Hogan Lovells US LLP
Columbia Square
555 Thirteenth Street, NW
Washington, DC 20004
T +1 202 637 5600
F +1 202 637 5910
www.hoganlovells.com

December 18, 2023

The Honorable Ann Carlson
Acting Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
Washington, D.C. 20590

RE: NHTSA Docket No. NHTSA-2023-0038; Initial Decision That Certain Frontal Driver and Passenger Air Bag Inflators Manufactured by ARC Automotive Inc. and Delphi Automotive Systems LLC Contain a Safety Defect; and Scheduling of a Public Meeting

Dear Ms. Carlson:

On behalf of Hyundai Motor America ("HMA") this letter responds to the National Highway Traffic Safety Administration's ("NHTSA" or "Agency") notice of an "Initial Decision That Certain Frontal Driver and Passenger Air Bag Inflators Manufactured by ARC Automotive Inc. and Delphi Automotive Systems LLC Contain a Safety Defect" ("Initial Decision") and provides HMA's written information, views, and arguments establishing that there is no defect that affects motor vehicle safety for the docket pursuant to 49 U.S.C. § 30118(b)(1) and 49 C.F.R. § 554.10.[1]

I. <u>Background</u>

The airbag inflators covered by the Initial Decision ("Subject Inflators") have been the subject of one of the longest safety defect investigations in NHTSA's 50-plus year history.[2] NHTSA's investigation has spanned more than eight years and has involved extensive

---

[1] Docket No. NHTSA-2023-0038; 88 Fed. Reg. 62140 (Sept. 8, 2023).

[2] The Subject Inflators are "approximately 41 million frontal hybrid, toroidal driver and passenger inflators manufactured by ARC from 2000 through the implementation of the borescope examination process in January 2018, and the approximately 11 million driver hybrid, toroidal inflators manufactured by Delphi under its licensing agreement with ARC." 88 Fed. Reg. at 62141.

collaboration and cooperation from 12 OEMs, four Tier 1 suppliers and two Tier 2 suppliers.[3] Each of the 18 manufacturers has investigated and evaluated the issue and none has determined that a safety defect exists across the broad subject population. The investigation has included many terabytes of data submissions to the Agency, nearly 30 information requests covering both U.S. and overseas markets, a Special Order, five Standing General Orders to submit data and information to the Agency on an ongoing basis, multiple government-industry task forces, and a half-dozen engineering deep-dives and testing programs. Notwithstanding these efforts, the investigation has identified a total of only seven field inflator ruptures in the U.S. market (and nine worldwide). Where parts were available for investigation of these seven incidents, none of the investigations resulted in a finding of blockage from weld slag as a root cause. Rather the investigations pointed to separate, distinct root causes that were addressed by safety recalls. Thus, none of the seven incidents, together or individually, support the "weld slag" defect theory that is the basis of NHTSA's Initial Decision. This subject population has 23 years of operating history. As discussed in more detail below, the field experience in this case does not show a "systematic and prevalent"[4] defect trend that is subject to recall under NHTSA's statutory authority.

II. <u>In The Absence of a Defect Trend, HMA Proposes a Coordinated Monitoring Program Rather than a Recall</u>

Despite the length of the investigation, NHTSA's investigative file does not demonstrate a common root cause for the very few ruptures in the field. As a result, it cannot support a finding of an unreasonable risk to safety warranting a recall of 52 million ARC and Delphi manufactured inflators.[5] Nor does the information in NHTSA's file support a finding of a

---

[3] NHTSA Office of Defects Investigation Preliminary Evaluation PE15-027 was opened on July 13, 2015.

[4] *See* U.S. v. General Motors Corp., 561 F.2d 923, 929 (D.C. Cir. 1977), *cert. denied*, 434 U.S. 1033 (1978) (Leventhal, J., dissenting in part).

[5] In an Agency Defect Determination like this one, NHTSA has the initial burden of proving the existence of a safety defect in the first instance. The D.C. Circuit has outlined the relevant legal framework, explaining that the government has the initial burden of proving a Safety Act violation by a preponderance of the evidence. *U.S. v. General Motors Corp*., 518 F. 2d 420, 438 (D.C. Cir. 1975) ("*Wheels II*"). This could be done by introducing evidence of "a significant number of failures," after which the manufacturer may rebut the presumption of a defect. In this case, where there are no supporting field incidents, and no confirmed root cause, the burden remains on the government to establish its prima facie case, after which the burden shifts to the manufacturer to establish an affirmative defense. *Id*. at 447. NHTSA's public outreach materials confirm this burden-shifting structure. *See* NHTSA, Motor Vehicle Safety Defects and Recalls: What Every Vehicle Owner Should Know, DOT HS808 795 at 10 (Revised August 2017) (a manufacturer can challenge a

manufacturing process defect. The proposed recall population includes many different inflator models, with different propellant loads, and different dimensions, made over a 23 period, by two different manufacturers, on three continents, in multiple factories and on multiple lines. NHTSA's file does not support a recall of all these diverse designs made in different locations around the world. In fact, 11 million of the recalled inflators were made by a manufacturer that has never had a reported field rupture and whose manufacturing processes have never been questioned or evaluated by the Agency.

To identify whether and to what extent a design defect or a common systematic manufacturing defect may exist, HMA is pursuing a program to monitor, inspect, analyze, and evaluate inflators recovered from the field. HMA will share its work with NHTSA and will seek information obtained through NHTSA's more extensive use of its investigatory powers over ARC, which HMA suggests be used to obtain critical technical information that has not yet been obtained. Such a program would include a detailed analysis of returned airbag inflators to develop an understanding of build and quality variation as measured to design specifications. It would also include a thorough review of ARC product development, field performance, and manufacturing quality testing, including Lot Acceptance Testing ("LAT") ruptures. Through this process, a more complete understanding and investigative record regarding the safety of the ARC toroidal inflators, including inflators manufactured after ARC's implementation of the borescope inspection process can be developed. HMA believes this program will help provide guidance on potential future field actions involving ARC inflators, prioritizing occupant safety consistent with NHTSA's procedures and precedent for making safety defect determinations.[6]

---

final agency defect determination or NHTSA can go to court to compel a manufacturer to make a safety defect determination, and "[o]nce a case is in court, the burden of proof lies with the agency. In other words, the agency's evidence that a defect exists and that it is safety-related must be sufficient in the opinion of the court to outweigh the evidence to the contrary presented by the manufacturer."). Accordingly, the Safety Act jurisprudence does not require the manufacturer to disprove a safety defect in the absence of a defect trend. **[**

] It is not the burden of the manufacturer to disprove the existence of a safety defect in a case like this, where an OEM like HMA has had zero ruptures in the ARC inflators used in the U.S. market.

