] McCarthy had significant experience in various mechanical engineering roles, and in conducting failure analysis on commercial and industrial structures. However, he did not describe any personal experience with piston-engines or piston failure. He acknowledged that he has not had any personal experience with detonation. He was unable to say whether he had any experience with the type of engine at issue. To assess detonation, he relied on information from an automotive engine parts manufacturer even though those pistons did not involve natural gas engines, or pistons with Plugs. On balance, I find that McCarthy did not have expertise in failure or causation analysis of pistons, the type of engine involved in the Incident, or detonation.

[268] McCarthy and his firm were retained in March 2016 by the adjuster for EnDyn's insurer, to advise the insurer on a theory of failure. In that time-frame, long before he wrote his reports, McCarthy had a conference call with EnDyn and the insurer, and he either did not keep notes or did not append them to his report. He gave no evidence about the details of what was discussed in that meeting, but confirmed in cross-examination that EnDyn had told him its views of what caused the Incident. Emails following that meeting, which were later provided to McCarthy's firm, illustrate that EnDyn and its insurer were trying to find data "that can be used to confirm detonation". The insurer engaged its in-house engineer to assist in the investigation and "work with [McCarthy's firm] on this claim". McCarthy was provided and relied on the EnDyn Report prepared by Sleight which discounted causation based on a loose Plug, even though McCarthy did not appear to make any inquiries or investigation into the undescribed computer model Sleight used. I have already decided to give the EnDyn Report little-to-no weight.

[269] Further, McCarthy also relied on photographic examples of piston failures or near failures provided by Sleight, indicating they had failure mechanisms similar to the 8R Piston, without inspecting those pistons himself, and without knowing the history or context of those pistons or the accuracy of what Sleight told him about them. He also relied on the fracture of a piston at the third ring land as indicative of detonation, but the only source of that information was from EnDyn (the automotive industry literature he relied on suggested cracking at a different location). On balance, I find that McCarthy's work and testimony were tainted with confirmation bias and a lack of impartiality.

[270] McCarthy's evidence also took on the tone of an advocate at times. For example, even though it was not in his report, he offered in oral testimony his opinion that LOCTITE 620 was a reasonable application for use in tightening and securing the Plugs in EnDyn's process. He offered that opinion even though he is not a chemist, did not establish that he had expertise in thread-locker adhesives, and did not provide any explanation or back-up support for his opinion. In his report, he described LOCTITE 620 as a product "designed for the bonding of cylindrical fitting parts, such as threaded plugs, and is intended to prevent loosening and leakage from shock and vibration" (emphasis added). The description of a threaded plug as an example of a cylindrical fitting part was misleading because the LOCTITE 620 Technical Data Sheet did not say anything about its use on threaded plugs (as opposed to the LOCTITE 277 Technical Data Sheet which expressly referenced threaded fasteners). I disregard completely McCarthy's evidence about LOCTITE 620's appropriateness for use in the manufacture of the Model 528 Pistons or the installation of the Plugs as part of EnDyn's manufacturing process.

[271] In his evidence, McCarthy made a point of noting that the 8R Piston had been operating at a higher temperature than the other 2012 Pistons leading up to the Incident, which he relied on as some support for his conclusion that the Incident was caused by detonation. However, he did not provide evidence explaining at what operating temperatures there was an increased risk of detonation. He was not aware of what the recommended operating temperature range was for the pistons and so could not say that a higher temperature was in or out of an acceptable operating temperature range.

[272] McCarthy relied on the NGC Report's reference to detonation, but did not do any independent work to confirm its contents. Further, he acknowledged that he singled out the NGC Report reference because he was told detonation was a factor worth investigating. He did not attempt to speak to anyone at ATCO or NGC that was involved with the operation of the Engine before its failure, or its repair.

[273] In concluding that the cause of the Incident was likely detonation (which he assigned a specific 75% probability), McCarthy relied in part on what he described as "issues with the appropriate fuel to air ratios" noted in the Maintenance Log, which was a reference to the air-fuel ratio (AFR) having been manually adjusted in summer 2013 when the Carbon facility changed its natural gas source. However, McCarthy did not seem know what the recommended AFR was for the operation of the Engine or the Model 528 Pistons, and in cross-examination acknowledged that he was unable to provide any commentary about the AFR or whether it was an issue in the Incident.

