

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

Generic Questions

- Do you know what the 'Significant Seven' are?
- Does your company actively monitor **leading indicators** and **precursor measures** for the 'Significant Seven', and if so, for which ones, and what are they? If not, why not, and what is monitored instead?
- Do you use **Flight Data Monitoring** (FDM), or equivalent for ATC, to monitor safety performance?
- Has your company implemented **action plans** to mitigate the risk of the 'Significant Seven', and if so, for which ones, and what are they (and have you implemented actions from the CAA Safety Plan)? If not, what actions are being taken instead?
- Your **SMS** will place explicit responsibilities upon staff for proactive safety management measures – what training have these individuals had in the use of these measures? How is the quality of their output assessed and by whom?
- Does the output of your SMS processes reflect any of the CAA's 'Significant Seven' safety risks?

This is a **living** document, so please send any comments or additional questions to the question bank to

Joji Waites (significantseven@caa.co.uk)

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks



1. Loss of Control

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
<p>What are your plans regarding installation of ground-based equipment to predict/warn about severe weather (e.g. low-level windshear alert system, lightning strikes, etc.)?</p>	<p>What procedures and training have you implemented to minimise the likelihood of ATC contributing to unstable approaches and wake vortex encounters?</p>	<p>What does your safety data (e.g. Maintenance Error Management System (MEMS) data, where appropriate) show with respect to the risk of loss of control (e.g. data associated with aircraft instrumentation, auto-flight systems, etc.)?</p> <p>How do you monitor reliability of systems that can contribute to loss of control events (e.g. Air data systems, AOA, pitot heat/anti-ice systems, autopilot/auto-throttle systems or navigation system failures)?</p>	<p>Are your pilots trained for monitoring skills and if so, how, and how is the effectiveness assessed?</p> <p>What is your policy for use of automation vs. manual flying and how do you monitor for misuse/misunderstanding of aircraft automation?</p> <p>How are the manual flying skills of your pilots maintained?</p> <p>How many of your pilots have viewed the Jet Upset Recovery Training tool/DVD?</p> <p>What training do your pilots carry out for recovery from upset scenarios?</p> <p>What procedures and training have you implemented to minimise the risk of aircraft performance data input error?</p>	<p>Do you train monitoring skills for pilots and if so, how, and how is the effectiveness assessed?</p> <p>Have you reviewed your training courses in light of the Jet Upset Recovery Training tool/DVD, and if so, what was the outcome?</p> <p>What training do you provide for recovery from upset scenarios?</p> <p>How do you ensure that the training you provide (if appropriate) for recovery from upset scenarios is as realistic as possible? How could flight simulator capability be improved for this purpose?</p>

