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Clear of Clouds? An Assessment of Appealed 91.155 Enforcement Actions

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When flying under visual flight rules, pilots must remain clear of clouds. The exact distance varies by airspace class, and this is determined by specific regulatory requirements found within 14 C.F.R. Section 91.155. But there are important questions about the extent to which pilots comply with this regulation, as determining one's exact distance from clouds is challenging. In this conference paper, we assess the decisions of the National Transportation Safety Board (NTSB) in 20 Federal Aviation Administration (FAA) legal enforcement actions involving a violation of cloud clearance requirements. Among these cases, we examine how 91.155 violations were discovered, the form of sanction imposed by the FAA, the timelines associated with appeals for these cases, and the vote composition of the NTSB in these decisions.

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Introduction

When flying under visual flight rules (VFR), pilots must remain clear of clouds. Specifically, Title 14 of the Code of Federal Regulations (14 C.F.R.) section (§) 91.155, formally titled *Basic VFR weather minimums* (hereinafter "91.155"), sets forth exact flight visibility and minimum distance from clouds requirements for VFR flights in each class of U.S. airspace. Put a different way, when operating in certain airspace, pilots are restricted in how close they may fly to clouds, and they may only legally fly if the visibility conforms with the requirements of 91.155.

However, determining the distance from clouds is difficult. One article in the popular aviation press goes so far as to assert that 91.155 is "[o]ne of the most-often busted federal aviation regulations… because pilots often have a hard time judging how close they really are to clouds" (Pope, 2015, para. 1). And so, there are important questions about the extent to which pilots comply with the cloud clearance provisions of 91.155. Pope (2015) further concedes:

> [T]here's no way to tell exactly how far you are from clouds, and unless you're really close – or penetrate a cloud – you won't get a call from your friendly local FAA rep. But you shouldn't use the lame defense of 'I didn't know' to purposely fly too close to clouds (para. 5).

Indeed, while violating 91.155 may, of course, cause flight safety issues, it may also lead to a legal enforcement action brought by the Federal Aviation Administration (FAA) against the pilot. In this paper, we examine the latter issue by assessing a sampling of 20 legal enforcement action cases where 91.155 (and, in some cases, its predecessor, 91.105) was violated. Originating from a presentation delivered at the 2023 Collegiate Aviation Education Conference and Expo, this paper provides insight as to how the FAA discovers 91.155 violations, the penalties associated with such a violation, and the decisions of the National Transportation Safety Board (NTSB) in reviewing these cases on appeal.

Background & Literature Review

The FAA has organized the National Airspace System (NAS) into different classes of airspace—classes A, B, C, D, E, and G (see Figure 1) (FAA, 2016). Section 91.155 prescribes minimum weather standards for VFR operations within each of these classes. The weather standards stipulated in 91.155 are organized by two elements: flight visibility and distance from clouds (Anderson et al., 2015).

Figure 1
FAA Airspace Classification

Note: Federal Aviation Administration, 2016. In the public domain.

VFR weather minimums were first promulgated in 1937 and have since been amended to establish the current minimums provided in 91.155 (Anderson et al., 2015). As previously discussed, these minimums vary by airspace. For example, when operating in class B airspace, a pilot needs only three statute miles of visibility and must remain clear of clouds. If, however, the pilot is operating in class D airspace, they still only need 3 statue miles of flight visibility but must remain at least 1,000 feet above, 500 feet below, and 2,000 feet horizontal distance from clouds (FAA, 2016). Figure 2 shows all the weather minimums stipulated by 91.155. Note VFR weather minimums are not applicable in class A airspace because only IFR operations are permitted in class A airspace (FAA, 2016).