[274] In all of the circumstances, I am not satisfied that McCarthy had the expertise to provide an expert opinion on the cause of the Incident, combustion engine or piston failure, or detonation.

I also find his causation analysis to be superficial, flawed and tainted by the views of EnDyn and its insurer. I therefore give no weight to his causation analysis.

[275] However, as a qualified expert in mechanical engineering generally, I am satisfied that McCarthy had the expertise and experience to provide expert opinion evidence, and displayed sufficient independence and objectivity with respect to, general mechanical engineering concepts. I gave some weight to that evidence. Further, McCarthy personally inspected the 2012 Pistons and the Plug Remnant, and his observations are appropriate factual evidence that I have considered: ***Kon Construction*** at para 35-37.

v. Assessment of the Causation Evidence

[276] As noted earlier, my assessment of the causation evidence is based on the assumption that the 8R Plug was loose during normal operations (which is not what I have found). In that context, I make the following comments, inferences, and factual findings relevant to my assessment of causation:

(a) NGC installed the 2012 Pistons in the Engine in 2012. NGC was in the business of building new compression equipment and servicing existing equipment in the field. As noted earlier, there is no specific evidence that NGC did not follow ordinary or appropriate procedures;

(b) in July 2013, the AFR in the Engine was off due to Carbon facility's injection/withdrawal change, and the AFR was manually adjusted. ATCO staff were given a quick tutorial on how to change the settings. There is no evidence whether a similar change or adjustment occurred in summer 2014 prior to the Incident;

(c) from the time the 2012 Pistons were installed in the Engine, they operated a total of 7,877 hours, which is significantly less than the expected life of Model 528 Pistons or the Engine but was approximately 21 months after 2012 Overhaul;

(d) in the weeks leading up to the Incident, the 8R Piston was running at a higher temperature than the other pistons in the Engine, however, up until July 19, 2014 it was generally operating within normal operating temperatures;

(e) on July 20, 2014, two days before the Engine's failure, the Engine was low on engine oil pressure due to a blown turbo oil feed line. Based on the Maintenance Log, the issued was fixed and the Engine restarted that day;

(f) the Daily Log for the Engine does not include any entries for the Engine's pressures, temperatures, AFR or the 2012 Pistons pyrometer temperatures from July 20, 2014 to the time of failure on July 22, 2014. The Engine ran for 18 hours without these measurements before the blown turbo oil feed line, and another 16 hours without these measurements after the blown turbo oil feed line was fixed on July 20. Therefore, some information about the operating parameters of the Engine and its pistons in the hours immediately before the Incident is not available;

(g) I infer that, as a result of or part of the Incident, the 8R Piston's crown, and the 8R Plug, detached from the rest of the 8R Piston and were tossed around in the 8R Piston cylinder or the Engine until the Engine shut down. The pieces of the crown were damaged and became "rounded" in this process. The aluminum 8R Plug broke into pieces (including the Plug Remnant) which became severely damaged and rounded from the impact. The 8R Piston liner breached, and glycol coolant entered the oil crankcase;[16]

(h) the Engine shut down between 4:00 am and 4:30 am on July 22, 2014 due to low coolant levels;[17]

(i) ATCO's inspection of the Engine after it shut down revealed that other pistons in the Engine had loose Plugs – as noted earlier, I have found on a balance of probabilities that Plugs were loose in the four Defective Pistons. However, other than the 8R Piston, there is no evidence that any of the other 2012 Pistons, including those the Four Defective Pistons, failed;

(j) on the assumption that the 8R Plug was loose, from the evidence it can be inferred that the 8R Plug came into contact of some kind with the connecting rod. However, given the fact that pieces of the detached piston crown and the 8R Plug / Plug Remnant were tossed around at high speeds following the incident, they likely also came into contact with the connecting rod and the evidence is insufficient to infer whether the damage to the connecting rod was caused by the 8R Plug or the Incident (or both). The wrist pin and the connecting rod bushing were not damaged;

(k) in normal ignition in the Model 528 Pistons, the spark plug fires just before the piston reaches top dead center and the air fuel burns consistently and evenly as the piston moves through the power stroke;

