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September 2, 2014

Mr. James Williams  
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Federal Aviation Administration  
800 Independence Avenue, SW  
Washington, DC 20591

U.S. Department of Transportation  
Docket Management System  
1200 New Jersey Avenue, SE  
Washington, DC 20590

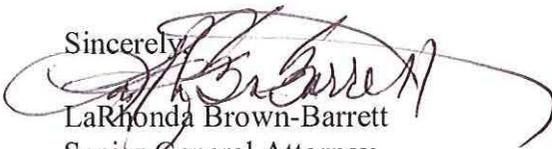
Dear Mr. Williams:

BNSF Railway Company submits the enclosed request for exemption from multiple regulatory provisions of the Federal Aviation Administration (FAA) to allow the use of small unmanned aerial systems on land controlled by BNSF to assist in the safe supplemental inspection of railroad infrastructure and operations.

This version of BNSF's request does not contain appendices B-F referenced in the request for exemption, which contains trade secret and commercial proprietary information that BNSF has not and will not share with others except under appropriate confidentiality agreements. The material contains operating conditions and procedures that are not available to the public and are protected from release under the Freedom of Information Act. See 5 U.S.C. 552 *et seq.* A complete copy of BNSF's request, including the appendices for which BNSF is seeking confidential treatment, has been sent to Mark Bury, Assistant Chief Counsel for International Law, Legislation and Regulations to allow you and others within the agency who need to review all portions of this exemption request complete, yet controlled, access to the documents.

Your time and cooperation is much appreciated.

Sincerely,



LaRhonda Brown-Barrett  
Senior General Attorney

c: Charles W. Shewmake, Vice President and General Counsel



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*Re: Request for exemption from multiple regulatory provisions to allow the use of small unmanned aerial systems on land controlled by BNSF Railway to assist in the safe evaluation of railroad infrastructure and operations*

Dear Mr. Williams:

BNSF Railway Company (BNSF) respectfully requests an exemption from several provisions of Title 14 of the Code of Federal Regulations (C.F.R.) to permit the use of small unmanned aerial systems (sUAS) to assist in the evaluation of railroad infrastructure and operations. This request is motivated primarily by the desire to maximize safety in railroad operations. While an exemption would not eliminate the current need for in-person visual track inspection required by the Federal Railroad Administration, it would allow BNSF to broadly evaluate assets and operations with sUAS, resulting in a safer and more efficient railroad network. Accordingly, the grant of an exemption is consistent with Congress' intent, reflected in Section 333 of the FAA Modernization and Reform Act of 2012 (Modernization Act),<sup>1</sup> that safe systems be permitted in the national airspace prior to the issuance of final regulations governing general use of these systems.<sup>2</sup> A summary of this request suitable for publication in the Federal Register is provided as Appendix A.

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<sup>1</sup> P.L. 112-95, 126 Stat 11, February 14, 2012.

<sup>2</sup> Section 333(b) (2) specifically contemplates that the FAA may issue a certificate of waiver upon a finding that a type of UAS, as a result of its size, weight, speed, operational capacity, proximity to airports and populated areas, and operations within visual line of sight do not create a hazard to users of the NAS or the public or pose a threat to national security.

### Background Information

BNSF is a Class I freight railroad, as defined by the Surface Transportation Board. *See* 49 C.F.R. Part 1201. The current BNSF rail system is the product of almost 400 different railroads, which were merged or acquired over nearly 160 years, culminating in the 1995 merger of the Burlington Northern Inc. and the Santa Fe Pacific Corporation to form the Burlington Northern Santa Fe Corporation. Today, BNSF operates more than 1600 trains a day over 32,500 miles of track in 28 states. The BNSF rail network includes 13,000 bridges, 89 tunnels, and more than 26,000 grade crossings. BNSF either owns, or possesses exclusive easements for, the land over which it operates, and has sole possessory rights to this land.<sup>3</sup>

Thousands of shippers use the BNSF system every day. The railroad moves millions of car loads every year, including agricultural products, consumer products (intermodal containers), industrial products (such as crude oil, stone, and chemicals) and coal. BNSF also moves food, mail, military equipment, automotive parts, and dozens of other categories of freight that are vital to communities across the United States. Given the volume and diversity of freight moved on the BNSF network, any disruptions or delays – due to mudslides, derailments, floods, or the like – can have serious consequences for shippers and the general public. For example, the coal hauled by BNSF powers more than one out of every ten homes in the nation. Accordingly, BNSF invests enormous resources to ensure the safety and viability of its rail system. In 2014 alone, BNSF's capital investment in its core network will be more than \$2.3 billion.