[6] To the extent excess weld slag is a factor in field or LAT ruptures, such a program can also be used to identify what additional causal factors are required to detach the slag during deployment and result in blockage.

This more targeted, data-driven approach is far more likely to protect drivers and passengers than the overbroad, omnibus approach suggested in the Initial Decision.

III. NHTSA is Not Following Its Own Well-Established Procedures, Guidelines, and Principles for Airbag Defect Determinations

NHTSA has well-established rules, procedures, guidelines and principles for making safety defect determinations under its statutory authority to declare the existence of safety defects under 49 U.S.C. § 30118. The Agency formally recognized the importance of having these procedures, and publicly documented them over forty years ago.[7] The Agency is not following its own principles and precedent in this case. If it did, it would find that there is insufficient evidence of a safety defect to support a recall decision here.

A. NHTSA Guidance and Applicability to ARC

NHTSA has an extensive record of dealing with airbag concerns. The Agency has even developed a Risk Matrix tool specifically to guide it and manufacturers in making decisions about investigating potential safety defects in airbags.[8] The airbag Risk Matrix guidance specifically addresses the unique risks of airbag inflator *ruptures*.

The guidance explains that incidents relevant to defect trends "must be verified for a common fault condition," which is defined as incidents involving the "same part; same failure mode; same/similar conditions leading to failure."[9] In other words, to be aggregated for the purpose of a frequency or trend assessment, relevant failures must be "due to distinct component failure," i.e., result from a common root cause.[10] The airbag Risk Matrix indicates that when the known failure rate for a common fault is at or below 1 failure per 100,000 over a 30-month period, then the risk is "remote."[11] "Remote" risks are one of five different frequency levels in the tool. "Remote" frequency is the lowest frequency rate, and less frequent than "low" or "unlikely."[12] The overall risk classification considers both the frequency of occurrence, and the severity level of the type of failure at issue. Remote occurrences are the

---

7 49 C.F.R. Part 554; 45 Fed. Reg. 10797 (Feb. 19, 1980).
8 *See* NHTSA, Air Bags (Front) Risk Matrix.
9 *Id*.
10 *Id*.
11 *Id*.
12 *Id*.

opposite of the "substantial number"[13] of "systematic" and "prevalent" failures that trigger the safety defect recall requirements that NHTSA is invoking with its Initial Decision.

NHTSA has identified seven failures that it assumes are relevant here. For these failures to be relevant to the identification of a safety defect trend under NHTSA's own guidance, they would have to be the result of the same root cause, or potentially the result of the same root cause. Yet all existing evidence indicates that the failures are not the result of a common root cause. Even if the known failure rate were assumed to be 7 per 54,000,000 (1 per 7,428,571), that would equate to 0.13 per 100,000 over a 23 year period. NHTSA's Risk Matrix provides that the relevant failure rate is based on failures in the last 30 months. In the ARC case, there have been four ruptures in the last 30 months, but all of those have been addressed by safety recalls, as discussed below. The number of failures in the last 30 months which have not been subject to a recall is <u>zero</u>. If failures of 1 per 100,000 over 30 months are classified as a remote risk, then failures of 0 per many million over 23 years are clearly not appropriately subject to a safety recall. At NHTSA's October 6, 2023 public meeting it presented a finding by its statistician that indicated that the projected future deployment rate was 1 per 370,000 deployments, which is still over three times lower than the 1/100,000 "remote frequency" level used in NHTSA's own guidance. The projection also used all seven past failures which occurred over 22 years, not the last 30 months, and were the result of multiple distinct root causes. NHTSA's information collection efforts also ordered OEMs to submit global data on rupture incidents, but NHTSA has not included total global production numbers in its failure rate calculations. All of these aspects of NHTSA's frequency calculations combine to significantly overstate the projected frequency of future ruptures. These assumptions are also gross deviations from the Agency's own past methodologies and are fundamentally inconsistent with its previous approaches to frequency assessments.

On December 4, 2023, two months after NHTSA's statistician testified at the public meeting, and more than six weeks after NHTSA's original comment deadline, NHTSA posted one of their statisticians' work papers to the NHTSA investigation database. The document is entitled **[** **]** It is unfortunate that this document was not presented and explained at the public meeting where

[13] *See Wheels II* at 438 & n.84 ("We use the term 'significant' to indicate that there must be a non-de minimus number of failures. The question whether a 'significant' number of failures have taken place must be answered in terms of the facts and circumstances of each particular case. Relevant considerations include the failure rate of the component in question, failure rates of comparable components, and the importance of the component to the safe operation of the vehicle. The number of failures need not be and normally will not be a substantial percentage of the total number of components produced.").

NHTSA's statistician testified. It appears to conclude that a total of **[** **]** As explained in this letter, this projection is flawed in numerous ways that tend to overstate the risk of future ruptures. For example, NHTSA assumes that there have been seven prior ruptures arising from a common manufacturing root cause, when in fact the information in NHTSA's investigative file indicates the number of prior ruptures potentially arising from a common root cause is much lower. NHTSA's investigative file indicates the number of prior ruptures potentially arising from a common root cause (propellant overloading) is no more than four. This would significantly reduce the expected number of future ruptures in NHTSA's own analysis – even if NHTSA's projected number of future airbag deployments is correct – by reducing the rupture rate from 1 per 370,000 to 1 per 675,000. But the recently posted material indicates that NHTSA's statistical projection of deployments is not correct. For example, it assumes that passenger and driver-side airbags have the same deployment rate, most vehicle miles travelled are by single occupant vehicles, and passenger-side deployments are a small fraction of driver-side deployments. NHTSA also bases its annualized frontal crash frequency (and expected airbag deployment rates) on data from light trucks only. The subject inflators are used in both light trucks and passenger cars, so it's unclear why only frequency data from light trucks was used. Similarly, NHTSA's attrition model aggregates all car and light truck attrition into one attrition rate (without considering differences in vehicle age, value, and other conditions specific to each model) which can significantly overestimate the length of time subject vehicles will be in operation. All of these assumptions in the projection analysis combine to overstate the potential frequency of future ruptures. The actual number of projectable future ruptures is significantly lower than three over the next 32 years. And even if it were three, it would be dramatically lower than NHTSA's "remote frequency" threshold of 1/100,000.

B. Inconsistency with Takata Precedent

Although NHTSA tries to justify its Initial Decision by citing the Takata equipment recall, NHTSA's proposed ARC recall is entirely inconsistent with its decision-making in the Takata case.[14] In its Initial Decision, NHTSA claims that at the time it issued a recall request letter to Takata, there were only six known inflator ruptures, or "one less than identified here."[15]

---

[14] *See* NHTSA Recall Nos. 15E-040, 15E-041, 15E-042, 15E-043, 16E-005; Docket No. NHTSA-2015-0055 (Coordinated Remedy Program Proceeding).

[15] 88 Fed. Reg. at 62142 n. 4.