(l) in Hockett's experience indicators of detonation include (1) heat traces; (2) missing components like the piston's leading edge or the ring lands; (3) scoring of the liner; and (4) spark plug damage;

(m) NGC assisted ATCO with the inspection of the Engine and the 2012 Pistons after the Incident. NGC's employee involved in that work noted in his daily service Time ticket that the 2012 Pistons "all have signs of detonation";[18]

(n) the NGC Report is admissible as some proof of the truth of its contents as an NGC business record. While I limit its weight because its authors were not made available to be questioned, it is some proof of the truth that NGC inspected the Engine's piston tops and observed signs of detonation on each piston, and took pictures of the 2012 Pistons before they were removed from the piston cylinders and the Engine was removed from the facility. Hockett had not seen those pictures

[16] Ex 1.6; Maintenance Log.
[17] Ex 1.4; Ex 1.6; Ex 1.18.
[18] Ex1.19 (Daily Service Time Ticket 68095).

when he did his initial inspection in 2018, and he acknowledged they showed evidence of heat checking and signs of detonation on the piston tops and edges (in the form of heat tracing or scorching). Hockett's evidence corroborated the NGC Report, and together they both corroborated the observations in the NGC Daily Service Time Ticket. I find on the balance of probabilities that at least some of the other piston tops in the Engine had signs of detonation and/or evidence of a heat source. These photos are corroborated by other photos in the Joint Exhibits. The 8R Piston had some scuffing on its side. However, the sides of the other 2012 Pistons did not have propagation of detonation on them. There is no evidence of the state of the other 2012 Piston liners;

(o) the crown of the 8R Piston detached from the rest of the piston at the third ring land. Hockett agreed that the detachment at the third ring land is a potential indicator of detonation;

(p) the 8R Piston's skirt also detached and fell into the crankcase. In Hockett's experience the skirt and piston ring lands are the first to get hit in detonation;

(q) there is no evidence of the state of the 8R Piston's combustion chamber or spark plugs following the incident, or whether it was investigated;

(r) based on his inspection of the 2012 Pistons in 2018, and his experience, and before he was aware of any loose Plugs, Hockett believed the 8R Piston showed signs of mechanical damage, that he did not believe detonation caused the failure, and part of the reason for that was that there was no indication of detonation on the pistons. At trial, Hockett was much less definitive and certain about detonation, and acknowledged some indicators of detonation were present;

(s) Hockett gave evidence that engines are normally de-carbonized when pistons are removed, which involves removing and buffing out a carbon ring before the pistons are removed. He testified that "so a picture from above of this without physically being there and looking, its's very difficult to say that it's detonation or not". The NGC Report confirms that the liners were decarbonized, and the pistons were prepared for removal.[19] I find that strong evidence of the state of the 2012 Pistons following the Incident was immediately after the Incident, before the pistons were all removed, as reflected in the NGC daily service time tickets and the NGC Report. I give that evidence (as well as photos from 2014 and 2016) more weight than Hockett's observations in 2018 based on his limited inspection of the 2012 Pistons several years after the Incident;

(t) Hockett testified that there would be a "slide hammer" effect by which the loose 8R Plug would have moved up and down on its threads causing damage to the Plug and its threads. I am not satisfied that Hockett has the requisite expertise to provide opinion or expert evidence of a slide hammer effect, or that it would produce these particular results. Further, it was not an opinion he made based on his initial

[19] Ex 11, page 18.

observations of the 2012 Pistons and he never inspected the 8R Plug Remnant. I give this evidence no weight;

(u) as noted earlier, at the time of the Incident, EnDyn had never had a complaint about Plugs coming loose in its Model 528 Pistons, and had never heard of a piston failing due to a loose Plug. Hockett had never seen an EnDyn piston fail due to loose Plugs but testified he had seen others; and

(v) several of the Replacement Pistons and the 2015 Pistons were defective because they had loose Plugs in normal operations (or even before normal operations). However, I find that none of the Replacement Pistons, which were in operation from fall 2014 until December 2015, caused an incident like the Incident even though some of them had loose Plugs.