Indeed, nothing is more important to BNSF than safety. The railroad has 43,000 employees. In 2013, the injury rate per 200,000 employee hours was less than 1.1, substantially less than the injury rate in the mining, truck transportation, agriculture, manufacturing, or aviation industries. Likewise, BNSF has worked hard and invested substantial resources to reduce the risk of grade-crossing incidents, which have fallen by about 68 percent since 1995. And BNSF is also focused on further reducing the risk of train accidents and derailments, the rate of which has also fallen sharply in the last 20 years. The investments that BNSF has made in safety in recent years include positive train control technology, mobile laser-based measuring devices, trackside detectors, and the like. BNSF is constantly exploring additional ways in which it can improve safety for its employees, its customers, and the public.

### Regulatory Basis for Exemption Request

In addition to the waiver authority provided in §333 of the Modernization Act, the FAA may grant an exemption under 49 U.S.C. §44701(f) if it has determined that such an exemption is in the public interest. The FAA has imposed a separate requirement in its procedural regulations, providing that the petitioner shall explain why granting the exemption would not adversely affect safety or how the exemption would provide at least an equivalent level of safety as compliance with the underlying regulation.<sup>4</sup> In this case, approval of this exemption would

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<sup>3</sup> BNSF has sole possessory interest of all land between 50 and 100 feet on either side of the centerline of the track. Thus, the total area of control is between 100 and 200 feet. This land remains subject to BNSF's control.

<sup>4</sup> 14 C.F.R. §11.81(e).

advance the public interest by significantly enhancing the safety and efficiency of rail operations and by providing the FAA with valuable user experience on sUAS in a context with appreciable economic and societal benefits. As described more fully below, the requested exemption would permit the operation of sUAS under tightly controlled conditions, thus ensuring that operations will not have an adverse impact on safety. To the contrary, as explained below, BNSF anticipates that use of sUAS will enhance safety in railroad operations.

#### Granting an Exemption is in the Public Interest

The safety and efficiency of railroad operations is heavily dependent upon constant analysis of trains, right-of-way, rail track and other assets/facilities. There are a wide variety of factors that can affect track conditions and cause problems for trains. Even relatively small objects on the rails or minor track failures can lead to derailments or other incidents. Extreme weather events can lead to track flooding or overheating (track can buckle or distort in high heat). Earthquakes, landslides, and abandoned vehicles at grade crossings can block track. The potential for sabotage and terrorism – or even just trespassing – are also among the many risks that modern railroads face. Vigilance is always the best defense against these hazards.

As a result, pursuant to FRA regulations and company policy, BNSF track and bridge maintenance employees routinely inspect the tracks and the underlying infrastructure, such as bridges, tunnels, support structures, and signals. At present, this work is done primarily by company personnel in motor vehicles, on foot, in specialized rail equipment, or in rail-mounted hi-rail vehicles. This is often a labor-intensive and sometimes arduous job. While the railroad does all it can to make these inspections as safe as possible, there is an irreducible element of risk involved whenever employees are required to go out on track and rail structures. Employees may need to climb over or onto track structures, which can be slippery, rough, and/or exposed to the elements. Some structures, such as bridges, are high above the ground. Trains moving through inspection zones can increase risk as well, especially in high-traffic areas. While the use of sUAS for supplemental track, infrastructure and general asset evaluation would not eliminate these risks entirely (as it is an additive safety measure), it would reduce the risks to railroad employees by allowing for remote aerial review.

Additionally, the sheer amount of BNSF assets and the widely dispersed locations – in many instances far from sizeable population centers – means that visual inspection in all instances by company personnel can be inefficient. For example, BNSF track crosses through extremely remote areas in Montana, Idaho, and the Pacific Northwest. Aerial analysis by traditional fixed wing aircraft is impractical because the required altitudes for safe flight reduce track visibility below meaningful levels – it is simply not possible to see all asset anomalies from such heights. By using sUAS for supplemental asset evaluation, BNSF will be able to substantially upgrade its capacity to detect and address issues with the right-of-way and other assets before they become a problem for train operations. Thus, the use of sUAS has the potential to improve efficiency, resulting in faster and safer delivery of goods vital to the U.S. economy.

