AIRSIDE SAFETY SURVEY 2015



A DEFINITIVE SURVEY OF TECHNIQUES, EQUIPMENT INVENTORIES AND OPINION REGARDING ALL ASPECTS OF AIRFIELD OPERATIONS BY EUROPE'S AIRPORTS

ACI EUROPE
AIRPORTS COUNCIL INTERNATIONAL





JETBROOM©

Multifunctional high-performance cleaning system for year-round use

The various attachment spaces with quick-change equipment – in combination with the powerful vehicle hydraulic – enables an efficient and economic all-year round use.













boschung AIRPORT DIVISION®

Marcel Boschung Ltd.
Boschung Airport Division
CH-1753 Matran | Switzerland
Route des Muëses 2 | Tel. +41 26 4978585
www.boschung.com

trusted and dependable



AIRPORTS COUNCIL INTERNATIONAL

Airports Council International
European Region
10, Rue Montoyer (box No 9),
1000 Brussels, Belgium

Director General
Olivier Jankovec
Tel: +32 (0)2 552 09 72
e-mail: olivier.jankovec@aci-europe.org

Manager: Safety, Capacity, ATM & Single European Sky
Andrej Němec
Tel: +32 (0)2 552 09 81
Fax: +32 (0)2 502 56 37
e-mail: andrej.nemec@aci-europe.org

Director: Membership Services & Events
Danielle Michel
Tel: +32 (0)2 552 09 78
Fax: +32 (0)2 502 56 37
e-mail: danielle.michel@aci-europe.org

MAGAZINE STAFF:

General Manager - Association Business
Paul Sweeney

Editor
Ross Falconer

Deputy Editor
Amy Hanna

Head Designer
Richard Jende

Graphic Designer
Samita Brant

Sales Director
Jenny Rayner

Managing Director
Paul J. Hogan

PPS Publications Ltd
3a Gatwick Metro Centre
Balcombe Road
Horley
Surrey
RH6 9GA
United Kingdom

Tel: +44 1293 783851
Fax: +44 1293 782959
email: post@pps-publications.com

Disclaimer
This publication has been compiled by PPS Publications Ltd. The survey responses are those of the participating airports. The contents and opinions expressed herein are not necessarily those of ACI EUROPE nor the Publisher. ACI EUROPE and PPS Publications accept no responsibility or liability whether direct or indirect, as to the currency, accuracy or quality of the information, nor for any consequence of its use.

Cover image courtesy of Budapest Airport.

© PPS Publications Ltd 2015



INTRODUCTION
THE AIRSIDE SAFETY SURVEY 2015

From regional gateways such as Budapest and Ljubljana to international hubs like Amsterdam Schiphol and Madrid-Barajas, the experiences and best practices of a broad range of airports, of all sizes, are documented in this year's ACI EUROPE Airside Safety Survey – the essential reference guide to the airside operations and safety measures of ACI EUROPE member airports. The survey provides an all-encompassing picture of the procedures integral to airport operations, including winter services, friction testing, runway incursion prevention, crash fire rescue procedures, wildlife control, and FOD detection. Submissions are published unedited, ensuring a varied and colourful range of responses with the highest level of accuracy. As well as building a comprehensive picture of industry trends in the use of equipment and airside techniques, the annual Airside Safety Survey shines a light on the multitude of conditions and diverse challenges present on Europe's airfields. To complement the survey itself, we invited several airports to share additional insights into their airside safety strategies.

BOB GRAHAM, OPERATIONS DIRECTOR, BIRMINGHAM AIRPORT

What airside developments has your airport undertaken recently, or do you plan to undertake?

Birmingham Airport has been undertaking major investments over the past three years in its airside infrastructure, with the most significant being a £65 million (€80m) runway extension and resurfacing. The runway at Birmingham has now been extended to over 3,000m, allowing a much better capability for long haul operations. We have recently opened a new £12 million (€15m) ATC tower and replaced many of the navigation aids including Radar and ILS.

Are there any particular innovations you are applying airside at your airport?

We have recently invested in new ILS to both runways, installed LED lighting to the resurfaced pavement, and resurfaced the main runway. For the major works, we developed APV-Baro RNAV Approaches to both runways to mitigate periods of known ILS outage and introduced an industry-first 'works-mode' for the runway lighting that sees the main guard lights extinguished and a set of green ones illuminated when the runway is closed to clearly reinforce to the contractors that it is safe to enter.

What are the key airside safety challenges you face at your airport in particular?
Birmingham is a crosswind runway, so the selection of surface type and drainage are very important. We chose to reinstall wide spaced FAA specification grooving – often colloquially referred to as 'tropical grooving' – because experience with the previous surface had shown us that the wider grooving performed better in very heavy rain.
What, in your view, are the key elements of an effective airside safety strategy?
Experienced management team leading competent and well-trained frontline teams, aligned with a thorough understanding of your risks that allows resource to be prioritised to those areas where the need is greatest, and where it can have the most significant results.

ZOLTÁN ORMÁNDI, HEAD OF AIRSIDE MANAGEMENT, BUDAPEST AIRPORT

What airside developments has your airport undertaken recently, or do you plan to undertake?
At Budapest Airport we are analysing the possibility of capacity improvement to install reactive jetway equipped parking positions at Terminal 2. The main goal of the improvement process is to accommodate the second ICAO Code E aircraft at the non-Schengen apron not touching the passenger walking process of low-cost airlines.
Are there any particular innovations you are applying airside at your airport?
To improve the efficiency of daily operations in 2014, the airport operator implemented the mobile runway and taxiway closing markings. The installation and retracting of mobile markers are very easy – one airfield officer is enough to close and open the involved areas.
What are the key airside safety challenges you face at your airport in particular?
At Budapest Airport, in the near future, we are focusing on the certification process of the airport based on 139/2014 EU Regulation. Also a key issue will be in 2015 to implement the shotgun to improve the bird and wildlife control.
What, in your view, are the key elements of an effective airside safety strategy?
Training, training, training, and continuous monitoring of the airfield, implementing the new innovations. It is also very important to standardise the airfield as we can. Worldwide or EU-wide standard TWY naming and stand ID systems.

MARTIN KUCERA, AIRPORT OPERATIONS DIRECTOR, PRAGUE AIRPORT

What airside developments has your airport undertaken recently, or do you plan to undertake?
The key element of our airport infrastructure development is a parallel runway, which we plan for operations in 2025 at the latest. An extension of terminal capacity will follow the runway project according to the traffic demand.
Are there any particular innovations you are applying airside at your airport?
We made partial adjustments of the main apron in order to increase the capacity for aircraft with a wingspan up to 36m. One stand is actually being redesigned for Code F aircraft operations.



LIBOR KURZWEIL, QUALITY, SAFETY AND PROCESS MANAGEMENT DIRECTOR, PRAGUE AIRPORT

What are the key airside safety challenges you face at your airport in particular?
Despite the fact that many procedural changes in aircraft deicing took place in the last years and the process has been improved significantly, it remains our main challenge.
What, in your view, are the key elements of an effective airside safety strategy?
At the highest level it is an understanding and support of SMS by the top management of the company and the Airport Operations Manager. At the practical level, maintaining and improving airside safety highly depends on good partnership and communication with all stakeholders involved in aircraft operations.

STEFFI BAUMGARTEN, SAFETY EXPERT, SAFETY OFFICE, ZURICH AIRPORT

What airside developments has your airport undertaken recently, or do you plan to undertake?
GBAS: On 14 October 2014 the first landing using the precision landing system GBAS (ground-based augmentation system) was used by a Swiss Airbus 320 at Zurich Airport. The new landing procedure now enables a GPS approach from the north on runway 14 even in low cloud or poor visibility. EMAS: The RESA of Runway 28 has a length of 90m. Due to topographical reasons an extension isn't practicable. In order to increase safety at the end of Runway 28, Zurich Airport is planning to install an Arrestor System.
Are there any particular innovations you are applying airside at your airport?
Zurich Airport has developed a special system for the handling of aircraft deicing wastewater, in which physical and chemical as well as natural degradation processes were conducted. Depending on the carbon concentration, the wastewater will be delivered to the different processes. Furthermore, Zurich Airport has developed a new training programme for snow and ice removal, which can be used on mobile devices.
What are the key airside safety challenges you face at your airport in particular?
Zurich Airport has a complex layout, which reflects some safety challenges on a day-to-day basis during the operations, as well as on a safety strategy basis: The crossing of two runways and several dependencies between all three runways (safety, capacity, noise, responsibility).





The Airside Safety Survey 2015

AMSTERDAM

Schiphol Group

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Amsterdam Airport Schiphol

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
Runway 04: Total dimensions (TORA): 2,014x60; Width full strength (m): 45; LDA (m): 2,014. Runway 22: Total dimensions (TORA): 2,014x60; Width full strength (m): 45; LDA (m): 2,014; ILS: CAT I/B/1; PAPI: Y. Runway 06: Total dimensions (TORA): 3,500x60; Width full strength (m): 45; LDA (m): 3,250; ILS: CAT III/E/4; PAPI: Y. Runway 24: Total dimensions (TORA): 3,500x60; Width full strength (m): 45; LDA (m): 3,500; PAPI: Y. Runway 90: Total dimensions (TORA): 3,453x60; Width full strength (m): 45; LDA (m): 3,453. Runway 27: Total dimensions (TORA): 3,453x60; Width full strength (m): 45; LDA (m): 3,453; ILS: CAT III/E/4; PAPI: Y. Runway 18C: Total dimensions (TORA): 3,300x60; Width full strength (m): 45; LDA (m): 3,300; ILS: CAT III/E/4; PAPI: Y. Runway 36C: Total dimensions (TORA): 3,400x60; Width full strength (m): 45; LDA (m): 2,850; ILS: CAT III/E/4; PAPI: Y. Runway 18L: Total dimensions (TORA): 3,400x60; Width full strength (m): 45; LDA (m): 2,850. Runway 36R: Total dimensions (TORA): 3,400x60; Width full strength (m): 45; LDA (m): 2,850; ILS: CAT III/E/4; PAPI: Y. Runway 18R: Width full strength (m): 60; LDA (m): 3,530; ILS: CAT III/E/4; PAPI: Y. Runway 36L: Total dimensions (TORA): 3,800x75; Width full strength (m): 60.
Taxiways: Total length: 49km, of which 43km is suited for CAT III operations.
Aprons/ramps: Total number: 228, of which 100 are equipped with boarding bridges and 21 are solely for freight handling. The other ramps are used for remote passenger handling, aircraft buffering and parking.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Yes, Amsterdam Airport Schiphol (AMS) continuously improves safety at the airport in its processes. Of course, this means sometimes reappraising some parts (procedures) of the safety management system.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Regulations concerning FOD are described in Amsterdam Airport Schiphol's Safety and Security Handbook. Every employee is tested upon his or her knowledge of this handbook before they are allowed to work airside. Authority personnel are trained in recognising FOD and removal of dangerous objects and dirt on taxiways and runways.
b) Inspection by airline, airport, and airplane handling agency personnel: Airport Authority Officers see to it that employees on roads and ramps act according to the regulations concerning FOD. Before the docking of an aircraft the ramp is inspected by the handler. Before ATC actively uses a runway it is inspected for dangerous objects by the Bird Controller on duty.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Ramps, taxiways and runways are frequently swept; after maintenance extra sweeping takes place. Schiphol has a special rubbish dump for damaged and discarded ULDs, which can prove dangerous as FOD. Pack-up activities of freight must be done within the perimeter of the freight service to prevent packing material flying around and thus forming a FOD danger. These perimeters are surrounded by fences, which, among other reasons, are placed to catch this flying material.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Amsterdam Airport Schiphol is planning to combine efforts in the prevention of FOD by creating more awareness across multiple agencies. This combined effort will be coordinated within the Safety Platform Schiphol (VpS).
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
Since 2003, monthly inspections for debris have taken place, which then lead to trend reports through which necessary action is taken, for instance the campaign Clean Schiphol. Low fences are placed in the vicinity of taxiways and runways, again to catch debris that flies around in the wind. Obviously these fences are regularly cleaned. Amsterdam Airport Schiphol is still looking at and following developments around FOD-radar. At the moment it is in the middle of completing a tailor-made system that can be used to register FOD and help in the prevention of FOD. This system will help with the overall quality.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
By sight, radio communication and radar/ MLAT (every vehicle in the manoeuvring area has an ADS-B transponder).
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Yes. At Schiphol Airport there is a zero tolerance policy for runway incursions of Cat. A. Next to that it is trying to decrease the overall number of incursions by investigation to find out the root cause. After investigation there could be recommendations to take infrastructural measures (fillets, lighting, markings) or changes in procedures/communication. On a more structural basis, AMS is installing Runway Guard Lights where extra conspicuousness is needed, and is implementing special switchable signs for the co-ordination of tow-traffic in a later stadium.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
All runways are protected by RIASS (Runway Incursion Alert System Schiphol). RIASS is ASMGCS Level 2 and will sound an alert in the control tower to warn ATC that a RI might occur (RIMCAS, but specially developed by LVNL. Based on MLAT and enhanced with ADS-B signals where available).
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Any measure that could prevent a pilot or vehicle driver from making a runway incursion should be used, no matter if it is high or low tech.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Training for all vehicle drivers who operate in the manoeuvring area, and extra training for those who have to cross runways. Recurrent training after a period of one year for those who drive in the manoeuvring area. Apron controllers are certified.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
All organisations at Schiphol Airport have their own responsibilities for reporting incursions and investigation. There is not a specific reporting tool. Every runway incursion gets discussed in the Runway Safety Team. Most investigations are done jointly. Investigations are to learn and not to punish. Schiphol strives to become a High Reliability Organisation and become more aware of the potential dangers combined with a Just Culture.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
6.1 Do your staff attend recognised bird control training courses?
Yes, courses are provided by Bird Management LTD (formerly Fera).
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Pyrotechnics (Primetake), lasers (Aerolaser), and acoustics (Scarecrow Bioacoustics).
6.4 Do you carry out a bird strike risk assessment?
Yes, a yearly assessment by an external advisor.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Not all bird control activities are logged, a minimum of 16 logs per person per shift are logged. The average is roughly 40 logs per shift.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Hares – structural population reduction.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:





7x E-one Titan HPR; 8X8; 2002-2004. 2x E-one Titan HPR; 8X8 with boom; 2002-2004. Titan HPR 8X8, 12,150l ARFF vehicle specifications (performance parameters for TITAN HPR 8X8 European Style): Water capacity: 12,150l (3,210 gallons); foam capacity: 750l (198 gallons); estimated dry shipping weight: 28,549kgs (62,940lbs); estimated in service weight: 41,413kgs (91,300lbs); gross vehicle weight rating: front: 23,586kgs (52,000lbs), rear: 23,586kgs (52,000lbs). Engine: Make: Detroit Diesel 12V MTU; model: Model Series 2000 engine, 750kW (1,005BHP) at 2100 rpm; size: 23.89L (1458 cubic inches); bore: 130mm (5.12 inches); stroke: 150mm (5.91 inches); torque: 4,203N-m (3100lb-ft) at 1,350 rpm. Transmission/transfer case: make: Allison; model: M-6610A; gear ratio: 4.00:1 – first, 2.68:1 – second, 2.01:1 – third, 1.35:1 – fourth, 1.00:1 – fifth, 0.67:1 – sixth, 3.456:1 – reverse; differential: 30/70 biasing differential; torque converter: Allison; power divider: Cushman 385 w/PTO; style: hydraulic, multiple disc wet clutch; ratio to pump: 0.6:1.0; approach angle: 30 degrees, departure angle: 30 degrees, interaxle clearance angle: 12 degrees; underbody clearance: 460mm (18 inches), underaxle clearance: 330mm (13 inches). Turning diameter: wall-to-wall: ≤36m (117ft). Chassis flexibility: climb a vertical wall 460mm (18 inches) high and negotiate terrain which will deflect the opposite wheels of the truck in alternating contrary directions at least 356mm (14 inches) without the remaining wheels losing traction. Acceleration: 0-80kmph (0-50mph) within 30 seconds; top speed: 125kmph (78mph) maintained for at least 21km (13 miles), 105kmph (65mph) for 97km (60 miles). Gradeability: 20% at 13kmph (8mph) ascend and maintain speed. 40% at 1.6kmph (1mph) ascend, stop, start, descend, stop, start, while extinguishing agents from the primary turret. 50% at 1.6kmph (1mph) ascend and descend. Side slope stability: static: minimum of 30 degrees (58%); dynamic: minimum of 12 degrees (20%) while extinguishing agents; dynamic balance: on 100ft (30m) radius: 35.4kmph (22mph). Brake Holding: parking 20% ascending and descending; service 50% ascending and descending. Brake Stopping Distance: service: 32.2kmph (20mph): 12.2m (40ft), 64.4kmph (40mph): 48.8m (160ft); emergency: 64.4kmph (40mph): 87.8m (288ft). Pump Flow Rate: 7,950lpm at 13.8 bar (2,100gpm at 200psi). Roof turret discharge: flow rate: 1892/3785lpm (500/1500gpm) at 13.1 bar (190psi) non-aspirated; control: electric joystick operated; reach straight stream: 76m (250ft); reach dispersed stream: 23m (75ft); width dispersed stream: 10.5m (35ft); horizontal rotation: 240 degrees (Akron); vertical travel: 45 degrees above to 20 degrees below horizontal. Ground Sweep Nozzles (2): flow rate: 189lpm (50gpm) each; flat pattern reach: 9m (30ft); flat pattern width: 3.6m (12ft). Pre-connected woven jacket handline: nozzle flow rate: 360lpm (95gpm); reach straight stream: 19.5m (65ft); reach dispersed stream: 6m (20ft); width dispersed stream: 4.6m (15ft). Undertruck Nozzles: flow rate: 76lpm (20gpm) each. Bumper turret discharge nozzle: flow rate: 1,136lpm (300gpm); flat pattern reach: 15m (50ft); flat pattern width: 9m (30ft); flat pattern near point: 9m (30ft) front of bumper; straight stream reach: 46m (150ft); horizontal rotation: 180 degrees; vertical travel: 45 degrees above to 20 degrees below horizontal. Reeled water/foam handline: nozzle flow rate: 227lpm (60gpm); straight stream reach: 15m (50ft); reach dispersed stream: 6m (20ft); width dispersed stream: 4.6m (15ft); dry chemical capacity: 317kgs (700lbs). Dry chemical handline reel: discharge rate: 2.3-3.3kgs/sec (5-7lbs/sec); range: 7.5m (25ft); dry chemical turret discharge: discharge rate: 7kgs/sec (16lbs/sec) minimum; range: 30.5m (100ft); pattern width: 5.2m (17ft). Foam proportioning system: automatic around the pump-type foam proportioning with individual metering port for each foam outlet. Lighting & warning equipment: electronic siren with PA system and output speaker at cab front. Two integrated warning beacons front and rear. Two 24-volt deck lights with master control in cab, one 24-volt light in each enclosed compartment, two 24-volt lights in the engine compartment and two 24-volt lights in the body service areas. Six work lights – three each side around the vehicle's perimeter. Back up alarm.

2x Mercedes Atego; 2007/2008. Mercedes Atego vehicle specifications: Manufacturer: Hilton. Chassis: Mercedes-Benz, Atego 1628 F, 4X2. Water capacity: 3,000l (Godiva WSB 3010/0). Foam capacity: 200l. Pump flow rate: 3000lpm at 16 bar. Automatic foam proportioning system 3%. Bumper turret: Akron Brass 3645 1900lpm. Horizontal rotation 180 degrees. Vertical travel 45 degrees above to 20 degrees below horizontal.

7.2 Future developments – are there plans to purchase or dispose of any equipment?
There are no plans to dispose any equipment.

7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Amsterdam Airport possesses a Fire Training Simulator which is available to other airports for training purposes.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
From October until May for de-icing aircraft and from November until April for de-icing and snow clearing runways.

8.2 Average annual days of snow:
7 days per winter season.

8.3 Average snow depth: Less than 1cm.

8.4 Maximum snow in 24 hours: Less than 5cm.

8.5 Annual number of days of de-icing activities:
50 days per winter season.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
Per shift maximum 110 employees for runway de-icing and snow clearing.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Truck + plough + blowsweeper, 18 units; truck + blowsweeper, 12 units; truck + plough, 5 units; snowblowers, 3 units; runway light sweepers, 2 units; sprinkle-devices, salt, 9 units; sprinkle-devices, potassium formate, 5 units; runway de-icing trucks, 3 units; apron de-icing trucks, 4 units; frontloader, 1 units; wheeled shovel-loader, 14 units; trucks, snow-transportation, 20 units; runway friction testers, 2; units glycol recovery vehicles, 5 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
Runway-taxiways-aprons.

11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Amsterdam Airport Schiphol sprays runway de-icing fluid – potassium formate (standard setting 25g per metre) – to prevent icing and snow build-up. For the runway it uses sprinkle-devices of 33m in width and for taxiway and aprons of 16m in width.

11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
On average it takes 30 minutes to clear the runway, is including the exits.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Potassium formate, NAAC, sand.

12.2 Comment on storage capabilities of the chemicals which you use:
The airport stores up to 430,000 litres of potassium formate.

12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
We use solid de-icers – NAAC granules – with glazed frost.

12.4 Have you experienced any corrosion problems with de-icers?
Yes, but it is hard to measure the influence of de-icers and prevent corrosion. All vehicles are coated to minimise the effect of the de-icing materials.

12.5 Have you employed any special means to economise on chemical use?
The usage of weather stations and runway sensors for precise temperature readings to decrease the amount of used chemicals. Renewed last year all our runways (3) and aprons (4) – state of the art de-icing trucks by Dammann.

12.6 Do you have any other comments on experience with chemicals?
No, but environmental issues will become even sharper in the near future.

12.7 Do you use other chemicals or sand on operational areas?
At this moment we use potassium formate and we are using more sand as well.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
Every runway and several taxiways have their own weather stations with runway sensors. The ASFT runway friction testers are also outfitted with mobile sensors. With the sensors it is possible to measure the surface temperature, ground temperature at -30cms, dew point and the amount of liquids still available. This helps to determine whether spraying should be used or not.

13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? No.

13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
Thanks to the information gained from the weather station sensors the necessity for and amount of surface de-icing chemicals can be determined far more accurately. This enables us to reduce the costs of winter operations and improve our environmental performance.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
No, aircraft de-icing is done by AviaPartner, KLM Ground Services, Menzies, and Swissport.

14.2 Are you required to have dedicated de-icing positions or do you de-ice on the parking area?





Schiphol has a Central De-icing Facility (CDF) with four pads operated by KLM Ground Services. The CDF increases de-icing (hour) capacity, improves overall safety and enhances environmental performance. We use dedicated de-icing positions primarily. This so we can manage the spills and glycol on the parking area.
14.3 Is glycol recovered? If so, please state methods:
It is collected by a drainage system on the CDF and by five glycol recovery trucks on the aprons. The de-icing water is temporarily stored in six big silos and from there transported by truck to a third-party water treatment plant outside the airport.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
We have two ASFT friction testers (VW Sharans) outfitted with Frensor mobile sensors.
15.2 Have you any comments on the reliability of friction indexes?
No comment.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
Yes, we started a more selective spraying method, more closely based on runway usage and runway status.

ANTWERP

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Antwerp International Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
Dimension Runway 11/29 (m): 1,510x45. TORA 11 (m): 1,510; TORA 29 (m): 1,510. TODA 11 (m): 1,510; TODA 29(m): 1,510. ASDA 11 (m): 1,510; ASDA 29 (m): 1,510. LDA 11 (m): 1,366; LDA 29 (m): 1,510. Total concrete: 154,310sqm.
2.2 Landing aids for each RWY (e.g. CAT II):
Cat 1 ILS and PAPI 29. VOR/DME and PAPI appr. on 11 (see AIP Belgium).

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome."
Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
For info about safety management contact:
Safety Manager, dep. Airport Commander Sophie Velders. Tel: 003232856504, email: sophie.velders@mow.vlaanderen.be

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Courses – 'Safety on the Ramp' – and prevention campaigns.
b) Inspection by airline, airport, and airplane handling agency personnel: There is constant FOD control by inspection and people working on EBAW.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Sweeping and magnetic bar use. FOD containers available.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Poster campaigns.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
Regular control of the bins and specification of the found FOD.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Monitoring done by ATC.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
When the visibility is low, Antwerp Airport starts LVP procedures.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
N/A.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Guard lights on the taxiways.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Every person working airside must follow special training with safety lessons.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Trying to avoid food (seeds) attraction by mowing and close attractive breeding places in hangars.
6.1 Do your staff attend recognised bird control training courses?
Yes – training courses by the Belgian Air Force and courses for hunters.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
There is very regular control.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Gunfire, birdscare cartridges, gas canons and alarming scream noise from several species.
6.4 Do you carry out a bird strike risk assessment?
Yes.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Faun; 6X6; 12,000l water, 1,200l foam product; 1977. Panther; 6X6; 12,000l water, 1,500l foam, 500kg extinguish powder; 2008. Sides; 6X6; 9,000l water, 1,100l foam, 250kg extinguish powder; 1997. Mercedes; 4X4; fire and rescue equipment; 2008.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Yes. A new Panther fire vehicle is needed.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Yes.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
1 November-31 March.
8.2 Average annual days of snow:
2013-2014 – zero days.
8.3 Average snow depth: 2013-2014 – zero cm.
8.4 Maximum snow in 24 hours:
2013-2014 – zero cm.
8.5 Annual number of days of de-icing activities:
2013-2014 – zero days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
Six persons per shift, no sub-contracted winter service.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Snow plough, MB Track; 3x towed snow blowers, Shorling; deicing vehicle, 8000l potassium acetate, Schmidt.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
First Runway 11/29, then taxiways and Aprons 1 and 2.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Start sweeping on the runway axis with two snow blowers in close formation. The first on the axis, the second 3 metres out of the axis in the back of the first, then working the snow out to the edges, taking care not to cover the runway light system. When ready, there will be a stabilisation of the runway with kalium acetate to get good and stable friction. Special procedures necessitated by extreme weather conditions are described in the airport manual – Winter Operations.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
Between 30 minutes and 1 hour.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season.
Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Kalium acetate is very effective for de-icing and stabilisation of the runway. In case we need a strong reaction (black ice) we spread solid natrium acetate and moisten the product with kalium acetate.
12.2 Comment on storage capabilities of the chemicals that you use:
Stainless steel tanks – 30,000 litres kalium acetate storage.
12.5 Have you employed any special means to economise on chemical use?
The new Schmidt vehicle is much more economic in use then our previous Mercedes.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
Two sensors (Frigistors) on the runway.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? No.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
The ice warning system is a second warning indication





for us. In the first instance, personal inspection and control of the pavements is necessary.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
Done by a private company.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
SAAB friction tester.
15.2 Have you any comments on the reliability of friction indexes?
Reliability is good.

16. FUTURE DEVELOPMENTS

16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
Airport Commander plans for the acquisition of a new friction tester.

ATHENS

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Athens International Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
There are two runways, the design of which complies with ICAO Aerodrome Reference Code 4E, approved for aircraft types Airbus A380-800 and Boeing 747-800, with a width of 45m, plus shoulders of 7.5m on each side. The runways are designated as follows: Runway 03R/21L: physical length 4,000m; Runway 03L/21R: physical length 3,800m. The runways are parallel and the distance between their centrelines is 1,575m. According to the physical characteristics as published in the AIP Greece, the declared distances are: Runway 03R TORA (m): 4,000; Runway 21L TORA (m): 4,000; Runway 03L TORA (m): 3,800; Runway 21R TORA (m): 3,800. Ramp area: 45,975sqm. Non-operational areas: 11, 853sqm. Total apron area: 57,828sqm.
2.2 Landing aids for each RWY (e.g. CAT II):
The runway's landing aids are able to serve CAT II approaches. Approach lighting: Precision approach CAT II lighting system, 900m, all runways. PAPI, left side/3 degrees MEHT 18m, all runways. Runway Lighting: (CAT II). Runway C/L lights: 15m spacing (white/red-white/red). Runway edge lights: 60m spacing (white, LIH); runway end (red), THR lights (green), TDZ lights (white).

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Changes were made within 2013 on the revised version of the Aerodrome Operations Manual, Volume I, Aviation SMS Manual, following the amendment of ICAO Doc. 9859, Third Edition and the issuance of ICAO Annex 19, Safety Management and Annex 14. Under this frame, within 2014, further reappraisal of risks and hazards were identified by external SMS audits and relevant follow up actions were followed with the involved entities.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Athens Airport has provided a training package to ground handling personnel through a 'Train the Trainer' programme, as well as through Airside Driving Permit (ADP) training, including elements regarding the management of FOD.
b) Inspection by airline, airport, and airplane handling agency personnel: FOD inspections are performed at Athens International Airport (AIA) by various entities, such as the airport: Airside Monitoring & Inspection Specialists' Unit (AMIS Unit), Airside Sweepers staff, ramp management, airside safety staff, as well as by an external AIA subcontractor, dedicated to FOD collection on a scheduled or ad-hoc basis. Moreover, aircraft parking stands are checked (pre-use, post-use checks related to aircrafts' traffic) both by AMIS unit's staff and by ground handlers' ramp staff.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Routine daily apron sweeping with airport sweeping vehicles, daily use of the FOD BOSS blanket and/or the magnet bar, FOD bins, and special containers for residual, toxic and hazardous waste.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Through the Airside Safety Committee, Runway Safety Team, safety trainings and safety awareness meetings with stakeholders, brochures, apron banners, communication of incidents with the involved entities, FOD Collection Days at the airside, meetings regarding the management of FODs, Aviation Safety Newsletter, Aviation Safety Bulletin, Airside Safety Campaigns. Moreover AIA, under its aviation SMS umbrella, communicates and coordinates relevant safety issues to SMS safety groups such as Airside Safety Team, Safety Action Group, and Safety Review Committee.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
VCCA in Airport Station Operations Control, Ground and Tower Traffic control of HCAA.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
No. AIA is a relatively new airport with adequate hazard prevention design.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
Ground Radar, magnetic loops, CAT II stop-bars.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Enhanced taxiway centreline warning and additional runway holding positions, plus runway guard lights, retro-reflective taxiway end signs, as well as lead-in marking enhancements on taxiway guidance on a large number of aircraft parking stands.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
There is an Airside Driving Permit procedure run by Athens International Airport, with theoretical and practical examinations for apron movement as well as for the manoeuvring area. Moreover, there is a 'Train the Trainer' package provided by the airport company to stakeholders, related to a lot of operational/safety/emergency aspects.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
A local Runway Safety Team has been established since October 2007 to deal with those issues. Moreover, AIA, through its Aviation SMS Manual, is orientated to 'non-punitive' principles such as a 'no-penalty' reporting policy to airside users/operators according to the stipulations of ICAO Doc. 9859 Safety Management Manual.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
All habitats inside the airport fence are treated in a way to minimise wildlife attraction. Food, water, and roosting/resting/nesting places are minimised either by applying the proper designs in the initial master plan of the airport (e.g. buildings without roosting places, drainage system with fast discharge, landscaping with effective ground cover and fruitless shrubs and trees, collection of residual and organic waste in closed bins, etc.) or through the application of various long-term measures if new attractants are detected (e.g. drainage of seasonal water pools). All the airport areas are monitored daily. The natural habitats outside the airport are subject to periodic monitoring and recording of the wildlife they sustain together with other components of the ecosystems like flora and vegetation. University institutions and the Hellenic Ornithological Society collaborate with the airport on such tasks.
6.1 Do your staff attend recognised bird control training courses?
The members of the Wildlife Control Team (all with university degrees in life sciences), have been trained by the German Bird Strike Committee and the UK's Food and Environment Research Agency (Bird Strike Avoidance Team). Ongoing training includes participation in ACI training courses (e.g. March 2010), online refresher courses provided by the Embry-Riddle Aeronautical University Worldwide (January-February 2011), regular visits to major International Airports abroad for on-the-job training, and participation in the meetings of the International Bird Strike Committee in order to enhance knowledge and problem-solving skills. Training regarding the implementation of the Safety Management System and the Integration of the Wildlife Management Plan in the Safety Management System is also provided. The members of the Wildlife Control Team organise and provide training on an annual basis to other airport personnel that support wildlife management.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
At least one dedicated person, a member of the Wildlife Control Team, monitors and records wildlife activities on the airfield from the aviation day until aviation night and, depending on the level of wildlife strike risk, applies short-term measures as necessary. Competent personnel from the Airfield Services Department support the Wildlife Control Team on a 24-hour basis, as needed.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Equipment includes: Sound devices installed on 13





airport vehicles, designed and installed in-house, and based on the vehicle's CD player broadcast recorded distress or alarm calls that have been recorded in cooperation with university specialists, as well as loud digital sounds; 2 portable sound devices broadcasting distress calls purchased from Scarecrow Bio-Acoustic Systems (UK); 4 shotguns firing both blank and live ammunition; 1 Avian Dissuader laser pistol purchased from Sea Tech (US).
6.4 Do you carry out a bird strike risk assessment?
Wildlife Strike Risk Assessment and Management procedures as per the ICAO standards have been incorporated in the airport's Wildlife Management Plan. Wildlife strike risk assessments are performed on a monthly basis and the results are presented at the monthly meetings of the Airside Safety Committee. Full-scale wildlife strike risk assessment is performed annually and the results are communicated to the Hellenic Civil Aviation Authority.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
The personnel dedicated to the monitoring of wildlife activities at the airport keeps an electronic Wildlife Control Log with all the details regarding wildlife activities, measures applied and the effectiveness of the measures, airport habitat conditions and weather data which is stored in a database especially designed for the purposes of monitoring and managing fauna, flora and vegetation at and around the airport.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
There are manageable problems with insects, and small and medium-sized mammals like rodents, foxes and badgers. Insecticides are applied at least once per year to reduce the populations of insects during the most critical period of their life cycle, rodenticide bait stations are used for rodents (further to the reduction of the populations of the insects), while trapping and relocation or culling is used for foxes and badgers.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Air crash tender – ROSENBAUER PANTHER; 8x8; MAN 38.1000 VFAEG/8x8; engine: MAN V12 diesel engine, Euro 2; output: 735 kW (1,000 HP) at 2,300 min-1; water tank capacity, material: 12,500 l, GFP, foam tank capacity, material: 2 x 750 l, GFP; HP powder unit: 1,000 kg; Year of manufacture: 2000.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Yes, we're planning to procure an advanced modular aircraft fire training simulator.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Yes/Yes (fire pit).

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
15 December-15 March annually.
8.2 Average annual days of snow:
Not Available (snowing average 1-2 days of snow every 2-4 years).
8.5 Annual number of days of de-icing activities:
A few hours per day during an average of 3-5 days per month, between December and March.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
For the airside and landside areas approximately 65 employees per shift in full mobilisation mode.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Airport equipment: Schmidt TJS 630, 4 units; Schmidt CJS, 4 units; Vehicle ACTROS MB2640 with Schmidt Airport Sprayer (ASP), 2 units; Vehicle ACTROS MB2640 with Schmidt plough and spreader, 1 unit; Vehicle UNIMOG Schmidt plough and spreader, 2 units / Schmidt Large Snow Cutter (optional); Vehicle Atego 1823 Schmidt brush, 2 units; Vehicle Tractor John Deere Schmidt plough, 1 unit; Vehicle Kramer Schmidt plough, 1 unit; Vehicle Sk151 Schmidt plough, 2 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
According to the prevailing weather conditions and the existing operational needs, the priorities are as follows: RWY, adjacent TWY, at least three high speed exits and a taxi lane towards the terminals. Simultaneously, apron taxiways by different teams.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
AIA vehicles and operators, with the external contractor assistance, where required, follow the priorities set in the Aerodrome Operation Manual (AOM) snow plan. The RWY and adjacent TWY formation consists of 4 Towed Jet Sweepers (TJS), 4 Compact Jet Sweepers (CJS), 2 Airport Sprayers (ASP) and 1 Unimog with snow cutter. The cleaning routes, which are described to the AOM snow plan, may vary according to the Airport Duty Officer instructions or the prevailing weather conditions.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
Approximately 45 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Clariant SAFEWAY KA HOT (liquid), and Safeway SF (solid) as pre-wet. No de-icing materials were used last winter.
12.2 Comment on storage capabilities of the chemicals that you use:
Inside warehouses.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
According to the prevailing weather conditions (temperature, wind velocity, etc), mixing ratios differ between .10-40 gr/m2.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
Official notifications and warnings are published by the Hellenic National Meteorological Service (HNMS). No specific equipment installed airside.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
Athens International Airport S.A (the Airport Company), does not provide aircraft de/anti-icing operations. There are three ground-handling companies with relevant equipment. Total number of de/anti-icing trucks is five. De/anti-icing truck types: 3 trucks FMC Tempest II, 2 trucks Vestergaard.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
De/anti-icing operations take place on each aircraft parking stand.
14.3 Is glycol recovered? If so, please state methods:
The glycol is not recovered.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
SARSYS Friction Tester, SAAB 9-5 Wagon Surface Friction Tester (SFT), 2 units.

