		ASN	2008-WSA-13-COA
		Case Status	EXPIRED
		Date Created	02/01/2008
		Date Submitted	03/27/2008
Proponent Organization		Sponsor	NASA ARC
		Attn Of	Mark Sumich
		Address	Aviation Management Office
		Address2	Mail Stop 158-1
		City	Moffett Field
		State	CA
		Postal Code	94035-1000
		Telephone	(650)604-6193
		Email	msumich@mail.arc.nasa.gov
Declaration		Declaration(a)	Yes
		Declaration(b)	Yes
Point of Contact		Representative	Stanley Herwitz
		Address	UAV Collaborative
		Address2	NASA Research Park MS 18-2
		City	Moffett Field
		State	CA
		Postal Code	94035
		Telephone	(650)604-2192
		Email	sherwitz@arc.nasa.gov
Operational Description	Requested Effective Period	Beginning	
		End	
		Light out operation	Yes
		VFR operation	Yes
		IFR operation	No
		Day operation	Yes
		Night operation	No
		Program Executive Summary	The Vector-P UAV will be operating over a 15 x 60 mile region in eastern Nevada for the purposes of data acquisition for the U.S. Forest Service.
		Operational Summary	The frequency of Vector-P UAV operations in eastern Nevada is expected to be 4 to 5 times per month. The number of Vector-P UAV flights over the 15 x 60 mile region is expected to be approximately 1 to 2 flights per day of operational deployment. The anticipated duration of each flight is expected to be approximately 2 to 6 hours.
	Location	State	NV
		County	White Pine
		Nearest Airport	ELY ARPT /YELLAND FLD/
		AOR	Nevada
	Class Of Airspace	Class-A	
		Class-B	
		Class-C	
		Class-D	
		Class-E	Yes
		Class-G	Yes
System Description		Aircraft Type	
		Aircraft Type And Model Description Attachment	1
		Control Station Attachment	1
		Communications System Attachment	1
		List Certified Components (TSO) Attachment	1
		Other Attachment	0
Performance Characteristics		Climb Rate (feet/Minute)	1000
		Descent Rate (feet/Minute)	600
		Turn Rate (Degrees/Second)	10
	Cruise Speed	Maximum	110
		Minimum	50
		Approach Speed	50
	Operating Attributes	Maximum MSL	10000
		Minimum MSL	0
		Gross Takeoff Wt	75.0
		Launch/Recovery Attachment	1
Airworthiness		FAA Type Certificate	
		If No FAA Certificate (Public Aircraft Only) Attachment	1
Procedures		Lost Link/Mission Procedures Attachment	1
		Lost Communications Procedures Attachment	1

		Emergency Procedures Attachment	1
Avionics/Equipment		Equipment Suffix Type	X
		GPS	Yes
		Moving map indicator (Command Station)	Yes
		Tracking capability	Yes
		TCA/MCAS	No
		ELT	No
	Transponder	Transponder	No
		On	Yes
		Off	Yes
		Standby	No
		Ident	Yes
		Mode S	No
		Mode C	Yes
		Transponder Retuneable in Flight	No
Lights		Landing	No
		Position/Navigation	No
		Anti-collision	No
		Infrared (IR)	No
Spectrum Analysis Approval		Data Link	Yes
		Data Link Attachment	0
		Control Link(s)	Yes
		Control Link Attachment	0
		Operations utilizing Radio Control (R/C) frequencies as described in Title 47 CFR 95	No
		NTIA/FCC Authorization Attachment	0
ATC Communications	Transmitter VHF Band	VHF Band	Yes
		Quantity	1
		In-Flight Retunable	Yes
	Transmitter UHF Band	UHF Band	Yes
		Quantity	1
		In-Flight Retunable	Yes
	Transmitter HF band	HF Band	No
		Quantity	
		In-Flight Retunable	No
	Receiver VHF Band	VHF Band	Yes
		Quantity	1
		In-Flight Retunable	Yes
	Receiver UHF Band	UHF Band	Yes
		Quantity	1
		In-Flight Retunable	Yes
	Receiver HF band	HF Band	No
		Quantity	
		In-Flight Retunable	No
	Guard (Emergency) Frequencies VHF Band	VHF Band	No
		Quantity	
	Guard (Emergency) Frequencies UHF Band	UHF Band	No
		Quantity	
	Instantaneous Two-Way Voice	Direct to pilot	Yes
		SATCOM	No
		Relay via aircraft	No
Electronic Surveillance/ Detection Capability		EO/IR	No
		Terrain detection	No
		Weather/icing detection	No
		Radar	No
		Other Attachment	0
		Electronic detection systems	No

