

Technical Description

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Purpose

The safety and efficiency of Burlington Northern Santa Fe (BNSF) railroad operations is heavily dependent upon condition assessment of rail infrastructure. Through the proper use of Unmanned Aircraft Systems (UAS), BNSF expects to substantially upgrade its capacity to detect and address unsafe track conditions before they become a problem for train operations, while also reducing risks to employees by enabling them to work from safer locations. BNSF believes that UAS can directly benefit the safe operation of the railroad and could potentially improve efficiency, resulting in faster and safer delivery of goods vital to the U.S. economy.

Operation Description

BNSF seeks to conduct BVLOS operations over its well defined Right-of-Way using the C2 system of the Insitu ScanEagle UAS supported by BNSF telecommunications infrastructure (tower structures, power). Launch and recovery of UAS will be performed on BNSF owned property. The field of view of sensors and data collected will be focused on BNSF owned property and assets. All operations will be subject to the following constraints:

Pilot-On-The-Loop

While the UAS flight profile may be pre-planned and executed under auto-pilot control modes, a human will always be monitoring the status and position of the UAS and will have the authority and capability to intervene to maneuver the UAS or initiate a flight termination mode.

Single UAS

Some systems have the capability to allow a single pilot to manage multiple vehicles. This capability will not be used. At all times, each individual pilot will operate only one individual UAS.

Specific Flight Corridor

Operations will be conducted within a margin of the lateral bounds of the BNSF Right-of-Way.

Commercial flight operations will be conducted with Insitu ScanEagle UAS type certificated in the restricted category with airworthiness certificates that include operational limitations as assigned by the FAA. The basis of effective data collection to accomplish the goal is safe flight beyond visual line of sight.

In this initial phase of operations, the existing system will be utilized in the certificated configuration. Track integrity will be further assured through real time analysis of full motion video. Video will be provided via internet to selected recipients assuming sufficient connectivity is available at the respective ground control station controlling the ScanEagle in flight. Video will also be recorded for future analysis and archive.

A Certificate of Authorization (COA) will be used as the mechanism for operational approval. The COA will include a communications plan that provides a multilayered approach to notification on a regional and local level in order to maximize the communication with and awareness of other airspace participants. The COA will include waivers, minimum weather requirements, and limitations for these specific operations.

All flight crew and ground crew requirements including Pilot ratings and currency requirements will be identified in the COA. The COA will also affirm lost communication contingencies consistent with the system capabilities and limitations, and notification procedures in the event of unplanned events.

The proposed area of operations will be bounded on the eastern end of the Clovis Subdivision at the intersection of BNSF track and special use airspace Restricted Area R-5104 [N34°26.95' W103°55.10]. The western boundary is proposed to be east of the town of Mountainair, NM and approximately 4 NM east of Mountainair Airport (M10) near the BNSF Bronco Rail Station [N34°33.41' W106°8.84].