BARCELONA

aena

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Barcelona-El Prat Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
All this information is included in the Barcelona El Prat Airport (LEBL) AIP.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY 25R: CATII/III; RWY 07L: CAT I (implementation CAT II/III during first semester 2015); RWY 25L: CAT II/III; RWY 07R: CATII/III; RWY 02: CAT I; RWY 20: not available for landings.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome."
Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
The airport was recognised by the Spanish Aeronautical Authority (AESA) as a certified airport. This certification was renewed thanks to Apron Management Services implemented in September 2012 on the two main aprons (T1 and T2). Also, the airport has undergone external audits by AESA, where it was verified that the airport meets the national standards RD862/09. Therefore, the SMS of Barcelona-El Prat complies with ICAO Annex 14 standards. AESA oversees all certification processes and conducts periodic audits, the results of which are translated into a Corrective Action Plan (CAP) to run through the airport. The airport regularly reports to AESA the CAP's monitoring. The SMS's main premise is continuous improvement. The internal procedure BCN-PGS01, Risk Management System, is a systematic procedure, and requires semi-annual monitoring of all identified situations, facilitating the control of hazards and risks at the airport. In addition, the above procedure has an associated operational instruction: ITS01 'Change Management'. Each unit responsible for risk management enabled with the following events: Changes in operating procedures; implementation of new procedures; infrastructure projects in movement area; commissioning of new infrastructure; organisational changes; planning the airport operations of an aircraft that requires major changes regarding the aircrafts operating so far.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:





a) Training: The learning programme of the Handling Agents, Airlines and Companies that work at the airport includes FOD Control awareness. BCN Safety Newsletter looks at the issue of FOD at Barcelona-El Prat Airport, and what you can do to avoid FOD and prevent incidents caused by FOD.
b) Inspection by airline, airport, and airplane handling agency personnel: Handling agents perform inspections of aircraft manoeuvring areas several times a day, and its activity is controlled by the airport management. More frequent inspections are required if construction work is being carried out in these areas. In addition, flight crews should immediately report any FOD they observe on taxiways and runways to air traffic control (ATC). The ground crew are responsible for ensuring that no FOD is present on the stand prior to aircraft movements to and from the stand.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): The airport uses FOD containers. At Barcelona-El Prat Airport, an essential part for preventing FOD is regular cleaning of airside areas. It is also important to place FOD bins near the aprons for personnel to deposit any FOD they find. The bins are marked with the letters FOD, and are therefore clearly identified as containers for disposing of FOD.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Safety level agreements between airlines and handling agents.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
A-SMGCS, MLAT.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Currently, there are not.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
A-SMGCS, MLAT.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
According ICAO Annex 14.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Safety training, maps in vehicles, local safety committees.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
The Safety Management Department collects all the information under the premise of no penalty reporting.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
There is external assistance that carries on the vegetation management of the airfield, in charge of mowing the vegetation to the desired height. This height was determined from bird counts, carried on since 2004. Recently a trial of different types of grasses has been implemented with the aim of selecting the variety least attractive to birds. During 2014, some vegetation plots on the airfield have been sowed with this type of grass.
6.1 Do your staff attend recognised bird control training courses?
There is continuous training at the airfield for all components of Animal Control Service. Specific trainings in the case that they are needed.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
The Wildlife Control Service (WCS) consists of three units working simultaneously in the airport and on its vicinity during all daylight hours (from sunrise to sunset).
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Equipment used: 14 falcons for each WCS unit, 1 trained dog for each WCS unit, blank pistols, vehicle-mounted distress call systems to scare birds, laser torch from Lord Ingenierie.
6.4 Do you carry out a bird strike risk assessment?
Risk assessment follows the guidelines of AESA and is validated by this organisation. Wildlife strikes are registered in a database, using different sources of information (WCS, TWR, airlines, etc.). All this data is used to know in deep the wildlife strike problem and to assess the risk. A risk index is calculated for each species that is involved in bird strikes, based on the probability (the number of collisions registered in five years), and the severity (based on size and flocking behaviour).
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Every 30 minutes or more each WCS unit registers all the actions taken to repel or trap birds and the species observed. This information is collected in daily reports. In these reports, WCS also record all the strikes reported by ATC and other bird observations as notified by ATC or aircraft pilots.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Sometimes, dogs enter the airfield, escaping from aircraft holds. WCS is in charge of capturing them and all animals are returned to their owners. Feral cat trapping is done when they are detected on the airfield.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
2x Sides; Renault; 6X6; 10,000l, water, 1,200l polyester foam; 2004. 4x Rosenbauer Panther; MAN; 8X8, 13,500l water, 1,620l polyester foam; 2006. 2 Rosenbauer Panther HRET; MAN; 8X8, 12,000l water, 1,500l polyester foam; 2011.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
From 1 December to 15 March.
8.2 Average annual days of snow: 0-1 days.
8.3 Average snow depth: 0-0.5cm.
8.4 Maximum snow in 24 hours: 0.7cm
8.5 Annual number of days of de-icing activities:
1 per year.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
15 airport-employed. The handling operators have the necessary employees to operate their de-icing equipment.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Airport equipment: Urea spreader and snowplough truck, Maquiasfalt; liquid potassium acetate spreader, Maquiasfalt, 2 units; road sweeper, Schmidt; friction tester, Sarsys SAAB.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
Priority: Runway, taxiway, apron, service roads, entries.
Runway: Preventive treatment – urea spreader in parallel (50m wide back). Corrective treatment – snowplough trucks in parallel (50m wide go). Taxiway: Preventive treatment – urea spreader in parallel (25m wide go). Corrective treatment – snowplough trucks (25m wide go). Apron: urea spreader. Service roads: urea spreader. Entries: urea spreader.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
The vehicles work in tandem along the track and parallel to the centreline. Tandem behind the snowplough, trucks work and a marshal vehicle supervises all work.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
24 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Currently used for preventive treatment is solid urea (dampened with potassium acetate), and liquid potassium acetate corrective treatment.
12.2 Comment on storage capabilities of the chemicals that you use:
Presently 20t of solid urea, and 20t of liquid potassium acetate.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Solid de-icers are effective if they are humidified, and mainly for preventive treatments. The time it takes to start acting is too high (30 minutes).
12.5 Have you employed any special means to economise on chemical use?
Measuring surface temperature, friction metre and the meteorological service economise on chemical use.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
The Airport Meteorological Office issues forecasts for the possibility of frost and snow and tracks the meteorological parameters (Aerodrome Advisory Bulletin, TAFOR, TREND, METAR, SPECI). The marshal has two laser surface thermometers.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
Able to implement effective preventive treatment.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
The aircraft anti/de-icing operations are provided by handling agents.
14.2 Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
There are four de-icing positions to provide de-icing services for aircrafts until D category. For aircraft category E and F the de-icing





service is provided on the parking area.
14.3 Is glycol recovered? If so, please state methods:
No.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
SARSYS SAAB-95 Nº874.

BELGRADE

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME:

Belgrade Nikola Tesla International Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
Runways: 3,400m length, 45m width (shoulders 7.5m, paved). RWY 12: TORA: 3,400m (2,800m if take off is from intersection C); LDA: 3,400m. RWY 30: TORA: 3,400m (3,000m if take off is from intersection E, 2,085m if take off is from intersection D); LDA: 3,000m. Three aprons: Apron A: 10 parking positions with PBB for C category aircraft (wing span from 31.81m to 44.42m), including 1 position for aircraft with 50.39m wingspan; 15 positions for general aviation (wing span from 12.04m to 23.72m). Apron B: 6 open parking positions for C category aircraft (wing span from 32.92m to 34.31m), 1 open parking position for aircraft with 50.39m wingspan. Apron C: 10 parking positions for C category aircraft (6 with PBB and 4 open positions), with restrictions 5 parking positions (3 with PBB and 2 open positions) for 65m wing span aircraft.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY 12: precision instrument approach CAT I/II/III. RWY 30: precision instrument approach CAT I.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: FOD training is established within basic safety awareness training. Every employee at the airport must pass the test before entering restriction area.
b) Inspection by airline, airport, and airplane handling agency personnel: A parking position FOD check is done before and after aircraft turnaround by the ramp agent. Every employee must remove FOD from the apron, if they see any. Runway and taxiway FOD check is performed by vehicles.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): FOD containers are located at every parking position. Cleaning trucks are used for apron cleaning.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Every third party company/agency has attended a basic safety awareness course and has been given document about apron movement, which states that every person must collect FOD from the apron/taxiway/runway. If they collect such items, they must report it to a safety office.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No, we do not use any special system or software solutions.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
ATC is monitoring all vehicle and aircraft movement on the manoeuvring areas.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
No.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
Belgrade Nikola Tesla International Airport does not use any special system.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Traffic lights are used for one of the service roads (controlled service road), which cuts taxiways.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Every driver must pass a special driving test designed for the airport. The airport safety office conducts the training. There are two types of driver training – for drivers who work at the apron, and for drivers who work on apron and manoeuvring areas. These tests are obligatory for airport staff and third parties
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
A reporting system is established according the national law (every aviation subject in the Republic of Serbia must have one). Nikola Tesla Airport has established a 'no blame policy'.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
High-grass policy, using grass and plants that do not attract birds, and constant patrol around the runway and taxiways using two specially equipped vehicles.
6.1 Do your staff attend recognised bird control training courses?
The Head of the Bird Control Unit completed FERA's course – Airport Bird Hazard Management – on 22 November 2012, in York, UK. All bird control staff have completed Phoenix's (UK) course about wildlife management.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Working hours are from dawn till dusk, depending on sunrise and sunset during the year. (Source: AIP Serbia and Montenegro.)
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
3 hand-held lasers (Avian Dissuader, green lasers) and 2 waiting to be delivered, 2 megaphones, 3 sound systems mounted on SUVs (Runwailer and Premier 1500), and 2 SUVs. We are in the process of acquiring a permit for firearms usage.
6.4 Do you carry out a bird strike risk assessment?
Yes, we carry out risk assessment.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Every employee fills special log every day during working hours.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
No, we do not have significant problem with other wildlife.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Panther; MAN 36.1000 VFAEG; 6X6; 12,500l water, 1,500l foam, 250kg powder. 10,000l/min pump capacity at 10 bar, 300l/min at 40 bar; 6,000l/min water gun capacity at 10 bar, range 80m.
Panther; MAN 38.1000 VFAEG; 8X8; 12,500l water, 1,500l foam, 750kg powder. 6,000l/min pump capacity at 10 bar, 300l/min at 40 bar; 6,000l/min water gun capacity at 10 bar, range 80m. Skamell; Lajland,; 10,000l water, 900l foam, 100kg powder. 6000l/min pump capacity at 10 bar, 300l/min at 40 bar; 6,000l/min water gun capacity at 10 bar, range 80m. 2x Mercedes; Mercedes; 4X4; 3,000l water, 400l foam. 3000l/min pump capacity. Command vehicle, VW Crafter.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Purchase plans: 2015 – fire fighting vehicle, 8X8 with telescopic nozzle; 2016 – rescue stairs. No disposal plans for equipment.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Fire screen with LPG installation.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
1 November-31 March.
8.2 Average annual days of snow:
Approximately 27 days a year.
8.3 Average snow depth: 39.1cm.
8.4 Maximum snow in 24 hours: 25cm.
8.5 Annual number of days of de-icing activities:
23 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
50 employees a shift.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Snow sweeper, Øveraasen, RS 400 MK II & III, 6 units; snow blower, Schmidt, SUPRA 5001, 1 unit; combination de-icing spreader, Schmidt, ACE 4000, 1 unit; airport friction tester, Škoda, Octavia 1.8 TSI ASFT, 1 unit; airport friction tester, Škoda Fabia 1.2 CDI ASFT Frensor, 1 unit; snow sweeper, SICARD 314, 4 units; snow blower, SICARD 7500 SMI, 1 unit; combination de-icing spreader, Kuper-Weisser, 1 unit; backhoe loader, Hitachi with snowplough, 1 unit; skid steer loader, BOBCAT 175 with snowplough, 1 unit; backhoe loader, VENIERI 10.33B with RWY light clearing equipment, Tellefsdal, 1 unit; truck, FIAT 697 with snowplough, 1 unit; tractor, KIOTI with snowplough, 8 units; tractor, IMT 539 with solid de-icer spreader, 1 unit; UNIMOG with snowplough and solid de-icer spreader, 1 unit; tractor, IMT 539 with snowplough, 1 unit; Terratrac Aebi TT 180 with snowplough, 1 unit; Terratrac Aebi CC 60 with snowplough, 1 unit; special multifunctional tractor, Antonio Carraro TTR 8400 with snowplough, 1 unit; tractor IMT 507 equipped with snowblower, 1 unit; solid de-icing spreader, Cyclon, 1 unit.





11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
1. Runway, 2. Taxiways A, B & E, 3. TWY C & D, 4. Sensitive zones around radio-navigational equipment, 5. Taxiways M, F & G, 6. Taxiways J, K, L & H, 7. Aircraft stands A1-A10 and C1-C6, 7. Aircraft stands C7-C10, 8. Aircraft stands B1-B7, 9. General aviation platform.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Runway and Taxiways A, B, C, D & E: 6 snow sweepers, Øveraasen RS 400 MK II & III, in a formation, following 1 snow blower, Schmidt SUPRA 5001. After them, 1 backhoe loader, VENIERI 10.33B, with runway light clearing equipment, Tellefsdal, and at the end 1 combination de-icing spreader, Schmidt ACE 4000. Before and after the snow clearing, one of the ASFT vehicles checks braking conditions on manoeuvring areas and reports it to the TWR. Apron: Tractors, truck, Fiat and UNIMOG, clear the snow from the aircraft stands approximately 5m away from the bridges, where it is pushed further from the apron on to the green areas by 6 snow sweepers, Øveraasen RS 400 MK II & III, backhoe loader, Hitachi, and SICARD snowblower.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
Maximum 35 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Solids: Urea, approximately 250t – very effective for temperatures up to -6 degrees Celsius. Effective for up to 3 or 4 hours if there aren't any freezing rains or strong winds, otherwise it has to be applied more frequently or we have to apply liquid de-icer. Liquid: Clariant Safeway KA Hot – very effective for temperatures up to -15 degrees Celsius. Effective for up to 3 or 4 hours if there aren't any freezing rains or strong winds.
12.2 Comment on storage capabilities of the chemicals that you use:
Urea: Around 150 t; Safeway: 40,000l.
12.4 Have you experienced any corrosion problems with de-icers?
Yes.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Belgrade Nikola Tesla International Airport does not use ice warning systems.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
Not so far.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
Belgrade Nikola Tesla International Airport provides anti/de-icing operations. Four vehicles: two Vestergard Elephant Beta 2, and two Vestergard MY 2.
14.2 Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
We do not have dedicated de-icing positions. De-icing is performed on taxiway after push back operation.
14.3 Is glycol recovered? If so, please state methods:
We do not recover glycol.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
Airport friction tester, Škoda, Octavia 1.8 TSI ASFT, and airport friction tester, Škoda Fabia, 1.2 CDI ASFT Frensor.
Have you any comments on the reliability of friction indexes?
We didn't have any complaints about the reliability of the read friction indexes.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
Not so far.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
Purchase plans: Fire fighting vehicle, 8X8 with telescopic nozzle, rescue stairs, two more Overaasen RS 400s, one snow blower, one solid de-icer.
16.4 Do you have any winter services equipment that you would like to sell?
No, we do not have winter service equipment for sale.

BIRMINGHAM

Birmingham Airport

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Birmingham Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY 15/33: 3,052x45m with 7.5m shoulders each side (total width 60m).
2.2 Landing aids for each RWY (e.g. CAT II):
CAT III ILS to Runways 15 and 33.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Basic training; airside driver training; published airside instructions.
b) Inspection by airline, airport, and airplane handling agency personnel: Airport has a three-tier inspection regime. HAs inspect stands pre and post-aircraft arrival/departure; FOD included as part of daily turnround audits by Airfield Safety Unit.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Sweeper on site; stand scrubber and FOD-Boss in regular use.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Airside Safety Committee for interagency coordination.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Visual from ATC and SMR – all vehicles under positive RT or under escort.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
No.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
SMR – RIMCAS; H24 operation of red stop-bars at all runway holds.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
H24 LED stop-bars at all runway access points. Runway closed mode introduced to clearly define when the runway is not operational, i.e. closed for snow clearing or maintenance.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Manoeuvring area driver training course; ANSP also runs Runway Incursion Awareness Training for manoeuvring area drivers.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes, in conjunction with the ANSP (NATS).

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Airfield long grass policy – H24 bird patrol by Airfield Safety Unit with one member of team dedicated to bird control at all times.
6.1 Do your staff attend recognised bird control training courses? Yes.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Scarecrow Bio-Acoustic Systems.
6.4 Do you carry out a bird strike risk assessment?
Yes.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
5x Oshkosh Striker; 6X6; CFR – 3 with HRET; 2013.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Yes and yes.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
November-March.
8.2 Average annual days of snow:
5 days.
8.3 Average snow depth:
200mm.
8.4 Maximum snow in 24 hours:
350mm.
8.5 Annual number of days of de-icing activities:
25 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
40.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Schorling P21, 3 units; Schorling P17,





4 units; Sicards, 4 units; Ramp hog plough, 2 units; 7m plough, 3 units; cutter blowers, Rolba, 2 units; tractor brushes, 8 units; liquid pavement de-icer, 3 units (8,000l, 6,000l & 3,000l); granular de-icer, 3 units (1 self-wetting).

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
Priority 1: Runway, main exits, taxi routes to the aprons and aircraft stands. Priority 2: Other areas.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
P21s – runway clearance. P17s – taxiways. Sicards – taxiways/apron. Generally operate in teams of 2 or 3.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
1 hour, depending on conditions and extent of accumulated snow.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Safegrip 3 and Konsin liquid de-icers. NACC solid de-icer.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Solid de-icer applied pre-wetted or to wet surface only.
12.4 Have you experienced any corrosion problems with de-icers?
No.
12.5 Have you employed any special means to economise on chemical use?
Certain areas of the airfield can be withdrawn from use and closed rather than anti or de-iced to reduce chemical usage.
12.7 Do you use other chemicals or sand on operational areas?
No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
Visala Icelert x3.

14. AIRCRAFT DE-ICING

14.2 Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
De-ice on stand.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
Grip tester – currently transitioning to Mu-meter.

16. FUTURE DEVELOPMENTS

16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
No.
16.4 Do you have any winter services equipment that you would like to sell?
No.

BRUSSELS

brussels airport

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Brussels Airport

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome."
Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Up and running 3-yearly recurrent Safety Audit programme (about 100 internal & external safety audits); updated theoretical training curriculum for vehicle drivers on the manoeuvring areal practical training concept for vehicle drivers (apron and manoeuvring area) including human factors, communication (ICAO R/T) and abnormal circumstances & emergencies by means of airside driver training simulator with full Brussels Airport 3D model; apron Safety Committee introduced formalized and standardized reporting of lessons learnt out of incidents; BRUTuS: BRUssels Turnaround Safety taskforce: mapping of process, identification of hazards, risk tables, mitigation proposals for management including communication with all airside operations stakeholders; reviewed SMS procedures including introduction of human factors analysis in incident investigation process; analysis and studies on tool management practices looking at avoidance of FOD on RWYs; 'just culture' training for line and duty managers.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Promotion and prevention campaigns, safety newsletters including lessons learnt and safety performance indicators, SMS introduction courses for all personnel.
b) Inspection by airline, airport, and airplane handling agency personnel: Four daily inspections by airport operator personnel, FOD inspection before arrival and after departure by handling personnel on aircraft stands, company FOD walks.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Sweeping program by vehicles equipped with magnetic bars; FOD bins installed near each aircraft stand; prevention on tool management for our partners available; FOD boss® for manoeuvring area sweeping.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Apron Safety Committee and Local Runway Safety Team.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
Brussels Airport has developed an internal procedural Tool Management system to avoid tools from becoming hazardous when lost or forgotten. SMU is co-operating with line maintenance and vehicle and equipment maintenance companies to organise a robust and adequate tool management system and monitors KPI's like tool FOD reporting and investigation.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Visual observation, SMR, Multilateration, radio contact. Brussels Airport vehicles which enter manoeuvring area are transponder equipped. Implementation of a definition for the protected area of a runway and specific chart of this area, which is available to all users via courses and documentation.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? Use of stop-bars 24H; training programme for situational awareness and runway incursion prevention; airside vehicle driver training simulator with full airport 3D model, local procedures, standard ICAO R/T, human factors integration.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
A vehicle tracking system and RIMCAS. Brussels Airport operational vehicles are transponder equipped.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Additional painted markings and signs to avoid RWY line-up confusion between RWY 25R and RWY 20; new stop-bar introduced at TWY B5 to avoid small aircraft looking over the existing one. Use of stop-bars 24H. TORA indications on TWY used for intersection take-off.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
R/T and standard ICAO phraseology course in aviation English for vehicle drivers. Procedure: Driving on the manoeuvring area – take a safe start. Refresher courses and awareness campaigns, safety newsletters, implementation of the "European Guidelines for the Prevention of Rwy Incursions", monthly Local Rwy Safety Team meetings. Airside vehicle driver training simulator
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
The Civil Aviation Safety Occurrence Reporting is regulated by the Belgian CAA Circular CIR/INS/01, covered by a Royal Decree of 22/04/2005. The 'just culture' concept has been adopted by the Independent Investigation Cell for Air Accidents and Incidents of the Ministry of Transportation. Brussels Airport has implemented a voluntary reporting system, available online via www.brusafety.be. Brussels airport investigation process adopted just culture principles and has integrated Reason's model for analysis of human factors in each investigation.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Long grass policy, no agriculture or vegetation that can attract birds.
Test of new grass mix ongoing.
6.1 Do your staff attend recognised bird control training courses?
All staff members are certified.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuously – daily between 6am-10pm.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Recorded distress calls (Scarecrow), pyrotechnics (Primetake), shotguns (12G Browning), trapping cages, bird balls on ponds, spikes on signalisation, gas canon (Purivox) and air rifle (Air Arms).
6.4 Do you carry out a bird strike risk assessment?
Implemented within SMS.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes. New system (Ultima) is implemented Q1 2014.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Rabbits, regular hunting is organised.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating:





vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: CFR VEHICLES INVENTORY STATING: FGK 4105, Kronenburg chassis, 8x8 axles, 16.000 litre water ; 3.000 litre foam, Monitor-output : 4.000 – 7.000 L./min, bumper turret-output: 2.000 L./min, 1997. KR50.1100.60.8x8, Kronenburg chassis, 16.000 litre water ; 1.000 litre foam, 500 kg. powder, Monitor-output : 3.000 – 6.000 L./min, bumper turret-output: 1.000 L./min, Monitor-output powder : 15 – 30 kg.sec, 1999. Z8 FLF 80/125-10 snozzle, MAN 8x8 axle, 12.500 litre water ; 1.000 litre foam, 500 kg powder, Monitor –output : 2.000 – 4.000 L/min (snozzle), powder output: 300kg/min (snozzle), 2007. KR50.1100.60.8x8, Kronenburg chassis, 16.000 litre water ; 1.000 litre foam, 500 kg. powder, Monitor-output : 3.000 – 6.000 L./min, bumper turret-output: 1.000 L./min, Monitor output powder : 15 – 30 kg./sec, 2000. TM 19 FA off-road, MAN chassis, 4x4 axles, 4.000 litre water ; 250 litre foam, 500 kg. powder, Monitor-output : 2.500 L./min, bumper turret-output: 1.000 L./min, Monitor-output powder : 15 – 30 kg./sec, 2000. FLF 80/125-15+250P Z6 “Advancer”; Thomas chassis; 6x6; 12.500 litre water; 1.500 litre foam; 250 kg powder; Monitor-output : 3.000 – 6.000 L./min, bumper turret-output: 1.200 L./min; 2010.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
New crash tender project, replacement command car, replacement second ambulance.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
No Fire Training Simulator.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
Winter teams: 15 November-31 March.
De-icing of aircraft: 15 October-15 April.
8.2 Average annual days of snow: 7 days.
8.3 Average snow depth: ± 3 cm.
8.4 Maximum snow in 24 hours: ± 15 cm.
8.5 Annual number of days of de-icing activities: 14 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
Winter teams : 44. De-icing of aircraft (performed by ground handling companies).

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Compact jet sweeper Schmidt TJS-C560, 4 units; Schmidt Supra 5000 snow blower/cutter, 2 units; Sprayer, Nido Schmidt ASP12000 on Actros, 2 units; Sprayer Giletta clabu 30m , 1 units; Compact jet sweeper, Schmidt CJS914, 2 units; Compact jet sweeper, Schörling P21C, 1 unit; Sprayer, Nido Schmidt RSP6000 on Atego, 1 unit; Compact jet sweeper, Schmidt CJS720, 2 units; Towed blower sweeper , Schörling P17, 1 unit; Towed blower sweeper, Overaasen SB90, 3 units; Sprayer, Nido Schmidt RSP6000 on Actros, 2 units; Multipurpose vehicles, LADOG, 4 units; Multipurpose vehicles , John Deere , 4 units; Sprayer, Nido Schmidt RSP3000 on Unimog, 1 unit; Spreader, Nido Ardenna on Mercedes, 1 unit; Spreader, Nido Ardenna on Renault, 1 unit; Spreader, Nido Baby on Multicar, 1 unit; Spreader, Nido Stratos on Atego, 1 unit; Spreader, Acometis on Man, 1 unit.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
Snow clearing according to one of two predefined minimum airport scenarios:
Minimum airport 25R/07L: RWY 25R/07L: Entries: A1, A3, A7, B1, E6, F5, W41. Exits: B7, B9, P1. TWY: OUT1, INN2-10, OUT6, Z. Intersections between RWY, exits, entries and TWY listed above.
Minimum airport 01/19: RWY 01/19: Entries: P7, C6, D2. Exits: B1, E6, E5. TWY: INN3-10, Z. Intersections between RWY, exits, entries and TWY listed above. In parallel with the cleaning of the minimum airport, two convoys (8 vehicles) focuses on individual stand cleaning, priorities defined according to stand allocation planning. After cleaning of minimum airport main aprons, cargo apron and other TWY are cleaned in function of priority and needs (defined with ATC and Airport Inspection).
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Snow removal is performed according to standard minimum airport scenarios. The choice in scenario is based on weather conditions, priorities and the status of the airport. Each team consists of 6 convoys (composition see question 10.1). Each convoy carries its own particular tasks within the scenarios, matching their capacities and limitations. On top of the scenarios, standard procedures have been developed for snow removal on each part of the airport (RWY, TWY, exits, TWY intersections, RWY intersections and apron).
11.3 After moderate snow, how quickly do you expect to achieve ‘black top’ on the runway?
One RWY is cleaned in 35-40 min.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Liquid: CRYOTECH E36: 240.000 liters. Effectiveness is very good but not with extreme low temperatures.
Solid: NAAC: 30 ton. Effectiveness when used on individual stands applied by hand for local ice patches is good. Application method, quantities and mixing ratios in combination with liquids for use on larger surfaces remains trial and error.
12.2 Comment on storage capabilities of the chemicals that you use:
Liquids: 220.000 l. Solids: no critical limitations: bought in bulk and stored in hangar. Road salt (applied landside and service drives airside): 264 ton.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, “blow-away factor” etc:
Last year, only used on local ice patches (on stands/twys).
12.4 Have you experienced any corrosion problems with de-icers?
Only on galvanised equipment, not on aircraft.
12.5 Have you employed any special means to economise on chemical use?
GPS is used to economise on liquids. Discussions with supplier are ongoing to fine-tune concentration politic.
12.6 Do you have any other comments on experience with chemicals? No.
12.7 Do you use other chemicals or sand on operational areas? No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Vaisala Icecast Viewer; 13 warning sensors.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
Yes. Model not yet specified.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
It is helpful as an indicator.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
No. It is done by handling companies.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
It is done on both, on a dedicated de-icing area and on aircraft stands.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
Friction tester SFH, ASFT on Saab 9.5, 1 unit; friction tester SFH, ASFT on Saab 9000, 1 unit; friction tester Trailer T5, ASFT, 1 unit.
15.2 Have you any comments on the reliability of friction indexes?
Worldwide standardisation of RWY friction values is necessary.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport’s methods?
Scenarios and working methods are under continuous review (workshops and SMS).
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
Yes, 1 snow blower high capacity. Several airport snow plough, compact.

BUDAPEST

bud Budapest Airport

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME:

Budapest Liszt Ferenc International Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
Runway 13L/31R: TORA/LDA: 3,707m, width: 45m + 7.5m shoulders on both side; Runway 13R/31L: TORA/LDA: 3,010m, width: 45m + 7.5m shoulders on both side; taxiway system: width: 23m, except A1, which is 19m. All taxiways have paved shoulders of 3.5m width. Apron 1, Apron 2 GA Apron, and maintenance areas are 695,000sqm.
2.2 Landing aids for each RWY (e.g. CAT II):
Runway 13L/31R: CAT II operations are available on 13L, and CAT III/a on 31R. The upgrading process from CAT III/a to CAT III/b is planned for 2015. Runway 13R/31L: CAT II operations are available in both directions.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: “The aerodrome operator shall establish a Safety Management System for the aerodrome.” Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
The first edition of the SMS manual for Budapest





Airport was published in January 2010, following the structure recommended by ICAO. From this time, all relevant processed follow the SMS system, including construction works and new procedures. The system running well, in 2015 overall safety training will be organised for all airport employees.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: FOD awareness campaigns periodically, and FOD leaflets are circulated periodically also. The FOD is a part of all kinds of movement area safety training, which includes handling companies, airport operator and subcontracted partners as well. The FOD management is also a part of the '3-Level Airside Driving Licence' system.
b) Inspection by airline, airport, and airplane handling agency personnel: The FOD control is a relevant part of the daily inspection routine of airfield staff. On the aprons, ground-handling companies are also inspecting the ramp areas before every aircraft arrival and departure. Quarterly, an FOD collection is organised by Airside Management together with EHS team. Before and after the winter season an overall FOD-fishing is organised.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Two 'apron sweepers' are in operation, following a daily routine. These sweepers are equipped with magnetic bars. There is weekly taxiway cleaning program using the Schmidt jet-sweepers without plough. All defined parking positions are equipped with dedicated FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): FOD is a topic of Airport Operations Committee meetings defining the results and informing all relevant airside users.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
A-SMGCS was implemented and used by the ANSP to monitor all kinds of traffic. All vehicles on the manoeuvring area are equipped or escorted by a vehicle with the Squid by ERA system. The A-SMGCS was upgraded in 2013 with installations of an incursion monitoring and alerting function.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
All runway holding points are indicated by Runway Guard Lights, and stop-bars. The holding points were repainted in 2014, using the enhanced centreline markings and runway designator markings. The RETs are equipped with permanent stop-bars. The safety strips of runways are marked by retroflective poles indicating the limit for drivers and workers close to runways. A new mobile, lighted closing sign is tested to indicate the closed areas more accurately for aircrew.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
A-SMGCS and continuous radio communications between tower and vehicle drivers. In 2013, the A-SMGSC was upgraded installing the conflict alert functions and indicating the closed areas.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Airfield safety publications; highly visible signs; NO ENTRY markings; H24 operations of RGLs; permanent stop-bars on RETs. 'RWY Designators' signs have been painted at all holding points. Mobile closing signs indicate the closed areas.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
All relevant companies, including ANSP and handling companies, underline the importance of runway safety. Manoeuvring area inspections and maintenance procedures are in force and published and defined in the manuals. Awareness campaigns, and trainings for mechanics and maintenance workers, are regularly organised.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
A data sharing and joint investigation process are established. The information is continuously shared between partners as part of the regular LRST meetings.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
The airport has its own bird and wildlife management, with detailed a manual which contains all procedures, and data collecting methods. Habitat management includes: Tree and bush cuttings at airside, bird nest removals, spikes on ground lights and a long grass policy. Also, a dedicated member of senior management (Head of Airside Operations) is named as the responsible person for bird and wildlife control.
6.1 Do your staff attend recognised bird control training courses? Yes.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
During operational hours a dedicated staff is on duty. At night the airfield team is responsible for monitoring and taking action.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Pyrotechnics, border collie, recorded distress and bird alarm cries (Scarecrow Bio-Acoustic Systems), gas cannons (Zon Mark4). The usage of traps and shotguns with pyrotechnics and normal ammo is suspended due to licencing problems.
6.4 Do you carry out a bird strike risk assessment?
Twice a year by internal audit done by main carriers.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes, dedicated bird log is in use, including all kinds of activities and actions.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Yes, the rabbit population was high, mainly between sunset and sunrise. The bird team is using traps and guns, and the population of rabbits was dramatically reduced in the year 2012.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Rosenbauer; MAN; 5,000l/min foam; 1995.
Freitliner; Rosenbauer; 6,200l/min foam; 2004.
Rosenbauer; Mercedes; 7,000l/min foam; 2007. 2x Rosenbauer; Rosenbauer; 6,000l/min foam; 2011.
Rosenbauer; Mercedes; 10,000l/min water; 2005.
Rosenbauer; Mercedes; 2,400l/min foam; 2001.
Mercedes; Rosenbauer; 2,400l/min foam; 2011.
Mercedes; Rosenbauer; 2,400l/min foam; 2001.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Due to new CFR vehicles in short term no plans, but renewing the old ones. The midterm plan contains purchasing new equipment.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
At this point two old, non-used ACFT serve for training, and a new fire fighter training container has been built. A complete refresher training at Leipzig was organised for the whole staff.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
According to the Winter Services Manual (Snow Plan) the designated period is between 1 November and 30 March.
8.2 Average annual days of snow: 25-30 days.
8.3 Average snow depth: 8-12cm.
8.4 Maximum snow in 24 hours: 25cm.
8.5 Annual number of days of de-icing activities: 65-75 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
Four different levels are defined. In green level: 4, in yellow level: 12, in orange level: 32, and in red level: 48.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Runway and taxiway team: Tow behind runway sweeper, Boschung T-Broom, 5 units; Oshkosh Blower, 1 unit; sprayer, NIDO, 2 units. Apron teams: compact jet sweeper, Schmidt-Mercedes, 8 units; blower, SUPRA 4000, 5 units; UNIMOG compact units, 8 units; trucks for snow transport, 3 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
Generally the basic concept is to maintain the limited but continuous operations from the barriers of car parking areas to the runways, but in severe weather the Duty Airside Manager will decide the priorities following the list: 1. Active RWY (13L/31R), and connecting taxiways. 2. Apron 2AB/Apron 1. 3. Other taxiways. 4. Maintenance area, landside areas and car parks have separate dedicated equipment and staff.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
The 'conga-line', with 5 runway-sweepers, opens cleaning procedures on the designated runway and on the taxiways. The snow is pushed from the centreline to the edge of the surface with respect for the elevated edge light system. Since the runways are 45m wide, a number of turns are required in order to clear the entire surface. The high capacity blower is also a part of the cleaning team, following the runway sweepers and blowing out the snow banks from the edges immediately. At the same time, 3-5 jet sweepers clean the designated blocks of the apron area and the preferred taxiways. Closing the cleaning procedure, NIDO sprayers are active if





necessary. The final step is the friction measuring process, before the runways or taxiways are reopened.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
30-35 minutes, depending on snow depth.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Urea (566.3t) and Clearway-1 (5,220l) on the airside. Urea (117.2t), sand on the landside and other non-airfield areas. Before the last season the most important experience was that urea was not effective below -6-8 degrees Celsius, meaning that an extremely high quantity of Clearway was used.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Until -6 degrees Celsius we are using urea only. Below this temperature or in case of heavy wind a mixture of urea and Clearway must be used. Below -14 only the Clearway is used without mixing with urea.
12.4 Have you experienced any corrosion problems with de-icers?
No corrosion problems were detected with urea.
12.7 Do you use other chemicals or sand on operational areas?
Sand is used at the maintenance hangars only.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
Met observer on duty, ALMOS system, air temperature sensors – two on the runway at 2m from the ground, runway temperature sensors – two on the runway flush with surface.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
No.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
No.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
No, the handling agents take care of the aircraft de-icing on the airport.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
De-icing is done on stands. In case of the holdover time being reduced, the de-icing procedures are relocated close to the runways.
14.3 Is glycol recovered? If so, please state methods:
No.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
ASFT-CFME (SAAB wagon), ASFT-CFME (SAAB sedan).

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
Budapest Airport has a project to change the technologies of surface de-icing and snow melting, including the changing of the chemicals that are used, the spreaders, and the storage technologies as well.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
New CFME (Continuous Friction Measuring Equipment) with a self-watering system was be tendered and the purchasing process is ongoing. As a part of Midterm Plan two new runway de-icers and sweeper machines with glycol collectors will be purchased.

CHISINAU

Chisinau AIRPORT Avia Invest

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Chisinau International Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY Designator: 08/26. Total RWY length/width: 3,590x45m, 51 R/C/W/T concrete. Strip dimensions: 3,710m234.5m. TORA/TODA/ASDA/LDA for RWY 08/26: 3,590m. Taxiways: 8 and apron taxiway. Total apron and ramp area: 110,000sqm. Stands: 30. Rescue and fire fighting service: Cat VII.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY 08: CAT II 870M LIH. RWY 26: CAT-I 899M LIH.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Yes.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Training of personnel every six months.
b) Inspection by airline, airport, and airplane handling agency personnel: Inspections by airport personnel every three hours.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc):
Cleaning by compact jet sweeper, Schmidt, CJS 914, 4 units, twice a day; use of aerodrome vacuum cleaner (apron, runway, taxiways), three times a week; FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc):
Yes.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Markings, signs and lights on site.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
RWY holding position marking on TWYs A1, B1, C1. Marking – 'RUNWAY AHEAD' – on TWYs A1, B1, C1. Mandatory instructions signs on TWYs A1, B1, C1. RWY guard lights on TWYs A1, B1, C1.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
SQMS, SMGCS.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Installation of additional signs and lights (see 5.2), permanent improving of Standard Operational Procedures.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Annual programme upgrading professional skills of airport staff. Training and testing of aerodrome users and, drivers twice a year.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes, according to Chapter 5 of the Aerodrome Operator Manual and Recommendations of Doc 9859.

6. BIRD AND WILDLIFE CONTROL

6.1 Do your staff attend recognised bird control training courses?
Yes. Wildlife control and reduction training course.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Bird Gard Super Pro AMP, 11 units; Bird Gard Super Pro PA4, 8 units; Mobile Bird Gard Super Pro, 2 units (installed on the special cars); Garden Protector 2, 2 units; smoothbore guns and flash-fire rockets; petards.
6.4 Do you carry out a bird strike risk assessment?
Yes.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Our airport also has problems with dogs, rabbits and foxes (runway, taxiway and apron incursions). Against animals: Garden Protector 2; smoothbore guns; flash-fire rockets; and petards are used (scaring procedures).