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

2. Runway Excursion

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
<p>How have you implemented the new CAA Winter Ops guidance as contained in IN-2011/119?</p> <p>What was your experience of the UK Winter Ops 2011/12 trial (where appropriate)?</p> <p>Have you carried out a RESA risk assessment, what was the outcome and what mitigations have been put in place (where appropriate)?</p> <p>Have you reviewed the IATA Runway Excursion Risk Reduction Toolkit for relevance to your organisation, and if so, which parts have been implemented (<i>note: need to be cognisant of areas where UK requirements are more stringent than IATA's guidance</i>)?</p>	<p>What procedures and training have you implemented to minimise the likelihood of ATC contributing to unstable approaches?</p> <p>Have you implemented unstable approach awareness in your TRUCE training and, if so, what is the proportion of controllers that have undertaken this training?</p> <p>Have you reviewed the CAA Safety Notice SN-2012/001 on 'Unstable Approaches – ATC Involvement', and if so, are there any parts of the guidance and information material which have been implemented or could prove useful to ATCOs?</p>	<p>What does your safety data (e.g. MEMS, where appropriate) show with respect to the risk of runway excursions (e.g. data associated with aircraft braking, thrust reverse and directional control systems)?</p> <p>How do you review reliability of auto-brake and anti skid systems?</p> <p>How often do you experience flap or spoiler system failures (flap lock-out can result in high speed approaches)?</p> <p>What problems have you had with nose-wheel steering or landing gear faults (these can all contribute to runway excursion)?</p>	<p>What procedures and training have you implemented to minimise the likelihood of unstable approaches? Is this monitored using FDM?</p> <p>Is touchdown point accuracy monitored in simulator sessions and/or through FDM?</p> <p>When showing compliance with EU-OPS 1.400 (approach and landing conditions), what landing distance safety margin do you require to exist (between the landing distance <u>available</u> and the landing distance <u>required</u>) for the in-flight landing distance check, and how is this value justified?</p> <p>Is runway performance for landing adequately covered?</p> <p>Is crew awareness raised where the margins between required and available runway length are small, and if so, how?</p>	<p>How do your training courses address the risk of unstable approaches?</p> <p>Is touchdown point accuracy monitored in simulator sessions?</p> <p>Are performance degrading aspects (e.g. runway surface, braking aids) covered in recurrent training?</p> <p>Are crosswinds covered in recurrent training?</p> <p>Have you reviewed the IATA Runway Excursion Risk Reduction Toolkit for relevance to your organisation, and if so, which parts have been implemented (<i>note: need to be cognisant of areas where UK requirements are more stringent than IATA's guidance</i>)?</p>

continued...

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

2. Runway Excursion continued...

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
		<p>Have you reviewed the IATA Runway Excursion Risk Reduction Toolkit for relevance to your organisation, and if so, which parts have been implemented <i>(note: need to be cognisant of areas where UK requirements are more stringent than IATA's guidance)</i>?</p>	<p>Are performance degrading aspects (e.g. runway surface, braking aids) covered in recurrent training?</p> <p>Are crosswinds covered in recurrent training and does FDM monitor performance in this area?</p> <p>Have you embedded smart SOPs into post landing procedures (e.g. taxi speed less than 90kts within the last 900m of the runway)?</p> <p>Are your pilots aware of the UK Winter Ops trial and what measures have been put in place to accommodate this?</p> <p>Have you reviewed the IATA Runway Excursion Risk Reduction Toolkit for relevance to your organisation, and if so, which parts have been implemented <i>(note: need to be cognisant of areas where UK requirements are more stringent than IATA's guidance)</i>?</p>	

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

3. Controlled Flight into Terrain (CFIT)

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
<p>Have you investigated the cost-benefit of providing an APV-type approach, and if so, what were your conclusions?</p> <p>Have you investigated the cost-benefit of installing a Minimum Safe Altitude Warning (MSAW) system, and if so, what were your conclusions?</p>	<p>What procedures and training do you have for controllers to identify and warn pilots of 'unsafe' proximity to terrain (where appropriate)?</p> <p>Have you investigated the cost-benefit of using MSAW, and if so, what were your conclusions?</p>	<p>What does your safety data (e.g. MEMS, where appropriate) show with respect to the risk of CFIT (e.g. data associated with aircraft navigation systems, TAWS, etc.)?</p> <p>What systems do you monitor with regard to precursors to CFIT (e.g. EGPWS failures, radio altimeter failures, navigation database accuracy/GPS system reliability, etc.)?</p> <p>What processes do you use for updating TAWS software and associated databases (where appropriate)?</p>	<p>Are you approved for APV-type approaches, and if so, what was your experience of gaining this approval (in terms of ease)? If not, do you know how to get APV-approved?</p> <p>Are your aircraft capable of carrying out APV-type approaches?</p> <p>Which locations carry the highest CFIT risk (both for approach and departure)?</p> <p>What are the top-five airports that would benefit most from implementation of APV-type approaches?</p> <p>What procedures and training do you have for pilots to maintain currency on flying GNSS-based APV-type approaches?</p>	<p>What level of training do you provide for flying GNSS-based APV-type approaches?</p> <p>What capability do your simulators/part-task/desktop training devices have for simulating GNSS-based APV-type approaches?</p>

continued...