[277] ATCO's theory of causation is based on Hockett's conclusion that the cause of the Incident was not detonation but was due to mechanical damage based on a loose 8R Plug. He explained his causation theory this way in cross-examination:

> Q So the piston threads came loose. The piston vibrated within the cast steel that caused the threads to deteriorate, and then the piston [sic] either unscrewed or came down. The connecting rod then popped the piston and with enough force to break off the top of the -- of the crown?
>
> A Correct.
>
> Q Have I got that right?
>
> A Yes, sir.
>
> Q That's your theory?
>
> A That's my theory.

[278] I find that ATCO has not provided sufficient evidence for me to reasonably infer Hockett's theory of causation. Based on all the evidence, the stronger inference and probable cause of the Incident was detonation which caused the 8R Piston crown to detach from the rest of the piston at the 3rd ring land and the 8R Piston skirt to detach. Either the detonation or the loose pieces of the detached piston crown, or both, damaged the 8R Piston's cylinder liner and caused coolant leakage that shut down the Engine. Accordingly, ATCO has not proven its primary theory of causation, that the 8R Plug caused the Incident without detonation, on a balance of probabilities.

[279] But that does not end the analysis. As ATCO noted in argument, a loose 8R Plug and detonation are not necessarily mutually exclusive theories of causation. ATCO only needs to prove that the Incident would not have happened but-for a loose 8R Plug. ATCO argued the 8R Plug vibrated, loosened or damaged the Plugs threads and the loose 8R Plug moved in a slide hammer fashion along its threads to create enough friction to cause detonation. Further, it is conceivable

that coolant might leak through a loose Plug (although this was not proven on a balance of probabilities).

[280] Further, if the 8R Plug was loose (as assumed for the purposes of this analysis), was defective at the time of manufacture with no reasonable opportunity or expectation of inspection, and the 8R Piston was used in normal operations, then EnDyn's negligence could potentially be inferred. An inference of EnDyn's negligence can, in turn, support an inference that EnDyn's negligence was a factual cause of the Incident, without requiring ATCO to prove the specific cause.

[281] However, even if the 8R Plug is assumed to have been loose, in my view, any potential inference of factual causation is neutralized by the other evidence considered in its totality. Further, the Other Plug Evidence suggests that it is unlikely that loose Plugs in Model 528 Pistons cause detonation or piston failure. I make this finding based on the evidence of other loose Plugs being in operation in the 2012 Pistons and the Replacement Pistons, likely for significant periods, without detonation or incidents akin to the Incident, together with EnDyn's evidence of a lack of similar incidents in the many hundreds of Model 528 Pistons manufactured by EnDyn in the same way prior to the Incident. EnDyn effectively neutralized any causation inference to the point that I would decline to draw a causation inference even if a loose 8R Plug is assumed.

[282] Therefore, even if I am wrong in my conclusion that ATCO did not meet the burden to show that the 8R Plug was loose at the time of the Incident, and it was in fact loose, ATCO nonetheless has not met its burden to establish factual causation. In the circumstances, I need not address legal causation respecting the Incident although, if I had found factual causation, I would also have found legal causation to be established.

d. Did EnDyn's Negligence in the Manufacture of the Four Defective Pistons Cause ATCO Other Damages?

[283] Even though ATCO has not proven that EnDyn's negligence caused the Incident, it remains to be considered whether some of ATCO's incurred repair costs related to the Defective Pistons should be recovered.

[284] The liability rule in ***Winnipeg Condominium*** allows for recovery of the cost of removing or averting the danger posed by the dangerous product: ***Winnipeg Condominium*** at paras 36-37 and 48-50; ***Maple Leaf Foods*** at paras 48 and 52; ***Rieger*** at para 44. Where it is feasible to discard the defective product, the basis of recovery is limited to the costs incurred to discard it, however, where it is not feasible to discard it then the costs to repair or replace the defective component may be recoverable: ***Maple Leaf Foods*** at paras 51-52; ***Rieger*** at para 44. Where a dangerously defective product is integrated within a larger machine like an engine, or is integrated into the plaintiff's operations, then repair or replacement may be the only feasible option: ***Maple Leaf Foods*** at para 52; ***Plas-Tex*** at paras 137-139; ***Hyundai Auto Canada Corp v Engen***, 2023 ABCA 85 at para 41; ***Nissan Canada*** at paras 63-65.

