

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

# CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO

**BNSF Railway Company, Responsible Person: Todd Graetz  
Waiver Number: 107W-2016-00003**

ADDRESS

2400 Western Center Blvd., Fort Worth, Texas, 76131

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED

Small unmanned aircraft system (sUAS) operations at night, and/or outside of the visual line of sight of the remote pilot in command but within visual line of sight of a visual observer, and/or under reduced weather visibility and cloud minimums over BNSF Railway Company property and/or right-of-ways at or below 200 feet above ground level (AGL); unless within a 400-foot radius of a structure. Reference BNSF Railway Company petition for exemption at docket number FAA-2014-0704-0010.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

**14 CFR §107.29 Daylight operation**

**14 CFR §107.31 Visual line of sight aircraft operation**

**14 CFR §107.33(b) Visual observer**

**14 CFR §107.51(c) and (d) Operating limitations for small unmanned aircraft**

## STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached to and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Administrator of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

NOTE—This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

## SPECIAL PROVISIONS

Special Provisions Nos. 1 to 26, inclusive, are set forth on the attached pages.

This Certificate of Waiver 107W-2016-00003 is effective from August 29, 2016 to August 31, 2020 and is subject to cancellation at any time upon notice by the Administrator or an authorized representative.

**BY DIRECTION OF THE ADMINISTRATOR**

**General Aviation and Commercial Division, AFS-800**

**SPECIAL PROVISIONS ISSUED TO  
BNSF Railway Company**

**General.**

In order to respond to your petition for exemption under Section 333 of the FAA Modernization and Reform Act of 2012, docket number FAA-2014-0704-0010, in the most expeditious manner, the FAA has construed your petition as an application to operate your unmanned aircraft under Title 14 Code of Federal Regulations (14 CFR) part 107 in accordance with the provisions of a Waiver. The FAA's Flight Standards Service has reviewed your application to ensure compliance with the requirements of 14 CFR § 107.200. The Administrator finds that the proposed sUAS operation can be conducted safely under the provisions of this Certificate of Waiver (Waiver) as listed below, because adequate mitigations for risks involved with operating your sUAS in the manner you describe has been established. BNSF Railway Company's unique Concept of Operations and Operational Risk Assessment details the specifics of the company's risk mitigations based on their prior flight testing, operational history, and flight experience with these unique and specific operations. This data ensures that BNSF Railway Company's remote pilots in command and visual observers will always be able to see and scan the airspace encompassing the small unmanned aircraft's (sUA) operational area. Adherence to the provisions of this Waiver establishes a level of safety that ensures safety within the national airspace system.

This Waiver may be canceled at any time by the Administrator, the person authorized to grant the Waiver, or the representative designated to monitor a specific operation. As a general rule, this Waiver may be canceled when it is no longer required, there is an abuse of its provisions, or when unforeseen safety factors develop. Failure to comply with any provision listed below is a violation of the terms of this Waiver and may serve as justification for cancellation.

List of Regulations Waived by Section and Title. The following regulations are waived:

14 CFR § 107.29, Daylight operation, is waived to allow small Unmanned Aircraft Systems operations during night.

14 CFR § 107.31, Visual line of sight aircraft operation, is waived to allow small Unmanned Aircraft Systems operations beyond visual line of sight of the remote pilot in command, but within visual line of sight of at least one visual observer.

14 CFR § 107.33(b), Visual observer, is waived to relieve the remote pilot in command of the requirement of ensuring that the visual observer is able to see the small Unmanned Aircraft in the manner specified in §107.31.

14 CFR §§ 107.51(c) and (d), Operating limitations for small unmanned aircraft, are waived to allow small Unmanned Aircraft operations in reduced visibility and with reduced distance from clouds.

**A. Common Provisions.** The Responsible Person, Todd Graetz, for BNSF Railway Company, is directly responsible for safety of operations conducted under this Waiver and will ensure the remote Pilot in Command (PIC), manipulator of the controls, and Visual Observer (VO) complies with all provisions of this Waiver.

1. This Waiver must not be combined with any other waiver(s), authorization(s), or exemption(s) without specific authorization from the FAA;
2. The FAA has the authority to cancel or delay any or all flight operations if the safety of persons or property on the ground or in the air, are in jeopardy or there is a violation of the terms of this Waiver;
3. Operations under this Waiver are to be conducted in Class G airspace only unless specific airspace authorization or Waiver is received from the FAA in accordance with § 107.41;
4. A copy of this Waiver must be available during waived sUAS operations;
5. The Responsible Person listed on this Waiver must maintain a current list of pilots by name and remote pilot certificate number used in the Waiver holder's operations. This list must be presented for inspection upon request from the Administrator or an authorized representative;
6. The Responsible Person listed on this Waiver must maintain a current list of sUA by registration number(s) used in the Waiver holder's operations. This list must be presented for inspection upon request from the Administrator or an authorized representative;
7. All participants involved in the sUAS flight operation must be trained on contingency profiles and emergency procedures. This training must be documented and must be presented for inspection upon request from the Administrator or an authorized representative;
8. Operations conducted under this Waiver shall be confined to over BNSF property and/or right-of-ways. Operations may be conducted over other than BNSF property only in response to an emergency situation involving BNSF property or persons that are in close proximity to BNSF property and/or right-of-ways;