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Mercedes Benz 3350; 6X6; 9,000l water, 1,200l foam solution, 500kg dry chemical powder, and 120kg CO2; 2008; 2 units.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Rapid response vehicle, 4X4.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Chisinau International Airport (LUKK) doesn't possess a Fire Training Simulator.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
November-April.
8.2 Average annual days of snow: 15-20 days.
8.3 Average snow depth: 4-6cm.
8.4 Maximum snow in 24 hours: 20cm.
8.5 Annual number of days of de-icing activities:
15-25 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
Aerodrome division – 16 persons.
Drivers – up to 22 persons.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose,





manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Compact jet sweeper, Schmidt, CJS 914 Super II MB, 4 units; snow clearing Schmidt Supra – 4001, 1 unit; snow clearing Valtra N141h and T171h, 2 units; snow plough, DE – 224A, 1 units; thermal machine TM – 59, 1 unit; spreader for solid de-icers, 2 units; combined liquid and solid spreader, 1 unit; scrapper RMG-4B, 2 units; front loader, 2 units; grader, 1 unit.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Clearance priorities: 1. Runway, TWY's B1, B2, C1, D (between TWY's C1 and E), E, apron taxiway, apron and parking positions, access road from fire station. 2. TWY D (between TWY's E and B1), TWYs A2 and A1, road to the fuel storage. 3. TWY C2, cargo apron, roads.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: From centreline (around the runway, TWY, aprons) to edges, depending on direction and intensity of wind.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
3.5 hours.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Traditionally effective solid is used, HKMM (Russia), and liquid (Nordiks -P) de-icers.
12.2 Comment on storage capabilities of the chemicals that you use:
According to manufacturer recommendations.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: Aircraft anti/de-icing operations are provided by ground handling agents.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
On the parking area.
14.3 Is glycol recovered? If so, please state methods:
No.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
ASFT, AFM-2, skiddometer BV11.

COPENHAGEN

Copenhagen Airports CPH

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Copenhagen Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY 04L-22R: Asphalt, 216,000sqm. RWY 04R-22L: Asphalt, 198,000sqm. RWY 12-30: Asphalt, 192,000sqm. Taxiways: Asphalt, 1,500,000sqm. Aprons: Concrete, 1,210,000sqm. Transport roads: Asphalt, 290,000sqm.
2.2 Landing aids for each RWY (e.g. CAT II): RWY 04L: CAT II; RWY 04R: CAT I; RWY 12: CAT I; RWY 22L: CAT III; RWY 22R: CAT I; RWY 30: CAT I.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Yes.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: The danger of Foreign Object Damage, and how to prevent FOD being a safety hazard, is an integrated element of Copenhagen Airport's (CPH) apron training.
b) Inspection by airline, airport, and airplane handling agency personnel: This is done repeatedly four to five times every 24 hours by personnel from the Airports Traffic Department.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): This is done by sweepers, magnetic bars and FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): This is done by the Airside, Safety, Operational & Technical Committee.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): CPH uses GIS (Geographical Information System) to provide documentation of what kind of FOD and where it is found. This database is also used for producing statistics and trend analyses.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
The usage of ASMGCS and visual observations.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Not during the last year.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
A-SMGCS.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Provision of H24 stop-bars supplemented with instruction markings/enhanced taxiway centrelines has made holding positions visible with a noticeable potential to reduce the number of runway incursions. More visible runway guard lights, based on high power LED technology, will complete the achievements related to runway incursions.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
All persons who wish to operate on their own outdoors on airside must pass the theory course and test as well as the subsequent practical test required in order to obtain an Airside Traffic Permit. At Copenhagen Airport we operate five different types of drivers permits, depending on how close to air traffic you operate. Every person holding an Airside Traffic Permit must pass the refresher training required at least every third year in order to have the permit renewed.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: CPH retains the main grass areas with tall grass (above 50cm) in periods with high numbers of gulls and lapwings. For the rest of the year, the grass length is between 21 and 30cm. CPH covers permanent water areas with nets, and works towards a reduction of any temporary fresh water pools. Additionally, CPH wants to reduce the wooded areas known to attract wood pigeons, magpies and crows.
6.1 Do your staff attend recognised bird control training courses?
Yes.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Pyrotechnics, shotguns, dogs, green lasers, traps for crows and distress calls.
6.4 Do you carry out a bird strike risk assessment?
Yes, monthly, and a revision of the risk values for birds is carried out once a year.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes, and the bird controllers log their activities at least twice an hour.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Yes, with hares, and they are being reduced to the lowest possible number by a regular hare-shooting.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: 2x Rosenbauer Panther; 6X6; 11,000l water, 225kg dry powder, HRET snozzle; 2008. 2x Rosenbauer Panther; 6X6; 12,500l water, CAFS; 2013 & 2014. Rosenbauer Panther; 6X6; 12,500l water, CAFS; 2007 – spare.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Sea rescue vessel (2019).
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Yes.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
November-April.
8.2 Average annual days of snow:
11 days.
8.3 Average snow depth:
10cm.
8.4 Maximum snow in 24 hours:
42cm.
8.5 Annual number of days of de-icing activities:
91 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
50 airport-employed and no sub-contractors.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example,





compact jet sweeper, Schmidt, CJS 720, 4 units): Sweeper, Øvreaasen RS400, 11 units; sweeper, Øvreaasen SB470, 5 units; sweeper, Øvreaasen RS200, 6 units; snow blower, Øveraasen TV 110-150- 825S, 1 unit; snow blower, Oshkosh H2718B, Highspeed, 3 units; snow blower, Viking UTV, 1 units; tractor, John Deere, 4 units; tractor, Lundberg Hymas 7200 LSE, 2 units; tractor, Caterpillar, 2 units; tractor, Lundberg Hymas 4200 LS, 5 units; tractor, Kubota 135 hk, 5 units; tractor, Kubota 95 hk, 9 units; tractor, Holder/Kubota, 6 units; friction tester, SAAB, 2 units; anti-icer spreader, Damman spreader (40m), 2 units; anti-icer spreader, Epoke 1520/SW5015, 2 units; anti-icer spreader, NIDO Stratos, 3 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Priority 1: Primary runway and deicing platforms expected to be used, as well as adjoining holding positions and taxiways. Access road for deicing vehicles between the fluid tanks and the platforms. Access roads from fire stations to the runway system (including rescue road Sandumsvej). Aircraft stands (including bus-served stands and stands without air bridges), apron taxiways and areas where airline passengers walk on the apron. (Note: The exact clearing order will be arranged between the Snow Superintendent and the Stand Allocation Unit, and subsequently coordinated with Naviair/apron during the snow clearing process. On Apron East the clearing process will be arranged based upon the actual traffic information available.) The operational area on each aircraft stand, i.e. an elongated area along the stand centerline, which must be swept and cleared in order to ensure that the aircraft and the pushback tug can manoeuver, and that ground handling can take place securely. Priority 2: Secondary runway with adjoining holding positions and taxiways. Access road to collecting tanks at De-icing Platforms A, B and V. Priority 3: Third runway. Remaining taxiways. Secondary aprons and maintenance areas. Other areas for pedestrians.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: Field Service and TOWER will make mutual arrangements when inspections, friction measuring, and the initiating of winter services are required on the Manoeuvring Area. A column of snow clearing equipment typically consists of a foreman in a leading car – Friction tester, 12 sweepers, 2 blowers and 1 de-icer (Damman 40m). This makes it possible to clear a runway in 'one run" in 15 minutes. During snowfall and sleet, Field Service will usually arrange with TOWER if Runway 12/30 should not be used for taxiing until swept and cleared. This helps to prevent the formation of frozen ruts and ridges on the runway surface, which usually proves very hard to remove afterwards. Braking action is measured by a SAAB Friction Tester vehicle using high-pressure measuring wheel. The measuring equipment is calibrated for a full runway length, and if the measuring process is interrupted, it must start again from the beginning. In a normal snow clearing process Runway 04R/22L and Runway 04L/22R can be cleared to a width of 55-60m, whereas Runway 12/30 can "only" be cleared to a width of 45m (i.e. full runway width, excluding shoulders). Typically, the shoulders of Runway 12/30 will not be cleared until later when time is available. The clearing process will continue until all ice deposits are removed on the runways. Following each snow clearing, ETG will inspect the lights on the particular runway, before it is released by ETG. Field Service must, as far as possible, take care that snow is not thrown into the ILS critical areas, and that visual aids (signs) are not covered by snow. If this cannot be avoided, clearing or levelling of particular areas will be initiated immediately afterwards. When passing the de-icing platforms, the driver of the snow thrower must take care that snow is not thrown onto the platform surfaces, as large quantities of melt water may cause the fluid collection tanks to run over, thereby closing the platform. The Snow Superintendent arranges with Naviair/APRON and the Stand Allocation Unit when inspection, friction measuring and snow clearing is required on the aprons. Arrangement of the order in which snow clearing takes place on aircraft stands is normally coordinated between the Snow Superintendent and the Stand Allocation Unit. Special requests should be directed to the Stand Allocation Unit, which then will forward them to the Snow Superintendent. Use of apron sections for temporary storage of snow or equipment is arranged between the Stand Allocation Unit and Field Service. Depositing of snow must not take place on the de-icing platforms. Communication on FM Channel 3 is managed by Naviair/APRON. When required due to the weather conditions, the ground handlers and airline operators must make arrangements to ensure that necessary staff will be available for removal of the aircraft and tidying up of stands. If this is not possible, the Stand Allocation Unit must be notified immediately. Ground handling crews must tidy up the stands to prevent cables, wheel chocks or tip cones from being left behind. Such objects are likely to cause a major breakdown of a snow sweeper or snow blower, if ingested during the clearing process. The users may be notified via SMS in case Field Service expects an increased winter service readiness level, which may require extraordinary summoning of ground staff. User registration to the SMS-notification service can be achieved by emailing the Traffic Manager. As the SMS system may be unreliable at times, users are reminded that they are still responsible themselves for keeping updated on current weather forecasts via the medias.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
15 to 20 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Primarily formate-based thawing agents are used to combat snow and ice on runways and taxiways. This includes: Aviform L50, a liquid potassium-formate product which is used for the de-icing of runway, taxiway, and apron surfaces, as well as the humidifying of granulates. CAS-No. 590-29-4*. Aviform S–Solid, a granulated sodium-formate product, which is used for the de-icing of runway and taxiway surfaces, and which is humidified with Aviform L50. CAS-No. 141-53-7. Both agents comply with the international SAE AMS 1431B/1435A standard.
* For the record, the CPH practice regarding use of Aviform L50 takes fully into account the potential risk of reduced holdover time for aircraft anti-icing agents when mixed with runway deicing fluids, as discussed in EASA Safety Bulletin No. 2010-26R1, dated 23.02.2011.
Quantities used last year: Aviform L50: 500,000l. Aviform S-Solid: 100,000kg.
12.2 Comment on storage capabilities of the chemicals that you use:
Liquid de-icer is stored in two 55,000l tanks. S-Solid in stock – 30,000kg.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Aviform S-Solid is mixed in ratio 1:1 with Aviform L50 to avoid "blow-away", and thereby provide high efficiency.
12.4 Have you experienced any corrosion problems with de-icers?
No, CPH has not experienced corrosion problems above normal, when performing corrosion control programs.
12.5 Have you employed any special means to economise on chemical use?
Yes, CPH can keep the use of chemicals down to a minimum, due to the very good weather forecasts from our Forecast Module, which makes it possible to economise on chemical use.
12.6 Do you have any other comments on experience with chemicals?
Yes, we are testing the use of Aviform L25 and a mix of Aviform L50 with 50% water for use in non-aircraft zones.
12.7 Do you use other chemicals or sand on operational areas?
The following can be used: Quartz sand, in accordance with the national snow plan in AIP Denmark, the grain size of the sand used must not exceed 0.4mm. Sand containers for common use are distributed all over the apron area. Ordinary road salt (sodium chloride) may still be used on some isolated parts of the airport, which are properly screened-off from areas with aircraft traffic. Note: Road salt must not be used on airside roads and open spaces situated within 50m from the edge of areas with aircraft operations, and where there is an obvious risk that vehicles may drag saline particles onto aircraft stands, taxiways, or runways.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: The Ice Warning System is a Vaisala system. The system consists of 28 surface sensors. Data is collected via a TCP/IP network. It is implemented in the national system for road authorities in Denmark and can be seen via the internet.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
No.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
No comments.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
No, aircraft de-icing is provided by handling companies.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
We have dedicated de-ice positions.
14.3 Is glycol recovered? If so, please state methods:
The de-icing platforms are connected to a drainage system, from where the used glycol is collected in tanks and transported for use in a local wastewater treatment plant. No re-use at the airport.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
2 units of the SFH Saab friction tester.
15.2 Have you any comments on the reliability of friction indexes?
Full reliability.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any





of your airport's methods?
New methods and patterns in the column of sweepers/snow blowers are continuously tested to obtain more effective results.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
No comments.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
No comments.
16.4 Do you have any winter services equipment that you would like to sell?
No comments.

DUBROVNIK

DUBROVNIK AIRPORT
ZRAČNA LUKA DUBROVNIK

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Dubrovnik Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY12: 3,300mx45m, TORA 3,300m, TODA 3,300m, ASDA 3,300m, LDA 3,150m.
RWY30: 3,300mx45m, TORA 3,300m, TODA 3,300m, ASDA 3,300m, LDA 3,300m.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY12: CAT I 900m W VRB LIH, PAPI 3 BOTH.
RWY30: SALS 420m R VRB LIL, PAPI 3.2 BOTH.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Yes, risk and hazard identification is preventive part of our SMS and it is under constant improvement also according to the reappraisal of risks and hazards identified by internal/external SMS audits.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: All airside pass holders have FOD awareness training as a part of Airside Safety and Airside Driving Training.
b) Inspection by airline, airport, and airplane handling agency personnel: Regularly, two times per day (before airport opening and immediately after sundown) and before any movement of aircraft in case of absence of movements for more than one hour. In case of bad weather conditions more often checks are performed. Also, parking stands are checked every time before parking of aircraft is performed and before aircraft engine start.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc):
Sweeping, carpets, FOD bins.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Airside Safety and Airside Driving Training, Safety promotion/FOD awareness theme is discussed on ASC meetings.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
All data related to FOD control are recorded in internal software according which analysis is done.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Visual and radio communication.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
No, since we have very simple aerodrome layout.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
None, since we have very simple aerodrome layout.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
None.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Airside Safety and Airside Driver Training is mandatory for all relevant personel.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Due to increased Herring gulls activity on and in the vicinity of aerodrome, we have short and long-term measures and procedures defined in Aerodrome Manual, chapter 4.12.
6.1 Do your staff attend recognised bird control training courses?
Yes.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
They are working continuously as a part of Rescue and Fire Fighting brigade.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
1 rocket pistol (Pistolet lanceur calibre 18.6mm, multipropulseurs), 3 gas cannons (Guardian 2), pyrotechnics, vehicles with sirens, shotguns.
6.4 Do you carry out a bird strike risk assessment?
Yes, according to the data collected during daily monitoring activities and birdstrikes.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
ZIEGLER TITAN (Z6), 6x6, 12500L/water, 1500 L/foam, 250 kg/powder, year 2013. ZIEGLER MAN (FLF 60/91-11), 6x6, 9100 L/water, 1100 L/foam, year 2002. ROSENBAUER – OSKHOSH (FLF 10000), 6X6, 9000L/water, 1000 L/foam, 250 kg/powder, year 1982. ROSENBAUER – TITAN (SIMBA), 8X8, 11600 L/water, 1200 L/foam, 2000 KG/powder, year 1985. MAZDA – ZIEGLER PICKUP, 4x4, 200 L/water, 10 L/foam, year 2009.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
No FTS available.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
31 October-31 March.
8.2 Average annual days of snow:
1-2 days.
8.3 Average snow depth:
1-2cm.
8.4 Maximum snow in 24 hours:
5cm.
8.5 Annual number of days of de-icing activities:
1-2 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
No dedicated winter service personnel available. In case that it is needed, GHA ground support equipment drivers and RFF staff form winter service unit.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Snow plug, 3 units; sweeper truck, 1 unit; spreader (urea), 2 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
1-RWY (12-30), 2-TWY (B, C), 3-APRON (STANDS P8-P12).
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
They are not defined.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
In 3-5 hours.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Urea, 1,000 kg.
12.2 Comment on storage capabilities of the chemicals that you use:
None.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
None.
12.4 Have you experienced any corrosion problems with de-icers?
No.
12.5 Have you employed any special means to economise on chemical use?
No.
12.6 Do you have any other comments on experience with chemicals?
No.
12.7 Do you use other chemicals or sand on operational areas?
Yes, sometimes we use sand or salt on apron area.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/





de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
Yes, IVECO – BLUMENBECKER 100E15, 1 unit.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
We do de-icing on the parking area.
14.3 Is glycol recovered? If so, please state methods:
No.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
AEC AB SYSTEM BV-11 Skiddometer.
15.2 Have you any comments on the reliability of friction indexes?
No.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
Yes.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
No.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
No.
16.4 Do you have any winter services equipment that you would like to sell?
No.

EXETER

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Exeter International Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas. (For example: total RWY length (or lengths), Take Off Run Available [TORA], RWY width, shoulder widths, total apron area, ramp area, other)
Runway 08/26: 2,076x46m. RWY Designator: 08. TORA (m): 2,037, TODA (m): 2,255, ASDA (m): 2,037, LDA (m): 2,037. RWY Designator: 26. TORA (m): 2,076, TODA (m): 2,657, ASDA (m): 2,076, LDA (m): 2,037.
2.2 Landing aids for each RWY (e.g. CAT II):
Runway 08/26 Cat I.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
The airport holds a fully integrated management system, which incorporates the SMS. The system is reviewed annually, following audit, changes in procedures and occurrence reporting and is accredited by BSI to ISO 9001, 14001 and 18001.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: All Airfield Operations & Bird Control staff trained as required, and assessed annually. A member of the Airfield Operations team holds the role of FOD Officer to monitor FOD found, investigate and stop source and raise general FOD awareness across the airport.
b) Inspection by airline, airport, and airplane handling agency personnel: Airport personnel.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): FOD Boss and mechanical sweeper on a programme and an ad-hoc requirement basis. FOD bins across airfield.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc):
Quarterly Airfield Users and Apron Users Safety Committees, Local Runway safety Team.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments.):
No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
VCR.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
No.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
N/A.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
All runway hold points have designator, enhanced centreline and runway ahead markings installed.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Airfield training and campaign awareness to all airside users. A three-tier airfield driver permit and competence scheme in place.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes, via the Local Runway Safety Team and promotion of an open reporting just culture.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Long grass policy employed, consultation with local landowners and general wildlife management.
6.1 Do your staff attend recognised bird control training courses?
Yes.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuously during daylight hours.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Recorded distress calls from Scarecrow Bio-Acoustic Systems, pyrotechnics, shotguns.
6.4 Do you carry out a bird strike risk assessment?
Yes.
6.5 Do your staff log all their bird control activities? (to manage success in dealing with the problem, and to use in defence in case of lawsuits):
Yes.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Combined wildlife management programme.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
3x Cobra major fire appliances.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
N/A.

PART 2: WINTER SERVICES QUESTIONAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
November-March.
8.2 Average annual days of snow:
2 days.
8.3 Average snow depth:
4mm.
8.4 Maximum snow in 24 hours:
17mm.
8.5 Annual number of days of de-icing activities:
7 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
8.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (For example: compact jet sweeper, Schmidt, CJS 720, 4 units):
4x ploughs; 1x Sicard snow blower; 1x CJS 720, runway de-icer, 5,000 litre capacity; de-icing towable bowser, 2,500l capacity; de-icing towable bowser, 1,000 litre capacity

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
08/26, Taxiway Bravo, main Apron, Taxiway Charlie, Taxiway Echo, Taxiway Alpha, Taxiway Golf.
11.3 After moderate snow, how quickly do you expect to achieve "black top" on the runway?
2-6 hours.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc.:
Konsin and Isomex.
12.4 Have you experienced any corrosion problems with de-icers?
No.
12.5 Have you employed any special means to economise on chemical use?
Improved metering.
12.7 Do you use other chemicals or sand on operational areas?
No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
N/A.
13.2 Have you plans to purchase further ice warning systems and if so which model(s)?
No.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
2 units provided by Flybe Aviation Services.
14.2. Are you required to have dedicated de-icing





positions or do you de-ice on the parking area?
Parking areas.

FARNBOROUGH

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Farnborough Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
Runway 06: TORA 2,000m; TODA 2,060m; ASDA 2,590m; LDA 1,800m. Runway 24: TORA 2,063m; TODA 2,132m; ASDA 2,440m; LDA 1,800m. Runway 06/24: 2440x46m. Ramp Area: 95,430sqm. Apron: 53,000sqm.
2.2 Landing aids for each RWY (e.g. CAT II):
ILS to CAT 1.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
No, although a full review of the SMS was undertaken this year (to be published October 2014) and the policy and principles remain the same.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: All staff undertake an induction course where the FOD is brought their attention.
b) Inspection by airline, airport, and airplane handling agency personnel: A full airfield inspection is carried out twice a day and all ramp staff are trained to continually monitor the area they are working for FOD.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): The whole airfield is dived into 7 and one area per day is subject to mechanical sweeping. FOD bins are positioned at various places both landside and airside.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): All aircraft handling is carried out in-house.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
None.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
VHF and UHF radio with ATC.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
All runway stop-bars are lit whilst the airfield is operational. Stop bar have been changed to LED along with enhanced taxiway markings approaching holding points.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
None.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
See 5.2.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
All airport drivers are required attend company driving course and pass an exam. Various categories of licence are issued with licences that require runway access are kept to the minimum.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Habitat management consists of long grass policy, continuous surveillance throughout operational hours, active dispersal of birds by mobile patrols and intelligent gathering and record keeping to produce sound data which are used to base any modifications to our bird control policy.
6.1 Do your staff attend recognised bird control training courses?
No. This training is carried out in house.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuous during hours of operation.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Scarecrow digital distress calls.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Birds are the main wildlife issue with an occasional fox which are chased off as and when.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Rosenbauer Panther; 6X6; 2008. Rosenbauer Panther; 6X6; 2013. Carmichael Cobra 2; 6X6; 2004.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Not currently.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Yes, we have a Cat 7 training rig that is available for use by other airports.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
November-March.
8.2 Average annual days of snow:
3 days.
8.3 Average snow depth:
2cm.
8.4 Maximum snow in 24 hours:
5cm.
8.5 Annual number of days of de-icing activities:
Varies from year to year, but average of 20.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
9.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
2x SMI – SW324 Runway Sweepers pulled by John Deere Tractors; 2x Bunce SNOPRO Runway Snowploughs mounted on John Deere Tractors; 2x Bunce Mikro 81 Sweeper /Snowplough mounted on John Deere Tractors; 1x trailed 3500 litre de-icing rig towed with John Deere Tractors; 1x 1800 litre tractor rear mounted de-icing rig.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
Minimum requirements before aircraft operation can begin: Clear runway to minimum of 30m width. Clear Cat 1 taxiway route. Clear adequate apron area to accept planned arriving aircraft.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Both runway snow sweepers clearing snow in a chevron formation. Cat 1 taxiway cleared to min taxiway width this is generally one pass.
11.3 After moderate snow, how quickly do you expect to achieve "black top" on the runway?
1 to 2 hours.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Konsin – last year we used approximately 3,000 litres (very mild season). This product is very effective with holdovers of at least 24 hours.
12.2 Comment on storage capabilities of the chemicals that you use:
We can store 95,000 litres.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Not used.
12.4 Have you experienced any corrosion problems with de-icers?
No.
12.5 Have you employed any special means to economise on chemical use?
Computerised delivery.
12.6 Do you have any other comments on experience with chemicals?
No.
12.7 Do you use other chemicals or sand on operational areas?
No.

14. AIRCRAFT DE-ICING

14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
De-icing on parking areas.
14.3 Is glycol recovered? If so, please state methods:
Not recovered .

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
Griptester Mk2.
15.2 Have you any comments on the reliability of friction indexes?
No.





FARO

ANA Aeroportos de Portugal

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Faro Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY length: 2,490m; RWY width: 45m; TORA: 2,490m. TWY A/B/C1/C2/D/E/F/P/RD/RG: 23m. Main Apron: 271,061m.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY 28 – CAT II.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
No recent changes.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: No stand-alone training program. FOD training is included in the Airport Rules and Regulations Training.
b) Inspection by airline, airport, and airplane handling agency personnel: Permanent inspections by airport operations.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Airport uses sweepers, FOD bins at all parking positions.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Coordination and reporting done by airport operations
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Aircraft and vehicle movements, on manoeuvring area are controlled and coordinated by local ATS (TWR). ATS (TWR) and Airport Operations have a local protocol to regulate the remaining airside of airport.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Apron breakaway points to clear aircraft taxi in/out to parking positions.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
Aircraft movement control during low visibility operations (CAT II) with active taxiway lighting guidance system with intermediate holding position lights, stop-bars and microwaves beam.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
ICAO Annex 14 – Markings, signage and lighting installed. Runway guard lights are installed.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
All drivers have an initial training programme. Yearly, safety campaigns involving major handlers and all drivers.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Reporting procedures according National Law and EU Directive 2003/42.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Habitat management policy includes: Drainage of the accumulated rainwater; vegetation maintenance (to maintain the height, and the trees are cut back near the runway or taxiway centre line); priority to the not-attractive vegetation species; minimise the shelter points (holes on the walls are covered, application of measures to avoid the nesting).
6.1 Do your staff attend recognised bird control training courses?
Environment Department seminars integrated in safety campaigns.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Yes. Dedicated bird control staff (from sunrise till sunset).
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Bird control is using: Gas canon, falconry, recorded distress calls and pyrotechnics.
6.4 Do you carry out a bird strike risk assessment?
Yes.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes. Bird Strike Database and census for species, bird movements and bird flocks lead by (Faro Airport Environment Department).
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Oshkosh Strike 00-001; 12,000l water, 1,500l foam, 250kg dry chemical powders. Oshkosh Strike 00-007; 12,000l water, 1,500l foam, 250kg dry chemical powders. Oshkosh T1500 00-002; 6,000l water, 776l foam, 320kg dry chemical powders. Titan E-One 00-003; 12,000l water, 1,500l foam, 230kg dry chemical powders.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Yes. 1 CFR vehicle – end of 2016.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
No.

PART 2: WINTER SERVICES QUESTIONNAIRE

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
1x Mu-Meter, 1x ASFT.
15.2 Have you any comments on the reliability of friction indexes?
No comments.

GENEVA

GENEVE AÉROPORT

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Genève Aéroport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas. (For example: total RWY length (or lengths), Take Off Run Available [TORA], RWY width, shoulder widths, total apron area, ramp area, other):
Runway 05/23: Concrete, 190,000sqm. Taxiways: Concrete, 190,557sqm. Apron: Concrete, 596,100sqm. Parking: Asphalt, 110,685sqm.
2.2 Landing aids for each RWY (e.g. CAT II).
Runway 23 is equipped for approaches in CAT I/II/III. Runway 05 is equipped for approaches in CAT I. The missed approach procedure use the VOR/DME of SPR and GVA.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Genève Aéroport (GA) introduced and implemented an SMS in several phases. This phased approach is in line with ICAO guidance, as well as requirements defined by the Swiss Federal Office for Civil Aviation (FOCA). A full scale SMS has been implemented including all key processes. These include Policy and Objectives, Risk Assessment and Management (hazards identification and mitigation methods), Performance Monitoring (auditing, reporting system, investigation and change management), and Promotion (communication and training activities). The SMS as a management tool facilitates the making of continuous assessment of and improvement to the overall level of safety, in order to become more efficient and proactive. The Aerodrome Manual of GA, which contains over 180 operational procedures, has been accepted and certified by the Swiss Federal Office for Civil Aviation. GA received its initial Aerodrome Certification in December 2006, and was successfully recertified, according to ICAO standards and FOCA requirements, in November 2010 and November 2013. The Aerodrome Certification is now valid for three years with a recertification audit planned for 2016. EASA Certification standards, according to the new EASA rules for aerodromes, are currently under study in order to be ready for future processes.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
b) Inspection by airline, airport, and airplane handling agency personnel: Runway inspections are carried out six times a day. All aircraft positions are swept once a day. The apron is swept once a week. The links are swept once a week. The taxiways are swept once a week and the runway is swept once a month, or on request.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): All positions are checked for FOD before arrival and on departure of the aircraft. Sweepers and FOD containers are used.
d) Co-ordination of multiple agencies using





airport (airlines, handling agents etc):
The FOD inspection is carried out in coordination with multiple airport users.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments.)
No special systems or software are used.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
The primary method of monitoring vehicle and aircraft movements on the ground is visual observation.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Runway incursion protection equipment currently includes: alternating yellow lights installed at CAT I holding points (A, G); mandatory runway markings (23-05) are painted at all CAT I holding points, in accordance with FOCA guidance; wig-wag lights are installed at all CAT I holding points; lighted red stop-bars are installed at all CAT II/III holding points (used only in LVC); ICAO-standard signage and markings at all runway entrances.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
An A-SMGCS (Levels 1 and 2) based on Park-Air with Sensis multilateration system and Terma SMR is used as an additional monitoring tool.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
On the two north taxiways (Y, Z), wig-wags have been installed. Due to the proximity of the runway to the apron, stop-bars on taxiways C, D and E are always illuminated. A-SMGCS Level 2 is implemented.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Two specific programmes for drivers are in place (apron and manoeuvring area).
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
All incidents on the manoeuvring area are reported and analysed by the Safety Office according to the directives of the Swiss regulatory authority (Federal Office of Civil Aviation) based on ESARR.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds.
At GA the following ecological measures predominate: Grass cut to a height between 15 and 20cm; elimination of trees and bushes along runways; the use of liquid or solid manure or residues from waste treatment plants is prohibited; tilling of the soil and cultivation of cereal crops is not permitted; the presence of stagnant or exposed water is avoided (drainage); nesting control; building and infrastructure adaptation.
6.1 Do your staff attend recognised bird control training courses?
Yes, staff attend specific courses but are also provided with special wildlife management training courses trough the Airtrace Training Center (www.airtrace.ch): International Master's programme for Wildlife Hazard Prevention Specialists; International Bachelor's programme for Wildlife Hazard Prevention Agents; Introduction to Wildlife Hazard Prevention Course; Informational seminars on wildlife hazard prevention.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
The wildlife hazard prevention unit works from dawn till dusk every day of the year. Bird watching and daily reports of species present in the airport enclosure take up most of the daily activity. All collected data is recorded electronically.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Exploding cartridges (6 and 9mm), whistling cartridges (6 and 9mm), mid-range exploding cartridges (26.5mm), long-range silent, then exploding, rockets (Lacroix Capa) discharged from 26.5 pistols, bird scaring laser (handheld), acoustic broadcasting of natural and synthesised distress calls (mobile recorder and speaker, in the car), 30 stationary units of electronic generators (Efbitech 300W) and 2 units mobile, fixed on a trailer, bird strike prevention vehicle fully equipped with net, cage, disinfectant, insecticide.
6.4 Do you carry out a bird strike risk assessment?
Activities are recorded in real time in the prevention vehicle by a database system especially dedicated to wildlife hazard management (software called AWHM (Airport Wildlife Hazard Management)). A general report including all the activities of the wildlife hazard prevention unit is published every two years. In addition, statistics are published which include precise records of bird strikes and wildlife observations. The wildlife hazard prevention unit is audited several times a year according to the environmental, quality and safety system, certified ISO 9001, ISO 14001 and OHSAS 18001. A complete risk assessment is carried out every year according to the MANIRA-Airport methodology (analysis methodology for the indicative level of wildlife risk for an airport).
6.5 Do your staff log all their bird control activities? (to manage success in dealing with the problem, and to use in defence in case of lawsuits):
All the activities, bird strikes, bird watching activities and works undertaken at the airport enclosure are centralised and recorded electronically in a daily report. All data is available at any time. Once a week, the environmental engineer in charge of the Wildlife Management Unit examines the daily reports and inscribes the specific activities of the agents (time, person, radio calls, intervention, solution) in a special log report.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
In exceptional circumstances an animal succeeds in forcing the fence and creating a hazard for aeronautical traffic. For this type of intervention, special procedures are in place with the local authorities to ensure the capture and the elimination (if necessary) of the animal (department for the protection of nature and landscapes).

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Ford command vehicle; 4X4; 2012. Ford headquarters vehicle; 4X4; 2012. Ford duty officer's vehicle; 4X4; 2011. Mercedes PCI transmission vehicle; 1992. Mercedes fire duty officer's vehicle; 4X4; 1997. Honda fire duty officer's vehicle' 4X4; 2014. 9x Volkswagen transport and escort vehicle; 2011. Smart escort vehicle; 2004. Opel transport and escort vehicle; 2007. Suzuki headquarters vehicle; 4X4; 2006. Rosenbauer extinguishing vehicle; MAN; 12,500l water, 1,500l extract; 2005. Rosenbauer extinguishing vehicle; MAN; 12,500l water, 1,500l extract; 2000. Rosenbauer extinguishing vehicle; MAN; snozzle; 11,000l water, 1,500l extract; 2008. Rosenbauer extinguishing vehicle; MAN; 12,500l water, 1,500l extract; 2003. Iveco emergency stairs; 1998. Mercedes Vogt extinguishing vehicle; 4,000l water, 500l extract, 205kg pulver; 2004. Mercedes ambulance; 2012. Mercedes ambulance; 2013. Mercedes ambulance; 2014. Ford ambulance; 4X4; 2003. Hänni Berce sanitary; 2000. Vogt Berce foam; 2004. Rosenbauer Tonner/Pioneer; MAN; 2,500l water; 2012. Dodge Ram Saturne replacement vehicle; 4X4; 2001. Mercedes; loading vehicle for Berces; 8X8; 2000. Deschamps Berce ground carpet; 2002. Hänni Aircraft Recovery; 2002. Boston boat of 2 rescue engines of 130HP; 1994. Mercedes DCH; 2012. Teklite projector with auxiliary engine; 2002. Luxomobile projector with auxiliary engine; 1985. Luxomobile chemical container; 2006.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Extinguishing vehicle (December 2014); emergency stairs (December 2014).
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Geneva International Airport currently does not use a Fire Training Simulator, but its installation is foreseen.

PART 2: WINTER SERVICES QUESTIONAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
1 November to 15 April.
8.2 Average annual days of snow:
2 days.
8.3 Average snow depth:
5cm.
8.5 Annual number of days of de-icing activities:
108 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
Command personnel, 3; command vehicles. 3; snow removal – runway and taxiways, 18; snow removal – apron, 18; snow removal line, 4; friction measurement, 2; maintenance, 4 (2 stand by); snow removal access roads, 4.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (For example: compact jet sweeper, Schmidt, CJS 720, 4 units):
Equipment for snow removal on runway and taxiway: Sweeper blower, Boschung, Jetbroom 8.40m, 10 units; sweeper blower, Boschung, Jetbroom 6.40m, 2 units; sweeper blower, Boschung, Jetbroom and spreader 6.40m, 1 unit; snow blower, Rolba, 3 units; Solid/liquid spreader, Boschung, 4 units; friction tester, Saab, 2 units. Equipment for snow removal on other surfaces: Small snowplough with spreader, Boschung-Reform, 4 units; snow blower, Rolba, 3 units; small snow brushes, Boschung, 4 units; tractor with pusher blades, 6 units; truck with blades, 3 units; haul truck, 35 units; loader, 7 units; blower, Rpm-Tech AF1, 1 unit; tractor with blade for runway light, New Holland, 1 unit. Glycol absorbers: Sweeper and absorber, Boschung 7000, 1 unit; sweeper and absorber, Bücher 8000, 1 units; sweeper and absorber, Boschung, Jetbroom, 2 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
Priority 1: Runway, Priority 2: Taxiways, Priority





3: Apron South and Apron North – General aviation, Priority 4: Parking area and hangars.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Runway: Vehicles form a V, and snow is pushed to both edges of the runway by trucks equipped with snow-blades and sweeper-blowers. The operation of snow sweeping, including friction measurement, takes 30 minutes. The duty officer coordinates the operation with the ANSP. Taxiways: Vehicles are aligned diagonally. Trucks equipped with snow blades and sweeper-blowers push the snow to the edge of the taxiway. Apron: Vehicles are aligned diagonally. Trucks equipped with snow blades and sweeper-blowers push the snow from the centre to the edges of the apron, loaders load the snow on trucks which then evacuate it to the designated location.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
After moderate snow, 'black top' of the runway is usually achieved in 15 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc.
De-icers quantities used during the winter season 2013-2014: For runway and taxiway: Safeway KF Hot, 85,000l. For aircraft: Glycol type 1 – 532,157l; Glycol type 4, 536,158l.
12.2 Comment on storage capabilities of the chemicals which you use:
175,000l of Safeway KF Hot in tank, 40 tons of Safeway SF.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc.
GA has reliable experience with solid de-icers or mixing ratios with liquids.
12.4 Have you experienced any corrosion problems with de-icers?
GA has experienced some corrosion problems with de-icers.
12.5 Have you employed any special means to economise on chemical use?
For three seasons, the quantities of product applied have been optimised according to the weather (temperature and humidity). Each sprayer is equipped with the Boschung Thermomat system, which spreads the chemical after defined curve and pavement temperature. Handling agents also use pulsed air for de-icing in order to save litres of fluid.
12.6 Do you have any other comments on experience with chemicals?
Safeway KF Hot has been used since 2010 and Safeway SF since 1999.
12.7 Do you use other chemicals or sand on operational areas?
GA does not use sand.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
GA has sensors (active sensor to simulate freezing point and passive sensors for pavement temperature and humidity) that are installed on the runway in three locations, coupled to two weather stations on each end of the runway. Those sensors and weather stations report to an airfield services supervisor, who is also always informed about weather forecasts (Meteosuisse) and levels of runway de-icing fluids. The sensor and the weather station equipment are from Boschung Switzerland. We have also equipped one of our ASFT Friction Testers with two freezing point active sensors.
13.2 Have you plans to purchase further ice warning systems and if so which model(s)?
No.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems.
From what we can see, the system provides a good decision support.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
The handling agents carry out the aircraft anti/de-icing operations using special de-icing trucks.
14.2 Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
We de-ice only on the parking area.
14.3 Is glycol recovered? If so, please state methods:
Glycol is recovered by a truck which absorbs it on the apron. After use, glycol is put into a circuit where it is treated (no recycling).