However, the recall referenced by NHTSA expanded the scope of several prior recalls of Takata inflators. It cannot be seriously contended that NHTSA acted based on six ruptures. In fact, the Agency ignores three critical differences between the ARC case and the Takata case. In the Takata investigation: i) there was a clearly understood consensus on root cause at the time the recall request letter was sent – degradation of propellant in environments with high ambient temperatures and high humidity; ii) the Takata root cause was a design defect that affected all 67 million Takata airbag inflators; and iii) because the mechanism of failure was related to propellant degradation, worsening risk of rupture over time was a certainty. None of these factors applies here.

Unlike the Takata inflator ruptures, there is no known root cause of the proposed defect trend behind NHTSA's Initial Decision, only a manufacturing process theory, with little to no related evidence. Even if that theory has merit, it does not imply, as a design theory might, that the entire subject population is at risk of rupture. By their very nature field actions based on manufacturing processes are always limited to sub-populations by process, time-period, model, plant or manufacturing line. NHTSA's own decisions reflect this clear precedent.[16]

In stark contrast to the Takata precedent, the ARC investigation to date suggests that the number of potential future failures related to NHTSA's theory is remote. The theory behind NHTSA's hypothetical root cause is that excess weld slag of a certain size will be deposited on a sporadic basis, due to an unidentified manufacturing condition. Under undetermined in-use conditions this slag might theoretically come loose and lodge in the exhaust orifice of an undefined number of units during a rare deployment scenario. This speculative theory of potential future occurrences is the polar opposite of the Takata root cause, a design defect that affected every unit ever produced in the recall population. Even when built properly as designed, the nature of the chemistry of the Takata propellant made it susceptible to degradation over time when exposed to expected in-use temperatures and humidity. All units produced with this same propellant were expected to experience this same degradation process , and after enough time and exposure, all 67 million units were expected to be susceptible to over-pressure deployment and rupture. [17] NHTSA acknowledged these facts were an important part of its safety risk analysis in that case.[18] In the ARC case, in contrast,

---

[16] *See*, *e.g.*, NHTSA Recall No. 21V-632 (airbag recall to address suspect inflators produced during supplier manufacturing process in which moisture was introduced, and aggravated by thermal cycling in high-temperature regions); NHTSA Recall No. 21V-504 (airbag recall to address defect cause by moisture intrusion during manufacturing process; parts outside of suspect production window not included in recall).

[17] *See generally* EA15-001, Amendment to November 3, 2015 Consent Order (May 3, 2016).

[18] Docket No. NHTSA-2015-0055, Coordinated Remedy Order ¶ 32 (Nov. 3, 2015) ("Since the propensity for rupture increases with the age of the inflator, and increases even more when the vehicle has been exposed

even accepting the frequency projection developed by NHTSA – which as explained above vastly overstates the likelihood of future failures – the number of future failures is much smaller and does not include the risk-accelerator that was present in the Takata case.

C. Technical Basis for Recall Decisions

Over 50 years of NHTSA's investigation precedent has established that safety recalls must be initiated when there is a reasonable technical basis to anticipate a substantial number of failures with an unreasonable safety risk in the future. NHTSA guidance and precedent have established that there are two potential, and alternative, technical bases to anticipate a substantial number of future failures: 1) field experience showing a significant number of past failures; or 2) engineering analysis that identifies a common root cause and failure mode that can be predicted to occur in the future using engineering judgment.

In the Takata case there was a well-understood root cause for a common failure mode, which enabled the Agency to identify a safety defect despite a low number of field failures at the time of the first defect determination.[19] In fact, NHTSA and affected OEMs were so confident in their understanding of the Takata root cause and failure mechanism that NHTSA developed a phased recall program of unprecedented scope and duration that prioritized the recall of older vehicles in higher humidity environments, and allowed for delayed recalls of new vehicles registered in less humid areas.[20]

---

to consistent long-term HAH conditions, the risk for injurious or lethal rupture increases with each passing day").

[19] The Takata defect information reports stated that propellant wafers in recalled inflators "may experience an alteration over time, which could potentially lead to over-aggressive combustion in the event of an air bag deployment" and "create excessive internal pressure when the air bag is deployed, which could result in the body of the inflator rupturing upon deployment." *See, e.g.*, Defect Information Report, Recall 15E-040 (May 18, 2015). The potential for such ruptures may occur "after several years of exposure to persistent conditions of high absolute humidity." *Id*. NHTSA found that the propellant in the recalled inflators had "a propensity to ignite and/or burn in an unexpected way that may cause the pressure inside the inflator to increase too quickly, causing the inflator to rupture." Docket No. NHTSA-2015-0055, Coordinated Remedy Order ¶ 29 (Nov. 3, 2015).

[20] NHTSA prioritized the various Takata recalls based on certain identified risk factors, including the age of the inflator, with older inflators presenting a greater risk of rupture; geographic location of the inflator, with continuous exposure to high absolute humidity areas presenting a greater risk of rupture; and location of the inflator in the vehicle, with both driver and passenger airbag inflators presenting the greatest risk of rupture, and driver-side only presenting an elevated risk of rupture. *Id*. ¶ 38. Accordingly, the Agency established distinct priority groups, with those posing the highest risk of rupture being those with the oldest inflators located in "high absolute humidity" region and having either a recalled driver-side inflator or both driver and

NHTSA's own recall history *aside from* Takata further illustrates this point. There have been a number of airbag recalls conducted with zero field failures, but in each of those cases there was a well-understood root cause that established the risk of a substantial number of future failures based on engineering judgment.[21] While either a substantial number of field failures or a clearly established root cause and failure mechanism can be sufficient to find a safety defect, the ARC investigation has neither.

One of NHTSA's most significant formal recall determinations, that involving Ford Firestone tires, serves as an important precedent for this type of Agency proceeding. In that investigation, NHTSA conducted extensive analyses that identified at least three different specific root causes, supported by a wide range of testing and investigation, including field data analysis, shearography, physical inspections, and an analysis of testing performed by Firestone and Ford. The Agency involved several testing laboratories and issued an 85-page report of its findings.[22] NHTSA's extensive technical findings in the Takata stand in stark contrast to the current situation, which is almost entirely lacking in findings or evidence.

IV. <u>NHTSA Has Not Identified Sufficient Evidence of a Safety Defect in This Case</u>

NHTSA's broad authority to make safety defect determinations and order related recalls is not unlimited. In addition to following its own procedures and precedent, NHTSA can order a recall only where it makes a formal finding that a vehicle or item of equipment contains a defect related to motor vehicle safety.[23] Defects related to motor vehicle safety are defined under the Safety Act as deficiencies in performance due to design or manufacturing issues which create an unreasonable risk of death or injury.[24] Congress intended to take a "common sense" approach to motor vehicle safety, which requires that a finding of an "unreasonable

---

passenger-side inflators in the same vehicle. *Id*. ¶ 38a. NHTSA ultimately concluded that "at some point in the future all non-desiccated frontal Takata PSAN inflators will reach a threshold level of degradation that could result in the inflator becoming unreasonably dangerous." EA15-001, Amendment to November 3, 2015 Consent Order ¶ 12 (May 3, 2016).

