SECTION A. Project Title: Unmanned Aerial System Testing Rev. 7

SECTION B. Project Description and Purpose:

Revision 7:

Idaho National (INL) has been identified as a location that is ideal for testing collaborative Unmanned Aerial Systems (UAS) operations. This revision includes the purchase and placement two fuel trailers to support upcoming RQ-21 flight operations, along with two launch and recovery trailers equipped with diesel engines. The RQ-21 is a small tactical unmanned aircraft powered by a reciprocating engine (8 hp) that operates on Jet Propellant (JP)-8 fuel. These operation are planned at both the UAS runway and the National Security Test Range (NSTR).

The launch and recovery trailers are 13.3 HP diesel engines (Kubota Z482-E4B-GDGE-4) with a fuel capacity of 6.6 gallons each.

The purchase of two fuel trailers, specifically, models similar to the Stellar 990 DLX Deluxe (Figure 7-1) are required to accommodate the significant fuel demands of the RQ-21. Each fuel trailer has a capacity of 990 gallons. Refueling is expected to take place on gravel areas at the tented building (B13-600) at NSTR and the small metal building (B16-612) located at the UAS runway. Photos of these locations are shown in Figures 7-2 and 7-3.

Figure 7-1: Example fuel trailer

Figure 7-2: Fueling location at UAS Runway Building (B16-612)

Figure 7-3: Fueling location at NSTR (B13-600)

Revision 6:

Idaho National Laboratory (INL) has been identified as a location that is ideal for testing collaborative Unmanned Aerial Systems (UAS) operations. The equipment that is being sent to INL is from the Strategic Capabilities Office (SCO). SCO received the equipment from the Special Operations Command (SOC) and were given a short timeline to move the equipment. The RQ-21 UAS will act as a surrogate for collaborative drone operations, multiple drones working towards a single goal with no to little human intervention. This work is vital to the ongoing research and development of unmanned systems and the technology developed and validated at INL will have far reaching ramifications.

This revision includes the purchase and placement of five additional conex storage containers at the UAS testing pad (Figure 6-1). The conex containers are 40 feet long, single stacked, and will be located on the southwest side of the gravel pad and place on railroad ties (four railroad ties per container). The conex containers will be utilized to provide storage for five RQ-21 Unmanned Systems and their support equipment in a location that will make it easy to use for flights in the near future. In addition to the conex containers, six portable tent/canopy shelters would be purchased (Figure 6-2). The tent/canopy shelters are approximately 40 feet by 60 square feet each.

INL is planning to use the storage containers for approximately two years, at which point, the customer will inform INL of the next step for the RQ-21 UAS.

During installation of the required tents, there will be limited industrial waste including but not limited to, packaging materials, cribbing, metal framing, and PVC fabric etc. No off-site work is associated with this project.