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
Two ASFT friction-testing vehicles.
15.2 Have you any comments on the reliability of friction indexes?
No comment is made on the reliability of GVA's friction index. The two ASFT friction testers are certified before each winter season and the service reports sent to FOCA.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
Currently no major changes are planned in the airport's winter operations and procedures.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units.
No.
16.4 Do you have any winter services equipment which you would like to sell?
No winter equipment is currently for sale.

GRAZ

FLUGHAFEN GRAZ
- und so nah ist die Welt.

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Flughafen Graz Betriebs GmbH

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
Runway (17C/35C): Dimensions 3,000x45m (left and right, 7.5m shoulders), with shoulders 3,000x60m. TORA 17C: 3,000m, TODA 17C: 3,060m. TORA 35C: 3,000m, TODA 35C: 3,000m. Grass runway (17L/35R and 17R and 35L): Taxiways: A – width 23m, B – width 23m, C – width 23m, D – width 23m, X – width 10m, Y – width 15m. Aircraft parking: 13 positions for A/C Cat. C, or 4 positions Cat. D and 4 positions Cat. C. 2 positions A/C Cat. E. 32 positions till max. Cat. B. 6 positions for helicopter.
2.2 Landing aids for each RWY (e.g. CAT II):
35C: 35 C Cat II/III ILS. 17C: 17 C NInst.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome."
Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
No. We have external audit from the BMVIT (Austria) about the SMS.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
b) Inspection by airline, airport, and airplane handling agency personnel:
The control of FOD is done by the Deputy Operations Officer. He arranges the cleaning of the runway and taxiways with airblast sweepers. The apron is cleaned by means of a cleansing mat.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
No.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Marks, stoppers, rolling hold.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
No.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Functions very well, very few incidents.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Training of airside users.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
ANSB internal Occurrence Reporting System, SMS Safety Management System.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
We write announcements about birds or the contact of other animals with airplanes and file this. We also send them to the authorities.
6.1 Do your staff attend recognised bird control training courses?
No.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Shot guns and pyrotechnics.
6.4 Do you carry out a bird strike risk assessment?
No.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
No.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
No.





7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: ÖAF; 6X6; 9,000l water, 1,000l foam; 1993. Panther; 8X8; 12,500l water, 2,000l foam, 500kg powder; 2004. ÖAF; 4X4; 5,000l water, 500l foam; 1998. ÖAF; 4X4; 2,000kg powder; 1990. Z8; 13,500l, 1,650l, 500kg powder, 180kg CO2; 2010.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
We have no Fire Training Simuator.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
From 10 October-31 May.
8.2 Average annual days of snow:
15 days runway de-icing.
8.3 Average snow depth:
10cm.
8.4 Maximum snow in 24 hours:
30cm.
8.5 Annual number of days of de-icing activities:
90 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
8 people.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): airblast sweeper, Bucher Schörling, P17, 5 units; airblast sweeper, Överaasen, RS 400, 5 units; snow blower, Steyr TK 93/Kahlbacher; 1 unit; snow blower, Bucher Guyer, 1 unit; snow blower, Grizzly Dt 52/ Kalbacher, 1 unit; tractor with snow ploughs, Steyr, 3 units; spreader for chemical de-icing, Schmidt, 1 unit; spreader for chemical de-icing, Küpper Weisser, 1 unit.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
1. Runway (17/35), 2. Taxiway A,B,C,D, 3. Apron, 4. Taxiways X,Y.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
5 airblast sweepers for runs necessary for runway sweepers.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
12 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Runway de-icer: 100,000kg Harnstoff UREA; 9,000kg Safeway KA Hot (Fa. Clariant).
Comment on storage capabilities of the chemicals that you use:
For runway de-icer we have niroster tanks with 12,000l capacity. For aircraft de-icer we have niroster tanks with 24,000l capacity. Harnstoff (solid de-icer) 60 tonnes.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Urea is effective to -6 degrees. Under-6 degrees and below it is mixed with liquids (Safeway KA).
12.4 Have you experienced any corrosion problems with de-icers?
Urea and Safeway KA is very aggressive to metal parts.
12.6 Do you have any other comments on experience with chemicals?
Ice warning system.
12.7 Do you use other chemicals or sand on operational areas?
No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
Boschung SCU 2002 and GFS 2000 with four measuring action ions.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
No.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
Ice warning system helps to control use.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/ de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
Aircraft de-icing vehicle, Stalder Mercedes 1820, 1 unit; aircraft de-icing vehicle; Stalder Mercedes Atego 18, 1 unit; aircraft de-icing vehicle, Safeaero MAN 18.250, 1 unit.
14.2 Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
De-icing on the parking area.
14.3 Is glycol recovered? If so, please state methods:
No.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
Skidometer BV11, 2 units.
15.2 Have you any comments on the reliability of friction indexes?
No.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
Yes, we would change the airblast sweepers with larger models so we need less time for the clearing of the runway.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
Yes, we will change the airblast sweepers (Buch Schörling P17) with 3m working width to airblast sweepers with 5.5m working width.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
No.
16.4 Do you have any winter services equipment that you would like to sell?
No.

HAMBURG

Hamburg Airport

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Hamburg Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
Runways: 315,800sqm (RWY 05/23 and RWY 15/33). Taxiways: 320,600sqm. Aprons: 491,300sqm. Runway shoulders: 92,000sqm.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY 05: ILS CAT I, PAPI. RWY 23: ILS CAT II/IIIb, PAPI.
RWY 15: ILS CAT I, PAPI. RWY 33: LLZ/DME, PAPI.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome."
Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Mandatory basics for a Safety Management System according to ICAO, Annex 14 are established. Safety Manager nominated Aerodrome Manual is available. Safety-relevant processes have been identified and documented. Additional Runway Guard Lights have been installed at critical intersections. Additional Runway designator markings on floor at critical intersections. Authority audit conducted. Established ICAO conformity for 'single runway operation'. The following sub-committees are working for the Airport Safety Committee: Apron Committee – regular meetings every month; Adverse Weather Conditions Committee – regular meetings every two weeks during the winter period; Runway Safety Team – four times a year.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Part of regular training for all people designated to work on ramps before they start to work.
b) Inspection by airline, airport, and airplane handling agency personnel: Regular inspections are carried out as part of the mandatory ICAO airfield inspections at least four times a day. Inspections are carried out by the airport. Aircraft stands are inspected before and after each usage by airport and ground handling staff.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Routine maintenance on a daily basis and on special request using sweepers and/or magnetic bars.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Coordination and information via AOC (Airlines Operators Committee), Airport Users Committee, the Airport Safety Committee (ASC) and bilateral.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): N/A.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Guidance by means of RT (Apron Control, ATM) – traffic supervisors/'Follow Me' vehicles.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Installation of Runway Guard Lights, regular quality checks on signage and markings. Additional Runway Guard Lights have been installed at critical intersections.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
ASDE-X A-SMGCS Level I and II, including Sensor Techniques (Multilateration).
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:





Anything in addition to a single solution, e.g. A-SMGCS, is helpful, but it should be kept in mind that cockpit crews must not be overburdened and should have a chance to recognise and interpret signs, lights and markings during taxi. Hamburg Airport and the Deutsche Flugsicherung GmbH (DFS) – ATM provider for Germany – have signed a contract on establishing an A-SMGCS at Hamburg. The system is installed and has been fully operable since May 2010.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Regular awareness training for all employees acting as traffic supervisors, basic training for all people working on ramp areas.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
All activities are based on the European Action Plan for the Prevention of Runway Incursion, and are carried out jointly with Deutsche Flugsicherung and pilots (Runway Safety Team Hamburg).
Regular meetings (four times a year) take place.
A 'Hot Spot' map has been published.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Keep the grass high where possible; avoid clusters of bushes or hedges; destroy nests of crows and other so-called blackbirds; coverage of waste-water reservoirs to keep water birds away; counting/statistical records every fortnight.
6.1 Do your staff attend recognised bird control training courses?
Yes, every two years.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Pyrotechnics, shotguns.
6.4 Do you carry out a bird strike risk assessment?
At least twice a year (spring and autumn).
Counting/statistical records every fortnight.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Wildlife such as rabbits, foxes and occasionally deer – same procedure as with birds.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
4x Ziegler Z8; engine: MAN classic 12cyl.; 8X8; 12,400l water, 2x400l foam; 2008. 2x Mercedes H.L.F M2000; 4000l water, 400l foam; 2006. 1x TECHÜNERT 7.1817-01/ HBG, M.A.N FE 27.410 rescue staircase; 2005.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
MAN HLF M2000; 4000l water, 400l foam in 2011.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
In 2015, yes.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
1 November-31 March.
8.2 Average annual days of snow:
20-25 days.
8.3 Average snow depth:
4-6 cm.
8.4 Maximum snow in 24 hours:
12-15cm.
8.5 Annual number of days of de-icing activities:
30-35 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
Duty roster is based on 16 persons per shift.
Up to 25 additional persons are subcontracted.
Up to 5 persons for cleaning and sweeping by hand in areas where machines cannot operate (e.g. air bridges, remote boarding gates and the close vicinity of aircraft on stand).

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
11 snow ploughs, 11 airblast sweepers, 1 rotary snow plough, 3 front loaders, 1 turbine snow loader, 1 spreader for solid substances, 3 spreaders for mixed substances (solid and liquid), 1 liquid de-icer, 3 tractors with front sweepers, 1 spreader for solid substances with front sweeper, 1 spreader for solid and liquid substances with front sweeper.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
First: Runways. Second: Main taxiways according to runway in use. Third: Apron, then all other areas.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Depending on current weather situation, wind direction and velocity, up to 10 snows ploughs and sweepers will clear the runway in one direction forming a diagonal line. Firstly the mainly used taxiways connected to the runway in use will be cleared in the same way. At the same time, taxi-lanes on the aprons and A/C-stands are swept in sequence.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
25-30 minutes for each runway.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Liquid: Kaliumformiat, 600sqm; solid: Natriumformiat 50t. Good results at temperatures up to -15 degrees Celsius – three days in dry weather conditions.
12.2 Comment on storage capabilities of the chemicals that you use:
Sand-silo: 150sqm; liquid: 300,000l; solid: 60 big bags – 750kg each in store.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Good results were achieved by mixing solid and liquid.
12.4 Have you experienced any corrosion problems with de-icers?
No, but aircraft manufacturers spoke about a suspicion that the chemicals used might have a negative impact on carbon brakes.
12.5 Have you employed any special means to economise on chemical use?
Good results achieved using multi de-icing vehicles. Spreading is not related to speed, no wasting.
12.6 Do you have any other comments on experience with chemicals?
None.
12.7 Do you use other chemicals or sand on operational areas?
No.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
Yes. 8 units, manufacturer: "Vestergaard".
14.2 Are you required to have dedicated de-icing positions or do you de-ice on the parking area? De-icing is permitted on the aprons only (on stand)
14.3 Is glycol recovered? If so, please state methods:
No.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
2x VW SHARAN Friction Testers (ASFT).
15.2 Have you any comments on the reliability of friction indexes?
Higher liability of ASFT compared to SFT.

KATOWICE

Katowice AIRPORT

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Katowice Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY 09/27: 168,000sqm. Total RWY length: 2,800m; TORA: 2,800m; width: 60m. TWY A: width, 23m; TWY B: width, 28m; TWY D: width, 23m; TWY E1,2,3: width, 23m; TWY F: width, 35m; TWY S: width, 50m; total apron area: 153,495sqm – 40 parking positions.
2.2 Landing aids for each RWY (e.g. CAT II):
CAT I – lighting aids: RWY 09 – Simplified approach lighting system 'cross', with axis length 420m and bar 300m from THR. LIH. RWY 27 – Precision approach Category I lighting system (Calvert system). LIH. Radio aids: RWY 27 – ILS instrumental landing system and glide path, meteorological Vaisal's system – D-VOR.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome."
Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Yes. Changes concerning low visibility procedures, animal control, and signage/marking of aprons and taxiways have been done after internal and CAA audits. A new SMS manual is being prepared (in Polish).

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Training by Duty Officer mandatory for all employees and valid for two years.



b) Inspection by airline, airport, and airplane handling agency personnel: Inspection of runway and taxiways four times a day. Inspection of parking positions is performed before every use by the marshal and ramp agent.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Maintenance performed by sweeping and FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Described in Airport Operational Instruction approved by Civil Aviation Office. Responsibility of co-ordination: Duty Officer.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
We do not have any software solutions. FOD is controlled by using OLH-4500 Madro/ runway sweeper and visual checks.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
The method we use is SMGCS and visual observation in the manoeuvring area by TWR.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
A tight fence round the area of the airport; visual observation and cameras monitored by airport security and thermographic cameras.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
We do not have any safety devices yet.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
We use warnings of road signs, light signs and high-visibility vests.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
There are mandatory trainings about behaviour and awareness in operational areas.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes, there have been incidents which were reported to the Duty Officer & Safety Manager. The SM and Internal Commission are responsible for investigation into such cases.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
We reduce the attraction of the airfield to birds through many different devices like recorded distress calls, pyrotechnics, shotguns, mowing the grass to the right height, and securing buildings in the winter before setting up bird nests.
6.1 Do your staff attend recognised bird control training courses?
We will attend in such bird control training courses every year.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
The Operations team (Marshal, Duty Officer & Falconer) deal with this problem continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Electronic control device, startling, Type ZON EL08, 3 units; stun guns, Type Baflo 9, 11 units; sound device, BG Super Pro AMP, 3 units; portable sound devices, Scarecrow, 1 unit.
6.4 Do you carry out a bird strike risk assessment?
We carry out a bird strike risk assessment every month and bird clearance with every landing/take-off, or second hour.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
The falconer reports daily bird control activities.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
No, we do not have any significant problem with wildlife like deer or wild boars.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Panther; Rosenbauer; 4X4; r. 6,200l; 2009.
Panther; Rosenbauer; 6X6; r. 12,500l; 2009.
Barracuda; Boughton; 4X4; r. 5,500l; – 1990.
Barracuda; Boughton; 6X6; 10,000l water; 1990.
Barracuda; Boughton; 6X6; 12,000l water; 1994.
Barracuda; Boughton; 6X6; 12,000l water; 1994.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
We plan to purchase two cars – Panther; 6X6; 12,500l water, in 2015.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
We do not have simulators, we send rescuers to England.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
The airport's period of winter readiness is from 15 October-15 April.
8.2 Average annual days of snow:
60/70 days.
8.3 Average snow depth:
6.45cm.
8.4 Maximum snow in 24 hours:
10-14cm.
8.5 Annual number of days of de-icing activities:
65 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
We have 13 winter services personnel per shift.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Runway snow plough, 6m, 8 units; runway snow plough, 8m, 3 units; road snow plough, 3m, 2 units; runway sweeper, OLH 4500 Madro, 3.5m, 5 units; runway sweeper, OLH 3850 Hydrog, 3.5m, 2 units; runway sweeper, OVERAASEN RS 400, 5.5m, 4 units; rotor snow blower, Boschung, Rolba 1000, Ził, 3 units; spreader, 1 unit; de-icing sprayer, Daman FEA, 24m, 6,000l + 4,000kg, 1 unit; de-icing sprayer, 18m, 7,000l, 2 units; excavator, 1 unit; agricultural sprayer, 15m, 1,000L, 1 unit; agricultural tractors, 4 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
Priorites for snow clearance in order are: Runway 09/27, Taxiway B, Taxiway E3, Taxiway A, Taxiway E1, E2, Taxiway F, Apron 1, Apron 3.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
At the end we enclosed charts and method runway clearance.
11.3 After moderate snow, how quickly do you expect to achieve "black top" on the runway?
After moderate snow we are ready to achieve "black top" on the runway within 5-10 minutes. After strong snow, we are ready to achieve "black top" on the runway within 25-30 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
We use every year the next-generation de-icers chemicals: KCH S-Solid – flowing product, Aviform L50 – liquid product. Response time is five minutes. Holdover time is 6 hours. In the last season, we have used 140 tons Aviform and 10 tons KCH S-Solid.
12.2 Comment on storage capabilities of the chemicals that you use:
Liquids are stored in containers of 60,000l. Flowing product is stored in bags with a capacity of 50kg.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Increasing the effectiveness of action.
12.4 Have you experienced any corrosion problems with de-icers?
We have not any corrosion problems with de-icers (Clearway). Only urea (carbamide) is aggressively corrosive. Due to corrosion, this chemical is only used only for inside areas, excluding parking, technical roads etc.
12.5 Have you employed any special means to economise on chemical use?
Application controls the amount of fluid on the surface.
12.6 Do you have any other comments on experience with chemicals?
During strong freezing rain and drizzle the most efficient chemical is liquid urea (carbamide) but only to temperature -4 centigrade. Due to aggressive corrosion we do not apply it to the runway and taxiways.
12.7 Do you use other chemicals or sand on operational areas?
No, we do not use other chemicals or sand on operational areas.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
We do not have any ice warning system.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
We would like to purchase an ice warning system – Ice Alert, by Findlay Irvine.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
None.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
Yes, our airport directly provides aircraft anti/de-icing operations. We use liquid chemical for aircraft anti/de-icing – CLARIANT SAFEWING MP II FLIGHT, Type II and CLARIANT SAFEWING MP I 1938 ECO, Type I. For anti/de-icing aircraft we use special vehicles: Kitokorii EFI 2000, 2 units, and Kiitokori EFI 4000, 1 unit.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?





We have special stands to anti/de-ice the aircrafts. Aircraft de-icing is carried out on Apron 1, stands 1-3, 16-18, 24-29 next to TWY F, stand 40 and also on Apron 3.
14.3 Is glycol recovered? If so, please state methods:
We do not recover glycol.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
We usually use two-three friction testers: SAAB Friction Tester, BOWMONK AFM 2- Airfield Friction Tester and/or GRIPTESTER 210.
15.2 Have you any comments on the reliability of friction indexes?
All our comments are included in each SOWTAM.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
The introduction of sanding on the new concrete apron.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
We plan to purchase two cars – Panther, 6X6, 12,500l water, in 2015.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
No.
16.4 Do you have any winter services equipment that you would like to sell?
No.

LJUBLJANA

Aerodrom Ljubljana

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Joze Pucnik Ljubljana Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
Single runway: 3,300x45m, TORA: 3,300. Runway strip: 4,320x300m.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY 30: ILS CAT II/IIIB/ 125m RVR for landing and 100m for take off.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
The SMS implementation process is in the final stage (hazard identification and risk assessment).

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: We have a FOD management programme. According to this programme the content of every initial and recurrent training of ground handling staff and SMS training feature FOD awareness.
b) Inspection by airline, airport, and airplane handling agency personnel: Airside FOD inspections are done by airside inspection, following the schedule of the FOD management programme and in addition in special circumstances, like the renewal of old pavement on airside or work construction of the new airside infrastructure.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Use of the vacuum cleaner with brushes, FOD carpets and brooms. At least once a year, usually in early springtime, we organise a FOD cleaning action to collect any FOD from the manoeuvring area, to which we invite as many airside users (handling agents, aircraft maintenance, cargo storage and others) as possible. On the apron we set up special FOD containers (yellow-coloured with 'FOD' sign).
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Yes.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Two-way radio communications. In CAT II/IIIB only one aircraft movement is allowed on the apron.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
The runway stop-bar overrun identification system in future for monitoring vehicle and aircraft movement on the manoeuvring area that enter or exit the runway.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
No SMR or equivalent for monitoring vehicles and aircraft movements on the ground.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Standard horizontal and vertical signs and marks according to the ICAO Annex 15.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Pilots, controllers, and airport vehicle operators on airside are obligated to act in accordance with the local standards and procedures. Special training (driving licence) is essential for vehicle operators entering the runway.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
The main problems we have are with birds of prey (buzzard and kestrel). According to that we do all we can to reduce the attractiveness for that king of bird species of the airport area. The environment study is now looking at optimal and economical grass management inside airport grounds, and at the same time at reducing the quantity of their food sources at the airport (mice and voles on the grass land) by poisoning them and with mechanical treatment like the special roller for deep soil and grass turf penetration at least once a year. The airport is more or less surrounded with solid forest. Around 8nm (SW) from the airport there is a river with two artificial lakes. Around 15nm (NE) away there is mountains.
6.1 Do your staff attend recognised bird control training courses?
Yes.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Bird control staff are working in the airfield in accordance with the IBIS practices and recommendations followed by ICAO of Airport Services Manual, Part 3, Chapter 9.2 – Wildlife control and reduction.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Pyrotechnics, shotguns, scarecrow (Premier), green laser beam with hand laser (Aero-laser).
For next year we are planning to upgrade the equipment with at least two remote controlled gas cannons (probably Purivox).
6.4 Do you carry out a bird strike risk assessment?
Once a year.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
From the time to time we have had in the past foxes inside the airport perimeter. We made constant monitoring of the critical airfield near the runway with thermo-cameras by night.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Rosenbauer PANTHER; 8X8; 13,500l water, 1,500 l FFFP foam, 500kg dry powder; pump: Rosenbauer R600 – 6,000l/min; 1998. Rosenbauer PANTHER; 6X6; 12,500l water, 1,500l AFFF foam, 250kg dry powder; pump: Rosenbauer R600 – 6,000l/min; 2014. Rosenbauer FALCON; 4X4; 3,300l water, 300l AFFF foam; pump: Rosenbauer R280 – 3,000l/min; 1987. Rosenbauer TLF3000/200; 4X4; 3,000l water, 200l AFFF foam, 90kg of CO2; pump: Rosenbauer NH30 – 3,000l/min; 2008; Mercedes-Benz SPRINTER; 4X4; 300l water, 20l FFFP foam; pump: Rosenbauer UHPS M400, 38l/min at 100 bar; 2001. Renault TRAFFIC; 200l water, 40l FFFP foam; pump: Rosenbauer UHPS M400, 38l/min at 100 bar; 2006.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
Yes. The plan is to replace the command vehicle (MB Sprinter) in year 2015.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Its purpose is only for internal training of the ARFF staff.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
From 1November until 30 April.
8.2 Average annual days of snow:
40 days.
8.3 Average snow depth:
20cm.
8.4 Maximum snow in 24 hours:
30cm.
8.5 Annual number of days of de-icing activities:
15 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
4 to 6 employees for aircraft de/anti-icing. For snow cleaning (runway, taxiways, aprons, stands and service roads), there are three groups with





15 members each. In case of heavy snow there is an agreement for outsourced partner too.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Skoda Octavia ASFT, 1 unit; friction tester, SAAB, 1 unit; Renault Kangoo with friction tester, SARSYS, 1 unit; blower sweeper, Schoerling P17 and P17B, 4.2m – max. 40km/h, 3 units; blower sweeper, Bucher P21, 4.2m – max. 40km/h, 2 units; blower sweeper, Schoerling P12, 4.2m – max. 30km, 2 units; blower sweeper, Schmidt 420, 4.2m – max. 40 km/h, 1 unit; snow plough, Schmidt, 4.8m, 2 units; snow plough, Riko, 4.8m, 6 units; snow plough, Schmidt, 2.5m, 1 unit; truck Mercedes 2031, 3 units; truck, Mercedes 2032, 3 units; truck, Mercedes 2032, with combine spreader EPOKE SH 4520 (solid and fluid), 1 unit; truck, TAM 260 TB, 2 units; snow blower, Mercedes UNIMOG 1200, with spreader for solid, 1 unit; snow blower, BUCHER ROLBA 3000, 2 units; spreader for solid, 1 unit; agricultural tractor with plough, 3.2m to 3.6m.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: 1. Runway; 2. Emergency way for runway; 3. Taxiways; 4. High-speed intersection; 5. Navigation systems; 6. Main apron; 7. GA apron; 8. Service roads inside the airport perimeter; 9. Landside; 10. Other on request.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: The number of vehicles, formation and method of runway, taxiway and apron are the part of Snow Plan issued each year.
11.3 After moderate snow, how quickly do you expect to achieve “black top” on the runway? 20 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Urea (solid) approximately 100 tons – effective till -5 degrees Celsius, holdover time depends on the weather conditions (precipitation). Safeway KF (potassium formate) approximately 10,000l – effective till -25 degrees Celsius.
12.2 Comment on storage capabilities of the chemicals that you use: Chemicals storage capabilities are suitable.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, “blow-away factor” etc: The mixing ratio 10-15% of Safeway with urea is shown as the most.
12.4 Have you experienced any corrosion problems with de-icers? Yes, moderate.
12.5 Have you employed any special means to economise on chemical use? Treat them in the right time in relation with actual weather conditions.
12.6 Do you have any other comments on experience with chemicals? No .
12.7 Do you use other chemicals or sand on operational areas? No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: One freezing point detector on RWY 30 touchdown zone (ILS approach).
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? RWIS – Runway Weather Information System (ASFT Sweden) already deployed in winter season 2014/2015.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: Comments will be after use of that system at least in one or two winter seasons with real winter conditions (with lot of snow and low temperatures).

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: Yes. De/anti-icing vehicles, Vestergard Elephant Beta, 2 units; de/anti-icing vehicle, Vestergard Elephant Gamma, 1 unit; de/anti-icing vehicle, TB8000, 1 unit.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? De/anti-icing is performed at dedicated parking position for de/anti-icing. In some circumstances it is being performed at aircraft stand
14.3 Is glycol recovered? If so, please state methods: No.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Skoda Octavia ASFT, Saab friction tester, SARSYS friction tester.
15.2 Have you any comments on the reliability of friction indexes? For some carriers the friction index is relevant just in the case of ice/compacted snow. For slush/standing water, wet snow and dry snow, they said that the measured friction index is for them unreliable. In such cases for them it is relevant to measure the height of the deposit on the runway surface.

LONDON CITY

LondonCityAirport

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: London City Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): Runway 27: TORA – 1,199m, TODA – 1,385m, ASDA – 1,319m, LDA – 1,319m. Runway 09: TORA – 1,199m, TODA – 1,319m, ASDA – 1,319m, LDA – 1,319m. Runway width: 30m. Stands Available: East Apron – 4; Main Apron – 10; West Apron – 3; Jet Centre – 1.
2.2 Landing aids for each RWY (e.g. CAT II): ILS & NDB for Runway 09/27, uncategorised due to steep approach, will be most comparable to CAT 1.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: “The aerodrome operator shall establish a Safety Management System for the aerodrome.” Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? No significant changes made, established SMS in place.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport’s programme to control FOD in terms of:
a) Training: All airside pass holders attend annual Airside Awareness Training, where FOD is discussed as well as the London City Airport (LCY) policy in regards to FOD control.
b) Inspection by airline, airport, and airplane handling agency personnel: Manoeuvring area inspections are carried out four times a day by Airfield Operations personnel, with a weekly walking inspection. Each aircraft stand is inspected by the Ground Services marshalling teams each time before use.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): FOD bins are provided on every stand and in Airfield Operations vehicles. The airport has a contract for fortnightly sweeping with an external contractor. All significant works in progress must provide their own sweepers for clear up.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): FOD and reports of FOD incidents are discussed quarterly at an Airside Safety Committee formed from airport stakeholders.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Vehicle and aircraft movements are monitored visually by ATC and through position reporting in poor visibility.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? All runway stop-bars are being upgraded to LED technology to increase visibility.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): None.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: All entry points to runway utilise runway guard lighting, appropriate signage and STOP marks compliant with CAP168 requirement.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? All airside drivers sit Driver Awareness Training for apron road permits, and any person requiring to operate on the manoeuvring area must sit additional theoretical and practical training held in house by Airfield Operations. Any aspects affecting operating on the manoeuvring area or runway are promulgated through specific Runway Safety Bulletins. A Local Runway Safety team consisting of key airport stakeholders and those operating on the manoeuvring area, along with pilots, meet regularly to discuss any issues or concerns. The airport also hosts a Pilot Forum twice a year for pilot-specific issues.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the ‘non-punitive’ principles such as ‘no-penalty’ reporting? NATS and LCY employ a transparent and consistent ‘Just Culture’ approach to the safety reporting of incidents.





6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: There is a detailed Wildlife Hazard Management Manual in place containing the airport's Wildlife Hazard Management Plan. In it is detailed the airport's Long Grass Policy, policies on safeguarding and bird control and dispersal.
6.1 Do your staff attend recognised bird control training courses?
Annual training is provided by an approved external training contractor used widely in the industry.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
The Bird Control Unit is active on the airfield throughout the opening hours.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): All equipment used for bird control is industry standard (air rifle, shotgun, signal pistols). along with in-house built products – fake shotgun, lures etc. The bio-acoustic system used is that produced by Scarecrow Bio-Acoustic Systems for playing bird distress calls. The only non-standard item we use is Portek bird scaring rockets, designed to disperse thermalling gull species.
6.4 Do you carry out a bird strike risk assessment?
Annually.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
All activities are logged in a purpose-designed wildlife control log, which runs on iPads carried in the vehicles.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
There are no additional wildlife species that cause us issues. Due to the surrounding water we are rarely bothered by anything other than bird life. Occasional foxes have been sighted.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: 1x Kronenburg; 4X4; foam tender carrying the following amounts of extinguishing media: 6,000l water, 720l FFFP foam liquid, 35kg Monnex Dry Powder trolley unit, 50kg Halon 1211 B.C.F trolley unit. Discharge rates: 4,500lpm pump. Monitor discharge rate: 1,600lpm low ratio, 3,200lpm high ratio. Sideline discharge rate: 450lpm. 3x Sides VMA 112; 6X6; foam tender carrying the following amounts of extinguishing media: 10,000l water, 1,200l FFFP foam liquid, 75kg Monnex, 75kg Halon 1211 B.C.F. unit. Discharge rates: 5,400l/min pump. Monitor Discharge rate: 2,250lpm low ratio, 4,500 lpm high ratio. Sideline discharge rate: 450lpm.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Yes.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
November to April.
8.2 Average annual days of snow:
1 day.
8.3 Average snow depth:
Not recorded.
8.4 Maximum snow in 24 hours:
6 inches.
8.5 Annual number of days of de-icing activities:
13 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
Approximately 18 with third-party contractor able to provide additional personnel to meet demand.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Jet sweeper (primary), Schmidt TJS560, 4 units; brush sweepers (secondary), Sicard 314D, 3 units; 24m Knight Sprayer (runway de-icing), 1 unit; 20m Chafer Sprayer (runway/taxiway/stands de-icing), 1 unit; 12m Gem Sprayer (taxiway/stands de-icing), 1 unit; Mini Gem Sprayer (roadways/stands de-icing), 3 units.

11. PROCEDURES AND METHODS

11. 1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
1. Runway 09/27 cleared first along with entry points A, D, B, C if Runway 09 in use. If runway 27 in use D, B, C, A; 2. Main Taxiway; 3. Apron Stands; 4. Roadways. In most circumstances when resource allows clearance will begin in all areas simultaneously.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Runway: Staggered formation using 4x TJS560 Schmidt jet sweepers blowing with the wind. Taxiway: Staggered formation using 2x Sicard 314D sweepers blowing with the wind. Schmidt can be used subject to availability. Apron: 1x Sicard 314D per stand in concentric circle motion.
11.3 After moderate snow, how quickly do you expect to achieve "black top" on the runway?
If snowfall has stopped the runway can be cleared in approximately 30 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Kilfrost is utilised on pavement areas, however a transition to Provifrost runway de-icer is commencing this season. Previous holdover time with Kilfrost subject to no precipitation has been observed red as about three days. Last season only approximately 2,000l was used as de-icing of the airfield happened on only one occasion.
12.2 Comment on storage capabilities of the chemicals that you use:
1x 25,000l bunded tank.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Solid de-icer has not been used, products are available to be tested this season.
12.4 Have you experienced any corrosion problems with de-icers?
No.
12.5 Have you employed any special means to economise on chemical use?
No.
12.6 Do you have any other comments on experience with chemicals?
No.
12.7 Do you use other chemicals or sand on operational areas?
Solid de-icing products are available to be tested this season on apron roadways.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
Met Office warning system.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
Throughout the winter season we will be subscribing to additional Met Office dedicated forecaster.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
Utilised mostly to establish staffing levels required on standby.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
Aircraft de-icing provided by LCY Ramp Services team. 5 de-icing rigs available: 1x FMC unit – 6,000l; 1x Vestergaard – 4,000l; 1x FMC/JDT unit – 4,000l; 2x Falcon Aviation (Transit Conversion) Rig – 750-1,000l.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
Aircraft de-icing occurs on parking stands.
14.3 Is glycol recovered? If so, please state methods:
Glycol is recovered using a purpose designed 'Glyvac' machine which vacuums excess fluid from the parking stands.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
Grip Tester Mark 2.
15.2 Have you any comments on the reliability of friction indexes?
CFME equipment not used during winter operations as per CAA regulation.

LONDON GATWICK

YOUR LONDON AIRPORT *Gatwick*

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: London Gatwick Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY 08R: Total length/width: 3,316x45m, TORA: 3,159, TODA: 3,311, ASDA: 3,233, LDA: 2,766; RWY 26L: Total length/width: 3,316x45m, TORA: 3,255, TODA: 3,399, ASDA: 3,316, LDA: 2,831; RWY 08L: Total length/width: 2,565x45m, TORA: 2,565, TODA: 3,040, ASDA: 2,565, LDA: 2,243; RWY 26R: Total length/width, 2,565x45m, TORA: 2,565, TODA: 2,703, ASDA: 2,565, LDA: 2,148. Remarks: 26L has a 150m starter extension. The 26L landing threshold is displaced by 424m. The 08R landing threshold is displaced 393m. Paved shoulders extend 7.5m beyond each side of Runway 08L/26R. Paved shoulders extend 15m beyond each side of Runway 08R/26L. The 08L landing threshold is displaced by 427m. The 26R landing threshold is displaced 417m. A maximum weight limit of 562,000kg applies to landings and take-offs on Runways 08R/26L and 08L/26R. 1,900,000sqm of manoeuvring area.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY 08R: CAT III(B). RWY 26L: CAT III(B). Runway 08L/26R is a non-instrument runway and will only be used when Runway 08R/26L is temporarily non-operational by reason of maintenance or incident.





