

IAGSA Member Self-Assessment Questionnaire

Company Name: MAGSPEC Airborne Surveys Pty Ltd	
Location: 21 Triumph Ave Wangara WA 6065 Australia	
Date of Assessment: 18/10/2017	
Assessment Questionnaire completed by: Peter Spencer	
Key Management Personnel	Position
Cameron Johnston	Managing Director
Peter Spencer	Operations Manager
Total # Employees: 9	

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Planning – All Operations			
Title	IAGSA Recommendation	Compliance Level	Explanation of Compliance
Survey Planning	The following is a list of IAGSA Recommended Practices which all members should take into account when planning airborne survey operations regardless of type of survey or terrain.		
	Prior to commencing a survey, do you conduct a detailed risk assessment which identifies the safe survey height?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Detailed JSA (Job Safety Analysis) document is completed by the Operations Manager and the Chief Pilot before commencing a survey.
	Prior to conducting a survey do you establish a crew rotation schedule which considers factors such as remoteness of site, severity of climate, quality of accommodation, food and personal considerations?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Crew roster is made out for rotation on crew. Environmental factors as pointed out in this question are considered when completing the JSA.
	Do you have a minimum temperature limit for cold weather operations?	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input checked="" type="checkbox"/> N/A	

“SAFETY IN THE AIR BEGINS ON THE GROUND.”

	<p>Do you limit the use of aircraft heaters or air-conditioning in the interest of “clean” data?</p>	<p><input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input checked="" type="checkbox"/> Never</p>	<p>No air-conditioning systems are fitted to our aircraft. Heaters can be used whenever the pilot likes.</p>
	<p>Do you require the use of oxygen for all aircrew for survey flights or portions thereof conducted above 10,000 feet ASL?</p>	<p><input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never</p>	<p>Australian Civil Aviation Safety Authority requirement.</p>
	<p>Do you have a drug and alcohol policy?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>As per Operations Manual, Appendix 2</p>
	<p>Are aircrew members required to wear long trousers or a flight suit, closed shoes, have gloves available and clothing appropriate for the environmental conditions?</p>	<p><input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input checked="" type="checkbox"/> Never</p>	<p>Left to the Pilot’s discretion</p>
	<p>For fixed wing surveys, is a risk assessment conducted to determine whether or not helmets should be worn by the flight crew members?</p>	<p><input type="checkbox"/> Always <input type="checkbox"/> Sometimes</p>	

		<input checked="" type="checkbox"/> Never <input type="checkbox"/> N/A	
	For helicopter surveys, are the flight crew members required to wear a flight helmet?	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	N/A – no helicopter surveys
	Are flight crew members paid or given an incentive based upon hours or kilometers flown?	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input checked="" type="checkbox"/> Never	
Emergency Response Planning	Do you develop project specific emergency response plans for each project?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Determined by the results of the JSA prior to the survey.
	Does your company have an overall crisis management plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per MAGSPEC Policies
Flight Following	Do you operate a satellite tracking system on all aircraft?	<input checked="" type="checkbox"/> Always	Spidertracks

		<input type="checkbox"/> Sometimes <input type="checkbox"/> Never	
	Is the position reporting frequency of the tracking system set to 2 minute intervals as a minimum?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Single Pilot Only Surveys	Do you conduct single Pilot Only Surveys (no equipment operator)?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC - Policies
	If so, does the Pilot have equipment operation duties in addition to those normally associated with flying the aircraft?	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> N/A	The onboard acquisition system is fully automated but at times the pilot may be required to input a command.
	Are additional risks associated with single pilot only operations detailed in the risk assessment?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Outlined in MAGSPEC JSA's.

		<input type="checkbox"/> N/A	
Operating Standards			
Minimum safe survey speeds	Are minimum safe survey speeds for single engine aircraft calculated at 130% of clean stall speed (Vs)?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation Operations Manual Volume 2 Part D Section 1.4
	Are minimum safe survey speeds for Multi-engine aircraft: 110% of best single engine rate of climb speed (Vyse), or minimum safe single engine speed (Vsse, if published)?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> N/A	As per MAGSPEC Aviation Operations Manual Volume 2 Part D Section 1.4
Minimum Fuel Standard	Is fuel planning for survey flights based upon 110% of planned consumption?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.1
	Is minimum reserve fuel calculated as 30 minutes for fixed wing and 20 minutes for helicopter at normal cruise consumption rates?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	45-minute min reserve as per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.1

	Do planned minimum fuel reserves consider site specific contingencies?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.1 (v)
Flight and Duty Times	Are the following Flight & Duty Times adhered to?		
Single Pilot Operation Maximum Flight Times	A maximum of 8 hours flight time per day.	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	CASA CAO 48.1 Appendix 5 is adhered to should conditions be favorable.
	A maximum of 5 hours flight time on survey per day (excluding transit time)	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	CASA CAO 48.1 Appendix 5 is adhered to should conditions be favorable.
	A maximum of 40 hours flight time in any 7 consecutive day period	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	CASA CAO 48.1 Appendix 5 is adhered to should conditions be favorable.
	A maximum of 100 hours flight time in any consecutive 28 day period.	<input type="checkbox"/> Always	CASA CAO 48.1 Appendix 5 is adhered to should conditions be favorable.