Figure 6-1: Conex Location

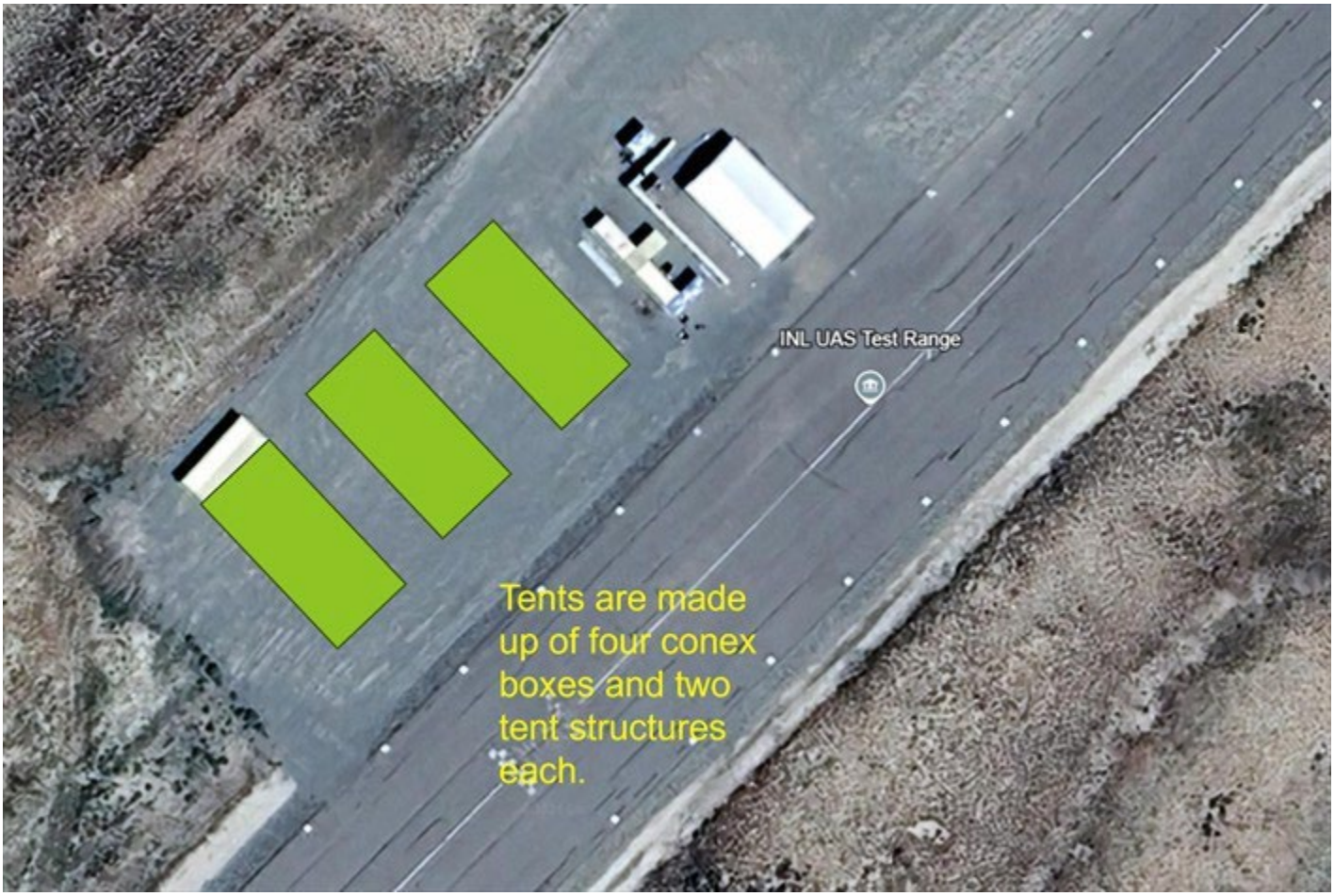


Figure 6-2: Example Tent/Canopy shelter

Revision 5:

Idaho National Laboratory (INL) has been identified as a location that is ideal for testing collaborative Unmanned Aerial Systems (UAS) operations. The equipment that is being sent to INL is from the Strategic Capabilities Office (SCO). SCO received the equipment from the Special Operations Command (SOC) and were given a short timeline to move the equipment. The RQ-21 UAS will act as a surrogate for collaborative drone operations, multiple drones working towards a single goal with no to little human intervention. This work is vital to the ongoing research and development of unmanned systems and the technology developed and validated at INL will have far reaching ramifications.

This revision includes the purchase and placement of seven conex storage containers at the UAS testing pad (Figure 5-1). The conex containers are 40 feet long, single stacked, and will be located on the southwest side of the gravel pad and place on railroad ties (four railroad ties per container). The conex containers will be utilized to provide storage for five RQ-21 Unmanned Systems and their support equipment in a location that will make it easy to use for flights in the near future. INL is planning to use the storage containers for approximately two years, at which point, the customer will inform INL of the next step for the RQ-21 UAS.

No waste will be associated with this project nor any off-site work.

Figure 5-1: Conex Location

Revision 4:

The project is seeking to create another gravel pad (50' x 100'). This pad will be on the east side of the runway near its center. See Figure 4-1. The pad will be used for launching large drones. The carbon fiber rods used for launching don't survive very well when they impact the asphalt. The rods seem to do well on dirt and gravel.

Figure 4-1: Proposed location of new gravel pad

Revision 3:

The project proposes to gravel a large area near the northwest end of the runway and to pave (asphalt) a small gravel area near the steel building. The graveled area will be used for equipment storage during testing and program validation efforts. The expanded area will also be used for vehicle parking to relieve congestion. The paved area will help keep the area surrounding the metal shelter clean, and stop gravel from damaging the structure when certain types of aircraft land near the metal shelter.

To prepare the large gravel area, heavy equipment operators will mow and/or strip vegetation from an area (approximately 108,000 square feet) adjacent to the air strip, and transport, place, level, and compact approximately (8,000 cubic yards) of pit run gravel. See Figure 3-1 for the proposed location of the new gravel pad.