[285] I find that the 2012 Pistons were so integrated into the Engine and the C6 Compressor, which was necessary for ATCO's gas storage operations, that it was not feasible for ATCO to simply discard the Defective Pistons. ATCO incurred costs in replacing them, and I find that those costs were sufficiently caused by the defects in the Defective Pistons. ATCO's recovery in respect

of the Defective Pistons should not be precluded simply because it was the Incident, for which EnDyn is not responsible, which caused the discovery of the Defective Pistons. Had the Incident not occurred, and the Defective Pistons had been discovered, they would likely have been replaced (much as occurred with the Replacement Pistons when defects were discovered).

D. Is EnDyn Liable for Negligent Design of the 2012 Pistons?

[286] ATCO also appears to claim that EnDyn negligently designed the 2012 Pistons, in part because it changed the OEM's design from using LOCTITE 277 to LOCTITE 620.

[287] A manufacturer has a duty of care to avoid safety risks and to make products that are reasonably safe for their intended purpose: ***Daishowa*** at paras 37-38; ***St Isidore*** at para 20.

[288] To prove negligent design, the onus is on the plaintiff to prove a design defect that creates a substantial risk of foreseeable harm and an alternative design that is both safer and economically feasible to manufacture, based on a risk-utility analysis involving a number of factors: ***St Isidore*** at para 21 and 23; ***Burr*** at paras 56-59; ***Hans*** at para 334(6)-(8); ***Daishowa*** at paras 38-39.

[289] Further, a manufacturer can only be held liable if the product in question had a design defect based on a safety risk that the manufacturer either knew, or ought to have known about, at the time the product was manufactured, or which came to its attention afterwards, and it failed to address that risk: ***St Isidore*** at para 23; ***Burr*** at para 59. A manufacturer should be held to the same level of knowledge and expertise as an expert in the field: ***St Isidore*** at para 23.

[290] ATCO's negligent design claim fails. While ATCO has proven that one or two of the 2012 Pistons likely had LOCTITE 620 on it and was loose, those limited evidentiary examples, without more, are insufficient to prove that the use of LOCTITE 620 was a defective or negligent design. While I rejected McCarthy's opinion that the use of LOCTITE 620 was a reasonable design, ATCO provided no expert evidence that the use of LOCTITE 620 was a defective design. ATCO also did not adduce evidence necessary to conduct the risk-utility analysis required by a negligent design claim. Further, and in any event, ATCO has not proven that EnDyn knew or ought to have known that the use of LOCTITE 620 was defective or created a substantial risk of foreseeable harm. I am satisfied that EnDyn consulted with the LOCTITE manufacturer prior to using LOCTITE 620 (even though, at trial, Sleight may have been unsure of the LOCTITE manufacturer's identity). EnDyn had used LOCTITE 620 for years before the manufacture of the 2012 Pistons and had not been made aware of any issues prior to the Incident. There is no evidence EnDyn was aware, or ought to have been aware, of any design defects in Model 528 Pistons at the time the 2012 Pistons were manufactured.

E. Is EnDyn Liable for Failure to Warn about the 2012 Pistons?

[291] In ***St Isidore***, the Court of Appeal confirmed: (1) a manufacturer must take reasonable steps to provide warnings to permit its product to be used safely; (2) once the manufacturer becomes aware of a danger involved in the continued use of its product for the purpose for which it was designed, it has a duty to warn; (3) the duty to warn is continuing and includes dangers discovered after the product has been sold and delivered; and (4) the duty to warn may still exist even where the consumer has some knowledge of the risk but reasonably relies on the manufacturer and/or

supplier: ***St Isidore*** at paras 32-36; ***Lambert*** at 574-575; ***Rivtow Marine*** at 1209-1210; ***Hollis v Dow Corning Corp***, 1995 CanLII 55 (SCC) at para 20 [***Hollis***]; ***Tilley v Man Roland Canada Inc***, 2002 ABCA 309 at para 7; ***Daishowa*** at paras 62-63. The nature and scope of the manufacturer's duty to warn varies with the level of danger entailed by the ordinary use of the product: ***Daishowa*** at para 63; ***Hollis*** at para 22.

[292] ATCO's duty to warn claim fails at least in part for the same reason as the negligent design claim. I find there is insufficient evidence that EnDyn was aware of dangers associated with the 2012 Pistons, or its Model 528 Pistons more generally, when they were sold or prior to the Incident.