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

3. Controlled Flight into Terrain (CFIT) continued...

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
			<p>What procedures and training do you have for pilots to maintain currency on flying circling approaches? How else do you mitigate the risk associated with these approaches?</p> <p>Do your crews manage rates of descent when approaching terrain?</p> <p>What procedures and training do you have for pilots to ensure that the correct altimeter subscale setting is selected?</p> <p>What proportion of your fleet is equipped with TAWS, and what proportion of these have a direct GPS-based position feed into TAWS?</p> <p>What proportion of your flights dispatch with TAWS inoperative (and for how long)?</p> <p>Are all E/GPWS warnings (genuine, nuisance and false) mandatory Air Safety Report events?</p>	

continued...

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

4. Runway Incursion

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
<p>Do you have a plan to implement relevant European Action Plan for the Prevention of Runway Incursions v2 (EAPPRI2) recommendations through your Local Runway Safety Team, and if so, which recommendations are being implemented? If not, why not?</p> <p>Have you implemented an airside driver training scheme as per CAP 790?</p>	<p>Do you have a plan to implement relevant EAPPRI2 recommendations, and if so, which recommendations are being implemented? If not, why not?</p>	<p>What does your safety data (e.g. MEMS, where appropriate) show with respect to the risk of runway incursion (e.g. data associated with aircraft braking systems, radio equipment, etc.)?</p> <p>Have you reviewed EAPPRI2 for relevance to your organisation, and if so, which parts have been implemented?</p>	<p>Do you have a plan to implement relevant EAPPRI2 recommendations, and if so, which recommendations are being implemented? If not, why not?</p> <p>Are your crews made aware of runway incursion hotspots, and if so, how?</p>	<p>Do you have a plan to implement relevant EAPPRI2 recommendations, and if so, which recommendations are being implemented? If not, why not?</p>

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

5. Airborne Conflict

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
<p>What are your plans regarding installation of ground-based navigation and surveillance related equipment (e.g. have you investigated equipage for ADS-B, Multilateration, etc.)?</p>	<p>What procedures, training and technology have you implemented to minimise the likelihood of ATC contributing to level busts and to help prevent level busts occurring where the cause is not ATC-related (e.g. use of downloaded Mode S selected flight level)?</p> <p>What level of engagement do you have with your 'customers' with respect to feedback of airborne conflict related events (e.g. level busts, incorrect altimeter setting, incorrect or lack of read-back, etc.)?</p> <p>What level of engagement have you had with the Future Airspace Strategy?</p>	<p>What does your safety data (e.g. MEMS, where appropriate) show with respect to the risk of airborne conflict (e.g. data associated with aircraft communication, navigation and surveillance systems, auto-flight systems, ACAS, etc.)?</p> <p>How do you monitor ACAS system reliability?</p> <p>How often do you dispatch aircraft with an unserviceable ACAS?</p>	<p>How do you ensure that your pilots respond correctly to ACAS RA warnings (is this regularly monitored, and if so, how)? Have you used IN-2012/008?</p> <p>What training aids do you use for ACAS scenarios and what is your experience of them?</p> <p>What proportion of your flights dispatch with ACAS inoperative (and for how long)?</p> <p>What procedures and training do you have to ensure that the correct altimeter subscale setting is selected?</p> <p>How do you ensure that your pilots understand the level of protection afforded by Air Traffic Services Outside of Controlled Airspace?</p>	<p>What capability do your simulators/part-task/desktop training devices have for simulating ACAS-related scenarios?</p> <p>What level of ACAS training do you provide? Have you used IN-2012/008?</p> <p>What level of training do you provide for pilots and instructors to help avoid airspace infringements (and what to do if a pilot believes they have infringed)? Have you used IN-2012/094?</p>