		<input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	
	A maximum of 1000 hours in any consecutive 365 day period.	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	CASA CAO 48.1 Appendix 5 is adhered to should conditions be favorable.
	If extensions to the single pilot flight times are used has the extension criteria recommended by IAGSA been met?	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> N/A	CASA CAO 48.1 Appendix 5 is adhered to.
Dual Pilot Operations Maximum Flight times	A maximum of 10 hours flight time per day.	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	N/A – only single pilot operations
	A maximum of 8 hours flight time on survey (excluding transit time).	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	N/A – only single pilot operations

	A maximum of 45 hours flight time in any consecutive 7 day period.	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	N/A – only single pilot operations
	A maximum of 120 hours flight time in any consecutive 28 day period.	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	N/A – only single pilot operations
	A maximum of 1200 hours flight time in any consecutive 365 day period.	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	N/A – only single pilot operations
Maximum Duty Times	The maximum duty time in any one day shall not exceed 14 hours	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation’s Operations Manual Vol 1 Part B Section 3.6
	The pilot shall have a minimum of 2 days rest within a 14 day period. These may be taken separately or together. If taken separately, one day rest shall be defined as 30 consecutive hours free from duty.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation’s Operations Manual Vol 1 Part B Section 3.6

Emergency Beacon / Radio	Is each aircrew member required to carry on their person essential survival items including: a personal locator beacon means to start a fire, knife and a signal mirror?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Beacon carried on each pilot and survival kit in the rear of aircraft including the items outlined and food, water, blanket, satellite phone etc.
Fuel Quality Control – Storage Tanks	The quality control of the fuel varies considerably at smaller centres. The crew must determine the adequacy of this quality control and take all available means to ensure against boarding contaminated fuel. Is there a procedure in place to ensure that the following checks are required anytime a fuel source is unknown or questionable:		
	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.5	
	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.5	
	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.5	

<p>Check that bonding wires and connections are in good condition.</p>	<p><input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never</p>	<p>As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.5</p>
<p>Check that filter systems are in place and date of last element replacement.</p>	<p><input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never</p>	<p>As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.6</p>
<p>Check that a sample is clear and bright downstream of the filter.</p>	<p><input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never</p>	<p>As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.5</p>
<p>Request or conduct a water test with paste or syringe and capsules.</p>	<p><input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input checked="" type="checkbox"/> Never</p>	<p>Not allowed in Australia with the use of AVGAS.</p>
<p>Check that a sample from the low point of the tank is clear bright and free of water. If there is no low point water</p>	<p><input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes</p>	<p>As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.5 But no paste used as is not allowed in Australia with the use of AVGAS</p>

	drain, do a dip of the tank using water paste.	<input type="checkbox"/> Never	
Fuel Quality Control - Drums	When using drummed fuel are there procedures in place to ensure the following requirements?		
	Verify the expiry date of the drums.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.6
	A "go no-go" filter be used for all refueling from drums.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	
	All drum fuel is visually checked for clarity and color and water tested with paste or fuel syringe and capsules before use.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.6 But no paste used as is not allowed in Australia with the use of AVGAS
	Only clearly branded drums with both seals intact are be used unless the pilot knows the "history" of the drum since the seals were broken and retests the fuel for contamination before use.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	But no paste used as is not allowed in Australia with the use of AVGAS

	<p>Aircraft sump drains be checked before the first flight of the day and after each refueling.</p>	<p><input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never</p>	<p>As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.8</p>
	<p>Drums are stored on their sides, clear of the ground with bungs horizontal in an area not subject to flooding. Under-cover storage should be considered if drum stock are to be kept for a long time.</p>	<p><input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never</p>	<p>As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.6</p>
	<p>When not in use, fuel pumps are protected from water and other contamination.</p>	<p><input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never</p>	<p>Kept under tarp.</p>
	<p>Bungs should be sealed and the drum placed on its side for short term storage (i.e. overnight) of a partially filled drum.</p>	<p><input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never</p>	<p>As per MAGSPEC Aviation Operations Manual Volume 2 Part B Section 2.6</p>

