

IAGSA Member Self-Assessment Questionnaire

Company Name: Geotech Ltd		Audit completed by: H Kelly
Location: Canada		
Date of Audit: 08/01/2018		
Pre-audit questionnaire completed by: H Kelly		
Activity data reported?	Yes	
All incidents reported?	Yes	
<u>Key Management Personnel</u>		<u>Position</u>
D Yi		CFO
P Berardelli		Vice President
J Morrison		Director Global Operations
H Kelly		Global Safety Manager
Total # Employees:	95	

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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	Pre-tender analysis undertaken for every quote by Project Manager, pre-survey mobilisation Job Safety Analysis undertaken by management for each project. Crew undertake review and field JSA before the start of production in conjunction with area recon.
	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	Assessed internally on a project by project, regulatory and client basis
	Do you have a minimum temperature limit for cold weather operations?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	To consider both aviation and crew conditions

	<input type="checkbox"/> N/A	
Do you limit the use of aircraft heaters or air-conditioning in the interest of “clean” data?	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input checked="" type="checkbox"/> Never	Pending air-craft type and location and timing – controls may be implemented depending on the survey type
Do you require the use of oxygen for all aircrew for survey flights or portions thereof conducted above 10,000 feet ASL?	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	Rarely – item listed in pre-project risk assessment to ensure procedures are reviewed pre-mob (ensure medicals for altitude are completed etc) – survey duration, line type and duration, accommodation base etc all reviewed
Do you have a drug and alcohol policy?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Both Aviation and General Policy
Are aircrew members required to wear long trousers or a flight suit, closed shoes, have gloves available and clothing appropriate for the environmental conditions?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Yes – gloves optional for pilots – contractors required to also comply
For fixed wing surveys, is a risk assessment conducted to determine whether or not	<input checked="" type="checkbox"/> Always	Reviewed on a project by project basis as part of the project JSA, generally helmets are a mandatory requirement

	helmets should be worn by the flight crew members?	<input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> N/A	
	For helicopter surveys, are the flight crew members required to wear a flight helmet?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	
	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	Overarching plan in place drilling down to site specific plans for each project
	Does your company have an overall crisis management plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As part of the Company Emergency Response Plan

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Flight Following	Do you operate a satellite tracking system on all aircraft?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	All aircraft and support vehicles – is provided or must be accessible for contracted machines also
	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	1 min fixed wing, 2 min rotary, 5 – 10 mins vehicles
Single Pilot Only Surveys	Do you conduct single Pilot Only Surveys (no equipment operator)?	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	Depends on country of operation, survey and aircraft type
	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	Onboard acquisition fully automated and in heads up configuration, pilot may be required to input command or advance lines, procedures in place to gain height etc where review or manipulation is required
	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 <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	Aviation Ops Manuals, for contractors checked and noted in GAP Analysis
	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	Aviation Ops Manuals, for contractors checked and noted in GAP Analysis
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 Aviation Operations Manuals
	Is minimum reserve fuel calculated as 30 minutes for fixed wing and 20 minutes for	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes	

	helicopter at normal cruise consumption rates?	<input type="checkbox"/> Never	
	Do planned minimum fuel reserves consider site specific contingencies?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	As part of the flight planning and Project specific JSA
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 checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Also considers "local" regulatory and client requirements
	A maximum of 5 hours flight time on survey per day (excluding transit time)	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Also considers "local" regulatory and client requirements
	A maximum of 40 hours flight time in any 7 consecutive day period	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Also considers "local" regulatory and client requirements

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	A maximum of 100 hours flight time in any consecutive 28 day period.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Also considers “local” regulatory and client requirements
	A maximum of 1000 hours in any consecutive 365 day period.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Also considers “local” regulatory and client requirements
	If extensions to the single pilot flight times are used has the extension criteria recommended by IAGSA been met?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> N/A	Also considers “local” regulatory and client requirements
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 – Single Pilots Ops only
	A maximum of 8 hours flight time on survey (excluding transit time).	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes	N/A

		<input type="checkbox"/> Never	
	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
	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
	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
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	
	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	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	

	as 30 consecutive hours free from duty.		
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 type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	Beacon carried on each pilot, grab kit of items listed and mini first aid kit in cockpit, full survival kit in the rear of aircraft including the items outlined and food, water, blanket, spare 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:		
	Check that Fuel Quality Control Check and Delivery documents are current and available.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum
	Check that the fuel servicing vehicle / facility is identified with the fuel type handled.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum
	Check that the facility is clean and maintained.	<input checked="" type="checkbox"/> Always	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures

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	<input type="checkbox"/> Sometimes <input type="checkbox"/> Never	undertaken – must comply with our standards as a minimum
Check that bonding wires and connections are in good condition.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum
Check that filter systems are in place and date of last element replacement.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum
Check that a sample is clear and bright downstream of the filter.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum – pending aircraft type
Request or conduct a water test with paste or syringe and capsules.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum

	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 drain, do a dip of the tank using water paste.	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Pending aircraft type
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	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum
	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	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum
	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	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum
	Only clearly branded drums with both seals intact are be used unless the pilot knows	<input checked="" type="checkbox"/> Always	Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures

	<p>the "history" of the drum since the seals were broken and retests the fuel for contamination before use.</p>	<input type="checkbox"/> Sometimes <input type="checkbox"/> Never	<p>undertaken – must comply with our standards as a minimum</p>
	<p>Aircraft sump drains be checked before the first flight of the day and after each refueling.</p>	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	<p>Aviation Ops Manuals and HSEMS Standard and Procedures – review of contractors procedures undertaken – must comply with our standards as a minimum</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>	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	<p>Assessed on project by project basis</p>
	<p>When not in use, fuel pumps are protected from water and other contamination.</p>	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	
	<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>	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes	

		<input type="checkbox"/> Never	
Night Surveys	<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>	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input checked="" type="checkbox"/> N/A	<p>Geotech Group of companies do not conduct night surveys</p>
	<p>Is a VMC reconnaissance flight performed in each block?</p>	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input checked="" type="checkbox"/> N/A	
Monitoring of radios	<p>During survey flights, are radios and transponders</p>		<p>Pending the survey type and aircraft transponders may be off – all other comms remain on with</p>

	turned on and selected to the appropriate ATC or flight service frequencies. Additionally, equipment permitting, common air to air and emergency frequencies (121.5MHz) should also be monitored.	<input type="checkbox"/> Always <input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	procedure clearly stating that ability to use in the case of an emergency of to avoid possible conflict.
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	
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Does the towed array have an STC/LSTC, engineering order		

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	or other similar certificate or statement describing array specifications and flight test data?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
	Is there an Operating Manual for each array?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
	Does the Operating manual identify the maximum safe operating airspeed for the array?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Also noted in the aircraft and project JSA
	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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
	Does the Operations Manual contain a pre-flight checklist?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Pre-flight check list for system and aircraft provided as hard-copy for each specific project

	Does the Operations Manual contain a schedule for routine preventative maintenance, recorded inspections and testing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
	Is all maintenance performed by a qualified person endorsed by the manufacturer or operator?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
	Is there a weak link incorporated into the load bearing cable?	<input checked="" type="checkbox"/> Yes	

		<input type="checkbox"/> No <input type="checkbox"/> N/A	
	Is the weak link located as close as possible to the attachment hook of the helicopter?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
	Has the breaking strain of the weak link been specified by an aeronautical engineer?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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	Both internally and a requirement for review of contracted operators.
	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 checked="" type="checkbox"/> Never <input type="checkbox"/> N/A	Simulators training for aircraft and survey types are not generally locally available. Progress on low level agriculture sims are being made and continued to be reviewed.
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 checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	
	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 checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	

	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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	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 checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never </p>	<p>Previous projects have been assessed, where sea-stakes were not able to be forecasted as favourable a twin-turbine was utilised, where ditching and subsequent survival has been assessed as favourable a single engine turbine has been utilised with further mitigation measures implemented. We have not operated for several years and now do not operate single pistons off-shore.</p>

	Are single engine piston aircraft used for over water/offshore surveys?	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input checked="" type="checkbox"/> Never	
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Are there at least two (2) independent power sources to drive the gyroscopic instruments?		

	<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 checked="" 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	
	<p>Is there a minimum of one instantaneous vertical speed indicator (IVSI) to provide an instant alert of descent</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	
	<p>Do you require the use of weather radar where</p>	<p><input type="checkbox"/> Always</p>	

	thunderstorms are present or could be expected?	<input checked="" type="checkbox"/> Sometimes <input type="checkbox"/> Never	
	Are Rotary wing aircraft equipped with floatation aids such as "pop-outs floats"?	<input checked="" type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never	Maybe reviewed and assessed where twin-engine machines are contracted however to date floats have been equipped
Emergency Equipment – Offshore Surveys	An upper torso restraint system, with a preference for a four point harness, for each crew member	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Are aircraft equipped with a 406 MHZ ELT?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Inflatable floor assessed on a project basis
	Are constant wear dual chamber life vests that contain		

	an ELT aELT/EPIRB, flares and a signal mirror, worn by each crew member?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Are immersion/exposure suits worn if water and air temperatures warrant?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Are all helmets and headsets fitted with double disconnect cords?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
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	