**B. Night sUAS Operations Special Provisions.** sUAS operations may be conducted at night, as defined in 14 CFR §1.1, provided:

9. All operations under this waiver at night must use one or more VO and must comply with § 107.33, unless conducted in accordance with the special provisions in section C of this Waiver below;
10. Communication between VO and remote PIC must allow for the remote PIC to maneuver the sUA with sufficient time to yield right-of-way in accordance with §107.37;
11. Prior to conducting waived operations, the Responsible Person listed on the Waiver must ensure the remote PIC and VO are trained to recognize and overcome visual illusions caused by darkness, and understand physiological conditions which may degrade night vision. This training must be documented and must be presented for inspection upon request from the Administrator or an authorized representative;

12. The sUA must be equipped with lighted anti-collision lighting visible from a distance of no less than 3 statute miles. The remote PIC may reduce the intensity of the anti-collision lighting if he or she determines that, because of operating conditions, it would be in the interest of safety to do so;
13. During operations conducted under this Waiver, the remote PIC will ensure the altitude of the sUA is no higher than 200 feet above ground level, unless the sUA is flown within a 400-foot radius of a structure, and does not fly higher than 200 feet above that structure's immediate uppermost limit. The remote PIC will ensure the sUA remains in Class G airspace unless specific airspace authorization or waiver is received from the FAA in accordance with § 107.41;
14. During night operations, the sUA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the remote PIC unless conducted in accordance with the special provisions in section D of this Waiver below;

**C. Visual Line of Sight Operations and Visual Observer Special Provisions.** sUAS

operations may be conducted outside the visual line of sight of the remote PIC, but within visual line of sight of at least one VO throughout the entire flight, except during takeoff and landing, provided:

15. The sUA must have high visibility exterior features to increase its conspicuity;
16. The remote PIC will determine the correct placement and number of VO along the intended flight path to ensure visual line of sight is maintained throughout the flight operation;
17. Communication between VO and remote PIC must allow for the remote PIC to maneuver the sUA with sufficient time to yield right-of-way in accordance with §107.37;
18. The remote PIC will ensure that the sUA is within visual line of sight of at least one VO at all times during the flight;
19. The remote PIC must be able to determine that the Command and Control (C2) system and communications equipment have performance capabilities that meet the planned ranges for the proposed operation;
20. During operations conducted under this Waiver, the remote PIC will ensure the altitude of the sUA is no higher than 200 feet above ground level, unless the sUA is flown within a 400-foot radius of a structure, and does not fly higher than 200 feet above that structure's immediate uppermost limit. The remote PIC will ensure the sUA remains in Class G airspace unless specific airspace authorization or waiver is received from the FAA in accordance with § 107.41;

**D. Operating limitations for small unmanned aircraft - Weather: Visibility and Cloud Minimums Special Provisions.** sUAS operations may be conducted in weather conditions with reduced visibility and cloud clearance minimums, provided:

21. The remote PIC must ensure that the sUA remains clear of clouds, and that the ability of remote PIC and VO to maintain visual line of sight of the sUA is not hampered by clouds;
22. During operations conducted under this Waiver the remote PIC will not fly the sUA unless the minimum flight visibility, as observed from the location of the control station or where VO is positioned for flight in accordance with section C of this Waiver, is no less than 1 statute mile. At no time will the sUA be operated in an area where minimum flight visibility is less than 1 statute mile;
23. The sUA must have high visibility exterior features to increase its conspicuity and use lighted anti-collision lights visible to other aircraft from a distance of no less than 3 statute miles. The remote PIC may reduce the intensity of the anti-collision lighting if he or she determines that, because of operating conditions, it would be in the interest of safety to do so;
24. During operations conducted under this Waiver, the remote PIC will ensure the altitude of the sUA is no higher than 200 feet above ground level, unless the sUA is flown within a 400-foot radius of a structure, and does not fly higher than 200 feet above that structure's immediate uppermost limit. The remote PIC will ensure the sUA remains in Class G airspace unless specific airspace authorization or waiver is received from the FAA in accordance with § 107.41;
25. All operations conducted under this Waiver must use one or more VO and must comply with § 107.33 unless conducted in accordance with the special provisions in section C of this Waiver above, and
26. Communication between VO and remote PIC must allow for the remote PIC to maneuver the sUA with sufficient time to yield right-of-way in accordance with § 107.37.