<p>Night Surveys</p>	<p>Typically, survey flights are conducted at low heights in day VMC, but if the low height is removed coupled with a smooth air requirement, such as for gravity surveys, it may be desirable to conduct night flights. Such flights can be conducted safely as long as there are adequate procedures to prevent a "controlled flight into terrain" CFIT accident.</p> <p>Are procedures in place to ensure the following requirements:</p>		
<p>Are night surveys flown at least 1000 feet above all obstacles within the operational area and a 10 nautical mile buffer around the operational area? Does the operational area include the maneuvering area for line turns and lead-ins?</p>	<p><input type="checkbox"/> Always</p> <p><input type="checkbox"/> Sometimes</p> <p><input type="checkbox"/> Never</p> <p><input checked="" type="checkbox"/> N/A</p>		
<p>Is a VMC reconnaissance flight performed in each block?</p>	<p><input type="checkbox"/> Always</p> <p><input type="checkbox"/> Sometimes</p> <p><input type="checkbox"/> Never</p> <p><input checked="" type="checkbox"/> N/A</p>		
<p>Monitoring of radios</p>	<p>During survey flights, are radios and transponders turned on and selected to the appropriate ATC or flight service frequencies.</p>	<p><input checked="" type="checkbox"/> Always</p> <p><input type="checkbox"/> Sometimes</p>	

	Additionally, equipment permitting, common air to air and emergency frequencies (121.5MHz) should also be monitored.	<input type="checkbox"/> Never	
Turning Radius	During straight and level flight there may be a significant margin above the stall speed, however in a steep turn the stall speed may be reached quickly with little warning and a stall in the turn at low level will likely result in a fatal accident.		
	Are all turns at low level limited to a maximum angle of bank of 30 degrees and be done at a constant altitude. Are climbs or descents allowed to be carried out during the turn?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Climbs permitted in a turn
Towed Geophysical Arrays			
Towed Geophysical Arrays – All aircraft types	This section applies to all airborne surveys utilizing geophysical arrays suspended below and/or towed by rotary or fixed wing aircraft.		
	Do you operate towed geophysical arrays?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	Does the towed array have an STC/LSTC, engineering order or other similar certificate or statement describing array	<input type="checkbox"/> Yes <input type="checkbox"/> No	

	specifications and flight test data?	<input checked="" type="checkbox"/> N/A	
	Is there an Operating Manual for each array?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Does the Operating manual identify the maximum safe operating airspeed for the array?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Does the Operating Manual contain a parts list and maintenance manual containing the critical design specification for all parts and elements of the array?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Does the Operations Manual contain a pre-flight checklist?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

	Does the Operations Manual contain a schedule for routine preventative maintenance, recorded inspections and testing?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Is there a procedure in place to ensure that all required maintenance, inspections and testing are up to date prior to job start?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Is all maintenance performed by a qualified person endorsed by the manufacturer or operator?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Towed Geophysical Arrays – Rotary Wing Aircraft	Has the cable weight and length been determined by an aeronautical engineer as to minimize the potential for cable recoil into main and tail rotors following the loss of load?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Is there a weak link incorporated into the load bearing cable?	<input type="checkbox"/> Yes <input type="checkbox"/> No	

		<input checked="" type="checkbox"/> N/A	
	Is the weak link located as close as possible to the attachment hook of the helicopter?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Has the breaking strain of the weak link been specified by an aeronautical engineer?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Is the maximum towed array airspeed and VNE (Velocity Never Exceed) placard placed on the aircraft instrument panel in the Pilot's view?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Does the cargo hook arrangement allow the pilot to jettison the load without removing his/her hands from the flight controls? Do procedures include the requirement to test the	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

	helicopter cargo hook release mechanism?		
Towed Geophysical Arrays – Fixed Wing	Is the aircraft fitted with a shearing mechanism which can cut the tow cable when the array needs to be jettisoned?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Does the tow cable have a breaking strain which minimizes damage to the aircraft in the event the array snagged with ground objects?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Geophysical Survey Flight Training			
Training and Experience – All Operations	Does your training program contain a syllabus for low level geophysical flight training?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Does the Pilot training syllabus reflect the IAGSA training guidelines?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Are there documented criteria to assess Pilot competency?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Simulator Training	In addition to the training in the actual aircraft, do pilots, where practical, undergo simulator training in a type specific simulator representing the aircraft being flown on survey? If so, at what frequency?	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input checked="" type="checkbox"/> N/A	
Overwater and Offshore Surveys			
Minimum requirements for Over water and Off Shore Surveys	The following recommendations apply to all overwater and off shore surveys flown in both fixed wing and rotary wing aircraft.		
Training – Overwater & Offshore Surveys	Is Underwater Escape Training completed within the preceding three years before undertaking the over water or offshore survey.	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	Not currently applicable – no overwater or offshore surveys conducted – however Chief Pilot has current HUET.
	Are Ditching & Emergency Evacuation Procedures reviewed, crew members thoroughly briefed and simulated training to be conducted at the work site prior to the start of all over water or offshore work. This review should include a review of general emergency procedures that could	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	N/A – see above

	potentially lead to a ditching and a discussion on the significance of sea state/wave height on ditching.		
Training - Off Shore Surveys	In addition to the above items, the following are to be included in offshore training:		
	Does Initial Training consist of a minimum of 10 hours training conducted by a pilot who has a minimum of 100 hours Offshore experience?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
	Does Recurrent Training consist of a minimum of 5 hours training conducted annually by a pilot with the same qualifications as for the initial training: or prior to the start of an Offshore survey if pilot has completed the initial training but has not flown Offshore for more than 90 days?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
	Alternatively, the above experience requirements may be waived if the Operator has in place a competency based training program which includes Offshore operations.		