Figure 2
Basic VFR Weather Minimums as Stipulated by 91.155

Basic VFR Weather Minimums				
Airspace			Flight Visibility	Distance from Clouds
Class A			Not applicable	Not applicable
Class B			3 statute miles	Clear of clouds
Class C			3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
Class D			3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
Class E	At or above 10,000 feet MSL		5 statute miles	1,000 feet above 1,000 feet below 1 statute mile horizontal
	Less than 10,000 feet MSL		3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
Class G	1,200 feet or less above the surface (regardless of MSL altitude).	Day, except as provided in section 91.155(b)	1 statute mile	Clear of clouds
		Night, except as provided in section 91.155(b)	3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
	More than 1,200 feet above the surface but less than 10,000 feet MSL.	Day	1 statute mile	1,000 feet above 500 feet below 2,000 feet horizontal
		Night	3 statute miles	1,000 feet above 500 feet below 2,000 feet horizontal
	More than 1,200 feet above the surface and at or above 10,000 feet MSL.		5 statute miles	1,000 feet above 1,000 feet below 1 statute mile horizontal

Note: Federal Aviation Administration, 2016. In the public domain.

Seeing, Avoiding, and VFR Flight into IMC

All the requirements of 91.155, though, are admittedly complicated. One may reasonably wonder, then, what is the point of 91.155? In a word, safety. In other words, its purpose is two-fold. First, 91.155 helps ensure pilots can "see and avoid other aircraft" (especially IFR aircraft), which is essential when operating under VFR (Anderson et al., 2015, p. 133). Second, 91.155 helps prevent a pilot operating under VFR from flying into instrument meteorological conditions (IMC).

Existing literature considers both these issues and their safety implications. Previous studies have examined see and avoid in the context of midair collisions (e.g., Mooris, 2005) and the factors contributing to continued VFR flight into IMC—such as deficiencies in training, behavioral psychology, pilot decision-making skill, and ways to reduce the hazard (Major et al., 2017; Goh & Wiegmann, 2001; O'Hare & Smitheram, 1995; Wiggins & O'Hare, 1995; Goh & Wiegmann, 2002; Lozier, 2007; Wilson & Sloan, 2003).

There is, however, only limited research that examines the legal perspective of 91.155 violations and subsequent consequences for pilots. In a comprehensive legal analysis of 14 C.F.R. Part 91 see and avoid rules and associated NTSB decisions in pilot enforcement action cases, Anderson et al. (2015) found 91.155 "expects a prudent pilot to obtain accurate weather information, and comply with the minimums for visibility and cloud clearances" (p. 137). Further, Anderson et al. (2015) argue that "weather minimums serve as support for the pilot's duty of vigilance to see and avoid other aircraft" and that the "pilot's duty to comply with VFR weather minimums dovetails with the duty to be vigilant for other aircraft" (p. 141).

FAA Enforcement and Appeals

Section 91.155 carries the force of law. Thus, when pilots are operating under VFR, they must comply with the stipulations of 91.155. And if they fail to do so, the FAA has the authority to bring a legal enforcement action against them. Specifically:

> Under 49 U.S.C. Section 44709(b), the [FAA] Administrator is authorized to issue orders suspending or revoking certificates issued under 49 U.S.C. chapter 447 (*e.g.*, airman certificates issued under 49 U.S.C. Section 44703) if the Administrator decides that safety in air commerce or air transportation and the public interest require that action (Barry, 2014, p. 408).

Whether the FAA elects to exercise this enforcement authority depends on many factors, including the FAA's compliance program and the agency's internal enforcement guidelines (e.g., FAA, 2022). If the agency does indeed determine legal enforcement action is the appropriate response to an apparent regulatory violation, the certificate holder may still challenge the FAA's decision by appealing the enforcement order to the NTSB for review (Barry, 2014; Yodice, 2014; FAA, 2022). The NTSB may "amend, modify, or reverse the FAA order if it finds that safety in air commerce or air transportation and the public interest do not require affirmation of the order" (Barry, 2014, pp. 409–10). At the NTSB, the case is first heard by an Administrative Law Judge (ALJ). During this hearing, the ALJ will hear testimony as the FAA and pilot both

make their arguments for why the order should be affirmed, modified, or reversed. Typically, at the end of the hearing, the ALJ will issue a decision in the case (Yodice, 2014).

