APPENDIX E

NMSU PSL TAAC OPERATIONS INSPECTION AUTHORIZATION	PAGE 1 of ___ PAGES
	PROJECT NO.
TO: □ FLIGHT _____ (Routing Symbol) □ AIRWORTHINESS _____ (Routing Symbol)	DATE
NAME OF APPLICANT	ADDRESS (Number, street, city, state, and ZIP Code)

1. INSPECTION AUTHORIZED FOR

	UAS	Other (*Specify*)		NEW M00EL *(Give model no.)*	
	Platform				
	Engine/Propeller			ALTERED M00EL *(Give name of original manufacturer and model no.)*	ORIGINAL MANUFACTURER"S SPECIFICATIONS
	Ground Control Station (GCS)				

2. Operational Services & Environmental Information Capture (OSEIC)

Insert the following as applicable:

- Operational Suitability Determination (OSD) / Operational Performance Assessment (OPA)
- Operational Safety Assessment (OSA)
- Interoperability Assessment (IA) / Functional & Reliability (F&R) Tests

3. CATEGORY-FOR UAV SYSTEM ONLY *(Check all applicable items)* _

	High Altitude Long Endurance UAV		Medium Altitude UAV		Low Altitude UAV		Airspace Flight Restrictions (COA)		USOVP Designated Special Purpose Operations		OTHER *(Specify)*

4. BRIEF DESCRIPTION OF UAV SYSTEM

I

PLATFORM:

GROUND CONTROL STATION (GCS):

CONTROL & COMMUNICATION FEATURES:

5. UAV DESIGN SPEEDS – MPH (E&S) SEE PAGE_____	**6. UAV MAXIMUM MACH NO. (DESIGN) –** SEE PAGE_____	**7. UAV DESIGN WEIGHTS** SEE PAGE_____
8. UAV MAXIMUM OPERATING ALTITUDE *(Feet)*	**9. GROUND CONTROL STATION (GCS) LIMITS**	**10. UAV PLATFORM CG. LIMITS -** SEE PAGE_____
11. UAV SPECIAL PURPOSE OPERATIONS COMPARTMENTS - LOCATION ANO MAXIMUM LOADS – SEE PAGE _____	**12. UAV STRUCTURAL/MANEUVERING LIMITS –** SEE PAGE _____	

13. UAV PLATFORM ENGINE OPERATIONS LIMITATIONS

UAV ENGINE MAKE AND MODEL (FOR TURBINE ENGINE SEE PAGE _____)						**UAV ENGINE DATA •SHEET N0. (if applicable)**		
ITEM	**ON TAKEOFF** (*Specify'* _____ **(*Minutes*)**	**LOW RATIO SUPERCHARGER**		**HIGH RATIO SUPERCHARGER**		**MAXIMUM ALLOWABLE TEMPERATURE**		**°F**
		SEA LEVEL	**ALT. HEIGHT** *(Specify)* _____ **(*Feet*)**	**ALT. (MIN)** *(Specify)* _____ (*Feet*)	**ALT. MAX** *(Specify)* _____ *(Feet)*	**CYLINDER HEAD (OR COOLAND OUTLET)**	**WASHER BAYONET**	
						CYLINDER BASE		
IN. HG.						**0IL INLET**		
RPM						**MINIMUM CARBURETOR HEAT RISE REQUIRED AT _____% MC POWER**		
HP								

14. UAV PLATFORM PROPELLER OPERATIONS LIMITATIONS

MAKE AND MODEL		**DATA SHEET NO**. (if applicable)	**DIAMETER**
HUB MODEL NO.	**BLADE MODEL N0.**	**LIMITATIONS - S**EE PAGE _____	

15. UAV ROTORCRAFT	**MAXIMUM**	**MINIMUM**	**16. INSPECTION REPORT**		
POWER ON ROTOR LIMITS - RPM			**100-HOUR INSPECTION COMPLETED**		**YES**
POWER OFF ROTOR LIMITS - RPM					**NO**

17. EQUIPMENT LIST				**18. TYPE INSPECTIDN REPORT**	
IS EQUIPMENT LIST CORRECT AS TO WEIGHT AND ARM OF EACH ITEM		**YES**		**COMPLETE APPLICABLE PORTIONS OF OPERATIONS INSPECTION REPORT,. PART I**	
		N0		**COMPLETE APPLICABLE PORTIONS OF OPERATIONS INSPECTION REPORT. PART II**	
EQUIPMENT LIST ATTACHED		**YES**	FOR. *REPORT* NO.	**SEE ATTACHED PAGES FOR INSTRUCTIONS**	
		N0		**SEE ATTACNED PAGES FOR SPECIALTESTS (*Define divisions of responsibilities*)**	

ORIGINATED BY	**CONCURRENCES**					
TAAC ROUTING SYMBOL	**ROUTING SYMBOL**	**INITIALS**	**ROUTING SYMBOL**	**INITIALS**	**ROUTING SYMBOL**	**INITIALS**

NMSU PSL TAAC AUTHORIZATION

DATE	**TITLE**	**SIGNATURE**

NMSU PSL TAAC Operations Inspection Authorization (OIA)

The NMSU PSL TAAC Operations Inspection Authorization (OIA) is intended to establish a formal documentation process for conducting UAS flight tests and demonstrations at the TAAC flight test center. Because of the wide variations in performance among the various existing UAS, no attempt is made to cover all the different configurations and performance capabilities. Specific scenarios that need to be considered include normal operations and emergency operations including e.g., "loss-link" and "engine-out" scenarios, including conflict avoidance.