<p>Type of Aircraft – Over water / Offshore Operations</p>	<p>For an over water/offshore survey in an area with harsh conditions where the odds of surviving a ditching or the exposure that would follow are low then the emphasis must be placed on choosing an aircraft that reduces the probability of a ditching. Whereas, the aircraft criteria may be somewhat less stringent in less harsh conditions where the odds of a successful ditching and rescue are good.</p>		
	<p>For any survey that is over water or offshore in an area where rescue is not likely to occur within an anticipated acceptable exposure time and/or where anticipated sea states would make a successful ditching unlikely, is the use of a multi engine aircraft with performance characteristics such that in the event of an engine failure during an over water survey it can climb from survey height to 500 feet and return to shore or during an offshore survey it can climb from survey height and maintain prolonged flight on the remaining engine(s) to return to a suitable airport at the minimum IFR altitude utilized?</p>	<p> <input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never </p>	<p>N/A – see above</p>

	Are single engine piston aircraft used for over water/offshore surveys?	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	N/A – see above
Aircraft equipment – Offshore	Are aircraft equipped with at least the following gyroscopic instruments, each of which must be independent of the others: 2 x attitude indicator; 2 x heading indicator; 2 x turn and slip indicator or turn coordinator?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
	If a second pilot is to be part of the crew, is there a complete second set of basic flight instruments (attitude indicator, gyroscopic heading indicator, turn and slip or turn coordinator airspeed, altimeter, vertical speed) installed at the co-pilot's seating position?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
	Are there at least two (2) independent power sources to drive the gyroscopic instruments?		N/A – see above

	<p>- this may mean two vacuum pumps with all air driven gyroscopes or a mixture of air driven and electric gyroscopes provided loss of one power source leaves operational one set of three gyroscopic instruments (attitude, heading and turn rate indicators)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	
	<p>Is there a radio or radar altimeter with a means of alerting the crew when height above the water falls below a minimum safety height selected by the crew? Is there a means of testing the alerting device prior to flight?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>N/A – see above</p>
	<p>Is there a minimum of one instantaneous vertical speed indicator (IVSI) to provide an instant alert of descent</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>N/A – see above</p>
	<p>Do you require the use of weather radar where</p>	<p><input type="checkbox"/> Always</p>	<p>N/A – see above</p>

	thunderstorms are present or could be expected?	<input type="checkbox"/> Sometimes <input type="checkbox"/> Never	
	Are Rotary wing aircraft equipped with floatation aids such as “pop-outs floats”?	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	N/A – see above
Emergency Equipment – Offshore Surveys	An upper torso restraint system, with a preference for a four point harness, for each crew member	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
	Are aircraft equipped with a 406 MHZ ELT?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
	Is the crew provided a covered life raft with a self erecting canopy that is equipped with a 406 MHZ ELT and normal emergency survival equipment? Does raft should include an inflatable floor for cold water operations?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
	Are constant wear dual chamber life vests that contain		N/A – see above

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	an ELT aELT/EPIRB, flares and a signal mirror, worn by each crew member?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Are immersion/exposure suits worn if water and air temperatures warrant?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
	Are all helmets and headsets fitted with double disconnect cords?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
Weather – Offshore Surveys	Are Offshore survey flights conducted under VMC with minimums of 5 miles visibility and 1000 foot ceiling in the survey area?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
	Is a thorough weather briefing solicited (if available) and does it should include sea state/wave height and wind maximums in the survey area?	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A – see above
Additional Training Requirements			
Fire Extinguisher Training	Do all crew members on survey flights, including equipment operators, receive annual training in the use of	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

	fire extinguishers in fighting in flight fires?		
Survey Crew Resource Management Training	Is Survey Crew Resource Management training provided to all crew members assigned to survey operations including: geophysicists; pilots; equipment operators; maintenance engineers; field technicians and field support staff at intervals not exceeding three years?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not required as part of MAGSPEC Aviation AOC.
Flight Performance Monitoring			
Performance Monitoring	Is performance parameters, including aircraft speed, height above terrain and drape, periodically reviewed using data collected during surveys?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	
	Is the frequency of review such that any discrepancies on a particular survey or by a particular pilot can be identified as early as possible?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	