The ALJ's decision may then be further appealed by either the FAA and/or the pilot to the full Board—referring to the five members of the NTSB, appointed by the President and confirmed with the advice and consent of the U.S. Senate (see 49 C.F.R. § 800.2)—for review. The Board only reviews certain legal questions on appeal but may affirm, modify, or reverse the ALJ's decision (Yodice, 2014). In this study, we assess decisions issued in the *second* step of this appeals process, that is, decisions made by the full Board, not ALJs.

It is important to note the above description is, of course, only a very *brief* overview of FAA enforcement and the appeals process. If interested in a far more detailed explanation of these procedures, including appropriate citations to legal authorities, see Barry (2014), Yodice (2014), and FAA (2022).

Methodology

In this study, we set out to answer the question: How has 14 C.F.R. § 91.155 been enforced by the FAA in the context of appealed enforcement cases? To answer this question, decisions issued by the Board in enforcement action cases on appeal were sourced from the NTSB's publicly available *Opinions and Orders Query* database. This database is home to full Board opinions from 1992 until the present day and allows one to filter a search by *FARs/Regulations (aviation/marine) Charged*. We searched the database for appealed cases involving violations of 91.155 and its predecessor, 91.105. The 91.155 search produced twelve results, and the 91.105 search produced seventeen results. Some of the documents produced in the search, however, were not directly germane to our purpose in this study. Thus, we eliminated irrelevant cases or documents, leaving only *Opinion and Order* documents.

This yielded a sample of 20 cases for us to assess. These decisions were then reviewed and coded into a database for analysis using Microsoft Excel. For each case, we recorded the (1) NTSB Order Number, (2) date of the event, (3) date of initial FAA enforcement order, (4) date of ALJ decision, (5) date of a full board decision, (6) the form of sanction at issue on appeal, (7) the decision of the ALJ and any modifications made to the sanction, (8) the decision of the full Board, (9) modifications and/or final outcome based on the full Board's decision, (10) the Board vote composition including (11) number of Board members in favor, (12) number of Board members opposed, and (13) the total number of Board members participating. We also recorded if there was a concurrence or dissent issued by any Board members, though there were none. For a complete list of the decisions analyzed here, see Appendix A.

Upon organization and classification of the data, a mixed methods approach to evaluating the cases was employed. A qualitative synthesis of specific cases was used when individual cases pointed to a specific understanding of the enforcement mechanism, descriptive statistics were employed to observe comparisons when generalizable conclusions could be drawn, and quantitative means testing was conducted where appropriate.

Results & Discussion

Twenty NTSB decisions (used interchangeably in this section with *cases*) were descriptively analyzed to identify how 91.155 violations were identified by the FAA, the forms of sanction, changes to the sanction as a result of adjudication, the timelines associated with appealing these cases, and the voting composition of the Board members. Among the 20 decisions analyzed here, seven were issued in 1992, five in 1993, two in 1994, and one each in 1998, 2001, 2002, 2007, 2008, and 2020.

Identifying 91.155 Violations

We begin with a practical issue: *how* the FAA determines cloud clearance rules have been violated. Unfortunately, not all cases analyzed provided a clear answer to this question. Three cases, however, did stand out. In the most recent case, *Administrator v. Fullerton* (2020), the cloud clearance violation was identified by an FAA inspector on the ground, as he "was conducting observations from Mackinac County Airport in St. Ignace, Michigan" (pp. 2–3). The inspector visually "observed an aircraft operating at a distance of less than 300 feet below the overcast cloud ceiling" and "later determined the aircraft he observed… was operated by respondent" (i.e., the pilot against whom the enforcement action was brought) (p. 3). Such identification is in line with an assertion made by Hamilton & Nilsson (2020) that "[t]he majority of FAR violations come to the attention of these FAA inspectors during the regular conduct of their duties" (p. 46).