### Granting an Exemption will not Adversely Affect Safety

BNSF notes that there is no applicable standard for an equivalency determination. Some have argued that the appropriate standard is that for model aircraft, noting that their operations, if conducted for recreational purposes, would fall completely within the allowable operations for model aircraft. We believe it is difficult to argue that there is sufficient correlation between model operations controlled by the Academy of Model Aeronautics and the ones contemplated by BNSF. At the same time, it is clear that equivalency cannot be established for traditional, manned civil aircraft because the design and use profiles between traditional aircraft and sUAS are simply too different. As such, we believe it makes more sense to focus on why the contemplated operations would not adversely affect safety, which is all that §11.81(e) requires.

Granting an exemption will not adversely affect safety. BNSF contemplates conducting sUAS operations over BNSF owned or controlled land, solely during daylight hours, at altitudes well below that which would pose a risk to other aircraft. In general, sUAS operations are intended to be conducted in areas distant from both congested areas and airports. Moreover, because of the inherent risks presented by standard train operations, BNSF has already taken steps to secure its property against unauthorized public access. For example, substantial stretches of BNSF's track are fenced, elevated, or otherwise secured to prevent access. Other long stretches of track are, as noted above, in very remote wilderness areas. The nature of operations anticipated by BNSF requires that the sUAS be flown at relatively low altitudes and relatively low speeds. BNSF expects that in most instances, the sUAS will be flown less than 75 feet from the highest structure along the path of the sUAS. Accordingly, the risk of interference with another aircraft is minimal. BNSF also plans to conduct sUAS operations at least three miles from any public airports (including heliports). In the event an operation needs to be conducted closer to an airport, BNSF will inform the airport operator and airport air traffic control tower of the contemplated operation and will comply with any directions issued by air traffic control at that airport. Appendix B contains examples of the types of areas where BNSF initially intends to use the sUAS.

BNSF initially intends to use a dedicated staff for sUAS operations. All operations will be within visual line-of-sight (*i.e.*, no more than approximately 0.5 miles from the manipulator of the controls, or pilot in command (PIC)). The PIC will have a private pilot's license and a valid third-class medical certificate.<sup>5</sup> Each PIC will conduct at least three take-offs and landings with the sUAS on which he or she is trained every 90 days. Depending on the type of operation, additional ground-based visual observers may be employed as well. These observers will be within constant visual line of sight and in constant contact with the PIC. The visual observers will assist the PIC in avoiding objects near the sUAS.

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<sup>5</sup> Once we have determined that the operations may be safely and reliably conducted for a sufficient variety of operations, BNSF may choose to expand the pool of operators beyond the initial cadre to include exempt and/or craft (union) employees.. We anticipate that it would be economically impractical to require each inspector to possess and maintain a valid private pilot's license. At that time, BNSF may seek an amendment of any exemption, requesting the PIC only be required to have successfully completed FAA private ground instruction and passed a written pilot examination.

BNSF intends to use the AirRobot AR180 and AR200 (a description of which is attached as Appendix C) and the 3DRobotics Spektre Industrial Multi-Rotor Aerial vehicle (a description of which is attached as Appendix D) in its sUAS operations.

### Support for Petition for Exemption

In accordance with the procedural requirements of 14 C.F.R. §11.81, BNSF provides the following information:

#### Contact Information

*Gary Grissum, Assistant Vice President  
Technology Services – Telecom  
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#### Regulatory Provisions from which BNSF seeks an Exemption

BNSF believes it may need an exemption from the following provisions to conduct the contemplated operations. In some instances, relief is needed because relief from another provision renders compliance with the regulation at hand infeasible.

14 C.F.R. §61.113(a) and (b)  
14 C.F.R. §91.7(a)  
14 C.F.R. §91.9(b)(2)  
14 C.F.R. §91.109(a)  
14 C.F.R. §91.119  
14 C.F.R. §91.151  
14 C.F.R. §91.203(a) and (b)  
14 C.F.R. §91.405(a)  
14 C.F.R. §91.407(a)  
14 C.F.R. §91.409(a)

BNSF believes an exemption is only needed from the above-listed regulatory provisions. To the extent that the FAA believes that additional relief is required for BNSF to conduct the operations described here, we request an exemption from any such regulatory provisions as well.<sup>6</sup>

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<sup>6</sup> For example, 14 C.F.R. §91.417(a) imposes certain maintenance record keeping requirements “as applicable”. Since none of the underlying requirements (e.g., inspection intervals) can be met and will require an exemption, BNSF believes a separate exemption should not be required for §91.417(a). If the FAA prefers an

The Extent of Requested Relief and the Reasons Relief is Needed

*14 C.F.R. §61.113(a) and (b)*

**§61.113 Private pilot privileges and limitations: Pilot in command.**

(a) Except as provided in paragraphs (b) through (h) of this section, no person who holds a private pilot certificate may act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.