3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Gatwick Airport Ltd (GAL) has a well-developed Safety Management System. The GAL board oversees this through the Managing Corporate Responsibility Board (MCR). Each department operates a risk register. Risks are identified, mitigated and reviewed at departmental levels and by the Managing Corporate Responsibility Board. They are captured on a company standard risk register. The risk register is reviewed and updated quarterly – when there is a change in procedures/process (current and future); when new equipment or plant and or processes are introduced; incident review; high level risks reviewed monthly at the Managing Corporate Responsibility Board.
A GAL Airside Compliance Audit was carried out in April 2014, which included SMS documentation.
GAL PAS55 certified – Asset Management System.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Included as part of initial Induction Training for all staff required to work on the airfield. Gatwick Airport Directive – Airside Safety Training lists FOD avoidance and clearance as one of the items that must be included in the individual's induction training. Also included in the airside driving syllabus. Specialist vehicle operative training for GAL staff involved in FOD removal.
b) Inspection by airline, airport, and airplane handling agency personnel: GAL requires Handling Agent Dispatchers to carry out a FOD inspection of aircraft stands, prior to each aircraft arrival. GAL has an Airfield Operations team who continually monitor the airfield for FOD and carry out removal as required. GAL issues a number of Directives covering various airfield issues, one of which is FOD prevention and the responsibility of all airfield users to minimise FOD generation and ensure that any FOD is disposed of in the correct way. Three-tier inspection process by Airfield Operations. Routine, detailed and Senior Management audit.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): The GAL Airfield Support staff operates specialist sweeper vehicles, which includes the use of magnetic bars, in addition to manual FOD removal. FOD bins are provided on aircraft stands for collection of small items. There is a process in place for regular emptying of the FOD bins. Strategically positioned FOD fences to catch wind-blown debris. Airfield Civil Maintenance programme. Skips placed on the airfield must be issued with a permit and be covered with a lid. Airline cleaning contractors' trailers must be totally enclosed. Airfield Projects work sites must conform with GAL fencing standards, which do not allow FOD to escape from the site. An Airport Directive requires all vehicle cabs to be free from FOD at all times. Gatwick Airport provides a central recycling point. FOD bags are used by Airfield Operations staff whilst carrying out airfield inspections.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): FOD items which are too large to be placed in the FOD bins, are reported to Airfield Operations, who will arrange collection/removal. FOD issues are raised at the quarterly Airside Safety Group meetings chaired by GAL and attended by third party airside companies. FOD walks are undertaken as part of the Airside Safety Group meetings, approximately every six months. GAL carries out a number of third-party audits each year, and companies being audited are required to give details of their company FOD policy. GAL requires Handling Agent Dispatchers to carry out a FOD inspection of aircraft stands, prior to each aircraft arrival. Gatwick Airport Directive (GAD) – FOD is issued to all airside operators. FOD awareness posters, endorsed by third-party airside operators.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
An additional, midnight multi-vehicle surface inspection is carried out daily by Airfield Operations. This includes the use of specialist sweeper vehicles. Waste Compactors operated in two airside locations.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
RTF, A-SMGCS, RIMCAS. Airfield Operations vehicles are fitted with transponders for operating on the runway.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Installation of enhanced 'Runway Ahead' markings at holding point Bravo. Work planned to operate RGB H24 at all Hold Points.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A-SMGCS, RIMCAS, AFDAS, controllable runway guard bars.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Installation of enhanced 'Runway Ahead' markings at holding point Bravo. 'Start of TODA' signage installed on Runway 08L/26R. When 08L/26R is not operational, the 'Start of TODA' sign is covered to make it not visible to pilots. Runway threshold indication light system installed on Runway 08L/26R. Holding point Alpha has red and white barriers installed to prevent vehicle-induced runway incursions. Installation of Taxiway Unavailable Bar System (TUBS). Taxiway pavement designators used at locations where issues have been identified through ATC surveys.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Gatwick Airport Directive – Airside Driving and Vehicle Operation – details the three types of airside driving permit: A Zone – aprons, stands and airside roads; M Zone - the manoeuvring area excluding runways, but including taxiways; M+R Zone - the manoeuvring area including runways. Driver trainers must be registered and approved by the Gatwick Airfield Operations Training Manager. They must use training materials provided by Gatwick Airport to ensure consistency. Specialist airfield driving maps, clearly showing the manoeuvring area (maps updated every six months). Maps must be carried in every vehicle. Flight Ops Performance Committee, hosted by GAL, every two months. Local Runway Safety Team, jointly hosted by GAL and National Air Traffic Services (NATS), every two months. Local Runway Safety Team airfield van tours carried out in daylight and darkness during the year. National Air Traffic Services (NATS) has delivered a number of Airfield Resource Management courses. NATS provides an airline briefing pack for airlines new to Gatwick.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Runway safety incidents are discussed jointly between GAL and NATS and shared with members of the Local Runway Safety Team, which also includes representation from airlines, handling agents and the UK Flight Safety Committee. Those involved in a runway safety incident will be invited to complete a joint GAL/NATS Human Factors Questionnaire. The aim of any investigation is to promote and share learning and identify any contributory issues, ie. training, airfield infrastructure, procedures, which may need to be addressed to try and prevent a recurrence. All runway incursion investigations include playback of RTF comms and ground radar images, and these are shared at the Local Runway Safety Team meetings. Sharing of safety reports between third parties is positively encouraged and discussed to identify any lessons learnt and raise awareness.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Bird Hazard Management – The aim of bird hazard management at Gatwick is to maintain, as far as is reasonably practicable, a bird free airfield. Gatwick Airport has a nominated Bird Co-ordinator, and bird hazard management duties are carried out by the Airfield Duty Team, H24. GAL uses the standards below to control birds on and around the aerodrome, and complies with EASA – Regulation (EC) No.139/2014 – Annex iv - ADR.OPS.B.020 – Wildlife Strike Hazard Reduction: Birdstrike Hazard Map - A bird hazard safeguarding map is maintained. This is based on an Ordnance Survey map and highlights the assessed local hazards and also shows on a wider scale such sites as landfills, gravel extraction, and water bodies. Local Bird Calendar – Gatwick Airport has an aerodrome specific bird calendar. The calendar is based on statistical data and known bird activity over a number of years. The calendar is used on a monthly basis as a predictive tool during the year to assess any likely change to the bird strike hazard. UK CAA Birdstrike Committee – Gatwick Airport has representation on this Committee. All Airfield Operations personnel who carry out bird hazard management duties are trained and hold a firearms certificate, which must be revalidated every three years. All staff attend an approved bird hazard management training course and to ensure competency, periodic refresher training is undertaken in the use of firearms, bird hazard management operations and local ornithology. Comprehensive records are kept of all bird control activities and firearms training and assessments. All vehicles involved in bird hazard management activities are suitably equipped and maintained. Bird Patrols are carried out to ensure that: The presence of birds on the airfield and in the surrounding area is minimised; an environment not conducive to the presence of birds is created; birds on the airfield are detected and dispersed; warning can be passed to aircraft and ATC about the presence of flocks of birds on the airfield; the formation of night roosts is prevented. Bird patrols are carried out across the active airfield. All areas are patrolled, with emphasis rather than concentration being on the active runway.
Bird Hazard Assessment/Warning: Bird hazard assessment is carried out via the tactical bird patrols and strategic analysis by the Bird Co-





ordinator and Operations Management. Aircrew are warned whenever the presence of birds in large numbers is thought to constitute an immediate hazard. This is done by informing Operations or ATC by radio, this warning then being passed on to aircraft directly or via ATIS. In the event of a prolonged infestation of birds on or immediately adjacent to the airport NOTAM action may be taken to warn aircrew of the hazard. This should only cover periods of short to medium duration and will be cancelled when the hazard ceases to exist. All wildlife strikes or suspected strikes are investigated and reported immediately by Airfield Operations or ATC. An electronic Wildlife Strike Occurrence Form (CAA Form 1282) is completed online via the CAA website by Airfield Operations on all occasions where there is a confirmed or unconfirmed strike.
6.1 Do your staff attend recognised bird control training courses? See above.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Davis Pistols, Hmr Bolt Action Rifle, BSA Break Action Rifle, shotguns. Netting of open water, ie. Ponds.
6.4 Do you carry out a bird strike risk assessment? Yes – via Bird Strike Management Ltd.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes – use of Ultima electronic database.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? Culling of rabbits is carried out.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: 1x Mitsubishi Shogun. Panther; 4x 12,500 water, 1,500 foam.
7.2 Future developments – are there plans to purchase or dispose of any equipment? A high access platform was purchased during 2013 for A380 operations.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? Yes.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? 1 November to 31 March.
8.2 Average annual days of snow: Winter 2013/2014 – no snow.
8.3 Average snow depth: See above.
8.4 Maximum snow in 24 hours: See above.
8.5 Annual number of days of de-icing activities: 17.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? On-call system for staff (200), who are designated as “Polar Bears”. During Weather State Clear, when Met Office does not forecast snow, and Weather State 1, when Met Office forecast snow in the next 7 days but not expected to accumulate, no disruption to the operation of the Airfield predicted – minimum staff resource on duty (12 hour shift): 1x Airfield Duty Manager, 4x Airfield Operations Controller, 4x Airfield Operations Support Team; (on call): 1x Airfield Operations Senior Manager. During Weather State 2 – Met Office forecast snow in the next 7 Days and expected to accumulate which may cause disruption to the operation of the airfield – minimum staff resource on duty (12 hour shift): 1x Airfield Duty Manager, 4x Airfield Operations Controller, 4x Airfield Operations Support Team; (on call): 2x Airfield Operations Senior Manager, 10x Airfield Duty Manager, 28x Airfield Operations Controller, 24x Airfield Operations Support Team, 20x Airport Fire Service (Additional to Fire Cover), Transport Engineering Technicians, 80x Terminal & Office Volunteers (Polar Bears), Contractors arranged through Dyer and Butler, Dyer and Butler staff for escorting duties, Bucket Loader Operators, Tipper Driver. During Weather State 3 – Met Office forecast snow in the next 24 hours and expected to accumulate which may cause disruption to the operation of the airfield – minimum staff resource on duty (12 hour shift): 1x Airfield Duty Manager, 4x Airfield Operations Controller, 4x Airfield Operations Support Team; (on call): 4x Airfield Operations Senior Manager, 10x Airfield Duty Manager, 28x Airfield Operations Controller, 24x Airfield Operations Support Team, 20x Airport Fire Service (Additional to Fire Cover), Transport Engineering Technicians, 80x Terminal & Office Volunteers (Polar Bears), Contractors arranged through Dyer and Butler, Dyer and Butler staff for escorting duties, Bucket Loader Operators, Tipper Drivers. During Weather State 4 – Met Office forecast snow in the next 2 hours and expected to accumulate which may cause disruption to the operation of the airfield – minimum staff resource on duty (12 hour shift): 1x Airfield Operations Senior Manager, 2x Airfield Duty Manager, 8x Airfield Operations Controller. 8x Airfield Operations Support Team, 10x Airport Fire Service (Additional to Fire Cover), 50x Office Volunteers (Polar Bears), Transport Engineering Technicians; (on call): 130x Terminal & Office Volunteers (Polar Bears), Contractors arranged through Dyer and Butler, Dyer and Butler staff for escorting duties, Bucket Loader Operators, Tipper Drivers. During Weather State 5 – snow is falling and accumulating but NOT likely to lead to airfield disruption and can be safely and efficiently managed by the Airfield Operations team – minimum staff resource on duty (12 hour shift): 2x Airfield Operations Senior Manager, 2x Airfield Duty Manager, 8x Airfield Operations Controller, 8x Airfield Operations Support Team, 10x Airport Fire Service (Additional to Fire Cover), 50x Office Volunteers (Polar Bears), Transport Engineering Technicians; (on call): 130x Terminal & Office Volunteers (Polar Bears), Contractors arranged through Dyer and Butler, Dyer and Butler staff for escorting Duties, Bucket Loader Operators, Tipper Drivers. During Weather State 6 – snow is falling and accumulating in sufficient amounts to cause disruption to the operation of the Airfield – minimum staff resource on duty (12 hour shift): 2x Airfield Operations Senior Manager, 2x Airfield Duty Manager, 8x Airfield Operations Controller, 8x Airfield Operations Support Team, 10x Airport Fire Service (Additional to Fire Cover), Transport Engineering Technicians, 50x Terminal & Office Volunteers (Polar Bears), Contractors arranged through Dyer and Butler, Dyer and Butler staff for escorting Duties, Bucket Loader Operators, Tipper Drivers; (on call): 130x Terminal & Office Volunteers (Polar Bears). During Weather State 7 – snow has stopped falling and accumulating, but snow-clearing duties continue on the Airfield. Some disruption possible – minimum staff resource on duty (12 hour shift): 1x Airfield Operations Senior Manager, 2x Airfield Duty Manager, 8x Airfield Operations Controller, 8x Airfield Operations Support Team, 10x Airport Fire Service (Additional to Fire Cover), Transport Engineering Technicians, 50x Terminal & Office Volunteers (Polar Bears), Contractors arranged through Dyer and Butler, Dyer and Butler staff for escorting Duties, Bucket Loader Operators, Tipper Drivers; (on call): 130x Terminal & Office Volunteers (Polar Bears).

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): The following list gives an indicative view of vehicle and equipment utilisation, but is subject to operational requirements. Runway: 9x Overaasen RS400 – Mercedes Actros, 4x4, Runway Sweepers; 2x Oshkosh Snow Cutters; 2x Liquid Anti-De-Icer Spreader; 1x Constant Friction Measuring Equipment. ASFT taxiway system: 9x Schorling – Unimog 4x4 Runway/ Taxiway Sweepers; 3x Liquid Anti/De-Icer Spreader; 1x Combi Liquid/Solid Anti-De-Icer Spreader; 1x Rolba Snow Cutter. Stands, roads and other airside areas: 4x Small Liquid Anti/De-Icer Trailer Spreader; 12x Multihog Brush/Plough/Anti-De-Icer Spreader; 24x John Deere Tractor Brush; 12x John Deere Tractor 4 meter plough; 2x John Deere Tractor Sulky Solid Anti-De-Icer Spreader; 4x John Deere Gator Plough/ Solid Anti-De-Icer Spreader; 4x Kabuto Plough/Solid Anti-De-Icer Spreader; 12x Pedestrian Snow Plough & Cutter. Spare: 5x Schorling Taxiway/Runway Sweeper. General equipment: 1x JCB Bucket; 1x Fuel Bowse; Suitable amount Snow Shovels & Brooms. Transport Engineering and AOM will maintain a detailed list of the vehicles and equipment available for snow clearance and will maintain the following minimum availability when Snow State 2 is promulgated: 14x Runway Sweepers (Overaasen or Schorling); 1x Snow Cutters; 4x Runway/Taxiway Anti/De-Icer Vehicles; 2x Small Anti/De-Icer Trailer Spreader; 8x Multihog Brush/Plough/Anti-De-Icer Spreader; 18x John Deere Tractor Brush; 8x John Deere Tractor 4 meter plough; 1x John Deere Tractor Sulky Solid Anti-De-Icer Spreader; 2x John Deere Gator Plough/Solid Anti-De-Icer Spreader; 2x Kabuto Plough/Solid Anti-De-Icer Spreader; 8x Pedestrian Snow Plough & Cutter.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: a) runway(s) in use, including rapid exits and starter strips; b) all runway holding areas, taxiways and aprons that are to be used; c) all other areas and roads.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: The method of clearing snow will vary in detail with the severity of the snow event. The principle will be to use the Runway Snow Sweepers in echelon formation using the wind direction and topography to help the sweeping operation. Ploughing on the runway(s) should be stopped short of the white edge marker lights and grass area with the resultant accumulations of snow being blown clear by use of a snow blower or other piece of selected equipment. Sweeping operations will where appropriate normally be followed up by a runway de-icer to apply a chemical anti-icing agent.
11.3 After moderate snow, how quickly do you expect to achieve “black top” on the runway? Moderate snow - visible settling up to 3cms. Runway sweeping commences, requiring restricted runway operations and clearance on taxiways and





stands. Significant delays are likely to occur and some flight cancellations will be required as a result of reduced ATC arrival and departure rates.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: CLEARWAY 3 / Brothertons Safegrip+ - Liquid acetate chemical. CLEARWAY 6S – Solid acetate chemical. Brothertons Solid formate chemical. KONSIN – Liquid Glycol chemical (Will only be used at the discretion of the Airfield Duty Manager in line with London Gatwick Airport – Airfield Operations - Konsin Usage Checklist). Grit – Conforming to the latest published version of BS 812, 1973, Part 3.
12.2 Comment on storage capabilities of the chemicals that you use: Clearway3/Brothertons Safegrip+ – 176,000 litres; Konsin – 442,000 litres; Clearway 6S/Brothertons Aviform 6 – 35,000kg; Grit – 10,000kg.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: Our solid De-icer we generally pre-wet with a liquid anti-icer because of the of the blow away factor. However, we find using it on stands that are unlikely to be used within an hour solid de-icer is great solid, as long as it is given time to work.
12.4 Have you experienced any corrosion problems with de-icers? No reported issues.
12.5 Have you employed any special means to economise on chemical use? We operate the Advance Surface Friction Tester, which has the ability to tell us when moisture is likely to freeze, this helps the decision making process as to how much chemical de-icer we use.
12.6 Do you have any other comments on experience with chemicals? None.
12.7 Do you use other chemicals or sand on operational areas? We use grit on passenger walkways only.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Recently upgraded Vaisala system to provide 3 sensors, with 3 weather stations, providing passive and active information.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? No.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: They are good as a tool to aid anti-icing/de-icing decision making.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: Aircraft anti/de-icing operations are carried out by third-parties, ie. handling agents.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? De-icing is predominantly carried out on aircraft parking stands. Dedicated remote de-icing areas have been developed for the 2014/2015 Winter season, which will be used at the discretion of the Snow Co-ordinator during adverse weather conditions. Only airlines/de-icing companies who have submitted Risk Assessments and Method Statements will be allowed to utilise this facility.
14.3 Is glycol recovered? If so, please state methods: Yes – by sweeper vehicle.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? ASFT Mark 4 Airfield Surface Friction Tester.
15.2 Have you any comments on the reliability of friction indexes? No.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? See Vaisala comment at 13.1. Introduction of aircraft de-icing area on Taxiway Sierra. The Snow Plan is now incorporated into an Airside Operations Adverse Weather Plan, which includes: Snow, flood, wind, heat, low visibility, volcanic ash.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: GBP£2 million spent during 2014 on upgrade to tractors, to have a snowplough on the front and brush at the rear. 1x snow cutter; 8x multihogs; 18x trackmaster; pedestrian powered snow brush.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: No.
16.4 Do you have any winter services equipment that you would like to sell? No.

LYON

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Lyon-Saint Exupéry Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWYs 18R/36L: 4,000x45m, shoulders: 2x7.5m paved; RWYs 18L/36R: 2,670x45m, shoulders: 2x7.5m paved. RWY 18R: TODA 4,000m, ASDA 4,000m, LDA 4,000m. RWY 36L: TODA 4,000m, ASDA 4,000m, LDA 4,000m. RWY 18L: TODA 2,670m, ASDA 2,670m, LDA 2,670m. RWY 36R: TODA 2,670m, ASDA 2,670m, LDA 2,670m.
2.2 Landing aids for each RWY (e.g. CAT II): RWYs 18R/36L: CODE 4E, Precision instrument: 36L CATIII, 18R CATI. RWYs 18L/36R: CODE 4E, Precision instrument: 36R CATIII, 18L CATI.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? No major changes but continuous improvement actions are made regularly. The aerodrome, certified by the General Direction of Civil Aviation since 2006, is currently working on getting the European certification, by complying with the EASA standards.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: The airport operator proposes training to ground handling personnel such as Airside Driving Authorisation Training.
b) Inspection by airline, airport, and airplane handling agency personnel: Ramp monitoring performed by Aéroports de Lyon's staff: Airside Monitoring & Inspection Unit (AMI Unit) and Airside Sweepers. Aircraft parking position pre-use/post use check by AMI Unit's staff and ground Handlers' ramp staff. Runway inspections performed by AMI Unit.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Daily apron sweeping, FOD Boss blanket, magnet bar, FOD bins and special containers for toxic and hazardous waste.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Poster campaigns, weighing (for statistics), analysis, archiving.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Monitoring done by ATC (Vehicles equipped with a geo-localisation system called MOSQUITO).
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? During LVP, any operational movements are reduced to a minimum.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A-SMGCS; the model X Airport Surface Detection Equipment.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: No.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Training for all vehicle drivers who operate in the manoeuvring area, extra training for those who have to cross runways. Recurrent training after a period of 3 year for those who drive in the manoeuvring area.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? All activities are based on the European Action Plan for the Prevention of Runway Incursion, and carried out jointly with the ATC and pilots. Regular meetings take place (Local Runway Safety Team / Safety Promotion Committee). The SMS guarantees the just culture principles.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: It will aim to increase the height of the short grass to 12cm, ensuring also never cut at a height of less than 9cm (except where shorter grass must be maintained for aids to navigation and drainage areas). Maintain the height of grass between 20 and 50cm. Minimise non-vegetated areas. We will try to cut short grass and tall grass seeds before the onset and late fall to remove the large stems carries seeds. We will monitor problems that heavy snows may create and will take appropriate measures. Cultivation of winter and spring straw cereals, of sorghum, of rapeseed and of soybeans are allowed. Multiannual forage and high growing cultivation (maize, sunflowers) are forbidden in all the restricted area. All agricultural activity must be stopped on request of the staff





responsible for wildlife hazard when it causes an increase in avian risk. The pile of rocks, deposits of various objects, boots and balls, which are shelters for small rodents, should not be left in place longer than a few days. Studs were installed on all panels taxiways (signs of obligations) of the reserved area. We will be ask local farmers if they can plough in the evening. We will ensure that all waste containers are animal tested. It will identify and fill or overwrite on buildings throughout loanable opening starlings, rock doves and swallows. Eliminate trees producing edible seeds (eg. maple, oak and beech) insights.
6.1 Do your staff attend recognised bird control training courses?
No, but our staff is specialised in the management of wildlife and already have a great ornithological knowledge.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Continuously, 30 minutes before sunrise and 30 minutes after sunset.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Exploding cartridges (6 and 9mm); whistling cartridges (6 and 9mm); mid-range exploding cartridges (26.5mm); long range silent – then exploding – rockets (Lacroix Capa) discharged from revolvers; bird scaring laser (handheld); acoustic broadcasting of natural and synthesised distress calls (mobile recorder and speaker, in the car); 2 units mobile, fixed on a trailer; bird strike prevention vehicle fully equipped with different net, cage, disinfectant, insecticide. Calls distress generator on board.
6.4 Do you carry out a bird strike risk assessment?
Yes, activities are saved in real-time in the prevention vehicle thanks to a database system speciality dedicated to wildlife hazard management (software called AWHM: Airport Wildlife Hazard Management).
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
All the activities, bird strikes, bird watching activities and works undertaken in the airport enclosure are centralized and recorded electronically in a daily report. All data is available at any time.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: 3x VIM90; 6X6; 9,000l water and 250kg powder. 1x VIM90; 6X6 – spare.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Yes, we have a fire training simulator that can be made available for other airports training.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
15 November-15 April.
8.2 Average annual days of snow:
25 days.
8.3 Average snow depth:
1 to 40cm.
8.4 Maximum snow in 24 hours:
40cm.
8.5 Annual number of days of de-icing activities:
100 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
2 teams of 25 airport-employees, sub-contracted: 2 teams of 20 agents.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
BOSCHUNG with blade 6.40m, 2 units; BOSCHUNG with blade 8.40m, 2 units; trucks 4x4 with blade, 4 units; tractor 300CV with tri-axes blade, 1 unit; tractors 816 with blade, 2 units; tractor 100CV with blade, 1 unit; AEBI with blade, 1 unit; multi-purpose vehicles with blade, 3 units; tractor 80CV with blade, 1 unit (+1 in reserve); sweeper with blade, 1 unit (+1 in reserve). Surface ice, black ice, residual snow layers; spreading of de-icing agent (over a width of 44m on RWY).

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
The following will be cleared: The main RWY over a width of 60m, its side stripes and over its entire length; the secondary RWY over a width of 60m, and over its entire length; the TWY over a width of 22.5m and according to an order of priority laid down by local authorities; the aprons as dictated by operational requirements.
11.3 After moderate snow, how quickly do you expect to achieve “black top” on the runway?
It depends on snow depth, air temperature and ground temperature. After moderate snow, the “black-top” of the runway is usually achieved in 45 minutes for the 4,000m runway length (included friction testing).

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Potassium formate (liquid) and Acetate (solid). In 2012, we used 175sqm of pavement de-icer (around 227 tons).
12.2 Comment on storage capabilities of the chemicals that you use:
We have a 290,000l clearway storage capacity.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, “blow-away factor” etc:
Below -6 degrees Celsius we mix solid and liquid de-icer (ratio of 20% to 25% of solid de-icers). Effectiveness is good, but we have to wait between 20 and 30 minutes for a good effectiveness.
12.4 Have you experienced any corrosion problems with de-icers?
No.
12.5 Have you employed any special means to economise on chemical use?
Electrical features installed in all vehicles.
12.6 Do you have any other comments on experience with chemicals?
No.
12.7 Do you use other chemicals or sand on operational areas?
No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
2 probe on taxiways,s which indicate ground temperature.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
1 temperature probe for a runway will be purchased in 2014.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
No comment.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
No it is done by ground handling companies.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
No dedicated de-icing positions.
Usually on the parking area.
14.3 Is glycol recovered? If so, please state methods:
The stand is swept after each de-icing by 2 vacuum sweeper vehicles.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
1 ASFT friction tester.
15.2 Have you any comments on the reliability of friction indexes?
In case of fluid contamination (slush, wet snow) we don’t communicate the friction indexes but only an estimated friction.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport’s methods?
No.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
An additional ASFT trailer. One truck with liquid (30,000 litres)/solid (24 cubic metres) storage in 2014.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
No.
16.4 Do you have any winter services equipment that you would like to sell?
No.

MADEIRA

Madeira Airports

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Aeroporto de Madeira

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY Length: 2,781m. RWY 05: TORA 2,631m (including 150m of pavement before threshold). RWY 23: TORA 2,631m (including 150m of pavement before threshold). RWY width: 45m, shoulder widths: 3m, total apron area 82,487,00sqm, ramp area 110,809,00sqm.
2.2 Landing aids for each RWY (e.g. CAT II):
Visual approach for both RWYs only. RWY 05 PAPI system with 3 degrees glide-scope on both sides of the RWY and RWY23 PAPI system with 3 degrees glide-scope on left side of RWY.

3. SAFETY MANAGEMENT SYSTEMS





3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
No recent changes.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: It is mandatory to have training about this issue before starting to operate in the manoeuvring area.
b) Inspection by airline, airport, and airplane handling agency personnel: Airport Duty Manager does inspections of the runways and aprons in accordance to Doc.9137.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Airport uses FOD containers at all aircraft stand position and sweepers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Coordination and reporting is done by Airport Duty Manager (24 hours).
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
No special software in use for FOD control.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Aircraft and vehicle movements are controlled and coordinated by local ATS (TWR).
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
The measures taken were effective until 2010 and, until now, no need to take other measures.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
Aircraft movement control is accomplished by a taxiway lighting/marking guidance system followed by apron lighting and marking guidance system with intermediate holding position markings/lights and stop-bars.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Markings and lighting installed in accordance with ICAO Annex 14. RWY guard lights are installed.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Training sessions and meetings are done in accordance with SMS Committees (apron, runway and emergency).
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Yes, reporting procedures were set up jointly with other parties active in this process.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
No new technologies were implemented in 2013, however, we continue the study of animal life at the airport (birdlife), to understand the reasons for the increase in birds and act properly and preventively to avoid risk. We expect to get the final results in March 2015.
6.1 Do your staff attend recognised bird control training courses?
Staff are concerned with the matter and aware of the risks. There no specific course but briefings are made by airport operations and safety office
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Yes. All bird control staff are employed by the airport. They are familiar with the intervention area and airport procedures. They have 8-hour shifts during the day.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Shotguns, pyrotechnics, gas cannons and scarecrow distress call system.
6.4 Do you carry out a bird strike risk assessment?
Every three months and it is an audited process.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes. Every bird control activity is recorded and sent to the responsible bird strike manager (safety manager).
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Oshkosh P 19 (4x4) /1989 – Water 3.850 Lts, Foam 492 Lts, Powder 227 Kgs, Hallon 68 Kgs. Oshkosh T 1500 (6x6) /1991 – Water 6.000 Lts, Foam 776 Lts, Powder 317 Kgs, Hallon 68 Kgs. Oshkosh T 3000 (6x6) /1999 – Water 11.356 Lts, Foam 1.590 Lts, Powder 227 Kgs, NAF. P 100 Kgs. Oshkosh Striker 3000 (6x6) /2012 – Water 11.356 Lts, Foam 1.590 Lts. Powder 204 Kgs,
7.2 Future developments – are there plans to purchase or dispose of any equipment?
No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Madeira Airport doesn't have a training facility.

PART 2: WINTER SERVICES QUESTIONNAIRE

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
The friction test was done by TRADETARGET in May 2014 and for determining the coefficient of friction are performed continuously at an average speed of 65km/h and 95km/h, at night time, with dry weather, and using the equipment GRIPTESTER.
15.2 Have you any comments on the reliability of friction indexes?
In the overall results of the evaluation of friction coefficient November 2013 the analysis by sections does not point to the need for intervention.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
No changes intended for now.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
Not applicable.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
Not applicable.
16.4 Do you have any winter services equipment that you would like to sell?
Not applicable.

ADOLFO SUÁREZ MADRID-BARAJAS AIRPORT

aena

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Madrid-Barajas Airport

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? Yes, we have been certificated three more times since 2011 first certificate (by Spanish Air Safety Authorities), due to new Apron Management Services in three main aprons (T4, T123 and T4Satellite).
AESA oversees all certification processes and conducts periodic audits whose results are translated into a Corrective Action Plan (CAP) to run through the airport. The airport regularly reports to AESA the CAP's monitoring.
In addition, the airport has made changes into the risk assessment procedure derived from AESA audits, to refine the procedure's methodology.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Continuous information campaigns for airport users and employees.
b) Inspection by airline, airport, and airplane handling agency personnel: Continuous inspections by marshaller in the whole movement area and by handling agents in the aprons.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Sweeping, magnetic bars and FOD containers installed in airbridges.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Safety Apron Committee for coordination with airlines and handling agents. A Safety Bulletin related to FODs was sent to all the multiple agencies in July 2014.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
A-SMGCS (SMR and Mode S Multilateration).
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? No
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A-SMGCS
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Developing of an onboard airport vehicles (RFFS, Follow-me, maintenance, etc) device with alarm of runway incursion and other sensible areas.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Each unit cares for their own training.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other





parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Yes, we have implemented a SMS according ICAO rules.

6. BIRD AND WILDLIFE CONTROL

6.1 Do your staff attend recognised bird control training courses? The wildlife control is done by an external company.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? They are working on the airfield continuously during daylight hours, from sunrise to sunset, 365 days a year.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Over 50 birds of prey to establish danger conditions to keep birds away from hazardous areas like runways and others; gas cannons to throw out perched birds at the sides of the runways; alarm calls (sirens) and devices to output electric sounds set up over Wildlife Control Service's 4x4 vehicles; nets and cages to live-capture large birds and little mammals; pyrotechnics to dissuade large birds; guns and shotguns; some ferrets to live-capturing rabbits.
6.4 Do you carry out a bird strike risk assessment? Annually, an exhaustive Birdlife Risk Study Management is conducted and evaluated to define new mitigation measures in order to reduce the birdlife risk in the airport activities. Moreover, since 2011, a Birdlife Committee was implemented in order to share and analyze information about: the bird population, mitigation measures, new proposals, areas of attraction, recorded incidents, other information concerned to the birds study in the vicinity of the airport and its influence area.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? All bird control activities and all incidents are logged in a database. This database contains information about sightings, strikes, removal of bird remains, reported birds strikes and other wildlife-related incidents.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? Occasionally, we have detected the existence of wild boars near the airport, outside the security fence. In these cases, animal control staffs use shooting to reduce the population in the area, always coordinated with the local wildlife authority.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: Mercedes Atego: Water Tank (litres) 3.000,00, Fire Pump (litres/minute) 400,00; Mercedes Atego: Water Tank (litres) 3.000,00, Fire Pump (litres/minute) 1.500,00, Foam Tank (litres) 360,00; Rosenbauer Panther 8x8: Water Tank (litres) 13.500,00, Fire Pump (litres/minute) 6.750,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.620,00; Rosenbauer Panther 8x8: Water Tank (litres) 13.500,00, Fire Pump (litres/minute) 6.750,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.620,00; Rosenbauer Panther 8x8: Water Tank (litres) 13.500,00, Fire Pump (litres/minute) 6.750,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.620,00; Rosenbauer Panther 8x8 HRET: Water Tank (litres) 12.000,00, Fire Pump (litres/minute) 6.000,00, Foam Tank (litres) 1.500,00; Man Protect Fire 6x6: Water Tank (litres) 10.000,00, Fire Pump (litres/minute) 5.000,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.200,00; Man Protect Fire 6x6: Water Tank (litres) 10.000,00, Fire Pump (litres/minute) 5.000,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.200,00; Man Protect Fire 6x6: Water Tank (litres) 10.000,00, Fire Pump (litres/minute) 5.000,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.200,00; Man Protect Fire 6x6: Water Tank (litres) 10.000,00, Fire Pump (litres/minute) 5.000,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.200,00; Oshkosh Striker 3000 6x6: Water Tank (litres) 10.000,00, Fire Pump (litres/minute) 6.000,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.200,00; Oshkosh Striker 3000 6x6: Water Tank (litres) 10.000,00, Fire Pump (litres/minute) 6.000,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.200,00; Saval Kronenburg Mac-11 6x6: Water Tank (litres) 10.000,00, Fire Pump (litres/minute) 4.500,00, Dry Chemical System (Kg PQS) 250,00, Foam Tank (litres) 1.200,00.
7.2 Future developments – are there plans to purchase or dispose of any equipment? Yes, there is a purchase planned for six new units which will replace older units. Furthermore the Rosenbauer Panther 8x8 HRET that was accidentally destroyed last year during a maintenance action handled by the constructor (MAN) will be likely replaced by a similar new one free of charge for Aena.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? Yes, we have a Fire Training Simulator, nowadays only used by Barajas Fire & Rescue Service but working on making it available to other Airports and Fire Services.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? There are human and material resources permanently; however the period with usually winter conditions occurs from 15 November to 15 March.
8.3 Average snow depth: In the period from 01/01/1950 to 31/01/2009 there were 14 snowfalls with approximately depth of 10 cm in which the snows covered the surface during approximately 24h.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? Airfield Maintenance: 2 airport employees per shift and up to 150 sub-contracted employees. Firefighters: 24 airport employees per shift. Marshallers: 11 airport employess per shift.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Runway equipment: Runway sweeper with truck Mercedes ACTROS 2041 with snow equipment Øveraasen, Øveraasen, RS400 MKIII, 9 units; snow blower, Rolba, Zaugg Modelo 1500, 2 units; liquid spreader, MAN, Boschung 15 M^3 62037, 3 units. Apron equipment: Mini loader, Bobcat S130, 10 units; loader, Volvo, L180, 6 units; truck, MAN, FE 40.414, 5 units; snow truck, MAN, 6X6 TGS 33.360, 5 units. Airside road equipment: Snow truck, MAN, 6X6 TGS 33.360, 2 units. Landside road equipment: Mini loader, Bobcat, S130, 4 units; snow truck, MAN, 4X4 TGS 33.310, 2 units; all roads 4x4, Mitsubishi, L200, 2 units. General machinery: Fuel supply tank, 1 unit; vehicle, 7 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Runways: The western runways, one for arrivals (14R/32L) and one for departures (18R/36L). Taxiways: A, M, B, N, J3, H3 and deicing areas. Aprons: 1º South part of T4 and of T4S, 2º T123 and rest of T4 and T4S.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: The vehicles were built in 2010 and are subject to all revisions stipulated by the manufacturer of each. There's also regular training of personnel who operate machinery, performing theoretical and practical training, including several drills to test routes and machinery formations established in the Airport Winter Action Plan.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? There are three cleaning routes defined to clean up the 4 runways and associated taxiways, so the cleaning of each runway is done in about 30 minutes. Approximately 40 minutes adding the time needed to friction coefficient verification.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: De-icer used last season (no too much adverse weather conditions): Potassium Formate: 41.700 litres. Urea: 16.220 kg. In the last two seasons there had been no adverse weather conditions (episodes of heavy frost or snow) at Madrid-Barajas airport, so we cannot report effectiveness analysis.
12.2 Comment on storage capabilities of the chemicals that you use: The potassium formate is stored in four tanks of 50,000 litres each, and two tanks of 33,000 litres each, so there's a total storage capacity of 266,000 litres. Urea is kept in a closed vessel to have it protected from adverse atmospheric conditions of temperature and humidity. Airport has storage 150.000 kg, but the storage capacity is bigger than this if necessary.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: It was used solid urea pre moistened with potassium formate in preventative treatments, been effective in every case it was used. The distribution of the material has been properly because there were no extreme high winds.
12.4 Have you experienced any corrosion problems with de-icers? No accident or corrosion problems detected, because as noted, have been used sparingly in recent years.
12.5 Have you employed any special means to economise on chemical use? Preventative treatments are performed only whenever atmospherics conditions are such that they will cause serious problems in the airfield. So saving is made having effective weather forecast information.
12.6 Do you have any other comments on experience with chemicals? Preventative treatments are very effective, so acting before early moments of the snowfall can avoid snow curdle into the floor, or even to form a layer of ice, more difficult to remove afterwards.
12.7 Do you use other chemicals or





sand on operational areas? No

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Spanish State Meteorological Agency send four temperature forecast daily and issue aerodrome warnings for frost.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? No
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: No comments.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: No, there is one deicing handler (IBERIA). 18 vehicles in total manufactured by JBT: TM 1800 (1 ud), LM 2000 (4 uds), Tempest with enclosed cab and airfresh (12 uds), Tempest with open cab (1 ud). In 2015, it is possible, that a new deicing handler will operate.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? Dedicated de-icing areas.
14.3 Is glycol recovered? If so, please state methods: Yes. An authorised company manages glycol. The company takes it to a treatment plant.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Mu-Meter Mk6. 2 Saab 9-5 vehicles with Norsemeter SFT.
15.2 Have you any comments on the reliability of friction indexes? No

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? A-CDM was totally implemented on 17 July 2014.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: No
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: No
16.4 Do you have any winter services equipment that you would like to sell? No

MALTA

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Malta International Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas. (For example: total RWY length (or lengths), Take Off Run Available [TORA], RWY width, shoulder widths, total apron area, ramp area, other):
Runway 13: Asphalt strip, 3,542x60m.
Runway 31: Asphalt strip, 3,355x60m.
Runway 23-05: Asphalt strip, 2,377x45m.
2.2 Landing aids for each RWY (e.g. CAT II):
Cat I.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
The improvement of the structure and employment of dedicated staff and upgrading of software to assist in safety assessments and investigations.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Awareness campaigns included in ramp staff training and the publication of monthly Safety Alerts.
b) Inspection by airline, airport, and airplane handling agency personnel: Regular airport inspections on the movement areas.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Mechanical sweeping/FOD bins/FOD controls/increase in FOD bins.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Airlines, Ground Handling Service Providers, Fuel Suppliers, and Airside Agencies.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No, but making use of e-database.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? ATC visual & inspections overseeing operations.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? Yes, regular monitoring/inspections and audits. Any concerns are addressed within safety assessments.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): Through ATC.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Paint/signs/red warning lights on top of traffic lights and enhancement surface markings ahead of runway hold positions.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Airport vehicle operators and airside users undergo strict training procedures with testing both verbal and written formats.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Yes, through the regulator and the Committee for the Prevention of Runway Incursions.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: Continuous grass cutting, checking of sensitive habitat area for birds, pruning of trees to avoid flocks, use of acoustic system, blank shots and when necessary, culling.
6.1 Do your staff attend recognised bird control training courses?
Yes, as recently as September 2014.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
24/7 on the aerodrome.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Acoustic bird dispersal sound systems from Scarecrow Bio-Acoustic Systems (UK), including a GPS based system (Ultima) from the same supplier and two handheld devices.
6.4 Do you carry out a bird strike risk assessment?
Yes – concluded a study in 2014.
6.5 Do your staff log all their bird control activities? (to manage success in dealing with the problem, and to use in defence in case of lawsuits):
Recording for each inspection is obligatory.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Very rarely dogs – provisions are made with local animal welfare authorities for their safe removal.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
Three Rosenbauer Panther; 6x6; (FL 33.600), water capacity 12,000l, foam capacity 1,500l, dry powder 125kgs; 2000. One Rosenbauer RIV; water capacity 2500l, foam capacity 300l, dry powder 250kgs; 2012.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Full Training Grounds for ARFF. Training grounds used primarily for internal training but also provide opportunity to train third parties.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
Mild winter.
8.2 Average annual days of snow: No snow.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
Regular safety alerts and continuous improvements/revision of procedures to reflect any changes following the outcome of safety assessments and investigations.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
Currently (and gradually) upgrading operational vehicles.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
Yes, one 4X4 vehicle.