Figure 3-1: Proposed location of large gravel area

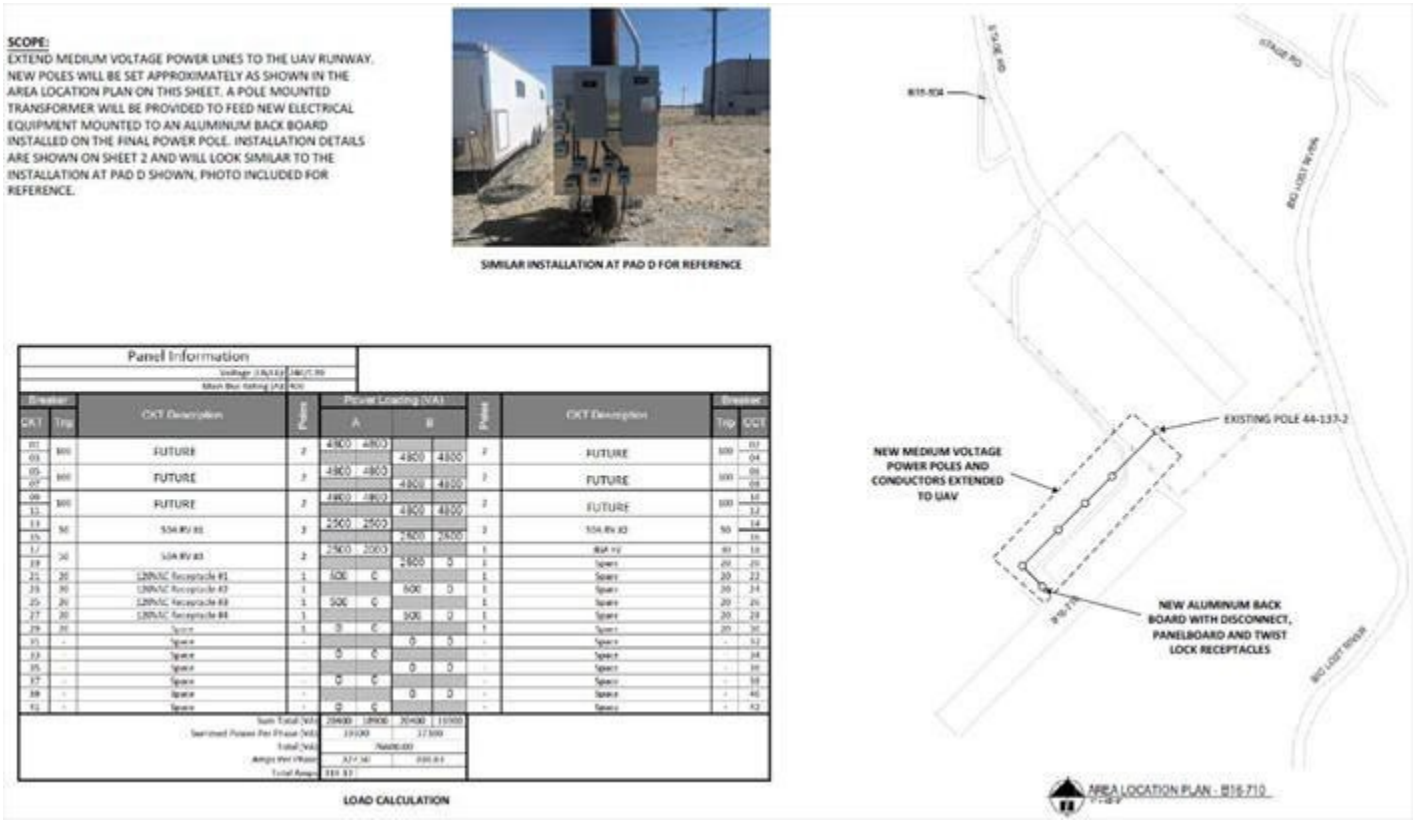
To pave the central gravel pad, a minimum of 3" of asphalt will be placed around B16-612 UAV Metal Shelter on top of existing crushed gravel. The area to be paved is approximately 17,000 square feet minus the footprint of the metal shelter (1500 sq ft). See Figure 3-2 for the proposed location of the area to be paved.

Figure 3-2: Proposed location to be paved with asphalt

Revision 2:

Currently, the Unmanned Aerial System UAS runway has no commercial power service. This severely limits operations and testing by placing reliance on portable power sources. As the UAS test range expands there is an ever- increasing need for reliable commercial power. This scope of the work entails extending the medium voltage power lines from the Experimental Field Station area to the UAS, and providing a 75Kva pole mount transformer, 400A 42 circuit panel board, disconnect, and various outlets mounted to a back board near the base of the last pole. Four (4) of the power poles will be installed in undisturbed ground and one (1) power pole in the UAS gravel parking lot. Poles will be 50ft class II poles and have a minimum setting depth of 10% of the length of the pole plus 2-feet. Figure 2-1 shows the location of the proposed poles and circuit panel.