(b) A private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if:

(1) The flight is only incidental to that business or employment; and

(2) The aircraft does not carry passengers or property for compensation or hire.

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BNSF anticipates initially using a cadre of specially trained staff to conduct the sUAS operations. While these individuals will have private pilot licenses, they will not hold commercial pilot licenses. The sUAS will not carry property for compensation or hire since they will be used solely to assist in evaluation of the railway, trains, right-of-way, assets, bridges, tunnels and out-buildings in furtherance of BNSF's primary business, the successful operation of a railroad; however, the employees' operation of the sUAS will not be incidental to their employment with BNSF, and they will be compensated for such work. Without an exemption, the pilot would be required to hold a commercial pilot certificate under §61.133. However, the risk associated with the contemplated operations is less than the risk posed by a traditional aircraft. The sUAS will fly at altitudes well below the permissible limits for other civil aircraft, eliminating the risk to other aircraft, and within a geographical envelope under the sole control of BNSF. Accordingly, the risk would be limited to BNSF personnel, who will be appropriately outfitted in safety gear, and BNSF property on the ground. Requiring a commercial pilot certificate would provide no appreciable safety benefit and would needlessly impose additional cost on BNSF. Because the contemplated operations would not comply with §61.113(b)(1) and none of the other exceptions to paragraph (a) apply, relief is needed from both paragraphs (a) and (b).

*14 C.F.R. 91.7(a)*

**§91.7 Civil aircraft airworthiness.**

(a) No person may operate a civil aircraft unless it is in an airworthy condition.

(b) The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall

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exemption for all provisions that reference an exempted provision, even when there is language that indicates some flexibility in interpretation, BNSF has no objection to the grant of the additional exemptions.

discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur.

There is no clear definition of “airworthy,” and the term has been defined in various ways depending on the circumstances.<sup>7</sup> In all instances, it appears that the concept includes a requirement that the airplane 1) conforms to the aircraft’s type design or its type certificate, as modified by supplemental type certificates and airworthiness directives, and 2) be in condition for safe operations. The sUAS will not have a type design or type certificate, as the FAA has not developed standards applicable to sUAS. As discussed later in this document, the types of operations contemplated by BNSF will not qualify the sUAS for an experimental airworthiness certificate. Accordingly, relief from §91.7(a) is required. Should the FAA include airworthiness requirements as a condition of exercising the exemption, BNSF will assure the continued airworthiness of the sUAS. Regardless, BNSF believes that it can meet the requirements of §91.7(b) and is not requesting an exemption from that provision.

*14 C.F.R. 91.9(b)(2)*

**§91.9 Civil aircraft flight manual, marking, and placard requirements.**

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(b) No person may operate a U.S.-registered civil aircraft --

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(2) For which an Airplane or Rotorcraft Flight Manual is not required by §21.5 of this chapter unless there is available in the aircraft a current, approved manual material, markings, and placards, or any combination thereof.

\*\*\*\*\*

The sUAS comes with access to online manuals that provide instructions for the safe operation and maintenance of the aircraft. Compliance with this regulatory provision is not possible because this information has not been, and cannot be, approved by the FAA since there are no applicable standards established by the FAA against which to evaluate it. Additionally, the sUAS is too small to carry a printed manual. Since, by definition, there will never be a person aboard the sUAS, BNSF submits that there is no need to require the manual to be placed on the sUAS and an exemption is appropriate. Safety will be maintained by keeping the flight manual at the ground control point where the PIC will have immediate access to it. Since the sUAS cannot be operated without the control box containing the manuals, there is minimal risk that the manuals will become separated from the sUAS, and BNSF will be able to immediately locate the manuals to effectuate any needed repairs on the sUAS detailed in the flight manual.

*14 C.F.R. 91.109*

**§91.109 Flight instruction; Simulated instrument flight and certain flight tests.**

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<sup>7</sup> A good discussion of the various definitions of airworthy adopted by Congress, the FAA and the NTSB may be found in the Letter of Legal Interpretation from Rebecca MacPherson to Christopher Witkowski (March 26, 2008).

(a) No person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls....