MUNICH

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Flughafen München

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY 08L/ 26R: 4,000x60m; TORA: 4,000m; LDA: 4,000m. RWY 08R/26L: 4,000x60m; TORA: 4,000m; LDA: 4,000m. Total runway surface area: 612,840sqm. Total apron surface area: 2,280,000sqm.
2.2 Landing aids for each RWY (e.g. CAT II):
PAPI, ILS CAT IIIb.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
The Safety Management System was introduced in Munich on November 24, 2005. A Safety





Manager has been appointed and nominated to CAA in accordance with national air transport legislation. The MUC SMS structure and goals are in accordance with the ICAO Manual on the Certification of Aerodromes/Safety Management Manual and Annex 19 Safety Management. The Munich Safety Management System has implemented the following Safety Committees: Emergency, Ramp, Runway and Snow Committees. It includes also an Occurrence Reporting System, Incident Investigation and Hazard Identification. The permanent development of the SMS is subject to continuous oversight by Civil Aviation Authority. No reason to induce changes by SMS, recently.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: FOD awareness is part of ramp handling personnel/operations staff training programmes. FOD awareness campaigns within framework of SMS
b) Inspection by airline, airport, and airplane handling agency personnel: Stand pre-use FOD inspection is part of handling agency obligation. Daily routine FOD Inspection by Airport Operations Staff every 4 hours scheduled/H24.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Continuous Sweeping Program, dedicated FOD Bins on each stand, FOD inspections by airport operations. The movement areas are serviced daily at regular intervals and when required by surface sweeping vehicles.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Within Safety Management System, Ramp Safety Committee and Airport Ramp Supervision during daily operation.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
No, software solution for FOD control is implemented.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
Multilateration, Visual Surveillance, Radio Instructions, Surface Movement Guidance System with stop-bars and segmented taxiway centreline lighting. GPS monitoring of winter services vehicles, supervision of contractors.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Implementation of multilateration.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
A-SMGCS, ASMR, Multilateration.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
Contrasting paint of CAT 1 Holding Point Marking (black bordering) with increased character size, Runway Guard Lights.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Establishment of a Runway & Movement Control Safety Committee within framework of SMS. Any vehicular traffic operating on the manoeuvring area requires dedicated driver's license and must obtain prior approval/ legitimation by Airport Duty Manager before requesting ATC clearance. Any subcontracted airside works will be guarded by airport manpost with continuous radio contact to ATC and Airport Operations. Runway Inspections are carried out on ATC frequency and using English phraseology.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Reporting System is part of the SMS. Incursion Data will be exchanged between ATC and airport within the framework of Runway & Movement Control Safety Committee. Munich encourages a 'non-punitive' culture unless the incursion or incident demands inevitable disciplinary action.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Habitat management is the main aspect of wildlife hazard management at Munich Airport. We expend considerable effort on creating and maintaining biotopes so as not to attract to the airport and its surrounding area the kinds of birds that pose a threat to aviation. Munich Airport works closely with organisations on the question of bird strike prevention, in particular with airline companies, German air traffic control, regional and national government agencies, and the German Bird Strike Committee (DAVVL). Elimination of attractive trees and bushes within the runway system; reduce available nesting and rooting sites by modifying buildings to limit ledge space; close entry holes through the use of screens and boards; cover areas of open water with wire or netting.
6.1 Do your staff attend recognised bird control training courses?
The staff is trained regularly by own and external wildlife specialists (e.g. German Birdstrike Committee).
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Bird control is carried out by specially trained employees who are in charge throughout the airport's operating hours and remain in constant contact with air traffic control. The time they spend on the airfield is depending on the actual wildlife situation. Ornithological surveys are also done by wildlife experts.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
We have different pyrotechnic pistols, distress calls (scarecrow), different shotguns, traps, binoculars.
6.4 Do you carry out a bird strike risk assessment?
Bird strike assessments are regularly done by own and external wildlife hazard experts (e.g. German Bird Strike Committee).
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Bird control activities are recorded in a daily log.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Because of a safe and well-maintained perimeter fence, we have no problems with bigger mammals.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
2x Command Vehicles (KDOW) 4x4 Audi, BMW; 3x Command Vehicles (ELW 1) 4x4 Mercedes Benz; 1x Command Vehicle (ELW 2) MAN; 2x Airport Fire-Fighting Vehicles (FLF 80/135), MAN-Saval-Kronenburg 8x8, 13,500 ltr. water, 1,600 ltr. AFFF foam (Replacement); 2x Airport Fire-Fighting Vehicle (TroFLF/Panther/AT), MAN 8x8, 12,500 ltr. water, 1,500 ltr. foam, 1,000 kg powder; 4x Airport Fire-Fighting Vehicles (FLF/MAN-Ziegler with articulated snozzle), 8x8, 12,500 ltr. water, 1.500 ltr. foam; 3x Airport Fire-Fighting Vehicle (FLF/MAN-Ziegler) 8x8, 12.500 ltr. water, 1.500 ltr. foam, 1.000 kg powder; 2x Rescue Ladder 4x4 Mercedes Benz; 1x Mercedes Benz 4x4 (Supply-Truck); 5x Rescue Fire-Fighting Vehicle (HLF), MAN 4x4, 2.500 ltr. water, 300 ltr. Foam; 2x Aerial Ladder and Platform (DLK 23-12/ GL C) 4x4 MAN; 1x Rescue Unit (RW2), MAN 4x4; 3x Interchangeable-body Truck (WLF), MAN 6x6.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
1x Aerial Ladder and Platform (DLK 23-12/GL C) 4x4 MAN; 1x Command Vehicle (ELW 2) Mercedes Benz; 1x Command Vehicles (ELW 1) 4x4 Mercedes Benz.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
No training to other airports available at this moment.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
15 October-15 April.
8.2 Average annual days of snow:
60 days.
8.3 Average snow depth:
42.5 cm.
8.4 Maximum snow in 24 hours:
52 cm.
8.5 Annual number of days of de-icing activities:
67 days.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
90 airport employees, 22 sub-contracted companies with a total of 450 employees.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
Runway and taxiway (34 vehicles): 22x airblast sweepers, 9x Schmidt TJS 630, 1x Vammas SP, 3600, 7x Overassen RS 400, 5x Overassen RS 200, 6x trucks with snow ploughs, 2x airport-sprayer (40m), 2x multi-de-icer (Küpper Weisser), 1x spreader for granulate (volume 2,640 gallons) (Fendt 927), 1x Head of Operations vehicle (Toyota). Aprons and other surfaces (94 vehicles): 88 tractors with snow plough and sweeper or with snow plough, sweeper and sprayer, 4x multi-de-icer, 1x little truck with snow plough, sprayer and spreader, 1x Head of Operations vehicle (Honda). Snow transport (45 vehicles): 7x snow loaders, 30x truck for snow transport, max. loading capacity 506,880 gallons (all trucks), 2x snow cats, 5x wheel loader, 1x Head of Operations vehicle (Honda). Public area (23 vehicles): 7x truck for roads, 8x little truck for sidewalks, 4x transport vehicles for employees, 2x truck for snow transport, 1x wheel loader, 1x head of operations vehicle (Skoda). Total: 196 winter service vehicles, overall.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
1. Runways and taxiways; 2. Aprons and all areas where service/ground handling vehicles must have access to.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Three groups are in progress simultaneously – one



apron group, one runway group and one group for snow transport. The runway group is responsible for the runways and the operational necessary taxiways in dependence of the landing direction.
11.3 After moderate snow, how quickly do you expect to achieve "black top" on the runway?
20 minutes after beginning of winter service measures.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Potassium formate: Runway 158t, taxiway 404t, apron 493 t. Sodiumformiate: Runway 42t. The effectiveness of formiate chemicals at low temperatures is good. The holdover time depends on weather conditions.
12.2 Comment on storage capabilities of the chemicals that you use:
The storage capability of the liquid de-icer is very good. If we store the solid de-icer for more than a year, it tends to "compact" and pack together, which makes using it slightly more difficult.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
Normally we use 20-25g/sqm de-icer. When necessary, we use a mixture of half liquid (12.5g/sqm) and half solid. Solid de-icers are used to extend the hold-over time. When spreading solid de-icers, areas with increased jet blast are omitted.
12.4 Have you experienced any corrosion problems with de-icers?
Yes, with potassium formate.
12.5 Have you employed any special means to economise on chemical use?
Yes, we are constantly working to optimise our usage of chemical products, including special training in the use and application of chemicals as well as updating our fleet with new innovations equipment. Additionally, all of our de-icing vehicles are equipped with GPS – this helps us better determine how to deploy both chemicals and manpower.
12.6 Do you have any other comments on experience with chemicals?
It will be slippery when aircraft de-icing chemicals are on the ground.
12.7 Do you use other chemicals or sand on operational areas?
Yes, we use sand on operational areas.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
Boschung AWIS, 24 outdoor measuring-stations; Boschung IT-SENSE surface condition detection system, 36 measuring-stations (18 on each runway).
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
No.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
Ice warning systems are useful in supporting decisions of how to prepare/conduct de-icing operations at any given time. The surface condition detection system improves the situational awareness and the safety of flight operations.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
Yes, EFM on behalf of Munich Airport. 14x Vestergaard Beta, 5x Vestergaard Beta (new generation), 2x Vestergaard Beta 15, 3x Vestergaard Beta 15 (new genaration).
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
Yes, Munich Airport operates 12 dedicated de-icing areas located close to the runways.
14.3 Is glycol recovered? If so, please state methods:
Munich Airport employs a special "recapture" system consisting of runoff canals in the cement platform on which the de-icing stations are based. This allows us to recapture 50-60% of the de-icer chemicals used on aircraft; we then reuse the collected and recycled fluid as aircraft de-icing fluid.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
3x ASFT CFMEs.
15.2 Have you any comments on the reliability of friction indexes?
Munich is actively participating in the ICAO Friction Task Force. Beside other means, friction measurements are used as one tool for an overall runway condition assessment. Primarily the assessment of the estimated surface friction is based on contaminant type, depth and coverage. Friction values are not reported.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
Yearly readjustments on the requirements of airport handling.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
We are constantly working to improve our winter service-activities – this includes buying/leasing new equipment when necessary, keeping abreast of the latest innovations via trade publications/informational material, etc.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
No, equipment on order.
16.4 Do you have any winter services equipment that you would like to sell?
Yes, 3x Saab SFTs.

OSTRAVA

Leos Janacek Ostrava Airport

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME:

Ostrava Mošnov Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY 04/22: ICAO CAT II. RWY dimensions: 3,500x63m, bituminous shoulders on both sides of RWY and all TWY 5.5m. Declared distances: RWY 04: TORA 3500, TODA 3800, ASDA 3500, LDA 3500. RWY 22: TORA 3500, TODA 3800, ASDA 3500, LDA 3500. Total apron area: 130,000sqm. ACFT stands: APN CENTRAL , 5x CAT C, 2x CAT D, or ALTERNATIVE STANDS, 1x CAT F, 6x CAT B, 2x CAT A; APN SOUTH, 3x CAT C, 2x CAT E (or 1x CAT F); APN GA CAT A or CAT B, APN ELMONTEX CAT A or CAT B, APN LETs FLY, CAT A or CAT B. Other APN and RAMP: Hangar APN NORTH 1, SERVICE APN NORTH 2.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY ICAO CAT II, ILS CAT II/IIIA READY FOR CATIII/A UPGRADE.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome."
Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Yes, SMS audits are done according to plan and monitored by CAA.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Training is defined by airport guidelines. Personnel are trained according to these guidelines.
b) Inspection by airline, airport, and airplane handling agency personnel: Inspections are done 4 times a day by airport operation dispatcher.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc):
6x jet broom sweepers available, FOD containers on APN, trained airport staff.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Cooperation with bird-protection service provider.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
No software in use.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?
ATCO, Ground FREQ.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
Multilateration Surveillance System – P3D is undergoing certification for implementation of ICAO CAT III/A operation.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
Multilateration Surveillance System – not certified yet.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
RWY guard markings on every TWY. RWY guard lights on every TWY. Stop-bars and elevated stop-bars on TWYs. Crossing service roads equipped with elevated stop bars, markings and stop signs.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
Airport staff are trained every two years. Rules are defined in airport guidelines. RWY safety team holds meetings with local aircraft operators, airport and ATC representatives.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Safety boxes are installed at airport. Non-punitive principles are applied.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
Bird and wildlife control is provided by external provider. Control is done continuously, specialist guard in the vicinity of RWY. The provider use trained birds, firearms, dogs.





6.1 Do your staff attend recognised bird control training courses?
Outsourced service.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
From 05:00 till 21:00 continuously, then on request.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Acoustical gun.
6.4 Do you carry out a bird strike risk assessment?
When increased concentration of birds occurs notification is received.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Provider produces detailed statistic review. On its web site publishes statistics, alerts and general information on actual bird situation at major airports in the country.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
2x Rosenbauer PANTHER 6x6, 12500l water, 1500l foam, 250kg powder, 2010; 2x Mercedes ACTROS BUFFALO 3 and 4, 6x6, 6000l water, 800l foam, 250kg powder, 2008; 1x MB ACTROS, 6x4, container transporter, 2009; 1x Bronto Skylift F32 RLX, withdrawable platform, 2009; 1x MB SPRINTER – chemical protection, 2009; 1x MB SPRINTER – transport vehicle, 2009; 1x Nissan PATROL - rescue car 2006; 1x Peugeot PARTNER Teepee, technical support, 2009; 1x Ambulance FORD, 1999; 1x Mitshubishi L20; 1x Recovery container with inflatable bags.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
Fire Training and Rescue Centre is being developed, available for other airports.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
1 October-30 April.
8.2 Average annual days of snow:
120 days.
8.3 Average snow depth:
10cm.
8.4 Maximum snow in 24 hours:
25cm.
8.5 Annual number of days of de-icing activities:
45cm.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
7 persons per shift (12H).

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
1x compact plough – jet sweeper, MB Actros, Schmidt 560; 3x Overaasen COMPACT; 2x Overaasen RS400; 1x plough truck TATRA 815 + jet broom Schorling P15; 1x MB UNIMOG, plough and sander-gritter; 1x MB RWY de-icer; 2x snow cutter; 3x plough tractors ZETOR.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
1. RWY 04/22; 2. TWYs; 3. APN CENTRAL; 4. APN SOUTH, NORTH; 5. Other surfaces.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
Four plough trucks with jet brooms enter the RWY via APN CENTRAL and TWY C. The snow banks are pulled to the sides of RWY and then the snow cutter moves them out of the RWY. The same procedure is applied on TWYs and APN.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway?
40 minutes takes clearing of RWY at full length and width.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc.:
1x MB UNIMOG, plough and sander-gritter and 1x MB RWY de-icer. Nitric acid amide (carbamide) is used for chemical treatment of pavements.
12.2 Comment on storage capabilities of the chemicals which you use.
Storage in local hangar.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc.
Carbamide mixed with water is used to defrost solid ice layer.
12.4 Have you experienced any corrosion problems with de-icers?
No experience.
12.5 Have you employed any special means to economise on chemical use?
Chemical treatment responds to actual weather forecast to minimise excessive use.
12.6 Do you have any other comments on experience with chemicals?
No.
12.7 Do you use other chemicals or sand on operational areas?
No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
No.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
No.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
2x MD GLOBAL 8000 DEAP.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
Yes, de-icing is provided at APN CENTRAL stand No.1 and APN SOUTH at dedicated stand.
14.3 Is glycol recovered? If so, please state methods:
No.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
SARSYS VOLVO (SVFT).

PODGORICA

Aerodromi Crne Gore
Airports of Montenegro

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Podgorica Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
Dimensions of runway: 2,500mx45m. Strip dimensions: 2,620mx300m. Runway designator: 18; TORA (m): 2,500; TODA (m): 2,500; ASDA (m): 2,500; LDA (m): 2,500. Runway designator: 18; TORA (m): 2,005; TODA (m): 2,005; ASDA (m): 2,005; take-off from intersection with TWY B. Runway designator: 36; TORA (m): 2,500; TODA (m): 2,500; ASDA (m): 2,500; LDA (m): 2,500. Runway designator: 36; TORA (m): 2,007; TODA (m): 2,007; ASDA (m): 2,007; take-off from intersection with TWY E. Apron area: 28,000sqm. Apron area for general aviation: 5,220sqm.
2.2 Landing aids for each RWY (e.g. CAT I):
RWY 18 – Non-instrument approach (approach light unique system); RWY 36 – CAT I (ALPA ATA); RWY 18 – PAPI (BOTH); RWY 36 – PAPI (BOTH).

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome."
Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits?
Currently in the process of SMS implementation.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Through Safety Awareness Training Courses and regular refreshment of knowledge, which must be completed by every employee working at airside. FOD prevention is part of the above-mentioned training course also. In addition, the adequate operational procedures are established for FOD control and removal.
b) Inspection by airline, airport, and airplane handling agency personnel: Staff of Podgorica Airport, as the handler, perform regular inspections over the manoeuvring surfaces and aprons at least two times per day and in the case of bad weather conditions more frequent checks are performed. Regular airlines audits control this issue also.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): By using carpet, apron FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc.): We have established a safety alert form, which is distributed to all subjects within airside zone.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments):
Currently no special systems or software solutions applied, but through hand filed reports we do daily analysis.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground?





In accordance with the document 'Agreement of Coordination' between ATC Podgorica and airport operator, responsibility of monitoring manoeuvring surfaces and authorisation for vehicle and aircraft movements falls to ATC. The airport operator is responsible for aprons and access roads on the airside.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
No design or engineering changes have been undertaken.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment):
None of the mentioned safety devices from the list.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
None.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport?
The airport operator has organised safety awareness training for all staff working on airport (ATC staff, military staff, refuelling company staff, catering supplier etc.) through airport`s training centre. Safety alerts booklets have also been introduced for all present staff at the airport and an SMS box is available for safety matters, which occur at the airport.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting?
Through internal procedures we raise safety awareness for all staff employed at the airport, encouraging people to report occurences dealing with safety personally, by phone or in written reports which can be submitted anonymously through the installed SMS box. According that we apply no penalty reporting, in addition an open reporting culture system have been encouraged and promoted.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:
With regards to terrain covered with grass at airside, it is matter of a permanent cutting grass process, as well as continuous monitoring of the surfaces from the fire fighting service watchtower. In the case of the greater presence of birds, the procedure for the dispersal of birds is activated.
6.1 Do your staff attend recognised bird control training courses?
No recognised courses attended.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly?
Staff work continuously as a part of the Rescue and Fire Fighting team, through regular daily inspections of manoeuvring surfaces and also through reporting events from the side of aircraft crew, ATC, handling staff etc.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer):
Sirens mounted on vehicles and shotguns.
6.4 Do you carry out a bird strike risk assessment?
No but we analyse the bird strike trends in accordance with the recorded occurrences.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)?
Yes, we have log book with recorded bird dispersal activities and also report on the occurrence of birds (QP4.80).
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed?
Occasionally wild dogs appear, attracted by hares. Regular activities of cutting the grass, reducing food resources and shelter for hares, have been performed.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
2x Rosenbauer; MAN; 6X6; 12,000l water, 1,500l foam; 2004. Amertek; 4X4; 4,000l of water, 500l foam; 1992.
7.2 Future developments – are there plans to purchase or dispose of any equipment?
No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes?
We do not possess a Fire Training Simulator, but we do practical exercises/drills.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness?
From 1 November-31 March in accordance with instruction QP3.37 And QP3.74.
8.2 Average annual days of snow:
2 days a year (last 3 years).
8.3 Average snow depth:
3cm.
8.4 Maximum snow in 24 hours:
No data available.
8.5 Annual number of days of de-icing activities:
No data available.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift?
About 20 employed persons per shift, but that number can be increased depending on the intensity of the precipitation.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):
According to subcontracted equipment list: 2x truck with snowplough, 3x urea spreader, 1x sweeper and one 1x snow blower, Rolba Viking, and 1x truck, Unimog, which can be equipped with snowplough or snow blower as well.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility:
Priorities for cleaning movement areas are the following: RWY; Taxiways N & B; Apron (one stand minimum); GA apron (one stand minimum); Taxiways J & P.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
One passing of trucks with snowploughs from the edge of runway to the centreline, and then snowploughs operate from the centreline to the edge of the runway. After that, snow blowers throw snow out of runway then sweeper cleans the runway surface and urea spreaders sprinkle tarmac.
11.3 After moderate snow, how quickly do you expect to achieve "black top" on the runway?
3-4 hours.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc:
Urea, but last year there was no snow precipitation, and low temperatures as well.
12.2 Comment on storage capabilities of the chemicals that you use:
None.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
None.
12.4 Have you experienced any corrosion problems with de-icers?
No.
12.5 Have you employed any special means to economise on chemical use?
No.
12.6 Do you have any other comments on experience with chemicals?
No.
12.7 Do you use other chemicals or sand on operational areas?
No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems:
None.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)?
No.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems:
None.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units:
No.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area?
Not applicable.
14.3 Is glycol recovered? If so, please state methods:
Not applicable.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use?
Friction tester (Airport Surface Friction Tester – ASFT), type Continuous Friction Measuring Equipment – CFME.
15.2 Have you any comments on the reliability of friction indexes?
None.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods?
Currently no.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details:
No.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units:
No.
16.4 Do you have any winter services equipment that you would like to sell?
No.





PRAGUE

Prague Airport

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Prague Ruzyne Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other):
RWY 06/24: Dimensions 3715 x 45 m; PCN 62/R/B/X/T; shoulders 2 x 7,5 m; TORA, ASDA, LDA – 3715 m; TODA – 4015 m.
RWY 12/30: Dimensions 3250 x 45 m; PCN 62/R/B/X/T; shoulders 2 x 7,5 m; TORA, ASDA, LDA – 3250 m; TODA for RWY 12 – 3400 m; TODA for RWY 30 – 3550 m.
RWY 04/22: Dimensions 2120 x 60 m; PCN 45/F/B/X/T (RWY is closed for take-offs and landings. Taxiing, parking and handling of aircraft approved).
Total Apron Area: 635,000sqm. Total Pavement Area: 2,200,000sqm.
2.2 Landing aids for each RWY (e.g. CAT II):
RWY 06: ILS CAT I, PAPI, ALS length 480 m;
RWY 24: ILS CAT II/III, PAPI, ALS length 900 m;
RWY 12: ILS, PAPI, SALS length 420 m; RWY 30: ILS CAT I, PAPI, ALS length 900 m.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? Prague Airport has SMS developed in compliance with ICAO Doc. 9859. Continuous improvement of SMS methods, statistics, cooperation with ATC, CAA and handlers. Improvements in communication tools http://www.prg.aero/safety.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: General FOD training is the part of periodical Security and Safety training, which is mandatory for all personnel with permission to enter the SRA zone.
b) Inspection by airline, airport, and airplane handling agency personnel: Airport: FOD check of whole airport is one part of serviceability check provided by Airfield Operations Control at least every four hours at the Movement area and every two hours at the Apron. Handling: According the Airport rules, the Handling agent is responsible for FOD check at the stand before the arrival and after departure of aircraft.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): There are two vacuum cleaners dedicated for sweeping of the Apron. There are FOD containers at all stands.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Co-ordination of FOD prevention is a business of Apron Safety Team. The representative of all Handling, Cargo and Refueling companies providing services at the airport as well as the representatives of the main airlines and AOC are the members of this team.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? A-SMGCS at the Movement area (all vehicles are equipped with Mode S responder) and CCTV at the Apron.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? No
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A-SMGCS level 2.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
RWY: All CAT I holding points are equipped with Guard Lights and large inscriptions "RWY AHEAD" on the red background behind all the last RWY holding points marking. All CAT II/III holding points are equipped with Guard Lights and Stop bars. RWY 06/24 has marking with black borders to highlight the markings on the concrete surface.
TWY and APRON: TWY centre line marking has been widened to 30 cm; where an information sign would be normally installed and where is impractical to install, information marking has been painted on TWY centre line, prior to TWY intersection. TWYs with concrete surface have markings with black borders. The lighted signs "Low Visibility Operations" on the apron area.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? All drivers permitted to drive a vehicle on the movement area have to have a special training providing by ATC training center and they have to pass an examination. After that, they get a special license valid for three years.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Yes, Prague Airport has a common reporting system for Runway Safety Incidents. The system (web reporting) is able to safeguard the identity of persons submitting the report. Civil Aviation Authority and Air Accidents Investigation Institute have web-based online reporting system, where reporting of all personal information is voluntary. A Committee of czALPA has a no-penalty Safety Reporting System. Pilots are asked to report accidents, incidents, extraordinary steps of flight crews or ATC or imperfections of navigation aids or airport equipment, dangerous for safety of aircraft operations.

6. BIRD AND WILDLIFE CONTROL

6.1 Do your staff attend recognised bird control training courses? Employees from the Bird control department must be the regular members of the Hunting Union and as a certified hunters they have to pass a special examination.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Continuously, from sun rise to sun set.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): The main method of bird control is falconry. The airport has employed a group of falconers who protect the movement area with specially trained falcons, hawks and eagles. The method is based not only on the fact that the falconers hunt the wild birds but also on the fact that the birds feel threatened and choose not to remain in the airport area.
6.4 Do you carry out a bird strike risk assessment? No, but we analyse the bird strike trends on monthly basis.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: Volkswagen Transporter 4x4 (UHPS) – 1x (from 2003, water 200 l, foam 20 l); PANTHER II Rosenbauer HRET 6x6 – 1x (from 2009, water 12 500 l, foam 1 500 l, powder 250 kg); PANTHER II Rosenbauer 6x6 – 1x (from 2008, water 12 500 l, foam 1500 l, powder 250 kg); PANTHER Rosenbauer 6x6 – 2x (from 2003, 2004, water 12 000 l, foam 1 500 l, powder 250 kg); Scania 6x6 – 2x (from 2014, water 8 000 l, foam 1 000 l); Scania 4x4 – 1x (from 2011, water 2 500 l, foam 200 l); Scania Bronto Skylift RLX 42 – aerial platform with ladder (42 m) Volkswagen LT 46 - technical support; IVECO Daily – HAZMAT, technical support; Scania Container Carrier incl. medical container, foam container and various technical equipment (especially DAR operation); Mercedes Sprinter – mobile command post; Skoda Octavia – IC car.
7.2 Future developments – are there plans to purchase or dispose of any equipment? According with new runway system we plan to reinforce with one heavy truck with HRET and hydrochem technology (the category of Panther) and located it to new subsidiary fire station.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? There is no fire training MOCK-UP at Prague Airport neither in the Czech Republic. We are providing ICAO training abroad.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? 1 November to 30 April.
8.2 Average annual days of snow: 28 days (based on statistics of last 14 years), 11 days (last winter 2013/2014).
8.3 Average snow depth: 84cm (based on statistics of last 14 years), 79cm (last winter 2013/2014).
8.4 Maximum snow in 24 hours: N/A
8.5 Annual number of days of de-icing activities: N/A

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? Total winter services personnel available per shift: Operational dispatcher – 3; Operational coordinators (Foreman) – 1; Drivers – 16 internal + 12 external; Mechanic – 2.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Compact jet sweeper Boschung Jetbroom Runway, 5 units; Compact jet sweeper Boschung, Jetbroom BJB 8000, 1 unit; Compact Blower-sweeper, Schörling, P17C, 3 units; Compact Blower-sweeper, Schörling, P21C, 4 units; Towed Blower-sweeper, Schörling, P17, 4 units;





High speed snowblower, Kahlbacher, 2 units; Snowblower Schmidt 5000, 1 unit; Snowblower Rolba 4000, 1 unit; Snowblower Schmidt 1500, 2 units; Airport Sprayer, Schmidt, 1 unit; Airport Sprayer, EPOKE, 1 unit; Airport twin disc sprayer Schmidt, 1 unit; Airport twin disc spreader Schmidt, 1 unit; Airport disc sprayer Kobit, 2 units; Tractor with "Y-plough", 4 units; Unimog 300 with plough and spreader, 1 unit; Container spreader Mercedes, 1 unit; Small plough and spreader Magma, 1 unit; Small sweeper Bucher CityCat 2020, 2 units; Small sweeper Bucher CityCat 5000, 2 units; Tractor sweeper, 9 units; Jet Blower, 3 units; Snow removal: truck, 4 units; loader, 3 units; tractor platform trailer, 4 units; subcontracted truck and loaders.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: 1. RWY in use + RWY exits + TWY parallel to RWY in use, apron NORTH (number of stands covering real traffic), access to Fire Fighting Rescue Service stations, entries to equipments of Aeronautical Meteorological Service an radio navigation aids relating to RWY in use, access to aircraft parking position and hangars. 2. Second RWY + RWY exits + TWYs. 3. Apron EAST and apron SOUTH. 4. Rest of the apron NORTH. 5. Rest of the apron EAST and apron SOUTH. 6. Rest of movement area, equipments of Aeronautical meteorological Service, radio navigation aids and manipulation areas.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: Airside working group is responsible for cleaning of whole maneouvering area: RWG - Runway Working Group; AWG - Apron Working Group; GWG - Gate Working Group.
Landside working group is responsible for cleaning of whole landside: Snow co-ordinator co-ordinates the action with TWR Controller. RWY, which is being cleaned, is closed for aircraft operations by SNOWTAM. The complete RWG moves to RWY threshold and starts cleaning of the RWY and parallel TWY. Apron: Snow is pushed from the terminal building across the APRON to the grass if it is possible or it is loaded and removed. Surface De-icing: Acetates are used for de-icing on runways, taxiways and aprons. Urea can be used on landside only.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? 30 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Movement area - potassium acetate (Provi Frost); approx. 900,000 litres. Roads / parking lots - salt approx. 400 tons. We are satisfied with effectiveness at low temperatures. However, it would be useful to increase a holdover time of de-icers, particularly when freezing rain or freezing fog.
12.2 Comment on storage capabilities of the chemicals that you use: Storage for 200,000 litres directly at the airport.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: Experience with solid deicers were not good, so we don't use it any more.
12.4 Have you experienced any corrosion problems with de-icers? No
12.5 Have you employed any special means to economise on chemical use? No
12.6 Do you have any other comments on experience with chemicals? No
12.7 Do you use other chemicals or sand on operational areas? Application of the sand on operational areas is prohibited by CAA and urea is prohibited due to environmental reason.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Boschung Mecatronic, 8 stations.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? No
13.3 Comment on your experiences of the benefits/ disbenefits of ice warning systems: The ice warning system is very good tool for monitoring of the pavement condition. It also helps us with alarms of bad conditions on the runway. Its function to store historical data is very useful.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/ de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: De-icing and anti-icing is provided by 3 companies (ground handlers): Czech Airlines Handling – 5 de-icing vehicles; Menzies Aviation – 2 de-icing vehicles; Czech Ground Handling– 2 de-icing vehicles.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? We have dedicated de-icing positions.
14.3 Is glycol recovered? If so, please state methods: Not yet.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? SARSYS Friction Tester based on SAAB 9-5, 2 units.
15.2 Have you any comments on the reliability of friction indexes? No

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? No
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: Yes, we have an action plan for replacement of existing units and increasing capacity and capability of winter services for the future.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: No
16.4 Do you have any winter services equipment that you would like to sell? Not yet.

PULA

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Pula Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY: 2946x45m, TORA: 2946m, TWY WIDTH: 23m SHOULDERS: NONE RAMP: approx. 64.200 square meters.
2.2 Landing aids for each RWY (e.g. CAT II): RWY09 - CAT I Simple Approach Lighting System RWY27 - CAT I Simple Approach Lighting System.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? Yes, it has.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: We have internal procedures for ensuring the control of FOD and regular safety trainings are being conducted.
b) Inspection by airline, airport, and airplane handling agency personnel: Airport employees are conducting inspections of FOD on operating areas several times a day and FOD parking stand check is done prior to A/C parking. Airport procedures for controlling FOD are presented to the airlines and handling agencies during audits.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): We use FOD containers and sweeping methods.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Coordination with ATC, there is no other multiple agencies.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments.) Our employees use a special Pula Airport software ("IMS") in order to log all daily inspections of operating areas in the terms of FOD's control.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Monitoring is ensured through DCS system, video surveillance (video records) and personnel observations.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? No, there are not.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment) Above mentioned devices currently are not employed.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies. Use of these technologies can be very useful and successful, especially on airports with one runway and a few number of taxiways. We are continuously renovating all markings (paint signs) and designing new. This year we have painted red mandatory markings on holding points.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Airport staff are participating safety trainings courses constantly and all other people who are performing periodical work on operating area must also attend safety training.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? The reporting procedures for safety incidents has been already set up jointly with other parties active in these processes and 'no-penalty' principles are ensured.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds. The attraction of birds to the airfield is reduced by careful planning of herb cutter on the airfield and on surrounding areas.
6.1 Do your staff attend recognised bird control training courses? Yes, they did.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than





hourly? Yes, continuously in shifts.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer) Pula Airport employees use pyrotechnics, alarm shotguns and dogs.
6.4 Do you carry out a bird strike risk assessment? Yes, it has been carried out.
6.5 Do your staff log all their bird control activities? (to manage success in dealing with the problem, and to use in defence in case of lawsuits) They log all their bird control activities through our bird control programme software which indicates every single bird control prevention activity (for example: time and place of using alarm shotguns and dogs).
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No, we do not have problems with other wildlife.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture. Pula Airport vehicles: 1. PANTHER I, 6x6, Rosenbauer, 2009. Water tank: 12000l, Foam tank: 1500l, Powder tank: 250kg; 2. PANTHER II, 6x6, Rosenbauer, 2007. Water tank: 12000l, Foam tank: 1500l, Powder tank: 250kg; 3. PANTHER III, 6x6, Rosenbauer, 2005. Water tank: 12000l, Foam tank: 1500l; 4. FAUN, 6x6, Rosenbauer, 1984 Water tank: 9000l, Foam tank: 1000l; 5. MAZDA, 4x4, B2500 TD, Mazda, 2004.
7.2 Future developments – are there plans to purchase or dispose of any equipment? The new RFFS hangar has been constructed and it is in function.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? Construction of a Fire Training Simulator is included in future plans.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? 1 November to 15 April.
8.2 Average annual days of snow: 1-2
8.3 Average snow depth: 5-20cm
8.4 Maximum snow in 24 hours: Approx. 15cm
8.5 Annual number of days of de-icing activities: 15-20 on DashQ400

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? Pula Airport does not have a special winter service. In the case of severe meteorological conditions, winter service is formed from maintenance personnel and technical service personnel. The number of available personnel per shift would be min. 12-15.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (For example: compact jet sweeper, Schmidt, CJS 720, 4 units) 1. Anti/de-icing truck, Man-Sroder, 18.232 F-Automatic, 1 unit; 2. Pavement sweeper, FMS, 1 unit; 3. De-icers spreader, 1 unit 4. Other sub-contracted vehicles and equipment.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility. 1. Runway; 2.Taxiways C, F and then A and others; 3. Apron.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance. The clearing starts after 15-20mm of wet snow or 50mm of dry snow. It is performed with our and sub-contracted sweepers. After sweeping, the de-icers spreader, sprinkles the de-icer chemicals.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? It is hard to estimate because there was no often moderate snow on Pula Airport in the last 3 or 4 years. It happened only once and the "black top" was achieved during the night.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: We use "UREA" pavement de-icer and last 2 or 3 seasons we did not have to use it at all. "UREA" de-icer has enough effectiveness for our meteorological conditions.
12.2 Comment on storage capabilities of the chemicals which you use. We have 1,250 kg of "UREA" in our storage and more than 1,250kg in a sub- contracted storage.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc. "UREA" is a solid de-icer.
12.4 Have you experienced any corrosion problems with de-icers? No, until now we did not.
12.5 Have you employed any special means to economise on chemical use? No, we did not.
12.6 Do you have any other comments on experience with chemicals? No, I do not.
12.7 Do you use other chemicals or sand on operational areas? No, we do not.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems. We do not have ice warning system because meteorological conditions at Pula Airport are very good. At this moment, monitoring it is performed by personnel observations.
13.2 Have you plans to purchase further ice warning systems and if so which model(s)? At this moment, we do not have plans to purchase an ice warning system due to mentioned meteorological conditions.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units. Anti/de-icing truck, Man-Sroder, 18.232 F-Automatic, 1 unit.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? We are performing de-icing on the parking area.
14.3 Is glycol recovered? If so, please state methods. No, it is not.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Saab, SFH friction tester.
15.2 Have you any comments on the reliability of friction indexes? No, I do not.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? No, at this moment we will not change any of airport methods.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details. At this moment, we do not have plans to purchase new equipment or vehicles.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units. Yes, we have ordered the water uplift vehicle (TIPS water vehicle).
16.4 Do you have any winter services equipment which you would like to sell? No, we do not have any winter services equipment which we would like to sell.