[21] *See, e.g*., NHTSA Recall No. 21V-800 (Volvo recall of inflators that could rupture if propellant tablets were subjected to elevated moisture levels and high temperatures); NHTSA Recall No. 17E-075 (Autoliv recall for inflators in which a subcomponent with improper geometry could detach during curtain airbag deployment); NHTSA Recall No. 08V-517 (GM recall of inflators that could fracture at an inflator tube during deployment).

[22] Office of Defects Investigation, Engineering Analysis Report and Initial Decision Regarding EA00-023: Firestone Wilderness AT Tires (Oct. 2001).

[23] *See* 49 U.S.C. § 30118(b).

[24] *See* 49 U.S.C. § 30102(a)(9).

risk" must include a number of necessary attributes including: a) sufficient evidence of a substantial number of reasonably foreseeable failures in the future;[25] and b) a finding (often implicit, but mandatory) that the safety benefit of the recall justifies the cost.[26]

A safety defect cannot be found on the record developed in this case because there is no factual basis to expect that a substantial number of failures will occur in the future. For the same reason, there cannot be a finding of sufficient safety benefit, which is also required by law.

A. No Basis to Find a Risk of a Substantial Number of Future Failures

---

[25] *Wheels II*, 518 F. 2d at 438.

[26] *Id*. at 435-436 ("costs must be considered in determining what safety measures are required by the Act"; S. Rep. No. 1301 , 89th Cong., 2d Sess. 6 (1966), U.S. Code Cong. & Admin. News 1966 at 2714 ("The [Senate Commerce] committee recognizes . . . that the Secretary will necessarily consider reasonableness of cost, feasibility and adequate lead time" in the issuance of safety standards). *See also United States v. General Motors*, 656 F. Supp. 1555, 1579 (D.D.C. 1987) *("X-Cars")* ("The unreasonableness of any risk to safety must be assessed relatively in at least three dimensions: (1) the severity of the harm it threatens; (2) the frequency with which that harm occurs in the threatened population relative to its incidence in the general population; and (3) the economic, social, and safety consequences of reducing the risk to a so-called 'reasonable' level."). **[** **]** NHTSA**[** **]** incorrectly concluded that the costs and benefits of the recall could not be considered and need not be evaluated under the Motor Vehicle Safety Act. **[**

] In fact, the D.C. Circuit case law and the legislative history of the statute support a common sense interpretation of the term "unreasonable" that includes a consideration of costs and benefits. For example, the court in the *Wheels II* case stated that "the word 'unreasonable' was placed in the [Safety Act] to signify a 'commonsense' balancing of safety benefits and economic cost." 518 F. 2d at 435. The court continued that "[t]he commonsense limitation reflects an awareness that costs must be considered in determining what safety measures are required by the Act." *Id*. at 436. *See also* S. Rep. No. 1301 , 89th Cong., 2d Sess. 6 (1966), U.S. Code Cong. & Admin. News 1966 at 2714: *X-Cars* at 1579 ("[A] significant risk that can be remedied at a proportionate cost, and without a corresponding sacrifice of public safety in other respects, is generally to be regarded as an 'unreasonable risk' which the Act mandates that the manufacturer must rectify," but conversely, "if the only 'remedies' are ineffective, prohibitively expensive, or affirmatively detrimental to public safety, even a significant risk may nevertheless be 'reasonable' as a matter of law.").

As discussed above, two alternative factual or engineering bases may support a safety recall : a) field data showing a substantial number of similar failures to date or b) conclusive identification of a common root cause and related failure mechanism that can be predicted to occur with substantial frequency based on engineering judgment. NHTSA has never ordered a recall without at least one of these bases but is inexplicably proposing to do so now.

1. A Substantial Number of Past Failures Does Not Exist

What constitutes a substantial number of failures is determined on a case-by-case basis after considering the number of failures of the component in question, the failure rates of comparable components and the safety impact of the component involved.

To date, there have been a total of seven failures out of 52 million inflators produced for the U.S. market. As discussed below, of these seven failures, three have been confirmed to be the result of a root cause that is different than the weld slag hypothesis put forward by NHTSA, and another four have already been the subject of recalls targeting specific, related airbag inflator and vehicle populations.

Singular unrelated failures are simply not a safety defect trend subject to NHTSA's safety recall authority. One-off failures of mass-produced automotive components are common and inevitable occurrences that have little to no value in predicting the likelihood of future failures. To be clear, we are not asserting that a single past failure does not matter or is not important; the point is that a single past failure of a mass-produced component has little to no value in predicting future failures, at least without significant additional information.

Even assuming that NHTSA could identify more than one related failure, or even five or ten over the last 30 months, or even the last 60 months, that would not be a substantial number out of 52 million units (the number of inflators at issue), or even 2.6 million (the number of estimated deployments according to NHTSA). For the sake of argument, doubling or tripling the failure rate of these modules would not still create sufficient statistical evidence under NHTSA's own guidelines to support the finding of an unreasonable risk to motor vehicle safety. As noted above, even according to NHTSA's flawed statistical analysis, the risk of future ruptures is "remote," the lowest of five levels of risk under NHTSA's own rubric.

2. No Common Root Cause Has Been Identified

As provided in the NHTSA ODI Risk Matrices shared with manufacturers, only past failures that arise from a common root cause can be aggregated for the purpose of identifying a defect trend or substantial number of failures that is predictive of future failures. In some cases, where the failure rate is very high it may be reasonable to assume that a common root cause is at work. But where the total number of failures is low and there is little to no objective evidence of a common root cause, that assumption is not reasonable.[27]

In the present situation, the only evidence that any of the seven identified failures might be related is that there is a common *failure mode* of "inflator rupture." If there were only one possible root cause for this type of failure mode, then a common failure mode might be enough to assume there was a common root cause. That is not the case with these Subject Inflators. Other root causes can lead to this same type of "rupture" failure mode. This is clear from the information in NHTSA's investigative file, as explained below, involving analysis of failed parts where the root cause was concluded to be an issue other than weld slag blockage. A field monitoring program for undeployed inflators would provide additional data to assess other potential root causes and determine what portion of the subject population, if any, might be affected. A field monitoring program and part return study is critical to determining the true root cause (or causes).

Potential root causes of module rupture include possible manufacturing defects,[28] design defects,[29] and performance defects related to in-use conditions.