Small UASs, by their design, do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. Aircraft being considered for use by BNSF allow the UAS Instructor to place the aircraft into 'loiter' mode (fixed altitude stationary hold). In the event of the student losing control, the UAS Instructor can quickly and via alternate equipment (equipment not in the hands of the student) place the aircraft into a mode that then allows the instructor to bring the aircraft back into control and back to the pre-determined and/or safe landing location.

*14 C.F.R. 91.119*

**§91.119 Minimum safe altitudes: General.**

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

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(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

\*\*\*\*\*

BNSF submits that the only relief it requires from §91.119 is from the minimum altitudes listed in paragraph (c). Relief is required from paragraph (c) for fixed wing operations because asset evaluation conducted at 500 feet or higher is insufficiently distinct to be meaningful. Since operations at this altitude also pose a heightened risk of collision with another aircraft, safety can only be assured through the grant of an exemption. The anticipated rotorcraft operations should be adequately addressed by paragraph (d) (1). Additionally, relief should not be needed from paragraph (a) because an emergency landing of the aircraft due to a power failure will not create an undue hazard to persons or property on the surface. As noted in the explanation of why an exemption will not adversely affect safety, BNSF has exclusive use of the land over which the sUAS will be operated, and public access is restricted. It also has exclusive use of significant portions of land adjacent to the track, trains and structures that will be the objects of evaluation and analysis. We tightly control access to our land and have the ability to assure that no individuals unassociated with the planned operations are on the affected land. BNSF personnel are already required to wear mandatory safety equipment, including hard hats, safety glasses and steel-toe boots whenever dispatched to a work site. As such, the risk of injury is minimal. BNSF does not contemplate conducting operations over congested areas, so relief is not requested from paragraph (b).

*14 C.F.R. 91.151*

**§91.151 Fuel requirements for flight in VFR conditions.**

- (a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed –
  - (1) During the day, to fly after that for at least 30 minutes.
- (b) No person may begin a flight in a rotorcraft under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, to fly after that for at least 20 minutes.

Operating the sUAS in a pre-defined area with less than 30 minutes of reserve fuel does not raise the type of risk contemplated by §91.151, i.e., that an aircraft could run out of fuel in the event it has to be flown to an alternate airport or circle the planned airport in the event of unanticipated conditions. BNSF does not intend to use the sUAS for point-to-point flights and will not operate the sUAS beyond visual line of sight. Nor will the sUAS require an airport in order to land. Rather, BNSF will operate the sUAS using pre-planned flight paths (taking into account weather conditions) designed to allow the sUAS to fly to the point of intended landing. As such, there is no need for a time-based excess fuel requirement. Rather it should be sufficient to require only as much additional excess flight capacity as necessary to safely land the sUAS. We believe that a 20% fuel reserve is more than sufficient to meet this objective.

*14 C.F.R. 91.203(a) and (b)*

**§ 91.203 Civil Aircraft: Certifications required.**

- (a) Except as provided in §91.715, no person may operate a civil aircraft unless it has within it the following:
  - (1) An appropriate and current airworthiness certificate. \*\*\*
  - (2) An effective U.S. registration certificate issued to its owner or, for operations within the United States, the second copy of the Aircraft Registration Application as provided for in §47.31(c), or a registration certification issued under the laws of a foreign country.
- (b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under §91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

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The sUAS that BNSF intends to operate will not qualify for an airworthiness certificate unless the FAA chooses to issue them a restricted category certificate. This is because the sUAS do not meet the current conditions for either a standard airworthiness certificate or an

experimental airworthiness certificate. Notably, under 14 C.F.R. §21.191,<sup>8</sup> experimental airworthiness certificates are only available for research and development, showing compliance with regulations, crew training, exhibitions, air racing, market surveys, operating amateur-built aircraft, operating primary kit-built aircraft and operating light-sport aircraft. Until such time as the FAA develops airworthiness standards applicable to sUAS for non-recreational and non-experimental use, BNSF submits that the FAA should consider exemptions to the requirements of §91.203(a). The absence of such exemptions hinders the development of sUAS and applicable uniform standards since it is only through the development of the aircraft that the FAA can reliably evaluate them and determine appropriate design standards.