RIJEKA

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Rijeka Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY – 2500m, TORA-2500m, RWY width 45m (without shoulders), APRON – 100x300m.
2.2 Landing aids for each RWY (e.g. CAT II): RWY 14 (CATI) ILS, Approach lights, PAPI, VOR/DME, RWY THR, EDGE and END lights, wind cone RWY 32 PAPI, VOR/DME, RWY THR,END and EDGE lights, wind cone.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? No

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Part of licencing for each licence.
b) Inspection by airline, airport, and airplane handling agency personnel: Programme is described in our OPS manual.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Sweeping, FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Co-ordination is described in our OPS manual.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? ATC monitors the whole movements on the ground, everybody must report intended movements to ATC.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? No
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Yes

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: By noise
6.1 Do your staff attend recognised bird control training courses? Yes
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Less than hourly
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Gun which produces noise only, and sirens.
6.4 Do you carry out a bird strike risk assessment? No
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem,





and to use in defence in case of lawsuits)? No
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? Yes

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: Stated in AIP.
7.2 Future developments – are there plans to purchase or dispose of any equipment? Yes, new RFF vehicle.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? No

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? No designated period
8.2 Average annual days of snow: 2
8.3 Average snow depth: A few cm
8.4 Maximum snow in 24 hours: A few cm
8.5 Annual number of days of de-icing activities: 0

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? 0

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): 0

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: In case of snow airport is closed.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: N/A
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? N/A

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: N/A
12.2 Comment on storage capabilities of the chemicals that you use: N/A
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: N/A
12.4 Have you experienced any corrosion problems with de-icers? N/A
12.5 Have you employed any special means to economise on chemical use? N/A
12.6 Do you have any other comments on experience with chemicals? N/A
12.7 Do you use other chemicals or sand on operational areas? N/A

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: N/A
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? N/A
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: N/A

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? SFT Saab 9-5
15.2 Have you any comments on the reliability of friction indexes? No

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? No
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: Yes, one RFF vehicle
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: No
16.4 Do you have any winter services equipment that you would like to sell? No

ROME CIAMPINO

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME:

Roma Ciampino – G.B. Pastine International Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): As published in the Aviation Information Publication Italy: Runway 15: RWY length: 2,324m; RWY width: 300m; TORA: 2,204m; TODA: 2,429m; ASDA: 2,204m; LDA: 2,204m. Runway 33: RWY length: 2,324m; RWY width: 300m; TORA: 2,204m; TODA: 2,288m; ASDA: 2,204m; LDA: 2,204m. Total airport site area: 225 hectares.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? ADR has a SMS in place since 2007 and there is a continuous improvement into the hazard list following our hazard identification process and our risk management procedure.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Personnel are trained at first.
b) Inspection by airline, airport, and airplane handling agency personnel: Inspections twice a day (reported).
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Daily sweeping, and every time requested by safety officers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Made by Aeroporti di Roma by means of first training to personnel and safety brochures on airside procedures.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): Statistical evaluations considering safety reports sent to SMS.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Safety officers control the behaviour of drivers during their inspections on the airside. The aircraft movement are controlled by tower on the manoeuvring area, while on the apron tower only gives instructions.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? Equipment parking stands have been re-designed to avoid conflicts with operations. Passengers walking path is protected by physical barrier and canopy.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A simple SMGCS.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Guard Lights. Big red markings with "RUNWAY AHEAD" and runway ID on the holding points. Big red markings with "NO ENTRY" and runway on the other runway exits.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? All companies having access to the manoeuvring area have representatives sitting in the Local Runway Safety Team. Recommendation coming from the team are disseminated to the airport community.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? The reporting procedure for runway safety was first set up by the airport company and then shared with members of Local Runway Safety Team.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: The airport company has a plan, reviewed annually, to reduce the presence of birds in airside.
6.1 Do your staff attend recognised bird control training courses? Every safety officer, involved in the bird control and reduction, is trained on a regular basis every two years. The training is carried out by an expert ornithologist and on the job.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? From dawn to dusk there is trained personnel to control and scare away birds.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): The systems we use are: Lrad (loud speakers on a car), distress calls, shot gun.
6.4 Do you carry out a bird strike risk assessment? The annual study is comprehensive of the Bird Strike Risk index (less than 0.3 in the year 2013).
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes they do.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? Just few foxes. They are protected by law so we need a permit to catch and take them away.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? From December 1st to April 30th
8.2 Average annual days of snow: Once every 5 years
8.3 Average snow depth: Few centimetres
8.4 Maximum snow in 24 hours: Few centimetres
8.5 Annual number of days of de-icing activities: 15 days

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? 15 (just in case of snow)

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Runway first, then taxiways to the apron,





commercial aviation apron, general aviation apron.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: Use of snow-sweeper on the runway. Use of snow-sweeper on the apron.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? About 80 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Safeway KA. About 8,000 litres in years with snowfall. About 2,000 litres in years without snowfall.
12.2 Comment on storage capabilities of the chemicals that you use: We can store all the chemicals we use in our workshop.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
12.4 Have you experienced any corrosion problems with de-icers? No reports
12.5 Have you employed any special means to economise on chemical use? Not necessary
12.6 Do you have any other comments on experience with chemicals? Looking to possible devices to prevent ice from small water patches.
12.7 Do you use other chemicals or sand on operational areas? No

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: N/A
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? N/A
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: N/A

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: Two FMC
14.2 Are you required to have dedicated de-icing positions or do you de-ice on the parking area? No
14.3 Is glycol recovered? If so, please state methods: No

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Surface Friction Tester
15.2 Have you any comments on the reliability of friction indexes? We consider reliable friction index for standard measurements. We don't have enough experience with operational measurements.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? No
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: New pavement de-icer sprayer.

ROME FIUMICINO

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Leonardo da Vinci-Fiumicino Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): As published on the Aviation Information Publication Italy: Runway 07: RWY length: 3,307m; RWY width: 45m; TORA: 3,307m, TORA Int take-off A: 2,890m; TODA: 3,367m, TODA Int take-off A: 2,950m; ASDA: 3,307m, ASDA Int take-off A: 2,890; LDA: 2,892m. Runway 25: RWY length: 3,307m; RWY width: 45m; TORA: 3,307m, TORA Int take-off BC-CD: 2,485m; TODA: 3,367m, TODA Int take-off BC-CD: 2,545m; ASDA: 3,307m, ASDA Int take-off BC-CD: 2,485; LDA: 3,307m. Runway 16C: RWY length: 3,602m; RWY width: 45m; TORA: 3,602m, TORA Int take-off 16C: 2,825m, TORA Int take-off CD: 2,235m; TODA: 3,802m, TODA Int take-off 16C: 3,025m, TODA Int take-off CD: 2,435m; ASDA: 3,802m, ASDA Int take-off 16C: 3,025m, Int take-off CD: 2,435; LDA: 3,002m. Runway 34C: RWY length: 3,602m; RWY width: 45m; TORA: 3,002m; TODA: 3,062m; ASDA: 3,602m; LDA: 3,002m. Runway 16L: RWY length: 3,307m; RWY width: 45m; TORA: 3,902m, TORA Int take-off A: 3,620m; TODA: 3,962m, TODA Int take-off A: 3,008m; ASDA: 3,902m, ASDA Int take-off A: 2,948m; LDA: 3,902m. Runway 34R: RWY length: 3,902m; RWY width: 45m; TORA: 3,902m, TORA Int take-off A: 3,540m; TODA: 3,962m, TODA Int take-off A: 3,008m; ASDA: 3,902m, ASDA Int take-off A: 2,940; LDA: 3,902m. Runway 34L: RWY length: 3,902m; RWY width: 45m; TORA: 3,902m; TODA: 3,962m; ASDA: 3,902m; LDA: 3,902m. Total airport site area: 1,554 hectares, airside area: 1,328 hectare, landside area: 226 hectares.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? ADR has a SMS in place since 2007 and there is a continuous improvement into the hazard list following our hazard identification process and our risk management procedure.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Courses for all staff present in airside
b) Inspection by airline, airport, and airplane handling agency personnel:
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Yes, we use sweeping, magnetic bars and FOD containers
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc):
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No, there aren't.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Surface movement radar (SMR) monitor aircrafts equipped with transponder.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards?
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A-SMGCS
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies:
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Driving licences and specifics courses.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? A Reporting system have been implemented for all stakeholders, special agreement with our ATM service provider have been set for analysis of runway incursion. The SMS also apply and promote a no blame culture in every initiative on safety.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: Organic waste and green areas management; monitoring of surrounding areas of the airport; managing artefacts; wildlife are generally attracted to the airport by the presence of food, water and the availability of shelter, especially from predators; habitat management policy reduces attractive resources.
6.1 Do your staff attend recognised bird control training courses? Yes, they attend yearly courses.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? From sunrise to sunset.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Long range acoustic device, distress call, scarecrow, closed circuit cameras, guns blank surrounding runways.
6.4 Do you carry out a bird strike risk assessment? Yes, every year and we use risk index approved by civil aviation authority.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes, they do according to service manual.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: N°12 IVECO MAGIRUS SUPER DRAGON X8 Airfield firefighting vehicle 6x6, 11800 litre each one; N°1 ARISFIRE Command vehicle 4x4; N°2 ASA 8 MERCEDES BAI Scale rapid evacuation; N°1 MERCEDES VARIO BAI Operations command vehicle; N°1 DANGEROUS GOOD ACCIDENT Command vehicle; All vehicles belong to national fire brigate-airport department: "Distaccamento aeroportuale del Corpo dei vigili del fuoco".
7.2 Future developments – are there plans to purchase or dispose of any equipment? There are no purchases of other AFF vehicles.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? Airport Firm doesn't have Fire training Simulator. There's a simulator that belongs to National Fire Brigade.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? 1 December to 30 April.
8.2 Average annual days of snow: Not available
8.3 Average snow depth: Not available
8.4 Maximum snow in 24 hours: Not available
8.5 Annual number of days of de-icing activities: 30

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-





contracted winter services personnel are available per shift? 28 (22 snow emergency squad operators + 6 de-icer operators).

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): agricultural tractor, fiat 540, n.1 unit; runway de-icing sprayer, iveco 115.17, n.1 unit; runway de-icing sprayer, om 90f, n.1 unit; salt spreader, epoke, n.1 unit; compact sweeper,schorling, n.2 units; compact sweeper fresia f2000 4x4, n.5 units; snow blower, fresia, f90 st, n.2 units; de-icer truck, safeaero sdi 217, n.3 units; de-icer truck, safeaero 220eh, n.1 units; de-icer truck,vestergaard elephant beta, n.2 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: First: Rwy 16R/34L and taxiways and a portion of Apron; Second: Rwy 07/25 and taxiways and second portion of Apron; Third: Rwy 16L/34R and taxiways.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance:
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? 45 minutes

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Safeway kf, 10,000 litres. 50% of product in water could achieve – 20°C freezing point.
12.2 Comment on storage capabilities of the chemicals that you use: 80,000 litres for pavement treatment; 100,000 litres for de-icing operation.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: Mixing ratio used is 50% with water.
12.4 Have you experienced any corrosion problems with de-icers? No
12.5 Have you employed any special means to economise on chemical use? No
12.6 Do you have any other comments on experience with chemicals?
12.7 Do you use other chemicals or sand on operational areas? No

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Not available

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: Yes, Safeaero de-icer trucks, n. 4 units; Vestergaard de-icer trucks, n. 2 units.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? On parking area. In snow condition on remote dedicated area.
14.3 Is glycol recovered? If so, please state methods: Our storage system is made of cubitainers 1,000 litres each.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Sarsys devices.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? A new de-icing pad.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: n.2 compact sweeper for apron.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: A new runway de-icing sprayer.
16.4 Do you have any winter services equipment that you would like to sell? No.

SHANNON

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Shannon Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): Designator: 06, TORA (m): 3199, TODA (m): 3260, ASDA (m): 3199, LDA (m): 3199. Designator: 24, TORA (m): 3199, TODA (m): 3260, ASDA (m): 3199, LDA (m): 3059. The total apron area is 170,025sqm.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? Our Safety Management System was completely re-written this year.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: All airside staff are trained in FOD procedures on induction and ongoing training is provided as re-validation. All airside staff are put through examinations, written and oral to show that they fully understand our FOD procedures.
b) Inspection by airline, airport, and airplane handling agency personnel: Our Airport Operations Office (AOO) is responsible for the safety, cleanliness and efficient operation of the apron area and associated equipment parking areas. One Officer per shift maintains a full-time monitoring presence on the movement area to ensure apron inspection procedures are carried out and that records of inspections are maintained between 0800 and 2200 hrs. A duty-shift log is maintained by the Airport Operations Officer and issues are recorded as necessary. Issues requiring follow up action should be highlighted in the daily log and revisited to ensure the issues has been resolved or closed out. The AOO daily inspection sheet shall be filled out appropriately with comments, remedial actions, recommendations or areas highlighted for follow up recorded. The inspection sheet shall be signed by the officer completing the inspection. Pre-arrival parking stand inspections are carried out by airlines and ground handling agents. Post departure audits are also carried out. All of these checks are monitored by our Airport Operations Office.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Our Airport Police and Fire Service carry out routine daily patrols of the manoeuvring area at the following times: 00.01, dawn, 0930, 1130, 1430, 1630, and dusk (from May to September). Outside these times the Airport Police Fire Service provides ongoing patrols. The following shall be observed during inspection: Any foreign objects or debris on surfaces, strips etc; any debris from vehicles or aircraft; any signs of surface breaking up or deterioration in paint markings; bird activity; water depth measurement when applicable. Additional patrols may also be carried out on receipt of a request from ATC Maintenance/FOD inspections of the manoeuvring areas shall be carried out daily (Monday-Friday) by Airport Engineering Operatives. Sweeping of the manoeuvring area by the road sweeper shall be carried out on a continuous basis. Detailed visual inspection of paved surfaces on the apron must be carried out on foot. Detailed visual inspections of the manoeuvring areas i.e. taxiways, disused pavement and runways to be covered using vehicles. However, the higher the speed, the less effective the inspection, therefore, speed should be kept as low as possible taking into account the airports operations at the time in order to maximise the quality of inspections shall be notified immediately to arrange remedial action. Issues found during inspections carried out by Airport Engineering/Maintenance Operatives shall be notified in the form of a works order to Job Control and the inspection sheet completed. Inspection sheet including remedial action shall be forwarded to the Airport Maintenance Manager. Where areas inspected highlight a safety or operational risk to the airport and its users these issues will be dealt with immediately. Routine inspections of the apron and manoeuvring area are carried out in order to ensure a safe and effective environment for aircraft, vehicles and personnel operating airside. F.O.D. and pavement conditions are monitored and reported on in the course of these inspections.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Co-ordination of multiple agencies is achieved through effective training and by the use of certain committees such as the Airline Operators Committee, Runway Safety Team, Airside Safety Committee, Bird Hazard Committee and Operations Planning Groups.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? ATC monitor ground vehicle movements and communicate via radio.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? No
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): Stopbars, Warning lights, Radio communications, effective training and effective apron/airfield roadway system.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Very effective if the training and monitoring of behaviour is effective. We often bring in airside ops people from other airports to provide us with a different viewpoint to our airfield.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? All pilot training is carried out by the Irish Aviation Authority. All others are required





to go through our airside training program, airfield training and airside telephony programmes.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Yes and this is monitored by the Local Runway Safety Team. Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Yes. We operate our procedures as directed by the European Action Plan for the Prevention of Runway Incursions.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: Day-to-day responsibilities in relation to bird and wildlife hazard control are assigned as follows: Surveillance of bird presence: The Chief Officer Fire & Rescue (CO-F&R), together with the Airport Fire Service, is responsible for maintaining surveillance, reporting the presence of birds and carrying out the necessary scaring and/or euthanizing actions. However, all personnel with visual and/or physical access to the airside area have a responsibility to report the presence of birds to the CO-F&R or Airport Fire Service staff. Observation of the airfield and surrounding area shall be maintained by Fire Station staff and Air Traffic Services. Airport Fire Officers on patrol, ATC and other personnel involved in airfield operations/engineering shall report to the officers on watch in the Fire Station, any bird presence on the airfield, dumping of waste or release of birds. Staff on duty at watch locations shall immediately inform the Duty Aerodrome Fire Officer (AFO) of any reports received of bird presence. Dispersal of birds: The Duty AFO, or in his absence, the Station Officer (SO), is responsible for initiating and directing activities in clearing birds from the airfield, including night patrols, in order to disperse bird flocks resting on runways. Routine day and night patrols as well as any patrols requested by ATC shall be carried out to ensure that bird hazard is controlled. The number of patrols shall be increased during periods of increased bird activity. Clearing activities shall include harassment of bird flocks by driving vehicles in the direction of flocks, using a car horn, hand waving, and use of distress calls, pyrotechnic shells, shotgun and other devices deemed to be appropriate, from time to time. Dispersal action shall be co-ordinated with ATC. If there is likely to be any delay in initiating dispersal, the AFO shall inform ATC. Habitat management: Habitat management at the aerodrome is the responsibility of the Asset Care Manager. Responsibilities include a detailed grasslands management programme, airfield environment, and lagoon environment management and monitoring of hazards in leased lands and due to constructions works. Wildlife Incident Data and Procedures: The Airside Operations & Safety Officer shall present a summary of bird strike reports at each Bird Hazard Control Committee Meeting, including any supplementary and corroborative information. Responsibilities include maintaining the Wildlife Management documents and procedures and representing the Shannon Airport at National Bird Hazard Committee. Ornithologist: A Consultant Ornithologist is employed to provide expert advice to the Bird Hazard Committee and airport management on wildlife control measures. The following is an outline of services which the Ornithologist provides. The principle tasks of Ornithologist include: Produce annual and interim reports on bird hazard; produce, monitor and update guidelines for bird scaring actions by the Airport Fire Service; conduct training/familiarisation for persons involved in bird hazard control; conduct field surveys and reports on bird activity; advise on external developments in relation to bird hazard; advise the Bird Hazard/ Wildlife Control Committee on bird issues; advise Shannon Airport Management on bird issues. Prohibited Activities: It is internationally recognised that certain activities e.g. the dumping and/ or spreading of offal on land, the position of landfills, sewage treatment plants, outfalls etc., within a 13km zone of an airport's reference point, constitute a potentially serious threat to bird hazard control within this zone, and shall be fully assessed as regards their impact(s) on air safety. Dumping of Food Waste: Open dumping of food waste or other organic material is prohibited within the airport. The Airport Fire Service and Airside Operations personnel on patrol duties shall maintain constant vigilance and ensure that any unauthorised dumping in the vicinity of the airport is reported to the Airport Operations Office. Feeding of Birds: Food of any kind should never be made available to birds (or Rats). Therefore birds should never be fed and all edible waste should be carefully placed in garbage bins which are sealed against birds. If this is not done crows, starlings and gulls will quickly learn that food is available. This food could result in a major hazard to aircraft by attracting birds across the active runways. In addition, the placement of a bird feeder by airport personnel or members of the public is prohibited. Release of Birds: The release of birds within or near the aerodrome boundary is strictly prohibited and any such activity shall be immediately reported to the Duty AFO or CO-F&R.
6.1 Do your staff attend recognised bird control training courses? Yes.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Airfield patrols are carried out continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/ manufacturer): Recorded distress calls, pyrotechnics and varey pistols are used as required.
6.4 Do you carry out a bird strike risk assessment? Yes. Carried out by our Safety, Health and Environment Manager.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes. Detailed logs are kept in relation to bird activity, location, reports, strikes, carcasses etc.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No problem with other wildlife.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: 3 x 6x6 Sides Rapid Intervention Fire Trucks, Registered 2009, C18 Engine automatic twin disc transmission, 11,000 litres of water each vehicle and 1650 litres of Foam each vehicle and 200kg Dry Powder; 2 x 8x8 Timoney Fire Truck. Registered 1992 and 1994, Detroit Diesel engine ,twin disc transmission,10,500 litres of Water and 1380 litres of Foam each vehicle. 1 x MAN 4x4 Equipment rescue truck with 200kg Dry Powder.
7.2 Future developments – are there plans to purchase or dispose of any equipment? Shannon is currently looking at replacement of the older vehicles in the fleet and will consider introducing new technology.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? Shannon currently operates a Pressurised Fire Screen and an engine rig with a Boeing 727 aircraft also available as a training aid. We will discuss with other airports any potential business opportunity.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? November to February.
8.2 Average annual days of snow: Nil.
8.3 Average snow depth: N/A
8.4 Maximum snow in 24 hours: N/A
8.5 Annual number of days of de-icing activities: 10

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? Shannon Airport operate an 8 Man snow & Ice team available on a 24 /7 callout basis outside of normal of hours operations (08:30…16:30 hrs). 20 Airport, Contracted staff as needed. Shannon Airport has external contractors available at short notice to deploy at short notice if required.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Available de-icing/snow removal equipment: Quantity and Type of Equipment: 1 24m wide boom, trailer mounted sprayer; 1 Four wheel drive tractors with both snow ploughs and spreaders; *3 Four wheel drive tractors with both snow ploughs and spreaders (available on contract basis, if required); 2 Two wheel drive tractors (one equipped with spreader); 1 Road Sweeper; 2 SMI Sweepers; 1 Eagle Sweeper; 1 Mechanical Sweeper; 1 Sprayer; 1 Gritter; *2 Front Loaders - mechanical shovels JCB type (available on contract basis, if required); 2 Magirus Deutz trucks and blades; 1 Leyland roadtrain truck and blade; 8 Brushes; *4 Trailers (available on contract basis, if required).

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: The priority for clearing or treating for snow/ice is as follows:
1. Operational runway
2. Associated taxiways
3. Apron taxi lanes & Fire Station
4. Aircraft parking areas
5. Access roads
6. Airside passenger walkways
7 Landside areas
a) public roads
b) landside footpaths
c) car parks
Clearance – Runway 06/24 shall be cleared to its full length and width i.e. 3199m x 45m (excluding shoulders). Main Taxiways Delta and Alpha will be cleared. Aircraft parking stands will be cleared as required.
Snow banks at the edges of cleared runways shall be defined as critical if their height exceeds 300mm (12inches). Snowbanks at the edge of taxiways shall not exceed 300mm.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: When a significant snow fall occurs it is likely that





airport operations will be suspended for a period of time to allow the airport movement areas to be cleared and airport operations to be restored. The method of snow removal shall be a combination of: Snow Plough of large areas to push the snow into a mound (for removal) or off the edge of the movement area, whichever the appropriate; Push-out, where any build-up of snow above 300mm is lowered by pushing it out into open ground; Lift and removal of mounds of snow using front loaders and tipper trailers. When snow mounds are lifted and removed, the snow will be dumped in the nearest designated "snow disposal site". Shannon Airport deploys an anti-icing agent to the runway, taxiway and pavement surfaces if low temperature conditions are expected.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? To-date Shannon Airport have not experienced significant snow falls to-date.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: The principal means of prevention is to spread de-icing/anti-icing agents when either of the following conditions occurs – when the temperature is +3° and falling and the runway/apron is wet, when an overnight frost warning is given and the runway/apron is wet. De-icing agents to be used include: Urea (Effective > -5 degrees Celsius) (approximately 20 tonnes deployed last year); Potassium acetate (Effective > -15 degrees Celsius) (No product deployed last year); Sodium Formate (Effective > -15 degrees Celsius) (No product deployed last year).
For ice conditions the Duty Airport Manager shall alert the Airport Engineering/Maintenance Team involved in ice prevention/ice clearance from the runways, taxiways and aprons.
12.2 Comment on storage capabilities of the chemicals that you use: The following minimum stock levels are maintained at the airport in readiness for the possibility of snow/ice conditions and contracts are in place for it's replenishment as required: Urea (60 tonnes), Potassium Acetate (20,000 litres), Sodium Formate (23.5 tonnes), Salt ** (20 tonnes)
** Salt shall only be used on landside areas.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: Solid De-icers are normally deployed in the evening /early morning times to eliminate the "blow-away factor" caused by jet blast. Typically ice conditions are dry and low (if any) wind and the product normally stays on the ground.
12.4 Have you experienced any corrosion problems with de-icers? Minor corrosion on metal surfaces in the main terminus area.
12.5 Have you employed any special means to economise on chemical use? Anti / De-icing agents are only deployed when there is an imminent risk of snow / ice.
12.6 Do you have any other comments on experience with chemicals? No
12.7 Do you use other chemicals or sand on operational areas? No sand is used on any Airside operational areas.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Ice warning systems have not been installed in Shannon. There is a full reliance on weather forecasting. When we can we will install warning systems but our climate and weather history do not justify the investment at the moment.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? See above
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: N/A

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: No. Airlines and handling agents provide this service.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? On parking stands.
14.3 Is glycol recovered? If so, please state methods: No.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Skidometer. Moventor.
15.2 Have you any comments on the reliability of friction indexes? We find them consistent and reliable.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? Recently we became independent of the DAA in Ireland and now Shannon is an independent airport, part of the Shannon Group.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: We have a plan to replace vehicles but not until 2016.
16.3 Do you currently have equipment or other products on order? No. If so, please provide details including manufacturer and number of units: N/A.
16.4 Do you have any winter services equipment that you would like to sell? Not at the moment.

SKOPJE

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Skopje Alexander the Great Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas. (For example: total RWY length (or lengths), Take Off Run Available [TORA], RWY width, shoulder widths, total apron area, ramp area, other): RWY 34 length 2.950 m=TORA/TODA/ASDA/2.450 m =LDA, RWY16=2.450m; RWY width 45 m, shoulder 7.5 m, total apron area 60.520 m, ramp area 64.080 m.
2.2 Landing aids for each RWY (e.g. CAT II): ILS CAT I RWY 34 (LLZ, GP, OM, MM, VOR/DME and visual aids: ALS & runway lights CAT II, PAPI) and RWY 16 only visual approach.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? Implemented.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Included in ramp safety training.
b) Inspection by airline, airport, and airplane handling agency personnel: By airport staff.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Use of sweeping vehicle SCHMIDT and FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Airport ramp dispatcher.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments.): No

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Visually by ATC tower.
5.2 Are any design or engineering changes being undertaken /required to eliminate perceived hazards? Not required.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): None of this, only stop-bar lights.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: None.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Airside safety training only for airport vehicle operators.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Yes.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: Grass mowing, cutting trees etc.
6.1 Do your staff attend recognised bird control training courses? Yes.
6.2Are your bird control staff working on the airfield continuously, hourly, less than hourly? Continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Bird guard pro super.
6.4 Do you carry out a bird strike risk assessment? Yes.
6.5 Do your staff log all their bird control activities? (to manage success in dealing with the problem, and to use in defence in case of lawsuits): Yes.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: Rosenbauer Rapid Intervention Vehicle; Mercedes Benz Atego 1225 4x4; 2.400/300/250 fix mix; 2002; Rosenbauer Universal FF truck MB Actross 3343/6x6/ 6.500/800/250 ULF foamatic/2002; Rosenbauer FF truck MB Actross 3343/6x6/9.000/1.000/250 FLF/2002.
7.2 Future developments – are there plans to purchase or dispose of any equipment? No.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? No.

PART 2: WINTER SERVICES QUESTIONAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? 15 October to 1 April.
8.2 Average annual days of snow: 6 days
8.3 Average snow depth: 14.1cm
8.4 Maximum snow in 24 hours: 50cm
8.5 Annual number of days of de-icing activities: 71 days





9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? 20 airport-employed.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (For example: compact jet sweeper, Schmidt, CJS 720, 4 units): Compact Jet Sweeper CJS 914 Super II x 5 units/Solid and liquid spreader with snow plough Mercedes-Schmidt SST-50 x 1 unit/ Liquid sprayer Mercedes-Schmidt ASP 25 m span x 1 unit/snow blower Rolba R 3000 x 1 unit/ Snow blower Schmidt Supra 3000 x 1 unit/Snow plough Mercedes-Schmidt 4 m width x 1 unit.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Runway 34/16, TWY A & H, apron.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: Centre line to edges.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? 20 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Aviform L-50, 9.800 kg.
12.2 Comment on storage capabilities of the chemicals which you use: 60 m3.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: Only urea is used.
12.4 Have you experienced any corrosion problems with de-icers? No
12.5 Have you employed any special means to economise on chemical use? No
12.6 Do you have any other comments on experience with chemicals? No
12.7 Do you use other chemicals or sand on operational areas? No

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Handheld infrared thermometer.
13.2 Have you plans to purchase further ice warning systems and if so which model(s)? No
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: n/a

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: FMC LMD 2000, 2 pcs.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? No/yes
14.3 Is glycol recovered? If so, please state methods: No

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? SAAB SFT 340

SOFIA

AETHILLE COGHLE

SOFIA AIRPORT

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Sofia Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY length 09/27: 3,600m; RWY width 09/27: 45m; RWY shoulder widths: 2 x 7.5m; RWY Strength (PCN): 70 / F / B / X / T.
RWY 27, TORA: 3,600m, ASDA: 3,600m, TODA: 3,600m, LDA: 3,600m.
RWY 09, TORA: 3,600m, ASDA: 3,600m, TODA: 3,600m, LDA: 3,300m.
2.2 Landing aids for each RWY (e.g. CAT II):
A. Radio aids: ILS: RWY 09 – CAT I, RWY 27 – CAT IIIB; DME; DVOR
B. Lighting aids: Precision approach lighting system for each RWY; RWY edge lights for each RWY; RWY threshold lights for each RWY; RWY end lights for each RWY; RWY centre line lights for each RWY; RWY TDZ lights: for RWY 27 – Yes, for RWY 09 – No; Visual approach slope indicator systems: PAPI for each RWY.
C. Marking: According ICAO Annex 14, figure 5-5 (B)

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? SMS was introduced at Sofia Airport during the period from 2007 to 2009. According the SMS Manual the system should be updated every two years on the basis of the safety analysis and risks and hazards assessments. Last updated edition is from 2013. In the beginning of 2014 Airport Operator developed a "Program for aviation safety audits and inspections of airport operations at Sofia Airport". This Program is approved by Bulgarian CAA and is applying in full force. Safety management inspectors are doing periodical audits and inspections against aerodrome safety compliance.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: FOD prevention programme is apart of the Safety Management courses, which are obligatory for all staff working at the airport territory.
b) Inspection by airline, airport, and airplane handling agency personnel: Daily (24/7) inspections by Sofia Airport FOD prevention Sector – within the structure of Safety Management Department of Sofia Airport. Monthly inspections based on "Program for aviation safety audits and inspections of airport operations at Sofia Airport".
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Sweeper, Boshung Jet Broom BJB 800, 1 unit; Sweeper, Bucher City Cat 2020, 1 unit; Single FOD BOSS Assembly; FOD containers are installed at the apron.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Airlines, ATC Sofia Tower, GH operators, Cargo operators and other airport users.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No, at this time there are not any software solutions in use for FOD control.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? All vehicles are equipped with radio communication devices to contact whit ATC Sofia Tower. Aircraft movements are monitored by ATC Sofia Tower. All movement area is monitored by ground radar.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? All marking, signs and lighting system are designed according ICAO Annex 14.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): Currently no safety devices are employed.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Reflective marking, illuminated signs and AGL System.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Safety operations courses, including ICAO phraseology, are obligatory for the all ground personnel working at the airport territory. Training and practice on Ground Movement Local Rules and Regulations.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? The reporting system is an integral part of airport SMS.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: Bird deterrent System is installed and is operating at Sofia Airport. Daily (24/7) inspections by Sofia Airport Bird strike & wildlife prevention Sector – within the structure of Safety Management Department of Sofia Airport. Bird strike prevention Manual is adopted and implemented at the airport.
6.1 Do your staff attend recognised bird control training courses? Yes, they do.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Bird control staff is working continuously (24/7).
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/ manufacturer): Stationary electronic bird deterrent system: Phoenix Wailer Mk III.
6.4 Do you carry out a bird strike risk assessment? Yes. It is a part of Annual Safety Report.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes, the records are put in the Report Book and then they are analyzed on monthly basis.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? Rabbits, dogs and foxes appear accidentally at the airfield. Bird & Wildlife Control Unit deals with prevention of accidents connected with other wildlife.





7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: Mercedes UNIMOG, 4x4, 1000/100 l, 1 unit; Mercedes SAURUS, AS 12+250, 6x6, 10000/1200 l, 2 units; Tatra CAS 815, 4x4, 8000/800, 2 units.
7.2 Future developments – are there plans to purchase or dispose of any equipment? We ordered new Fire Fighting Vehicles: Panther – 2 units.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? No.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? November-March
8.2 Average annual days of snow: January – 6, February – 2, March – 5, November – 4, December – 3.
8.3 Average snow depth: January – 9.3, February – 7.1, November – 8, December – 3.
8.4 Maximum snow in 24 hours: January – 11, February – 11, March – 6, November – 13, December – 5.
8.5 Annual number of days of de-icing activities: < 60 days

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? Seven employed per shift.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Rotor sweeper, Ural, 2 units; Rotor sweeper, Rolba Bucher, 2 units; Truck-trailer, Tatra with Plough, Schmidt - 9 units; Brush blower, Overaasen, 6 units; Truck-trailer with Brush blower, Overaasen, 2 units; Brush blower with plough, Boshung, 2 units; Brush blower with plough, Fresia, 2 units; Specialized snow cleaning combined machine, Boshung, 1 unit; Specialized snow cleaning combined machine, Bucher, 2 units; Spreader, IFA, 1 unit; De-icing machine, Boshung, 1 unit.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Runway, Taxiways (entrance & exit), Apron, other Taxiways.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: General method is: Push out snow with ploughs and brushing; Throw out snow with rotor sweeper; Use spreader / if necessary; Friction testing.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? For 35 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Winter 2013/2014: Carbamid (urea) – 100 t, Isomex – 15 000 l.
12.2 Comment on storage capabilities of the chemicals that you use: Carbamid (urea) – 240 t, Isomex – 33 000 l.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: Solid de-icer – treatment from wind direction.
12.4 Have you experienced any corrosion problems with de-icers? No.
12.5 Have you employed any special means to economise on chemical use? No.
12.6 Do you have any other comments on experience with chemicals? No.
12.7 Do you use other chemicals or sand on operational areas? No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: N/A.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? N/A.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: N/A.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: Three GH operators provides aircraft de/anti-icing treatment at Sofia Airport - "Sofia Airport", "Swissport Bulgaria" and "Goldair Handling Bulgaria". The following vehicles and fluids are in use:
GH operator "Sofia Airport": Ford 1800TM – 2 units; FMC TEMPEST II – 2 units; De/anti icing fluid Type II Kilfrost ABC K-Plus.
GH operator "Swissport Bulgaria": JBT Tempest – 3 units; De/anti icing fluid Type I Kilfrost DF Plus, Type IV Killfrost ABC-S Plus.
GH operator "Goldair Handling Bulgaria": JBT TM 1800 – 2 units; De/anti icing fluid Type II, Proviron/Cryotech Polar Guard II.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? We use two dedicated platforms for aircraft de-icing (PAD). PAD "EAST", with 1 /one/ position for treatment of aircraft ICAO code E; PAD "WEST" is for simultaneously treatment of 2 /two/ aircrafts ICAO code C or 1 /one/ aircraft ICAO code E.
14.3 Is glycol recovered? If so, please state methods: No, the glycol is not recovered.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Saab 9000 SFT, Saab 95 SARSYS.
15.2 Have you any comments on the reliability of friction indexes? No, we haven't.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? No.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: Yes, principally (subject to further decision of Sofia Airport Board of Directors).
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: Yes. Boshung 9600T, 2 units (in process of concluding of contract for delivery).
16.4 Do you have any winter services equipment that you would like to sell? No, we haven't.

SPLIT

Split Airport

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Split Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY length-05/23-2550x45m; TORA-05/23-2550m; TODA-05/23-2550m; ASDA-05-2800m; ASDA-23-2550m; LDA-05-2550m; LDA-23-2390m.
2.2 Landing aids for each RWY (e.g. CAT II): CAT-I RWY 05

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? Yes.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Training is done through SMS trainings.
b) Inspection by airline, airport, and airplane handling agency personnel: Regular audits and daily FOD inspection.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): FOD-boss is used on Split Airport. Twice a day our workers do "walking checks", looking for FODs. We have FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): There are no multiple agencies using airport.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): Split Airport has an own software solution called "Galiot". Every FOD that was found needs to be filled in "Galiot". On that way we collect more information about FOD and we do analysis.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Movements on the ground are regulated by the Airport local rules.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? Yes.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): There are no safety devices in place.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: We find it effective and appropriate for SPU AP.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? All participants shall follow procedures stated in Airport Manual.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? We have been set up the reporting procedures jointly with other parties. We respect "non-punitive" principles.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: Habitat management focus: identification of wildlife attractants (sources of food, water and shelter) on and in the vicinity of the airport and its elimination or exclusion.





6.1 Do your staff attend recognised bird control training courses? Yes.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Our bird control staff are checking airfield continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Fire sirens, rocket guns, MEGA BLASTER PRO.
6.4 Do you carry out a bird strike risk assessment? Yes, using Wildlife Management modul in "Galiot" system.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Our staff log all activities using Wildlife Management modul in "Galiot" system.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: 1 Heavy fire fighting vehicle MAN 6x6 8.500L/1000L; 1 Heavy fire fighting vehicle MERCEDES 9000L/1000L; 1 Heavy fire fighting vehicle MERCEDES 8500L/1000L; 1 Commander vehicle Jeep Cherokee Toyota Land Cruiser; 1 Commander vehicle Jeep Cherokee 2.8 CRD; 1 Trailer Zigler with medical equipment 2,5 t.
7.2 Future developments – are there plans to purchase or dispose of any equipment? Yes
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? Split Airport doesn't have Fire training simulator.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? 1 November to 31 March.
8.2 Average annual days of snow: One to two times per year – 5 days in total.
8.3 Average snow depth: Few centimetres (up to 2-3cm).
8.4 Maximum snow in 24 hours: Nil
8.5 Annual number of days of de-icing activities: 2-3

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? 4-6

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Snow plough Rasco PK3.2, 1 unit; Snow plough Rasco Vertus 3.2, 1 unit; Tractor Valtra N101H 2 units; Solid de-icing chemical dispenser Rasco TRP1.0 EPOS 5, 1 unit; Towed liquid de-icer tanker Rasco LIQUID 8.0, 1 unit; Liquid de-icing preparation Rasco MMS 6.0, 1 unit; Liquid de-icing solution tank 10000 l and lots of other equipment available under the contract with the road company.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Order of priority of snow clearance: runway, taxiways, apron, curb, landside.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: A fast going plough formation move the snow from inner part of the paved surface to outer part without covering the lights.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? 2 hours.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Urea, 1 ton used last season, if applied on time it is very effective, holdover time up to 12 hours.
12.2 Comment on storage capabilities of the chemicals that you use: 10 tons
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: Depending on meteo situation/forecast and movement area surface status solid or liquid de-icers are applied.
12.4 Have you experienced any corrosion problems with de-icers? No
12.5 Have you employed any special means to economise on chemical use? No
12.6 Do you have any other comments on experience with chemicals? No
12.7 Do you use other chemicals or sand on operational areas? No

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Nil.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? Nil

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: 1 de-icing vehicle - Stadler, Type IV - Clariant.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? On parking area.
14.3 Is glycol recovered? If so, please state methods: No

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Runway surface friction tester ASFT Skoda Octavia CFME (500 l).
15.2 Have you any comments on the reliability of friction indexes? No

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? Yes, change or improve.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: We plan to purchase more FOD cleaning unit, Self-propelled conveyer-belt loader (2 units), Boarding/De-boarding vehicle for passengers with reduced mobility, Taxiway and Apron edge lights, Vertical signs...
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: No
16.4 Do you have any winter services equipment that you would like to sell? No.