Potential Manufacturing Defects: NHTSA's Initial Decision and factual record do not suggest that any manufacturing root causes other than weld slag have been investigated. ARC's investigations of field incidents found issues related to the use of flash-rods and inspection rods during production, but NHTSA has apparently not followed up on these known issues. In addition to inflator housing manufacturing defects, production issues with producing propellant tablets could be relevant, such as press-force variation which can change the

---

[27] Even NHTSA's documentation for this case recognizes the central importance of a common root cause. The opening resume for the ARC investigation stated that the investigation was being opened because it was "unknown if there is a common root cause in these incidents." PE15-027, ODI Resume (July 13, 2015).

[28] In addition to the weld slag theory, potential root causes related to the manufacturing process include: excess propellant loading; broken, crushed or damaged propellant tablets; improper attachment of the upper and lower chambers; weld integrity issues; heat damage to the propellant during production welding; and the presence of other types of manufacturing debris inside the cannister.

[29] Potentially relevant design and materials defects include: the metallurgy of the module housing; design choices related to the propellant charge chemistry, gas flow and venting; and module housing/weld robustness.

density or porosity of the propellant tablets or exposure to humidity and moisture prior to loading in the cannister.

To the extent any of these manufacturing theories have merit, they would need to be analyzed on a plant-by-plant, line-by-line basis. The subject population has been produced on multiple production lines in different plants in three different countries. Additionally, borescope test data suggests that manufacturing conditions vary significantly between different plants with respect to weld slag deposits.[30] NHTSA has not identified any relevant facts, much less analyzed any differences regarding potential manufacturing defects, even though its weld slag theory is a manufacturing process defect theory.

Potential Design Defects: NHTSA has not clearly documented and analyzed changes to propellant charge chemistry over time which could be relevant. For example, propellant design changes could be critical to propellant stability over time, the potential for over-force deployments, and the ability to pinpoint relevant populations.

Defects Related to In-Use Conditions: Failures can also be the result of degradation of propellant over time[31]; exposure to heat and humidity; deformation, melting, or de-densification/increase in micro-porosity of the propellant; damage to modules, inflator housings, and airbag assemblies associated with repairs, replacement, or maintenance of adjacent components; and damage caused by prior vehicle collisions and airbag deployments. In addition, factors inside the passenger compartment at the time of deployment can also lead to ruptures, like passengers or objects in the vehicle applying external forces to the outside of the module that can damage the manifold or outside of the inflator and prevent the rupture disc from properly opening upon deployment. NHTSA has not thoroughly evaluated these potential root causes as a part of its Initial Decision. **[** **]**[32] This root cause determination was shared with NHTSA in 2016 but was not discussed in NHTSA's 2023 Initial Decision.

---

[30] **[** **]**

[31] All of the field incidents in the U.S. occurred in vehicles that were at least five years old . The average age of the vehicles involved in field incidents in the U.S. is seven years.

[32] **[** **]**

3. Root Causes Identified to Date Conflict With NHTSA's Theory and Assumptions:

Some of the incidents identified in NHTSA's Initial Decision resulted in significant damage or destruction of the airbag modules, which has made investigation of the root cause in those cases difficult, but the investigations of field failures which have been conclusive have identified root causes *other* than weld slag.

According to ARC's investigation provided to NHTSA, the 2010 model year Chevrolet Malibu inflator rupture occurred near the initiator holders (not in the center support) and did not relate to blockage of the exit orifice. This is the only known incident with this type of failure mode.[33]

The 2002 model year Chrysler Town & Country failure was apparently caused by the presence of foreign material other than weld slag in the center support, likely a fragment of a machine used in the production process.[34]

[

]

All of the above findings have been presented to NHTSA and based on NHTSA's records appear to have been accepted at the time they were presented.

General Motors' September 2022 recall of front driver airbag inflators from certain 2011-2012 model year trucks and SUVs (NHTSA Recall No. 22E-040) was based on the rupture of a subject inflator in a high-temperature LAT. The related root cause investigation identified five inflators from this production lot with unusually high mass. Three of these units were recovered for teardown analysis and it was determined that all three were built incorrectly with excess amounts of propellant charge. Excess propellant loading can cause a rupture during deployment. This manufacturing error evaded quality control measures because these units

---

[33] Letter from ARC Vice President for Product Integrity to Steven Ridella, Director, NHTSA Office of Defects Investigation (May 11, 2023).
[34] *Id.*

were produced when a temporary calibration change impacted the sensitivity of quality control measures. All of the inflators from the affected timeframe and production line were recalled. The GM recall is expected to reduce or eliminate the risk associated with this particular root cause.

Because the incidents identified to date result from completely different and unrelated root causes, they cannot be aggregated to evaluate the risk of future deployments.

4. NHTSA Has Ignored Potentially Critical Design Differences Between Inflator Variants and Vehicle Applications

The Subject Inflator population includes dozens of different module designs involving numerous inflator variants. Individual inflator characteristics include differences in basic product configurations (, dual versus single stage), type of booster material, output pressure, exit orifice diameter, propellant load, and amount of compressed gas, for example. These different design characteristics can impact the unique deployment force of each variant and the risk of ruptures, and can directly impact how an inflator would perform under various unintended deployment scenarios (such as when the inflator contains production residue, loose weld slag or other contamination). For example, exit orifice diameter is a critical variable under NHTSA's root cause theory. Only pieces of weld slag that are larger than the orifice size would be capable of blocking the orifice sufficiently for rupture. There is not a single exit orifice diameter or a single critical debris size. Yet, there is no evidence in the record indicating that NHTSA has determined how many different orifice sizes exist and what the sizes are. NHTSA's Initial Decision ignores these differences between inflators.

The proposed recall also covers inflators used in both driver and passenger-side airbag modules. However, no effort has been made to understand how these different inflator designs and applications might impact the likelihood of future failures, and the varying risks associated with those different applications. It is well known that driver-side airbags have a higher rate of deployment than passenger-side airbags. Similarly, because of the different mounting location and deployment characteristics, driver-side airbags have a much higher injury potential than passenger-side airbags in the event of a rupture. None of these well known differences (which were critical in the evaluation of safety risks in the Takata case) were discussed, analyzed or addressed in the ARC Initial Decision.

5. Where Weld Slag Causes Ruptures There Should Be Clear Evidence of It

Inflator ruptures that result from blockage of the exit orifice are likely to exhibit characteristics that enable this root cause to be positively identified. For example, blockage failures often result in the debris being firmly lodged in the opening and remaining lodged there after deployment. Blockage of the orifice also impairs the burning of propellant inside the chamber, leaving evidence of uncombusted propellant. Likewise, blockage can result in deformation of the inflator housing itself. In spite of these telltale markers for exit orifice blockage failures, none of these characteristics were identified in the majority of the seven U.S. field failures.