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

6. Ground Handling

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
<p>How many ground handlers working for ground service providers operating at your aerodrome have viewed the 'Safety in the Balance' DVD?</p> <p>In your opinion, should there be enhanced or direct oversight of UK ground handling activities, and if so, in which areas?</p> <p>How do you conduct oversight of ground handlers operating on your aerodrome?</p> <p>Do you operate a Ground Handling Safety Team (in addition to a Runway Safety Team)?</p>	<p>What procedures and training do you have in place to ensure communications with airside drivers are as clear and effective as possible?</p>	<p>What proportion of your organisation's time is spent on repairing aircraft as a result of ramp damage (where appropriate)?</p> <p>What processes do you have in place for identifying ramp related damage on composite fuselage/flight surface aircraft (where appropriate)?</p> <p>How often to you find unreported aircraft damage?</p> <p>How involved is engineering in de-icing application and inspection?</p>	<p>How many ground handlers working for ground service providers contracted to you have viewed the 'Safety in the Balance' DVD?</p> <p>In your opinion, should there be enhanced or direct oversight of UK ground handling activities, and if so, in which areas?</p> <p>How might the safety of ground handling activities be improved?</p> <p>How do you conduct safety oversight of ground service providers that service your aircraft (e.g. to ensure correct de-icing/anti-icing of aircraft in accordance with your SOPs)?</p> <p>What training do you provide flight crew to recognise the build up of ice on aircraft surfaces and on de-icing hold over times?</p>	<p>What level of training do you provide for pilots to deal with the consequences of ground handling related error (e.g. adverse C of G due to loading error, ice on wings due to incorrect de-icing/anti-icing, etc.)?</p>

continued...

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

6. Ground Handling continued...

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
<p>Have ground handlers working for ground service providers operating at your aerodrome received training on the potential consequences of ground collisions with composite fuselage aircraft?</p> <p>Does your organisation encompass contracted ground handling service providers as part of its QMS and SMS? What is this data telling you?</p>			<p>Have ground handlers working for ground service providers contracted to you received training on the potential consequences of ground collisions with composite fuselage aircraft?</p> <p>Are you able to identify the top-five locations where the risk associated with ground service provider 'error' is the greatest?</p> <p>Do you promote an open reporting culture amongst your ground handlers, and how will you know when you have achieved an open reporting culture (e.g. large reduction in unreported damage found)?</p> <p>What are the most significant issues contributing to loading error ASRs/MORs in your organisation and how are you addressing these?</p> <p>Does your organisation encompass contracted ground handling service providers as part of its QMS and SMS? What is this data telling you?</p>	

'Significant Seven' Question Bank

Questions to consider to assess exposure to 'Significant Seven' safety risks

7. Fire

Aerodromes	Air Traffic Service Providers	Airworthiness Organisations	Aircraft Operators	Flight Training Organisations
<p>Have all ground handlers completed training in what to do in case of an aircraft fire on the apron?</p>	<p>Have all your air traffic controllers completed the TRUCE training (if not, then what proportion have)?</p>	<p>What does your safety data (e.g. MEMS) show with respect to the risk of aircraft fire (e.g. data associated with aircraft galleys, wiring, fire/smoke warning systems, etc.)?</p> <p>How many of your engineers have viewed the fire training DVD (once available)?</p> <p>How many smoke/fume events have you had, and could they have been precursors to a fire event?</p> <p>How many incidents have been reported of burnt wiring or connectors found in maintenance?</p> <p>What is your awareness/experience of EWIS training and what has changed as a result?</p> <p>How often do your engineers report or find unreported gaps/rips in cargo liners?</p>	<p>What procedures and training do you have for pilots and cabin crew to deal with in-flight aircraft fires?</p> <p>What procedures do you (and/or your contracted ground service provider) have for the safe carriage of lithium batteries?</p> <p>Have all ground handlers completed training in what to do in case of an aircraft fire on the apron?</p>	<p>What level of training do you provide for pilots to deal with in-flight aircraft fires?</p>