Figure 2-1: Information for electrical upgrade



Future power upgrades could include extending commercial power down the length of the runway either above or below ground with electric outlets installed at various distances. Power could also be extended to portable structures sited on the expansion pad covered in Revision 1 of the ECP.

There is currently a small tent at the UAV runway area used to store and assemble test equipment. The current tent has a foot print of approximately 20 ft. x 30 ft. It doesn't fare well in the weather conditions and leaks and has to be maintained regularly. A request has been made to replace the tent with a metal sided structure that is anchored to the ground (no foundation or footings). Figure 2-2 shows the location of of the current tent at the UAS runway. There are no improvements inside the structure (it resembles a metal sided carport). The request is for a 30 ft. x 50 ft. structure with doors and windows. The design for wind and snow loading will need to be verified. Figure 2-3 shows an example of the steel structure.

Figure 2-2: Current location of the tent at the UAS Runway

Figure 2-3: Example of the steel structure

Revision 1:

This revision covers an addendum that was approved on March 2, 2021 that allowed for testing outside of the original specified testing period and also covers a proposed expansion of the support area adjacent to the runway. The proposed area of expansion is approximately 150' x 300'. See the figure below. The expansion is needed because of the proposed addition of three cargo containers (10' x 20' each) to the UAS Test Range for storage of equipment used during testing and validation of the program. The expanded area will also be used as parking as the current area becomes extremely crowded when the two large trailers and other vehicles needed for testing are parked there.

There will not be any structures built upon the newly expanded area. Again, there will be three cargo containers, 10’x20’ each and then the remaining area will be additional parking or possibly more storage in the future.

Heavy equipment operators will remove vegetation from a 150’ x 300’ bare earth area adjacent to the air strip, and transport, place, level, and compact 12” (45,000 cubic feet) of pit run gravel. The project will also construct three (3) gravel approaches to egress the new area and the air strip.

Figure 1-1: Proposed expansion area

Original EC:

Ascent Vision Technologies, LLC (AVT) is requesting the use of Idaho National Laboratory (INL) testing range to evaluate its signature Counter Unmanned Aerial System product, the Expeditionary Mobile Air Defense Integrated System (X-MADIS).

INL will provide test range assets and personnel for testing a suite of sensors and Unmanned Aircraft Systems (UAS) provided by Ascent Vision Technologies. The Class-2 UAS are under 20 lbs. and are commercially available. The UAS are battery powered by NiMH and Li-Ion batteries. These are the same batteries used and approved by our current Laboratory Instruction LI-786. The UAS Test Range has been used for several years to conduct the type of tests that will be performed during the proposed testing event. No new hazards or operating scenarios are being introduced.

Flight operations will be performed around the UAS runway at an altitude not to exceed 400 ft. The UAS will be within visual line of sight at all times. UAS may be operated under full remote control, supervised pilot in the loop control, and/or full autonomous control (autopilot controlled flight) during the testing event. UAS will be launched from a variety of locations in close proximity of the UAS Runway all of which have vehicular access.

Assorted sensors will be deployed and tested during UAS flight operations. Sensors to be tested include imagery collection (video), radar sensors for determining range and distances, and communication interference devices to determine their impact on command and control of the UAS. A variety of different flight patterns will be flown to quantify the effectiveness of the sensors being tested. Sensors will be deployed both from the UAS and on the hard deck of the UAS Runway.

Testing will occur over a four (4) day period during daylight hours starting June 18, 2019. Small portable generators will be used to provide power at the Runway. Procedures identified and approved in LI-786 will be implemented for operation and fueling of the generators. It is not anticipated that any waste will be generated during this activity.

There will be no off-road activity.

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

Rev 7: Emission from ICE are covered under APAD 01-83 (Mobile Sources - Nonroad Engines - Generic Coverage for Diesel Engines Less than 294 HP)
Rev 6: N/A
Rev 5: Emissions will result from the use of heavy equipment and trucks.
Rev 1-4: Removal of vegetation may result in the generation of fugitive dust. Emissions will result from the use of heavy equipment and trucks.

Discharging to Surface-, Storm-, or Ground Water

Rev 1-7: The proposed area of construction is located within the stormwater corridor for the Big Lost River. Since the area of construction is less than 1 acre in size, a Storm Water Pollution Prevention Plan is not required for this activity.