Relatedly, in *Administrator v. Powell* (1994), the violation was discovered after the pilot departed VFR from an airport when the weather conditions were IFR. Prior to the flight, the pilot called a local automated flight service station (AFSS) for a weather report. The weather was reported to be IFR. So, the pilot filed an IFR flight plan. To the pilot, however, the weather "was improving" and "was VFR" (*Administrator v. Powell*, 1994, p. 4). After being advised by AFSS that there would be an IFR clearance delay due to inbound traffic, the pilot decided to depart VFR despite having filed an IFR flight plan. Another aircraft on the ground at the same airport was in a similar situation, but that pilot elected to wait for an IFR clearance and "advised ATC that respondent's aircraft had just taken off" (p. 6). The reported weather before and after the pilot's departure was IFR, including a special weather report indicating IFR conditions. Also notable in this case, an air traffic controller testified at the ALJ hearing as a witness for the FAA, testifying "it was unlikely that the weather could have changed from IFR to VFR and then back again to IFR in 37 minutes, as [the pilot] suggests" (p. 7). Although it was not expressly stated in all decisions, in many of the cases we analyzed, it appears the identification of 91.155 violations involved a report by Air Traffic Control (ATC) to the FAA.

Along this vein, the third case that stands out is *Administrator v. de Mooy* (1992). Here, ATC was communicating with an aircraft on an IFR flight plan at an IFR altitude. ATC observed VFR traffic in the vicinity of this IFR aircraft and alerted the flight crew to its position and altitude. The IFR aircraft responded to ATC "that they saw the [VFR] aircraft and it was 'going in and out of the clouds'" (p. 3). Then:

> [The IFR aircraft] requested and received permission from ATC to descend in order to read the tail number of the VFR traffic. Although he was unable to ascertain the number, the captain identified the aircraft as a Twin Beech turbine. Soon afterward, the controller received a transmission from 'Twin Beech 3281 Tango' that stated its position as 30 miles east of Kalamazoo at 3000 feet. This location matched the site of the VFR traffic the controller had been tracking. Based on the aforementioned data, the controller concluded that the aircraft he was talking to was the VFR aircraft observed by the [IFR flight] crew (*Administrator v. de Mooy*, 1992, p. 3).

Simply put, in *de Mooy*, the discovery was made when an aircraft operating under IFR observed a VFR aircraft violating 91.155 and reported that violation to ATC. Notably, both the captain and first officer of the IFR flight testified at the ALJ hearing.

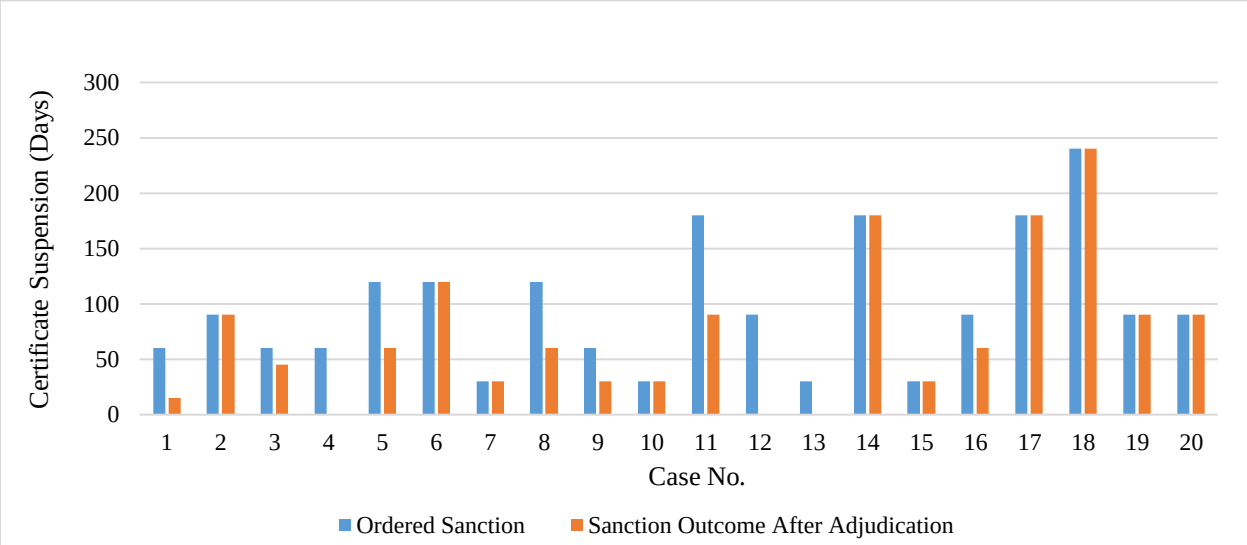
The common thread amongst these three cases is the *visual observation* of a 91.155 violation. This presents its own issues worthy of discussion, and we leave a deep dive into definitions, admissibility of evidence, and credibility findings to the law reviews (e.g., Anderson et al., 2015). However, it is still important for pilots to be aware of how violations of 91.155 were discovered and to consider this in their aeronautical decision-making when flying during murky, borderline VFR–IFR days and in cloud avoidance circumstances.