Considerable experience operating in the NAS has already been gained under the existing FAA Certificate of Authorization (COA) process. However, it must be recognized that the COA process is predicated on the issuance of prescribed operating limitations and conditions, in terms of e.g., routing, waivers on equipment requirements, and operational flight restrictions from other traffic.

General Guidelines:

The following guidelines have been prepared for use by NMSU PSL TAAC personnel in conducting UAS flight tests and demonstrations, but not limited to:

- Flight tests shall be conducted to assure that key technology performance is achieved in flight under anticipated flight scenarios, such as normal operation and emergency situations.
- Flight tests shall be designed to support the requirements for traffic avoidance system testing, as well as the process and procedures established for the general mission requirements.
- Where possible and without jeopardizing other flight objectives, multiple tests shall be conducted simultaneously on the same UAS.
- Flight test evaluations shall be conducted to verify proper operations and accuracy of UAS sensor equipment as installed on the air vehicle.
- Flight tests shall include the evaluation of installed sensor equipment to verify that it is functioning and operates in accordance with the manufacturer's specifications.
- Flight tests shall validate multi-sensor equipment navigational accuracy in each operating mode (e.g., oceanic, en-route, and terminal).
- GPS sensor accuracy shall be verified in each operating mode, by low level over-flights at one or more surveyed locations.
- Within the ground control station (GCS), conduct an evaluation of the visibility of the controls, displays, and annunciators, during all types of lighting conditions (there shall be no distracting glare or reflections, and all controls shall be illuminated for identification and ease of use).
- The interfaces with other air vehicle equipment shall be checked to determine that operation of other installed equipment on the air vehicle has no effect on the multi-sensor equipment operation, and command & control of the air vehicle.
- The equipment installation shall be verified of its electromagnetic compatibility.
- Failure protection of the sensor equipment shall be evaluated and software levels should be substantiated in the safety assessment.

- Spectrum management analysis shall be performed to ensure the bandwidth used to perform the flight maneuvers of the UA and conduct its mission objectives does not conflict with other spectrum users.

- The spectrum bandwidth for flight operations shall be sufficient to perform the command and control functions of piloting the aircraft with at least the same capability and safety as aircraft with pilots on board.

- The bandwidth requirements to accomplish the mission objectives shall be defined by the UAS operator, and spectrum bandwidth for mission purposes must not diminish the necessary bandwidth required to command and control the UAS flight operation.

- The capability to maintain continuous command and control communication link between the control station and the UA in both line-of-sight (LOS) and over-the-horizon (OTH) environments, as appropriate, shall be determined in advance of any flight operation.

- No UA system flight operations shall be performed in airspace where there is no assurance that positive continuous command and control communication between the control station and the UA exists.

When a UA system flight utilizes both LOS and OTH command and control communication links, there shall be sufficient overlap between the two operating environments to enable the UAS pilot to determine the OTH communication connectivity is stable and reliable before the UA flies beyond LOS coverage. Note: Aerostar UAS flights conducted by NMSU PAL TAAC are limited to LOS operations only.

The flight testing and demonstrations shall also address a flight validation of an air traffic avoidance system. Conditions and scenarios will need to be considered that include normal and emergency operations, but not limited to the following: (1) normal operations with varying traffic densities, and (2) emergency operations with varying traffic densities (i.e., loss-link, engine-out, conflict avoidance deviations from flight plan, and weather caused deviations from flight plan). Flight testing of any airborne sense & avoid subsystem shall take into account ASTM F 2411-04, as amended, entitled “Standard Specification for Design and Performance of an Airborne Sense-and-Avoid System”.

NMSU PSL TAAC Operational Services & Environmental Information Capture (OSEIC)

Utilization of Operations Inspection Authorization (OIA) Documents by TAAC personnel shall consider the following:

- Operational Suitability Determination (OSD) / Operational Performance Assessment (OPA)
  - Pre-Flight
  - Flight
  - Post-Flight

- Operational Safety Assessment (OSA)
  - Platform Segment
  - Control & Communications Segment
  - Ground Control Station (GCS) Segment

- Interoperability Assessment (IA)
  - Functional & Reliability (F&R) Tests
  - Reliability Growth
  - 3 Phase OIA