6. The Facts That *Are* Known Highlight the Need for Additional Investigation

The need for additional investigation here is obvious. For example, the 52 million inflators at issue were produced over 18 years in different factories in different countries. If NHTSA's theory of a manufacturing defect is correct, then that wide range of manufacturing sites, over decades of production makes it extremely unlikely that all 52 million units are subject to the same manufacturing issue.

In fact, inflators from some of the covered plants have not experienced any field failures in the U.S.[35] Like a number of OEMs that would be subject to the proposed recall, HMA is not aware of <u>any</u> ARC inflator field ruptures in its vehicles in the U.S. market.[36] The subject inflators have been produced under a wide variety of production conditions and methods in different plants,[37] including the use of different tooling, different raw materials, different

---

[35] There have not been any field ruptures in the U.S. involving inflators manufactured at ARC's Skopje, Macedonia or Xi'an, China plants. The dual stage inflators used in vehicles in the U.S. were manufactured at four facilities: Knoxville, Tennessee; Reynosa, Mexico; Skopje, Macedonia; and Xi'an, China. **[** **]** NHTSA's investigation identified a total of seven field inflator ruptures in the U.S. market, which involved inflators manufactured at the Reynosa, Mexico, and Knoxville, Tennessee plants.

[36] **[** **]**

[37] **[** **]**

production hygiene, and different assembly forces and tolerances. None of these potential differences has been investigated or considered by NHTSA in its Initial Decision.

7. NHTSA Lacks Critical Data to Support Its Theory

NHTSA has produced almost no data to support its theory that a manufacturing defect producing excess weld slag is likely to lead to a substantial number of failures. For example, NHTSA indicates that the possible root cause is "excess weld slag" but never indicates what amount of weld slag is "excessive."[38] Similarly, NHTSA does not have any data supporting the probability that weld slag debris will occur at the specified critical size of "greater than 5mm."[39] NHTSA also indicates that in order for the suggested failure mode to arise, the weld slag, which would ordinarily be fused to the inside of the module, must first come "loose." But NHTSA has no data, testing, or even theoretical calculations that indicate when or how often that might happen.[40] In fact, **[ ]** all inflators that have failed the borescope test for identifying excess slag deposits and were then deployed in bench testing deployed normally with no rupture.[41] This data undermines NHTSA's hypothesis that the presence of weld slag is the necessary root cause. In addition, NHTSA has no explanation or theory about why excess weld slag is produced in some units, but not in others, or why it appears to break loose in some deployments, but not others. The Agency also has no explanation for why excessive weld slag is produced at some factories, but apparently not others. If it did, then it would be able to evaluate the frequency of such production conditions and could evaluate the likelihood that affected units were produced.

8. The Testing and Analysis Conducted to Date Suggest No Defect Exists

The five different testing and evaluation programs that NHTSA and industry have engaged in over this eight-year investigation have not yielded evidence supporting the weld slag theory, and in fact those five investigations and test programs have not identified the existence of <u>any</u> defects, regardless of cause.

Specifically:

---

[38] 88 Fed. Reg. at 62144.

[39] *Id*.

[40] *Id*.

[41] **[ ]**

- The **Field Recovery Program** for CADH inflators conducted from 2016-2018 was unable to recreate any failures in 918 inflators test-fired in a program jointly designed with NHTSA and manufacturers.[42]

- The test program conducted by **Transport Canada** mirroring the U.S. field recovery program on units from the same production period as the one Canadian rupture was unable to replicate any failures in approximately 600 field-collected units that were test-fired and found no issues with related teardowns.

- A program by **Volkswagen Group** that deployed approximately 1,200 PH7 inflators from European vehicles experienced no failures.

- A collection program related to **GM's Recall No. 21V-782** deploying 300 inflators found no failures.

- A **"Collaboration Team"** task force of Tier 1 suppliers, vehicle OEMs, NHTSA and ARC oversaw testing and experiments by ARC designed to replicate the creation of abnormal weld slag sufficient to cause blockage that could result in inflator rupture but was unable to reproduce the theoretical failure conditions.

9. NHTSA Has Not Assessed Vehicle-Specific Factors

In-use ruptures could be related to specific in-use conditions, or characteristics of the vehicles and modules in which the inflators have been installed. In fact, of the 12 vehicle manufacturers that could be covered by a final defect finding, only four have experienced failures in their vehicles, and eight have not experienced any failures in the U.S. Hyundai vehicles have not experienced any known failures in the U.S., and while there have been a limited number of failures in Hyundai vehicles in foreign markets for which recalls have been conducted, those ruptures involved single stage inflator modules that are not used in any Hyundai vehicles currently sold in the U.S.[43] In spite of these facts, the Initial Decision does not include any discussion of testing or analysis of in-use conditions, or vehicle application-specific conditions that has led NHTSA to issue its Initial Decision. Critically, the Initial Decision fails to account for the unique field experience of each OEM and appears to assume that all OEMs would be subject to recall regardless of whether any failures have occurred in their vehicles.

---

[42] **[ ]**

[43] Certain Hyundai models sold in the U.S. market in the early 2000s were equipped with single stage ARC inflators. None of these models contains the inflators that are the subject of the current action.

10. Test Data Does Not Meet NHTSA's Own Objective Statistical Criteria It Specifically Set for Finding a Safety Defect in This Case

Given the absence of actionable evidence from failed field units, NHTSA's ODI developed statistical criteria for evaluating future field risk based on data from test-firing undeployed units from the field. This program determined that by test-firing 459 units from the dual level CADH and 459 units from the single level CADH populations, the study could confirm what NHTSA determined was a reasonably safe statistical reliability threshold of 99% reliability at a 99% confidence level. After setting these safety thresholds, the test program was conducted with zero failures, which objectively confirmed that level of reliability.[44] Yet five years later NHTSA has inexplicably abandoned its prior statistical criteria and issued the Initial Decision.

With so few failures in the field, a failure to understand the root cause of a potential defect makes it impossible to accurately predict the frequency of failures. It can also result in a recall scope that is too narrow to prevent future harm or one that is overly broad, which can waste repair resources on replacing units that pose no risk to the public. Finally, it can also result in the implementation of a remedy campaign that is not effective against the actual cause of the failures at issue.

11. Recalls Have Already Been Implemented to Mitigate Risk in This Case

There have been four field ruptures out of 52 million inflators in the last 30 months of vehicle operation. The root cause of the most recent failures has not been confirmed, but manufacturers have implemented proactive recalls to mitigate the risk associated with these ruptures by targeting populations of similar vehicles and components. Prior to these four failures, the most recent field incident was six years ago, in September 2017.