Form of Sanction

For all cases (n = 20), certificate suspension was the form of penalty selected by the FAA. We analyzed these suspensions in two contexts. First was the penalty *originally ordered* by the FAA and, second, the *final* or *actual* penalty after appellate adjudication. In other words, did the appeal to the ALJ, and then to the full Board, make a difference with respect to the length of the suspension period? And if so, by how much?

Time periods for FAA-ordered certificate suspensions ranged from 30 days (n = 4) to 240 days (n = 1). The mean FAA-ordered suspension period was 97.5 days (SD = 59.11). In half the cases (n = 10), the final suspension period was different from the FAA-ordered suspension period. Figure 3 illustrates this difference.

Figure 3
FAA Ordered Sanction versus Sanction Outcome After Adjudication



In examining Figure 3, cases 4, 12, and 13 stand out regarding the outcome of the final sanction. In each of these cases, the outcome after appealing to the Board, with respect to sanction, was not strictly a reduction in the suspension period. In case four, the Board's decision was to remand the case back to ALJ. In case 12, the Board dismissed the sanction entirely. In case 13, the Board affirmed the decision of the ALJ who had "waived the 30-day suspension sought by the Administrator… in light of [the pilot's] timely filing of a report under the Aviation Safety Reporting Program" (*Administrator v. Beckman*, 1994, p. 2). Excluding these three cases, the mean reduction of the suspension period was 47.14 days (*SD* = 25.14). A related samples *t*-test was performed—again, excluding these three cases—and found a statistically significant difference between the ordered sanction period and the final sanction period after appeal, $t(16) = 2.814$, $p = .012$. For this *t*-test, Cohen's $d = .808$, a large effect.

Case Timelines

We turn now to case timelines. Analysis in this area was limited because not each case included an exact indication of the day of the alleged violation or the exact day the FAA issued its initial certificate suspension order. We began by assessing the time between the issuance of the full Board's decision and the ALJ's initial decision. Among all 20 cases, the mean period between the issuance of these two decisions was 720 days (*SD* = 234.12). Among cases that also included in the opinion the date of the event ($n = 15$)—for clarification, *when* the alleged violation occurred—the mean period between the date of the full Board's decision and the date of the alleged violation was 1,356.6 days (*SD* = 398.22). See Figures 4 and 5, respectively.