F. If EnDyn is liable to ATCO, what are ATCO's Damages?

[293] Based on the foregoing, ATCO has not proven that it is entitled to the quantum of damages claimed for the costs incurred after the Incident. In the circumstances, it is not necessary for me to engage in the difficult analysis of the claimed costs to determine whether ATCO has proven that all of its claimed costs were actually caused by the Incident as opposed to other work ATCO decided to do when the Engine was down (for example, the replacement of a turbo charger in the absence of evidence that it was damaged in the Incident).

[294] ATCO is only entitled to the cost of replacing the four Defective Pistons. I have considered all the evidence. It is difficult to parse out the cost of replacing the Defective Pistons from the estimates and invoices related to the 2014 NGC work following the Incident. I have considered the 2014 invoices, but also find the $75,968.12 cost incurred to replace the 16 Replacement Pistons in December 2015 as reliable evidence of the overall cost to replace defective pistons. Accordingly, I assess the cost of replacing the four Defective Pistons to be 25% of this amount, or $18,992.03. I am not satisfied that any ATCO employee costs were necessary to replace the Defective Pistons and they are not recoverable.

[295] Subject to my comments below in respect of the NGC Settlement, ATCO is entitled to judgment against Energy Dynamics Limited (the EnDyn manufacturing entity) in the amount of $18,992.03 together with pre-judgment interest at the prescribed rate from October 1, 2014 to judgment (based on the date and terms of the NGC invoices related to the 2014 repair work and the inference they were paid within 30 days after the invoice): *Judgment Interest Act*, RSA 2000 c J-1, sections 2(1) and 4(2).

G. If EnDyn is liable to ATCO, was ATCO at Fault?

[296] EnDyn claims that ATCO was contributorily negligent. I find that EnDyn has not proven on the balance of probabilities that ATCO's conduct in any way caused or contributed to the defects in the Defective Pistons. Further, EnDyn has not proven that ATCO was negligent in its use of the Defective Pistons. ATCO is not contributorily negligent.

H. What is the Effect of the NGC Settlement?

[297] The parties did not address the effect of the NGC Settlement in their written argument. In oral argument, EnDyn indicated that if it is held to be liable it would apply to have the terms of

the NGC Settlement disclosed. ATCO indicated that it would disclose the NGC Settlement if liability was established.

[298] The impact of *Pierringer* agreements can be complex, and can affect both damages and costs: see discussion in ***Wood Group CA*** at paras 126-162. In this case, for example, ATCO claimed that EnDyn and NGC were both at fault for the Incident. However, as I noted above, there is insufficient evidence to suggest that NGC was in any way negligent in respect of the manufacture or supply of the 2012 Pistons or had any reasonable opportunity or expectation to inspect their Plugs. It was not argued by ATCO or EnDyn that NGC contributed to any defects in the 2012 Pistons. However, ATCO also relied on the *Sale of Goods Act*, RSA 2000 c S-2 in its claim against NGC, a matter not addressed at trial due to the NGC Settlement.

[299] In the circumstances, it is appropriate for the parties to consider these Reasons and any potential impact of the NGC Settlement prior to the finalization of my judgment in this matter. I reserve my decision in respect of the potential impact of the NGC Settlement pending agreement of the parties or further submissions.

V. Conclusion

[300] Subject to the potential impact of the NGC Settlement, ATCO is entitled to judgment against Energy Dynamics Limited in the amount of $18,992.03 plus pre-judgment interest at the prescribed rate from October 1, 2014 to the date of judgment.

[301] If the parties cannot agree on an appropriate form of final judgment or costs, they have leave to contact my office and I will set a process for determination of any remaining issues. I direct the parties to advise me of the status of these matters within 30 days of these Reasons.

Heard on November 28, 2022, to December 2, 2022, April 13, 2023, November 1, 2023 and December 12, 2023, written submissions received on February 7, 2023, March 7 and 23, 2023, August 31, 2023, September 5, 6, 7, 26 and 28, 2023, October 4, 2023 and December 11, 2023.

Dated at Calgary, Alberta this 26th day of March, 2024.

M.A. Marion
J.C.K.B.A.

Appearances:

Alex McKay and Christian J. Popowich
for the Plaintiffs

David M. Pick and Kristina Persaud
for the Defendants