Section 333 of the Modernization Act authorizes the FAA to exempt aircraft from the requirement for an airworthiness certificate based on a consideration of the size, weight, speed, operational capability of the particular UAS, as well as its proximity to airports and populated areas. An analysis of these criteria demonstrates that the sUAS operated without an airworthiness certificate in the areas and under the conditions contemplated by BNSF will be at least as safe, or safer, than a conventional aircraft (fixed wing or rotorcraft) operating with an airworthiness certificate without the conditions proposed in this request. The sUAS is less than 55 lbs. fully loaded, carries neither a pilot nor passenger, and operates exclusively within a secured area as set out in the BNSF UAS Operating Manual (a copy of which is attached as Appendix E). Unlike other civil aircraft, operations under this exemption will be tightly controlled and monitored by the operator and observer. Operations will be conducted in compliance with the FAA and with local public safety requirements to provide security for the area of operation as is now done with conventional train, track, bridge and out building evaluation. These safety enhancements provide an expanded degree of safety to the railway inspectors over conventional operations. Lastly, application of these same criteria demonstrates that there is no credible threat to national security posed by the sUAS, due to its size, speed of operation, location of operation, lack of explosive materials and inability to carry a substantial external load.

If the FAA waives the requirements of paragraph (a) (1), then it is technically impossible to comply with paragraph (b), so an exemption is merited there as well.

*14 C.F.R. 91.405(a), 91.407(a) (1) and 14 C.F.R. 91.409(a)*

**§91.405 Maintenance required.**

Each owner or operator of an aircraft –

(a) Shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter;

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<sup>8</sup> BNSF is not seeking an exemption from 14 C.F.R. part 21, subpart H (including §21.191) because those regulatory provisions merely provide the conditions under which an experimental airworthiness certificate is appropriate and procedures for obtaining a certificate if those conditions are met. The actual obligation to fly only aircraft with a valid airworthiness certificate, and therefore the need for regulatory relief, is found in part 91.

**§91.407 Operation after maintenance, preventive maintenance, rebuilding, or alteration.**

(a) No person may operate any aircraft that has undergone maintenance, rebuilding, or alteration unless –

(1) It has been approved for return to service by a person authorized under §43.7 of this chapter;

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**§91.409 Inspections.**

(a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had \_\_

(1) An annual inspection in accordance with part 43 of this chapter and has been approved for return to service by a person authorized by §43.7 of this chapter; or

(2) An inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

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BNSF believes that an exemption from these three maintenance requirements is appropriate because the FAA has not developed maintenance standards that would allow an operator to meet the part 91 maintenance requirements. In particular, there are no individuals authorized by the FAA to approve a sUAS for return to service under §91.407(a) or to conduct the initial airworthiness and annual return to service inspections required by §91.409(a). BNSF will maintain the aircraft as instructed in the owner's manual and ASTM F2909, where applicable, and will not operate the aircraft until it has reasonably determined that any needed repairs have been made. However, because of the technical impossibility of meeting the requirements of §§91.405(a), 407(a) and 409(a), we believe an exemption from these provisions is appropriate.

Please do not hesitate to contact me at the phone number or via the e-mail address provided above should you have any questions or concerns.

Respectfully submitted,



Gary Grissum  
BNSF Railway Company

cc: Jo-Ann Olsovsky  
Charles W. Shewmake

Encl.

## Appendix A

### Summary for Federal Register Publication

Pursuant to 14 C.F.R. Part 11, the following summary is provided for publication in the Federal Register should the FAA determine that publication is needed.

*Petitioner:* BNSF Railway Company (BNSF)

*Sections of 14 C.F.R. Affected:*

- 14 C.F.R. §61.113(a) and (b)
- 14 C.F.R. §91.7(a)
- 14 C.F.R. §91.9(b) (2)
- 14 C.F.R. §91.109(a)
- 14 C.F.R. §91.119
- 14 C.F.R. §91.151
- 14 C.F.R. §91.203(a) and (b)
- 14 C.F.R. §91.405(a)
- 14 C.F.R. §91.407(a)
- 14 C.F.R. §91.409(a)

*Description of Relief Sought:* Petitioner seeks relief from the requirements of 14 C.F.R. §§45.29, 61.113(a)&(b), 91.7(a), 91.9(b)(2), 91.119, 91.121(a), 91.151, 91.203(a) &(b), 91.405(a), 91.407(a) and 91.409(a) to conduct sUAS operations over BNSF owned or controlled land, solely during daylight hours, to assist in the safe evaluation and analysis of railroad infrastructure and operations. In general, sUAS operations are intended to be conducted in areas remote from both congested areas and airports. The nature of operations anticipated by BNSF requires that the sUAS be flown at relatively low altitudes. BNSF expects that in most instances, the sUAS will be flown less than 75 feet from the highest structure along the path of the sUAS and in no instances will be flown higher than 400 feet above the ground. Accordingly, the risk of interference with other aircraft is minimal.