		Electronic detection systems attachment	0
		Radar observation	No
		NAS Operational Capability Attachment	0
Visual Surveillance/ Detection Capability	Maximum Distance from UA	Vertical	3000 Feet
		Horizontal	1.0 Nautical Miles
		Airborne based (Chase Aircraft)	Yes
		Ground based	Yes
		Visual observation from one or more ground sites	Yes
		Forward or side looking cameras	No
		Attachment for All	1
Aircraft Performance Recording		Flight data recording	Yes
		Control station recording	Yes
		Voice Recording	No
Flight Aircrew Qualifications	Pilots	Private (Written)	Yes
		Private (Certified)	No
		Instrument	No
		Commercial	No
		Air Transport	No
		Unique Trained Pilot	No
		Unique Trained Pilot Description	N/A
		DOD certified/trained	No
		Other Certified Training	No
		Trained on FAR Part 91 Requirement	Yes
		Medical Certification Class (FAA or DOD equivalent)	2
		Currency Status	Current
		Duty Time Restrictions	None
		Single UAS Control	Yes
		UAS Description	
		Total Numbers of UAS Controlled	1
	Observers	Private (Written)	No
		Private (Certified)	No
		Instrument	No
		Commercial	No
		Air Transport	No
		Unique Trained Pilot	No
		Unique Trained Pilot Description	N/A
		DOD certified/trained	No
		Other Certified Training	No
		Trained on FAR Part 91 Requirement	Yes
		DOD Certified Training Attachment	0
		Medical Certification Class (FAA or DOD equivalent)	2
		Currency Status	Current
		Duty Time Restrictions	None
		Single UAS Control	Yes
		UAS Description	
		Total Numbers of UAS Controlled	1

Special Circumstances		Special Circumstances	This COA was released requiring more information which is provided below. 1) Class 2 medicals for pilots and observers. Response: All PICs and observers will possess current Class 2 medical certificates. 2) Pilot qualifications for chase aircraft. Response: The chase aircraft pilot shall have a current commercial rating and must be approved by the NASA Ames Flight Readiness Review Board. 3) How, when and where does chase join with UA? Response: The chase aircraft shall take off first and orbit the UAS launch site. When the chase is in position, the UAS shall take off and orbit until the chase observer has acquired visual contact. The UAS shall then be commanded to proceed on its predetermined course. The chase aircraft will maintain a safe altitude separation and lateral offset from the UAS so that the on-board observer can keep the UAS in sight at all times. If the observer loses sight of the UAS, the chase aircraft shall climb or descend to establish a safe clearance altitude from the UAS. The GCS operator will radio the chase observer the location of the UAS. The UAS can also be commanded to enter an orbit so the chase observer can reacquire visual contact. Once contact is re-established, the UAS will be commanded to continue its mission. The UAS flight route and lost link procedures will be briefed to the chase pilot and crew prior to take off. Upon lost link, the UAS will RTB and circle the launch point. The chase aircraft will escort the UAS back to the launch point upon loss of link.

Flight Operations Area/Plan

Type	User Defin	Point	Loc ID	Degree	Distance	Latitude	Longitude	MSL Ceilin
USER DEFINED ARE		USFS Mission		1				

Total Map Attachment 1

MSL Floor	Maximum S	Minimum S	Radius	SUA Description
		39-30-00.00N	114-35-00.00W	10000

0	110	50	30.0