Disturbing Cultural or Biological Resources

There is the potential for this work to impact vegetation and for project personnel to interact with various wildlife species. A Biological Resource Review will be arranged within two weeks prior to the initiation of any activities that might disturb soil or vegetation and again following completion of project activities. A nesting bird survey is included with the Biological Resource Review for actions occurring between April 1 - October 1 per compliance with the Migratory Bird Treaty Act. Bat surveys are also included with the Biological Resource Review in accordance with the INL Bat Protection Plan.

Generating and Managing Waste

Rev 7: N/A
Rev 6: During installation of the required tents, there will be limited industrial waste including but not limited to, packaging materials, cribbing, metal framing, and PVC fabric etc.
Rev 1-5: It is anticipated that the following types of waste could be generated: Industrial (non-hazardous, nonradioactive) waste includes typical grubbing material

Releasing Contaminants

Rev 1-7: When fuel is used there is a potential to spill to air, water, or soil.

Using, Reusing, and Conserving Natural Resources

Project description indicates materials will need to be purchased or used that require sourcing materials from the environment. Being conscientious about the types of materials used could reduce the impact to our natural resources.

SECTION D. Determine Recommended Level of Environmental Review, Identify Reference(s), and State Justification: Identify the applicable categorical exclusion from 10 Code of Federal Regulation (CFR) 1021, Appendix B, give the appropriate justification, and the approval date.

For Categorical Exclusions (CXs), the proposed action must not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, or similar requirements of Department of Energy (DOE) or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment or facilities; (3) disturb hazardous substances, pollutants, contaminants, or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources (see 10 CFR 1021). In addition, no extraordinary circumstances related to the proposal exist that would affect the significance of the action. In addition, the action is not “connected” to other action actions and is not related to other actions with individually insignificant but cumulatively significant impacts.

References: B1.15 "Support buildings", B3.2 "Aviation activities", B3.11 "Outdoor tests and experiments on materials and equipment components", B4.12 "Construction of powerlines"

Justification: Based on the purpose and need and description of the proposed action and potential environmental impacts, the proposed action fits within the class of actions that is listed in Appendix B CX B1.15, B3.11, B3.2 and B4.12. There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal (10 CFR 1021.410(b)(2)). The proposed action has not been segmented to meet the definition of a categorical exclusion (10 CFR 1021.410(b)(3)). This proposal is not connected to other actions with potentially significant impacts, is not related to other actions with individually insignificant but cumulatively significant impacts, and is not precluded by 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement (10 CFR 1021.410(b)(3)).

Authorizing the proposed action will not (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including DOE and/or Executive orders; (2) require siting of new facilities or expansion of existing facilities; (3) disturb hazardous substances, pollutants, or contaminants; (4) adversely affect environmentally sensitive resources; or (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species.

B1.15 Support buildings. Siting, construction or modification, and operation of support buildings and support structures (including, but not limited to, trailers and prefabricated and modular buildings) within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible). Covered support buildings and structures include, but are not limited to, those for office purposes; parking; cafeteria services; education and training; visitor reception; computer and data processing services; health services or recreation activities; routine maintenance activities; storage of supplies and equipment for administrative services and routine maintenance activities; security (such as security posts); fire

protection; small-scale fabrication (such as machine shop activities), assembly, and testing of non-nuclear equipment or components; and similar support purposes, but exclude facilities for nuclear weapons activities and waste storage activities, such as activities covered in B1.10, B1.29, B1.35, B2.6, B6.2, B6.4, B6.5, B6.6, and B6.10 of this appendix.

B3.2 Aviation activities. Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.

B3.11 Outdoor tests and experiments on materials and equipment components. Outdoor tests and experiments for the development, quality assurance, or reliability of materials and equipment (including, but not limited to, weapon system components) under controlled conditions. Covered actions include, but are not limited to, burn tests (such as tests of electric cable fire resistance or the combustion characteristics of fuels), impact tests (such as pneumatic ejector tests using earthen embankments or concrete slabs designated and routinely used for that purpose), or drop, puncture, water-immersion, or thermal tests. Covered actions would not involve source, special nuclear, or byproduct materials, except encapsulated sources manufactured to applicable standards that contain source, special nuclear, or byproduct materials may be used for nondestructive actions such as detector/sensor development and testing and first responder field training.

B4.12 Construction of powerlines. Construction of electric powerlines approximately 10 miles in length or less, or approximately 20 miles in length or less within previously disturbed or developed powerline or pipeline rights-of-way.

Approved by Robert Douglas Herzog, DOE-ID NEPA Compliance Officer on: 5/27/2025