Figure 4
Days Between Full Board Decision & ALJ Decision

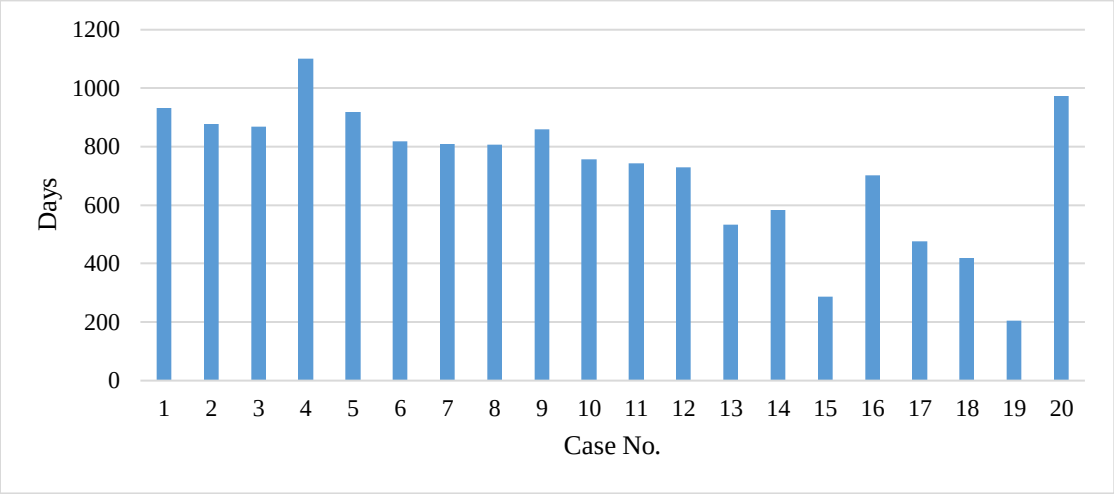
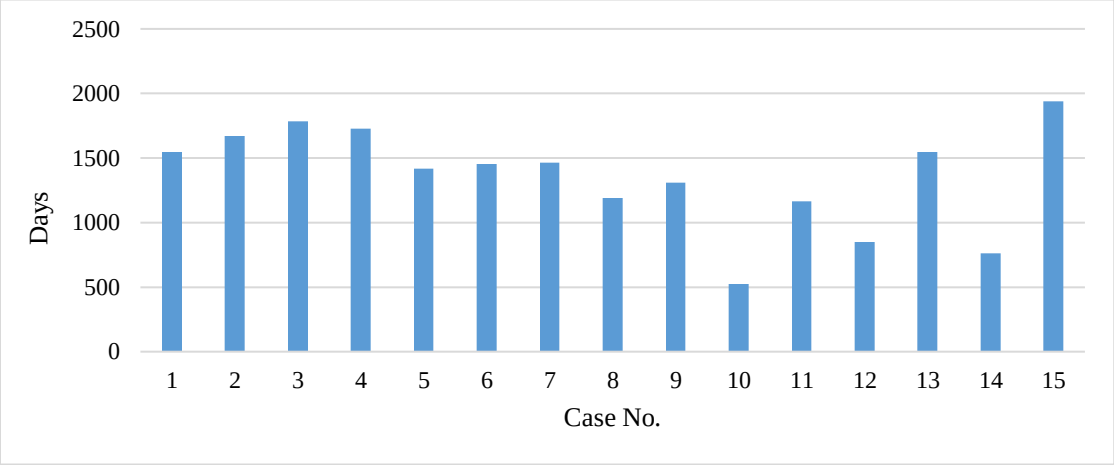


Figure 5
Days Between Full Board Decision & Date of Event (n = 15)



These lengthy timelines, particularly the time between the Board's decision and the ALJ's decision, are likely the result of these cases being non-emergency appeals. For emergency appeals, the NTSB *must* review the case and issue a decision within 60 days (Yodice, 2014). But on the contrary, for non-emergency appeals, as Yodice (2014) observes, "[t]here is no formal time limit on how long it may take the NTSB to docket a case and finally dispose of it" (p. 440).