These four ruptures occurred in specific vehicle populations and involved a specific type of inflator variant. All four have been addressed through lot-specific recalls targeting the units from the same or related production lots. Specifically, three of the four involved 2015-2017 model year Chevrolet Traverse vehicles, using two-stage "MC" inflators produced in ARC's Reynosa, Mexico plant, and used in driver-side airbag modules produced by Toyoda Gosei. These failures occurred between August 2021 and March 2023. While no root cause has been identified, GM implemented a recall based on commonalities identified in the subject

[44] [ ]

population in May 2023 out of an abundance of caution to replace the airbags in approximately 994,000 2014-2017 model year Traverse and sister models equipped with the subject inflators. Based on the information available at this time, and engineering judgment, this massive recall is expected to eliminate or substantially mitigate any future safety risks associated with this group of MC inflators from this plant.

Similarly, the fourth failure occurred in December 2022 in a passenger-side airbag on a 2016 model year Audi A3 eTron with a dual stage module produced in Reynosa, Mexico. VW implemented NHTSA Recall No. 22V-543 in July 2022 to address other airbag modules from the same production location and period. The recall covered passenger-side airbag modules manufactured in the same suspect production batch.

12. There is No Evidence of a Defect in Inflators Produced by Delphi

Approximately 11 million of the Subject Inflators were produced by Delphi based on the ARC design. NHTSA's Initial Decision is based on the theory of a defect that is introduced during the manufacturing process. NHTSA has not identified any design defects. While ruptures have occurred in units produced at three different ARC manufacturing sites, there have been zero ruptures of units produced by Delphi at its separate manufacturing facilities. There are numerous potentially critical differences between the Delphi and ARC manufacturing facilities that have not been examined, including: different assembly line tooling (including friction weld machines); different manufacturing quality assurance procedures and controls (including those associated with weld quality, and temperature and humidity controls); and different personnel and training on the assembly lines. NHTSA is proposing the recall of units produced by Delphi when there is zero evidence of a possible manufacturing issue at Delphi, and no field experience to suggest the Delphi-produced units are defective. Moreover, NHTSA has not fully investigated the Delphi manufacturing process or identified any direct or circumstantial evidence of an issue. For all of these reasons, there is even less reason to order a recall of Delphi-produced units than for ARC.[45]

B. The Proposed Recall Has Insufficient Safety Benefits and Will Affirmatively Distract from More Effective Approaches to This Issue

---

[45] **[** **]** it is incorrect to conclude that the initial burden is on the manufacturer to disprove the existence of a defect, in a case when the manufacturer has experienced no field failures and there are no other facts proving a root cause that is likely to occur in the future.

The D.C. Circuit has found that Congress intended for safety defect decisions to reflect a "common sense" "balancing of safety benefits and economic cost" and that "costs must be considered in determining what safety measures are required by the Act."[46] NHTSA has not provided data or analysis to support a finding that the benefits of a proposed recall are commensurate with the costs. Given the size of the recall population, and the lack of a defect trend in that population, it is unclear how the Agency could make such a finding.

1. NHTSA Is Ignoring the Recalls That Have Already Been Implemented

While there is no efficacy analysis in NHTSA's Initial Decision, what is clear is that NHTSA is ignoring safety benefits of the tailored lot-based recalls which have already been implemented for these inflators. All four of the ruptures that have occurred in the last six years have been addressed by voluntary recalls impacting nearly one million vehicles, which collectively constitute one of the largest inflator recalls in history. The Initial Decision seeks to expand a remedy for that same risk, without any basis, and without accounting for the mitigation associated with that recall. Finalizing this decision would dilute limited industry and government resources and direct them away from more critical present and future safety issues including, potentially, a more focused effort to effectuate a more targeted recall implemented if warranted by further analysis.

2. NHTSA Has Not Accounted for New Risks That Could be Introduced by the Agency's Decision

NHTSA has not assessed the additional, newly-introduced safety risks and societal costs that would be triggered by a defect determination in this case. For example, implementing a recall on tens of millions of vehicles, many of which are over 20 years old, would require the development of new sources of replacement airbag inflators. New replacements may need to be designed for many applications, and vehicles may need to be modified or adapted to new replacement parts. Bringing new manufacturing resources, new suppliers, and new designs online for a retrofit application creates risks inherent in new products being adapted to old vehicles.

3. NHTSA Has Not Accounted for the Full Societal Impact of Implementing a Recall of This Size

[46] *Wheels II,* 518 F.2d at 435-436.

As NHTSA should understand from the Takata recalls, implementing a recall on vehicles equipped with 52 million ARC-designed inflators would take years and a massive deployment of resources to the task of designing, sourcing, producing, distributing and installing replacement airbag inflators. In Takata, the recalls followed six years of Agency investigations and involved more than 42 million vehicles produced by 19 different vehicle manufacturers over more than a dozen model years. The Agency conducted extensive testing and study, in conjunction with outside experts in addition to Takata. Ultimately, 67 million airbag inflators were recalled. The original airbag inflator manufacturer, Takata, declared bankruptcy; replacement airbag inflator suppliers had to be identified and ramp up production. The recalls had to be phased and prioritized into 12 different risk-based priority groups based on exposure to temperature and humidity. The Agency issued coordinated remedy orders and, as part of its consent order with Takata, an independent monitor was assigned to oversee the coordinated remedy program. NHTSA and the monitor convened numerous stakeholder meetings with OEMs and others over several years to coordinate and collaborate on recall remedy implementation.

In that case, however, there was a rational technical basis to phase-in the replacement program over time and across different climate regions of the country, which significantly reduced logistical burdens. In this case, NHTSA has not provided a plan to address these burdens In fact, even for ARC inflators that are already subject to recall, including the GM recall that was announced May 10, 2023, the recall itself has not been launched, presumably because there are insufficient replacement parts. Given that the ability to implement recalls in the near term is uncertain, NHTSA's rush to declare the Subject Inflators defective will make little difference in the near term. In other words, there is little downside to taking the necessary time to complete the necessary factual investigation and make a rational judgment as to whether a recall is needed (and if so how broad it should be). This is not a societal disruption that NHTSA should trigger without a well-founded safety justification, which does not exist in this case. This defies the "common sense" behind the Safety Act.

V. <u>No Country Outside the U.S. Has Required a Recall for These Inflators</u>

Although 30 million ARC inflators were distributed outside the U.S., no other country with a similar safety recall legal framework has ordered a recall for the ARC inflators covered by NHTSA's Initial Decision. For instance, neither Germany's KBA, Japan's MLIT, Korea's MOLIT nor Canada's Transport Canada have ordered recalls for the ARC inflators at issue here. As noted above, Transport Canada has been involved in testing of ARC inflators, but its testing did not identify any failures.[47]

VI. NHTSA and Industry Should Pursue a Targeted Risk-Based Technical Analysis that is in the Best Interests of Safety

Implementing a nationwide airbag recall remedy across millions of vehicles is an overwhelming task. The experience with Takata demonstrated that there is no way to implement a remedy of this size quickly, or all at once, and there is no currently-known risk-based and efficient way to appropriately stage such a recall. A recall of this size would take many years, would be extremely disruptive to the public and industry, and may have zero benefit if as all the available evidence suggests, there is in fact no systematic defect in the field.