Board Vote Composition

Finally, we reviewed the vote composition of the Board members in 19 of the 20 cases analyzed. Of the cases where we were able to assess Board vote composition (n = 19), 89.5% (n = 17) were unanimous 5–0 (n = 15) or 4–0 (n = 2) decisions. In each of the two cases that were not unanimous, the Board vote composition was four in favor and one opposed. In the first of

these 4–1 decisions (case 1 in Figure 3), the Board affirmed, in part, the decision of the ALJ, which had reduced the FAA-ordered certificate suspension from 60 days to 15 days. Additionally, the Board reversed a portion of the ALJ's decision, finding the pilot had also violated 14 C.F.R. § 91.9, but that decision did not lead the Board to make a change in the final period deemed appropriate for certificate suspension. In the second 4–1 decision (case 15 in Figure 3), the Board affirmed the original FAA sanction and, in doing so, reversed the ALJ's initial decision—which had reduced the FAA's ordered sanction from 30 days to 20 days. No Board member authored either a concurrence or dissent in any of the cases analyzed. This all suggests that among cloud clearance violation cases appealed to the full Board, the Board members tend to vote generally in line with one another, with only rare disagreements about the outcome.

Conclusion

Cloud clearance compliance may be challenging for pilots, yet based on the 20 cases analyzed here, there is evidence to suggest the FAA does indeed enforce 91.155. All the cases involved certificate suspension as the choice of sanction. And it was not entirely uncommon, among these cases, for the NTSB to reduce the pilot's certificate suspension period. Avoiding this process entirely, however, should be the goal for pilots. Thus, when operating under VFR, it is vital for pilots to comply with the cloud clearance requirements of 91.155 for both safety and regulatory compliance purposes.

Limitations and Future Research

There are important limitations to consider in this study. Due to a lack of public data, we have analyzed only a modest sample of 20 cases. We were unable to assess enforcement actions and the associated penalties for cases that were never appealed to the NTSB and cases that were not appealed from the ALJ to the full Board. As the NTSB's *Opinions and Orders Query* database only includes decisions issued since mid-1992, we were only able to assess appealed cases dating back to 1992. We also did not examine whether, after the Board's decision, any of these 20 cases were further appealed to the appropriate Federal District Court or Federal Circuit Court of Appeals. Thus, we are far from able to assess the complete legal landscape of FAA enforcement actions with respect to 91.155 violations. We caution readers to consider this study's results only in the context of appealed cases to the full Board. It is also important to observe the FAA reclassified airspace in 1993; therefore, the exact regulation that was enforced pre-1993 was different from today's 91.155 (see Aircraft Owners and Pilots Association, 1993).

Future research may seek to generate a more detailed understanding of 91.155-related FAA enforcement actions. Data to complete such an analysis may potentially be sourced via a Freedom of Information Act request, as others have done in related contexts (e.g., Harper & Bliss, 2023).

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Appendix A List of Decisions Issued by NTSB Analyzed in This Study

NTSB Order Number	Year	Case
EA–3496	1992	Administrator v. Hamilton
EA–3502	1992	Administrator v. de Mooy
EA–3595	1992	Administrator v. Worth
EA–3618	1992	Administrator v. Kiscaden
EA–3639	1992	Administrator v. Smith
EA–3713	1992	Administrator v. Rudzek
EA–3716	1992	Administrator v. Symmes
EA–3760	1993	Administrator v. McLarty
EA–3765	1993	Administrator v. Wang
EA–3926	1993	Administrator v. Saliba
EA–3935	1993	Administrator v. Murphy
EA–3991	1993	Administrator v. Rolund
EA–4207	1994	Administrator v. Beckman
EA–4299	1994	Administrator v. Powell
EA–4701	1998	Administrator v. Ahl
EA–4920	2001	Administrator v. McGatha
EA–4957	2002	Administrator v. Laraux
EA–5275	2007	Administrator v. Simmons
EA–5407	2008	Administrator v. Lackey
EA–5866	2020	Administrator v. Fullerton