The appropriate path forward is a more diligent and effective investigation that can confirm whether there is a defect, and if there is, determine exactly what it is so that it can be effectively and expeditiously remedied. If there is a defect in the field, spending more time up front to understand what is causing it would enable a more focused recall that could remediate vehicles with actual risk much more quickly than the reaction proposed by NHTSA in the Initial Decision. NHTSA's proposal would attempt to deploy replacement resources across the entire 52 million unit population simultaneously without any regard to actual risk levels.

As discussed above, the field experience suggests that the actual root cause of each known field failure may be more complex than NHTSA has considered. Weld slag may be irrelevant, or the root cause may include the effects of weld slag in combination with other factors that have not yet been identified or understood. The investigation to date has raised a number of critical technical questions that should and can be answered with additional investigation and analysis. Unanswered technical questions and issues include:

- Borescope data shows that excess weld slag occurs in some rare cases, but infrequently. What manufacturing conditions cause "excess" weld slag in an inflator?

- Weld slag is metal fused to the inside of the pressure vessel at the weld zone. It can block the exit orifice only if it becomes a loose fragment. What real-world deployment conditions cause weld slag to come loose from the weld zone?

[47] HMA and other manufacturers have conducted voluntary, targeted recalls for inflators in certain non-U.S. markets. No U.S. Hyundai vehicles were equipped with the inflators subject to those recalls.

- The subject inflators have a wide variety of physical specifications, including different pressure vessel dimensions, geometry and orifice diameters. Similarly, there were a variety of different propellant load formulations across different inflators. What is the relationship of different inflator physical specifications (like exit orifice diameters and propellant loads) to rupture risk?

- Some field ruptures appear to happen very early in the deployment sequence. The condition of the ruptured pressure vessels and the presence of un-burnt main charge propellant in the vehicles shows this. **[**

  ][48] Why are there variations in peak pressures on units with no blockage? Does this variation in ballistic performance suggest other relevant causal factors in addition to, or other than, weld slag?

- Many different booster types, loads, and formulations were used in the production period covered by NHTSA's Initial Decision. Why were these production changes made, and what is their impact on rupture risk?

- Different propellant loads have different combustion behaviors. What is the impact of these design differences on rupture risk?

- Some booster formulations/loads/types may be more likely to create a shock-load of pressure within the pressure chamber that could theoretically break off fragments of weld slag during deployment. Is the root cause a combination of certain specific booster characteristics and weld slag working together?

- Propellant performance can change due to aging effects, especially when exposed to elevated moisture and temperature. All field ruptures are in inflators that were over five years old. What can be done to evaluate the impact of aging on rupture risk?

- The nylon squib holder material can allow moisture intrusion in small but potentially critical quantities over time, even in pressurized hybrid inflators. Has the impact of this moisture intrusion/diffusion over time on propellant stability and burn rates been evaluated?

---

[48] **[** **]**

- **[** **]** High temperature regions such as Saudi Arabia have experienced a higher rupture rate than cooler regions. Has the impact of elevated ambient deployment temperatures on rupture risk been evaluated?

- Many steps in the manufacturing process can critically impact the propellant performance in future deployments. For example, excess heat during welding, or increased humidity captured within the pressure vessel, could be critical. Failure to cool the units **[** **]** could damage the propellant in a way that could cause more rapid/over-force combustion. Have critical anomalies and gaps in the production and quality control at ARC been investigated? Have production records for shutdown and maintenance issues been reviewed?

- **[** **]**[49] Has this potential root cause been examined?

- The basis for NHTSA's 2018 "clean point" decision is not well explained or documented. What studies and analysis has NHTSA relied on to conclude that this is a valid "clean point"?

With so many unresolved questions, the best path forward would be for NHTSA to use its statutory investigatory powers to obtain the information needed from ARC to answer each of these and potentially other questions. .[50] NHTSA has broad statutory investigatory powers to obtain the technical information needed here. NHTSA's investigation prior to the Initial Decision relied on a voluntary and collaborative approach with ARC that is obviously inadequate for such an important issue, and clearly failed to answer some of the most basic and important technical questions. This missing technical information includes, for example: detailed design specifications and dimensions for inflators; details of the propellant loads and booster formulations across different inflator variants and related changes; details on all changes and improvements to the manufacturing process throughout the covered period of production; details on the methodology and validation of the borescope pass/fail criteria; CAD drawings for each covered inflator; information on worldwide inflator ruptures; and incident analysis and root cause findings from Tier 1 supplier investigations. Employing more robust statutory

[49] **[** **]**

[50] *See* 49 U.S.C. § 30166.

investigative powers, including subpoenas, administrative depositions, information gathering hearings, general or special orders, and written requests for the production of documents, is called for in this case.[51]

HMA welcomes the opportunity to work with NHTSA on an active monitoring and analysis program to help answer the critical questions described above .[52]

VII. Conclusion

In a case like this, where there is not a common, systematic, or prevalent defect trend in the field, and there is no engineering consensus on root cause, the appropriate path forward is to pursue an active monitoring and evaluation strategy to acquire additional data, instead of immediately mandating a recall that would be at best grossly overbroad and at worst entirely unnecessary. An active monitoring and evaluation strategy does not mean simply waiting for future failures. It means actively monitoring and evaluating subject inflators in the field to continuously sample units over time for evidence of an actual defect in design, materials, performance, or manufacture that may pose an unreasonable risk of future failures. It also means obtaining detailed data from ARC so that further analysis can be conducted. This is exactly the course of action NHTSA followed in the case of desiccated Takata inflators. In that case, NHTSA has collaborated with Exponent to successfully evaluate and monitor field data to identify potential issues long before there is any elevated risk in the field. HMA has already begun working with Exponent on the Subject Inflators for the same purpose. While the amount of information on ARC inflators and root cause is currently limited, the initial analysis suggests that the actual root cause of ARC ruptures is multifactored, and may involve the interplay between multiple necessary conditions, and not just the presence of weld slag. This multifactored root cause means that the Subject Inflators are also suitable for an effective field monitoring and analysis program. An active field monitoring and analysis program is likely to yield an appropriate and sensible resolution to this case, from both a legal and consumer safety perspective.

* * *

Please let us know if you have any questions regarding this submission.

---

[51] *See* 49 C.F.R. §§ 510.3 - 510.8.

[52] HMA proposes working with NHTSA and third-party engineering consultants to further study the various conditions potentially impacting the ARC inflators.

Sincerely,

Latane Montague
Partner
Hogan Lovells US LLP
Latane.Montague@hoganlovells.com
D +1 202.637.6567