STOCKHOLM ARLANDA

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Stockholm Arlanda Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): 01L/19R, 3301m, 3301m, 45m, 2 x 12.5m; 01R/19L, 2500m, 2500m; 45m, 2 x 7.5m; 08/26, 2500m, 2500m, 45m, 2 x 12m; TWY 976,800sqm, Apron 895,797sqm; Road system 126,203sqm.
2.2 Landing aids for each RWY (e.g. CAT II): 01L/ ILS CATIII; 19R/ ILS CAT I; 01R/ ILS CATIII; 19L/ ILS CAT III; 08/ LLZ; 26/ ILS CAT I.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? No

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Part of initial & reccurent training "Working at an Airport", introduced in "Handbook for people that work..."
b) Inspection by airline, airport, and airplane handling agency personnel: Yes, at regular intervals.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): FOD containers available at all gates and stands, sweeping at regular intervals.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Discussed and actioned at meeting forums and communicated daily by Airport Supervisor.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): In-house solution incorporated in GIS mapping system.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? A-SMGCS Level I (SMR, MLAT and visual observations).
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? Under constant review, initiated by reports or input from LRST Local Runway Safety Team.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A-SMGCS
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Under constant review and adopted if leading to a positive result, one example is use of green paint to mimic grass island – to avoid taxiway mishaps.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Training is supplied to all, through varies agencies, where we perform initial training of the instructors and establish regular contacts and audits.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Established in the 1970's, a self-auditing system was implemented by our Regulatory Authority, leading in to our joint airport reporting system, that safe guard the reporter and his findings.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: At Stockholm Arlanda Airport we have a Wildlife Control Plan that guides wildlife control.





Our Airport Safety Management System - SMS describes in paragraph 22.6.4 that -
Wildlife control is assigned at Stockholm Arlanda Airport to ensure the precautionary and urgent work to prevent collateral accident or breakdown caused by bird and/or wildlife, at and near the airport.
The business' long-term goal is to systematically work to continually reduce the number of bird- and wildlife collisions.
The plan is aimed primarily towards internal and external stakeholders that may affect wildlife control. Clear communication- and information channels assure fast and accurate response and action. Satisfying contacts with other actors outside the airport and competent communication within Swedavia establish a desirable platform for conducting wildlife control in the best possible way.
In 2014, the goal is to reduce the risk of collision between aircraft and birds and/or wildlife by continuing efforts to identify, document and implement risk assessments of species present on air- and landside.
Our vision is to keep risks to a minimum through targeted interventions, making the airport as unattractive to birds and wildlife as possible.
Daily journaling and wildlife reporting, together with an evaluation on a monthly basis, help us to assess the effectiveness of the various tools and methods that we use.
The evaluation collects data from The Swedish Transport Agency's Civil Aviation Department (Transportstyrelsen Luftfart), with which our reports and observations are compared.
6.1 Do your staff attend recognised bird control training courses? Yes
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Continuously
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Various
6.4 Do you carry out a bird strike risk assessment? Yes! This is done on regular basis whenever changes in business or environment is detected.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes! It's done in our daily Journal.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? Yes, but only with smaller mammals i.e. foxes, hares & badgers. Cage traps are mainly used to catch foxes and badgers. Trail traps give us indications of possible intrusion locations.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: 6 Panther; Rosenbauer; 6x6; 12500lit; 2013-2014.
7.2 Future developments – are there plans to purchase or dispose of any equipment? No, all equipment recently acquired.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? Yes, 1 larger IFTE simulator modified to lessen the environmental impact and carbon footprint; 1 decommissioned aircraft.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? In 2013/2014 the season was defined as the period beginning Monday, October 7, 2013, until Sunday, April 30, 2014.
8.2 Average annual days of snow: 80
8.3 Average snow depth: 150cm (past 3 years).
8.4 Maximum snow in 24 hours: Between 20-30cm
8.5 Annual number of days of de-icing activities: 68

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? 17 fixed - 24/7; 5 extra on call between 05:00-20:00; 10 extra temps; 14 trucks for snow transport within 90 min (sub-contractor).

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units):Compact jet sweeper TJS-C 560 – 21 units; Snowblower - TV 10000 – 2 units; Snowblower - UTV 430 – 2 units; SAAB surface friction testers – 4 units; Pisten Bully Snow Groomer – 1 unit (To organise and compress snow at our snow dump); Nido Runway De-Icing Spreaders - 2 units; Dump Truck for snow transport – 3 units; Wheel loaders – Volvo L60/L70 – 7 units; Wheel loaders – Volvo L90/L110 – 2 units; Wheel loaders – Volvo L120 – 2 units.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Priorities in snow removal: When the snowfall changes from very light to light, RWY 01R-19L is closed. As soon as the snow stops falling, snow removal begins. The goal is to open RWY 01R-19L at the latest within 24hours after the snow stops.
Priority 1

- Runway in operation.
- Taxiways serving the runway in operation.
- Aprons and their parking stands based on the current traffic pattern.
- Emergency routes from fire stations to the runway in operation.
- Priority 2
- Preparing an additional runway for operation and taxiways for this.
- Relevant access routes on airside.
- Other emergency routes for fire and rescue vehicles.
- Priority 3
- Preparing the airport apron (ramp). GP and LLZ areas.

11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: Snow removal is carried out in teams, called snow removal teams. Special routes are planned for the snow removal teams, which clear each route at intervals of 35 to 60 minutes. The snow removal team is led by a snow removal supervisor, who has direct contact with the air traffic control (TWR). Each team consists of 8 -10 PSB:s on RWY & 3-5 PSB:s on TWY/Aprons. Moving in a side by side formation. PSB is short for ploughing, sweeping and blowing, describing the action of our TJS-C . The PSBs are followed by a snow thrower/blower. As needed, a formiate truck follows last, spraying anti-skid agent on the runways, or else a gritter is used. When snow removal is completed on each runway, the surface is tested by a friction tester. The friction value is reported to TWR, which in turn provides the information to pilots. The friction value determines how often a runway must be ploughed and treated with anti-skid agent. At the stands wheel loaders are used, clearing according to traffic need. It takes between 8 and 12 minutes to clear each runway.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? We start snow procedures as soon as it starts to snow and strive to always have "black top".

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: De-icer used is Clearway F1, provided by Kemira. Effective down to -15 degrees C, requiring a larger amount in low temperature than around + 0 degrees C.
12.2 Comment on storage capabilities of the chemicals that you use: Storage capability of 300,000 litres.
12.4 Have you experienced any corrosion problems with de-icers? No!
12.5 Have you employed any special means to economise on chemical use? Yes! An analysis is done how to use the chemical in the most effective way without putting safety in jeopardy. This is done by looking at factors as Machine, education, ways of working, weather & products.
12.7 Do you use other chemicals or sand on operational areas? Yes! Sand is used on RWY:s and TWY:s before snow cleaning to rug up the surface and improve friction.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Vaisala HMP45D – 3 sensors on each RWY.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? No!
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: Reliable and gives a good prediction about temp drops, changes in weather.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: Stockholm-Arlanda airport does not perform aircraft deicing. De-icing is performed by ground handling companies. At the airport, there are four companies that perform de-icing and together have about 25 de-icing vehicles.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? Stockholm-Arlanda Airport only allow aircraft being de-iced at designated sites. De-icing locations are both remote and at terminal stands.
14.3 Is glycol recovered? If so, please state methods: Stockholm-Arlanda Airport is developing methods for glycol recovery.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Sarsys Friction Tester (SFT), built into the SAAB 9-5 Sport Wagon – 4 units.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? No!
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: New friction testers Sarsys Volvo Friction Tester (SVFT), built into the Volvo V70.

STUTTGART

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Stuttgart Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron





area, ramp area, other): RWY 07/25 – 3,345m x 45m, TORA RWY 25 3,045m, TORA RWY 07 3,345m; Total apron surface area: 700,000sqm.
2.2 Landing aids for each RWY (e.g. CAT II): RWY 07/25 ILS, PAPI, CAT IIIb

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? The Safety Management System (SMS) is permanently involved in monitoring the operational processes and releases Safety Bulletins whenever necessary.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Basic staff training, refresher trainings; Annual Safety Trainings; Safety Bulletins. Removal and prevention of FOD is also part of airside driving permit training which has to be performed every five years by all airside staff.
b) Inspection by airline, airport, and airplane handling agency personnel: All persons operating in the movement area are responsible for the prevention and removal of FOD according to Airport User Regulations. Ground handling companies are responsible for FOD checks on parking stands before usage by an arriving aircraft. Stuttgart Airport Airside Operations Staff inspects the entire manoeuvring area at least six times a day and when necessary. Additional inspections of the apron area are conducted continuously by Stuttgart Airport Apron Supervision.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): The manoeuvring and apron area is cleaned at regular intervals and when required by surface sweeper vehicles. Additionally manual cleaning is performed by Stuttgart Airport Apron Supervision whenever necessary.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Airside Operation is responsible for the operational safety and works as a co- ordinating unit between all stakeholders on the airside. Additionally FOD is a main topic in the regular meetings of the airport's "Ramp Safety Team".
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Vehicles may only use the manoeuvring area after prior permission by Stuttgart Airport Airside Operations has been received and an approval of the local ANSP (ground control) has been received. Vehicles are mainly monitored by visual observation.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? Installation of runway guard lights (alternating yellow lights) at all CAT I holding points; mandatory RWY markings (07-25) are painted at all CAT I holding points; illuminated red stop bars are installed at all CAT II/III holding points (used only in LVC); ICAO standard signage and marking at all runway entries.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A standard ground radar (ASDE) is currently used. The installation of A-SMGCS multilateration is planned by the local ANSP.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Nil
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? The standard airside driving permit is only valid for the apron area. Any staff requiring access to the manoeuvring area obtains an additional permit which requires further training such as communication with ATC and all rules on the manoeuvring area.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? All incidents on the manoeuvring area are analysed by the local Runway Safety Team which contains of members of local ATC, Airside Operations, Airport Safety Management System, based pilots and the airport's legislator. In general all incidents are treated in a "no blame" culture unless the incursion or incident requires disciplinary action.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: A coordinated cultivation of our green pastures, removal of nesting sites and active Bird Control decreases the attraction of the airfield.
6.1 Do your staff attend recognised bird control training courses? Stuttgart Airport closely co-operates with local bird control experts. Besides that Airside Operations Staff is also trained in wildlife control.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Our wildlife control staff provides a continuous monitoring of the movement area.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Pyroaccoustic equipment is used if necessary.
6.4 Do you carry out a bird strike risk assessment? Nil
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? All activities of wildlife control are documented in detail by our wildlife control experts and by Airside Operations Staff.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? Stuttgart Airport extended its monitoring to any other wildlife (e.g. foxes) already years ago.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: 4 x MAN 8 x 8 – manufacturer: Ziegler – type: Z 8; FLF 60-1, 12.500 litres Water, 1.500 litres Foam, 270 kg Carbon dioxide, Piercing-Snozzle, year of manufacture: 2002; FLF 60-2, 12.500 litres Water, 1.500 litres Foam, 270 kg Carbon dioxide, Piercing-Snozzle, year of manufacture: 2002; FLF 80-1, 12.500 litres Water, 1.500 litres Foam, 1.000 kg Dry powder (B/C), year of manufacture: 2003; FLF 80-2, 12.500 litres Water, 1.500 litres Foam, 1.000 kg Dry powder (B/C), year of manufacture: 2003.
7.2 Future developments – are there plans to purchase or dispose of any equipment? We want to start the project for the substitution and advertising of our 4 CFR-Vehicles in 2016 and try to purchase them in 2017/2018.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? We have no own Fire-Training-Simulator. We rent the Simulator from FRAPORT at the time for a week each year to train our fire-fighting personel in Aircraft Fire Fighting.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? November 1 to April 15.
8.2 Average annual days of snow: Nil
8.3 Average snow depth: Nil
8.4 Maximum snow in 24 hours: Nil
8.5 Annual number of days of de-icing activities: Nil

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? 30-40 plus depending on actual weather.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Compact jet sweepers: Schmidt; Jet Sweepers: Schmidt; Jet Sweepers: Overaasen; Snow Blowers: Schmidt; Apron Clearing Vehicles: Boschung Jetbroom, Schmidt, Schörling; Apron De-icing Vehicles: Dammann; De-icing Vehicles for spreading sand, solid and fluid de-icing materials: Schmidt, Kuepper-Weisser; Jet-snowblower: Fabok; 2 Skiddometers.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Runway 07/25 and main taxiways (TWYs A, N, K), de-icing areas, taxiway centrelines, parking stands centrelines, main apron roads, entire apron area, public roads, pedestrian paths and parking areas.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: RWY clearing convoy consisting of 7 snow sweeper-plough vehicles, 1 snow blower, 1 Jet-snowblower, 1 – 2 de-icers and 1 inspection vehicle. If two convoys are available runway may be cleared in one run. After clearing of the runway is completed a friction measurement / runway assessment is performed by Airside Operations Staff. Apron treatment is performed by single vehicles and by the RWY clearing convoy.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? Average clearing times are defined depending on amount of available RWY clearing convoys and prevailing weather situation. After moderate snow these times are always kept.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: AVIFORM L50 and AVIFORM S-Solid; LNT Airside Solid; ESSPO Nordway NF; Taminco Clearway F1; LNT GEN3. Holdover times depend on temperatures and snowfall intensity and cannot be quantified in general.
12.2 Comment on storage capabilities of the chemicals that you use: Storage capability of fluid de-icing material of 400,000 litres (manoeuvring area) and 300,000 litres (apron area) at the airport. Besides that storage capability of 100 tons of solid de-icing material available.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: Solid de-icers are always used in a





combination with fluid de-icing material to grant enough humidity. Decision on usage and the amount disposed taken by Winter Services Manager on Duty.
12.4 Have you experienced any corrosion problems with de-icers? Within the apron areas GEN3 is used to reduce the risk of corrosion to any materials.
12.5 Have you employed any special means to economise on chemical use? Mechanic cleaning always has priority to any use of chemicals. If chemicals are used the amount should be as low as necessary depending on the current weather situation.
12.6 Do you have any other comments on experience with chemicals? Nil
12.7 Do you use other chemicals or sand on operational areas? Only the chemicals above are used; sand is only used during special weather situations (e.g. freezing rain).

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Boschung ice warning system with 13 measuring sensors.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? No.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: It supports the judgement of the prevailing surface conditions. However it is only used as secondary information. Main information on surface conditions is obtained by regular inspections by Airside Operations Staff.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: No.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? De-icing is performed on 4 remote de-icing pads due to environmental restrictions. Pre-de-icing may be performed for early departures on the parking stands.
14.3 Is glycol recovered? If so, please state methods: Glycol is captured along with drainage run-off and stored in special reservoirs treated on-site before being released to two local sewage plants. Apron areas are cleaned of any de-icing fluid by usage of surface sweeper vehicles.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Skiddometer
15.2 Have you any comments on the reliability of friction indexes? Results of friction measurement are evaluated according to international recommendations and used for a runway assessment by Airside Operations Staff.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? Stuttgart Airport is constantly reflecting the used methods and tries to optimize the local procedures.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: No.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: No.
16.4 Do you have any winter services equipment that you would like to sell? No.

TALLINN

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Lennart Meri Tallinn

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY 08: True BRG: 090.27 degrees; Dimensions of RWY (m): 3,070 x 45; Strength (PCN) and surface of RWY and SWY: 60/F/B/X/T asphalt/concrete; THR coordinates: 592447.97N; RWY end coordinates: 0244836.55E, 592447.49N; THR Geoid undulation: 0245135.32E, GUND 60ft; THR elevation and highest elevation of TDZ precision APP RWY: THR 129ft. TORA: 3,070m; TODA: 3,370m; ASDA: 3,130m; LDA: 2,820m. Displaced THR 250m. RWY 26: True BRG: 270.32 degrees; Dimensions of RWY (m): 3,070 x 45; Strength (PCN) and surface of RWY and SWY: 60/F/B/X/T asphalt/concrete; THR coordinates: 592447.49N; RWY end coordinates: 0245135.32E, 592448.00N; THR Geoid undulation: 0244820.49E, GUND 60ft; THR elevation and highest elevation of TDZ precision APP RWY: THR 131ft. TORA: 3,070m; TODA: 3,130m; ASDA: 3,130m; LDA: 3,070m. Apron A: Asphalt/concrete; Strength PCN: 81/F/A/X/T; Apron B: Asphalt/concrete; Strength PCN: 32/F/B/Y/U; Apron C: Asphalt/concrete; Strength PCN: 32/F/B/Y/U. Apron A: 256 510sqm; Apron B: 5,814sqm; Apron C: 8,941sqm. TWY A: Width: 23m; Asphalt/concrete; Strength PCN: 78/F/A/X/T; TWY B: Width: 23m; Asphalt/concrete; Strength PCN: 71/F/A/X/T; TWY C: Width: 23m; Asphalt/concrete; Strength PCN: 26/F/A/X/T; TWY D: Width: 18m; Asphalt/concrete; Strength PCN: 26/F/B/X/T; TWY E: Width: 23m; Asphalt/concrete; Strength PCN: 47/F/A/X/T; TWY F: Width: 23m; Asphalt/concrete; Strength PCN: 97/F/A/X/T.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? Yes, SMS elements are regularly reviewed and risks assessed.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Training carried out for all personnel airside area.
b) Inspection by airline, airport, and airplane handling agency personnel: Inspection by safety, airport maintenance and ground handling personnel.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Maintenance using sweeping; magnetic bars and on every stand special FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Co-ordination of multiple agencies using airport (handling agents and operators).
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? A-SMGCS; by TWR controller via radio; camera system (CCTV).
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? A-SMGCS
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A-SMGCS
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Stop-bars; guard lights and marking most effective warnings.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Manouvering area driving training program; Runway Safety Team. Marking and airport lighting system.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Yes

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: Do not make airfield attractive for birds
6.1 Do your staff attend recognised bird control training courses? Yes
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? 24/7
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Audio systems, Guns, Pyrotechnic, ScareyMan, Remote gas gannon system by Purivox.
6.4 Do you carry out a bird strike risk assessment? Yes
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture:
LJ 11 Scania 113h 6x6 1996. Reg.nr 136AIR, Rosenbauer, water 9000 l, foam 1000l, renovated in 2011. Pump 6000 l/m
LJ21 Scania 113h 6x6 1996.reg.nr 132AIR, Rosenbauer, water 9000l, foam 1000l, renovated in 2011. Pump 6000 l/m
LJ31 Scania 480R 6x6 2009, reg nr. 137BCE, Wawrzaszek, water 9000l, foam 1000l, pump 6000 l/m
7.2 Future developments – are there plans to purchase or dispose of any equipment? January 2015 delivery – 2 pcs MAN 6x6 ARFF trucks
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? No

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? 15 October -15 April
8.2 Average annual days of snow: 65
8.3 Average snow depth: 28 cm
8.4 Maximum snow in 24 hours: 50 cm
8.5 Annual number of days of de-icing activities: 35

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? 12

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Schmidt CJS 914– 3 units; Vammas SB 4500H- 8 units; Vammas SB 5500- 2 units; Trucks: MAN





4X4 - 6 units; MB Actros 6X4 - 4 units; Shmidt SCL and Vammas PS 3500 snow cleaning appliance for runway and taxiway lighting; Snow Cutter-Blowers: Vammas B 400- 2 unit; De-icer equipment: spreader for solid and liquid Schmidt Stratos 3 units; Friction tester: ACE skiddometer BV-11 –3 units; Tractors: Valtra with several equipment – 4 units, Bobcat –1 unit, Wille 455-1unit, Holder 990-1unit; Case 821C with plough and bucket 4 units; Airport Sweepers: Bucher Schörling 3000; Schmidt 990; CityCat 2020.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: RWY 8/26, TWY B, exit road from the fire station and ILS critical areas; 2. 1-15 ACFT stands on the Apron A; 3. TWY A and TWY C,D,E,F 4. Apron B and C; 5. Other ACFT stands, apron A.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: RWY: 5-11 vehicles along centreline from TWY B and from RWY 08 to 26 and back. TWY and Aprons cleaning system is same: from centre to shoulder.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? "black top" on the runway achieved in 10-15 min

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Unisalt SF 200 tons. Unisalt BA150 tons. Unisalt is effective and reacts very quickly. No experience with using below -10C.
12.2 Comment on storage capabilities of the chemicals that you use: We store approximately 40-70 tons of Unisalt SF (dry) and 40-70 tons of Unisalt BA (liquid).
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc:
12.4 Have you experienced any corrosion problems with de-icers? Yes
12.5 Have you employed any special means to economise on chemical use? Yes, very good information about weather and experiences.
12.6 Do you have any other comments on experience with chemicals? Trying to vary (to use more environment friendly chemicals).
12.7 Do you use other chemicals or sand on operational areas? No

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Runway temperature sensors (6 sensors on RWY by Vaisala).
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? No
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: Have been beneficial.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: Airport is not providing aircraft anti/de-icing service directly, Tallinn Airport GH is providing these services. They have 4 units by Vestergaard.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? Anti/de-icing is performed on the parking stands.
14.3 Is glycol recovered? If so, please state methods: No

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? ACE skiddometer BV-11 – 3 units.
15.2 Have you any comments on the reliability of friction indexes? No

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport's methods? Yes, we upgrade them every year.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: Yes, ARFF trucks.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: Yes, 2 ARFF trucks from Hempel.
16.4 Do you have any winter services equipment that you would like to sell? No.

TIVAT

Aerodromi Crne Gore
Airports of Montenegro
Aerodrom Tivat - Airport Tivat

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Tivat Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY length x width: 2,500m x 45m, TORA: 2,500m; Total Apron area: 46,212sqm – Commercial aviation apron: 450m x 76m, General aviation apron: 156m x 77m; ICAO Category: 4D.
2.2 Landing aids for each RWY (e.g. CAT II): APPROACH AND RUNWAY LIGHTING: RWY14: PAPI Both/3°, THR LGT colour WBAR green; RWY32: CAT I 900 M, PAPI Both/3.2°, THR LGT colour WBAR green.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? SMS is not established at Tivat Airport, neither as part of Aerodrome Certification Manual nor as a standalone publication. Nevertheless, there are several safety related procedures internally in place and integrated in Airports of Montenegro QMS (Certificate Standard: ISO 9001:2008 and ISO 14001:2004).

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: FOD training is provided by Airports of Montenegro Training Centre through safety awareness training for all airside personnel and job related courses (Ramp agent training, GSE operator training…).
b) Inspection by airline, airport, and airplane handling agency personnel: Once a year, at least, inspections and/or audits are performed by airlines.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Airfield Sweeper "FOD BOSS"
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Maintenance of movement and manoeuvring area is responsibility of airport operator i.e. Tivat Airport (Airports of Montenegro).
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): NIL

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Visual monitoring and Radio communication.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? N/A
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): N/A
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: N/A
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Airside Vehicle Driver Safety Training
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Yes.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: "Tivat Airport Bird strike and Wildlife hazard Management and Prevention Programme" is in place at Tivat Airport.
6.1 Do your staff attend recognised bird control training courses? No
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): ARFFS trucks (ROSENBAUER PANTHER 6X6) and start gun/shotgun.
6.4 Do you carry out a bird strike risk assessment? N/A
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: Type: Rosenbauer – Panther, 2 units. Chassis: MAN. Axle: 6x6. Capacity: water/12.000 lit.; foam/1.500 lit. Year of manufacture: 2004.
7.2 Future developments – are there plans to purchase or dispose of any equipment? N/A
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? N/A

PART 2: WINTER SERVICES QUESTIONNAIRE

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Friction tester model: ASFT – T10
15.2 Have you any comments on the reliability of friction indexes? NIL





VIENNA

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Vienna Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY 11/29 3,500m x 45m + 7.5m shoulders TORA 3,500m; RWY 16/34 3,600m x 45m + 7,5m shoulders TORA 3,600m; Apron Total app. 1,000,000 m2, TWY app. 22,000m x 23m

2.2 Landing aids for each RWY (e.g. CAT II): RWY 11 CAT I, RWY 16 CAT IIIb, RWY 29 CAT IIIb, RWY 34 CAT I.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? No major changes – continuous improvement.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:

a) Training: FOD prevention is part of airside regulations training (initial and recurrent), Flyers and Handouts for the prevention of FOD.

b) Inspection by airline, airport, and airplane handling agency personnel: FOD inspections are performed by airport operations on manoeuvring areas and by handling agents before aircraft entering the parking stand.

c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Continuous sweeping from 6 am to 3 am 70 FOD Pins are installed.

d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Ramp Safety Committee

4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Eye contact, Surface Movement Radar

5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? Cars on the manoeuvring areas are equipped with transponders to become visible on the Advanced Surface Movement Guidance and Control System.

5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): A-SMGCS – ASTOS – AVIBIT.

5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Chains and signs.

5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Recurrent training of vehicle operators (manoeuvring area). Short time works only under supervision of trained staff.

5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Incidents and safety relevant matters can be reported non punitive (Safety Report).

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds:

6.1 Do your staff attend recognised bird control training courses? Internal Training

6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Continuously

6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/ manufacturer): Recorded distress calls, pyrotechnics.

6.4 Do you carry out a bird strike risk assessment? Part of SMS

6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes

6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: Several vehicles to fulfil ICAO CAT 9 requirements for both RWY's.

7.2 Future developments – are there plans to purchase or dispose of any equipment? No

7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? Yes – it's used by all Austrian Airports.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? Oct. 15th to Mar. 31st.

8.2 Average annual days of snow: 20

8.3 Average snow depth: 81 cm average over the last 10 years.

8.4 Maximum snow in 24 hours: Season 2013/2014: 1cm.

8.5 Annual number of days of de-icing activities: Season 2013/2014: 119.

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? 360 airport employees in total (228 airport employees and 76 sub-contracted) app. 61 airport employees (including jumpers) and 16 sub-contracted per shift.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Jetbroom Runway, Boschung, 10; Jetbroom 9000, Boschung, 8; Snowblower, Kahlbacher, 9; Snowblower, Schmidt, 3; Snowplough, Mercedes Unimog, 4; Tractor with Snowplough, Steyr, 11; Liquid Deicer, Schmidt, 15000l, 3; Multi Deicer, solid wet, Schmidt-Nido, 1; Small Multifunction Deicer with plough or brush, Boschung Pony, 6; Snowplough, Pfau/Schmidt, 3; Small Tractor with Snowplough and Deicer, Iseki, 2; Tractor with Snowplough and Deicer, Reform, 2.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: 1. RWY's & Apron, 2. TWY's

11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: RWY: 10 Jetbroom Runway, 3 Snowblower, 2 Unimog with plough – one run concept, TWY: RWY vehicles according to TWY width, APRON: 8 Jetbroom 9000, several Snowplough's and other available vehicles.

11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? Staff to be expected on the airport after 75min., "black top" within 30min.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Vehicles acc. to 10.1.

12.2 Comment on storage capabilities of the chemicals that you use: 500.000l liquid, 40.000kg solid.

12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: Application solid with 35% liquid deicer.

12.4 Have you experienced any corrosion problems with de-icers? Yes

12.5 Have you employed any special means to economise on chemical use? Heightened use of solid de-icing chemicals combined with mechanical cleaning.

12.6 Do you have any other comments on experience with chemicals? Deicing material must be environment friendly and is consequently less effective and very expensive.

12.7 Do you use other chemicals or sand on operational areas? Special ICAO Split.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Findlay Irvine ICELERT.

13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? No

13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: Around 0°C questionable reliability.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/ de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: 10 Safeaero 220 and 5 Vestergaard Elephant BETA.

14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? Dedicated area

14.3 Is glycol recovered? If so, please state methods: No

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Skiddometer BV11

ZURICH

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Zurich Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY 10/28: lengths 2,500m, TORA 2,500m, TODA 2,560m; RWY 14/32: lengths 3,300m, TORA 3,300m, TODA 3,360m; RWY 16/34: length 3,700m, TORA 3,700m, TODA 3,760m. All RWY's width 60m. Surface area data: RWY 10/28 150,000m2;





RWY 14/32 198,000m2; RWY 16/34 222,000m2; TWY's 550,000m2; Apron 900,000m2; Technical area 143,000m2.
2.2 Landing aids for each RWY (e.g. CAT II): All landing RWY's equipped with ILS.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? Zurich Airport has received the Airport Certification in June 2006. Thus, it was the first certified Swiss airport. The Safety Management System consists of four pillars: Firstly, a Safety Policy (with corresponding targets and safety performance indicators); secondly, a Safety Management (including hazard & risk assessment, safety organisation with an airport safety committee, a ramp safety committee, a local runway safety team, a bird strike committee and snow committee); thirdly, the safety monitoring (including an occurrence reporting and investigation process) and finally the continuous improvement (including safety audits, spot checks and safety assessments).

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: Employees working on the stands are alerted to the topic of FOD by special training and the distribution of information (e.g. flyers). The Ramp Safety Culture Team Zurich raises the issue on a regular basis.
b) Inspection by airline, airport, and airplane handling agency personnel: Runways and Taxiways are checked on a regular basis by the Airport Authority. A FOD check on the stand is to be performed by the handling agent before the arrival of the aircraft.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Stands: Two cleaning teams are on duty seven days/week from 03:30 to 21:30. During the remaining time an on-call service is established. They clean daily airplane stand surfaces at least once. When necessary, additional special cleaning can be ordered by Apron Control, and/or the Airport Authority.
Apron and Taxi Areas: Same procedure and cleaning teams as for the stands; cleaning interval twice a week. Apron and Taxi Areas were swept with FOD Boss.
Runways: No regular cleaning concept. However cleaning is done when necessary and requested and after maintenance work, bird strike incidents, etc. Runways are inspected four times a day.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Beside the cleaning teams of the Airfield Maintenance, all airport partners are requested to pay attention to FOD and remove it. Specially marked and yellow FOD bins are stationed on various locations accordingly.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): Momentarily no such software-based reporting system exists. Certainly, Airfield Maintenance has a system in operation which monitors the tour of the cleaning vehicles.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? The primary method of monitoring vehicles and aircraft movements on ground is visual observation, partly assisted by cameras and A-SMGCS during Low Visibility. Additionally a "Runway Incursion Monitoring and Collision Avoiding System" (RIMCAS) is installed, which acts as a safety net and alerts the controller in case of a runway incursion.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? Taxi routes are assigned in such a manner as to reduce the risk of runway incursions. All crossing taxiways / runway entrances have been marked with enhanced taxiway centreline markings and mandatory instruction markings according to ICAO Annex 14, AMDT10. A bypass taxiway around the main departure runway is currently being planned to reduce the number of runway crossings.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): Zurich is operating an A-SMGCS with the integration of the Approach radar, two ASDE and a Multilateration-System. Additionally a "Runway Incursion Monitoring and Collision Avoiding System" (RIMCAS) is installed, which acts as a safety net and alerts the controller in case of a runway incursion.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: All Runway holding positions are marked according to ICAO Annex 14 (including enhanced taxiway centreline markings and mandatory instruction markings) and equipped with red stop bars and wig-wags. RWY-Stop bars are operated (except line-up positions) during the entire Airport operation time (also in good weather and daylight conditions).
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? The Local Runway Safety Team is organising awareness campaigns (such as movies, flyers and the runway safety reports) to address identified hazards and to promulgate incident investigation findings. Furthermore, licensing requirements were introduced for all vehicle drivers on the airfield (including initial training, skill test and periodical refresher). The Safety Office has produced a new Runway Incursion Prevention Movie in 2014 and is organising the next Air OPS Safety Conference at Zurich Airport in January 2015.
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? The Local Runway Safety Team has established a common runway incursion database. Furthermore, a "Runway Safety Report" every three years to monitor trends in runway incursion numbers and effectiveness of measures is published. Additionally, the Runway Incursion Investigation Team investigates every single runway incursion event and interviews involved partner on a voluntary base. New Runway Safety Report will be released in summer 2015.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: Pure grass management and no agriculture. Long grass management with cut stop by the end of September. Grass moving in RWY Safety areas at night. The mice abatement is carried out with traps as well as a 4km mice fence with self-service traps.
6.1 Do your staff attend recognised bird control training courses? Yes. The co-workers of the Airport Authority, the environment caretakers and the hunter are trained by the wildlife management. Annual refreshers in bird control. New employees of the Airport Authority attend a basic training.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Yes, continuously at least every hour. Outside air traffic hours bird control staff is available on demand.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): For controlling accumulation of birds mainly pyrotechnic means are used. Various others for hunting permitted firearms are used only by the licensed gamekeepers. Lasers have been introduced and used during trials.
6.4 Do you carry out a bird strike risk assessment? Two times a day the Airport Authority makes a bird control tour. Extended bird control tours with observation 1 to 2 times a week. According to a yearly plan, a full day observation is made once a month. The bird control process is part of the Safety Management System. Additional, daily gamekeeper control and bird scaring tours are carried out before the outbound of wide body aircrafts on RWY 16/34.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Bird feather identification is made in cooperation with DAVVL or the Swiss ornithologic station in Sempach. Gamekeepers have special knowledge.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? Yes. We're collecting bird strike messages from the main carrier Swiss. This enables to identify a bird strike rate per 10'000 movement operated by Swiss. The total evaluation is reported annually to the FOCA.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: Crash Fire Tender: Ziegler Z 8 MAN, 5 vehicles, 12,500 L water, 1,500 L extract, 8x8, 2005/2006; MANSK 14-1005 MAN Kronenburg, 8,000 L water, 1,500 L extract, 8x8, 1994.
Command vehicle: Volvo XC90, 4x4, 2006; Skoda Octavia, passenger vehicle, 4x2, 2007.
Fire engine: Scania Vogt, 2 vehicles, 5,500 L water, 1,000 L extract, 1,000 kg powder, 90 kg C02, 6x6, 2003; Scania P420 Rusterholz, 4x4, 2,680 L water, 2007; small one: Mercedes Vito 115CDI, extinguishing vehicle, for multi-storey car park, 400 L water, 12 L foam extinguisher, 4x2, 2010.
Others:
Mercedes Brändle, pioneer vehicle, 6x6, 1998; Mercedes 1634AF Rusterholz, pioneer vehicle, 4x4, 1998; Auto Aerial Ladder, Mercedes Econic 1833, 4x2, 2009; Mercedes Contrac, passenger evakuation stairs, 4x4, 1993; MAN M90 Walde, respiratory protection vehicle, 4x2, 1996; Mercedes 412 D, oil protection vehicle, 4x4, 1999; Mercedes 416CDI, oil and water protection verhicle, 4x2, 2007; Mercedes Unimog Hänni, hose transport vehicle, 4x4, 1979; Mercedes 409 D, lighting vehicle, 4x4, 1987, 2 vehicles; Mercedes Unimog Hänni, carbonic acid vehicle, 4x4, 1981; Manitou Perkins, cross-country stacker, 4x4, 2002; Mercedes Sprinter, crew transporter, 4x2, 2002; Mercedes 316CDI, crew transporter, 4x2, 2012; VW T5, transport





vehicle, 4x2, 2005; Mercedes 3346, truck with crane, 6x6, 2008; Scania R124, loading vehicle for container, 8x4, 2001; FIAT Doblo Cargo, transport vehicle, 4x2, 2005; Mercedes Vito 116CDI, First Responder vehicle, 4x2, 2012.
7.2 Future developments – are there plans to purchase or dispose of any equipment? Yes. New Crash Fire Tender, 7 vehicles, 2015-2020.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? No.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? Winter readiness is from 24 October through 03 April.
8.2 Average annual days of snow: Annual days of snow approx. 20 days.
8.3 Average snow depth: Average snow depth 53 cm.
8.4 Maximum snow in 24 hours: 6 cm, 21 Dec 2013.
8.5 Annual number of days of de-icing activities: De-icing activities during 36 days (only De-icing).

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? Airport employees number 130 per shift.

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Snow clearance airside (Flughafen Zürich AG owned equipment): compact jet sweeper, Boschung, plough 6m, 9; compact jet sweeper, Boschung, plough 8.4m, 14; rotary snow, Øveraasen, TV 1520, 3; rotary snow, Rolba, R-10,000, 2; rotary snow / loader, Bucher, R-600, 1; loader / blower, Schmidt, Supra, 3; snow-blade*, Terex/Gjerstad , 6m, 1; snow-blade*, Liebherr/Gjerstad, 8m, 2; snow-blade*, Øveraasen, 6m, 1; plough**, Peter / Zaugg, 4m, 32; truck (for plough), Mercedes, 4; tractor (for plough), Deutz, 2.
*trax from contractors
**truck from contractors
De-icing: multi de-icer, Küpper-Weisser, 30m, 1; de-icer, Küpper-Weiser, 30m, 2; multi de-icer, Küpper-Weisser, 8m, 1; de-icer, Horsch, 30m, 1; de-icer, Pony, 4m, 2; de-icer, Rigitrac, 4m, 1; de-icer, Schiltrac, 4m, 2.
Snow-clearance landside: plough / gritter, Unimog, 1; plough / gritter, Mercedes, 1; plough / gritter, John Deere, 2; Plough / gritter, Rigitrac, 2; plough*, various, 2; plough / Pony, Zaugg, 1.5m, 2.
*truck from contractor
Contractors airside snow deportations: deportation trucks, various, 13-30; wheel loader, various, 3m3, 6; Rolltainer, various, 40m3, 3.

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Air- and landside have equal priorities.
First priority airside: RWY 16/34, 3.7 km (incl. TWY's); RWY 10/28, 2.5 km (incl. TWY's); RWY 14/32, 3.3 km (incl. TWY's); Apron (docks' area snow clearance), all non-covered parking lots; Apron / apron-taxiways.
Second priority airside: Service roads, Maintenance areas, General Aviation area.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: Two formations with 7 trucks (mounted plough, blow-sweeper each), 2 trucks (mounted plough only), 1 rotary snow, 1 multi de-icer.
11.3 After moderate snow, how quickly do you expect to achieve 'black top' on the runway? 45-60 minutes.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: Aviform L50
12.2 Comment on storage capabilities of the chemicals that you use: Storage capacity 900,000 litres 24-hour additional supply guarantee.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, "blow-away factor" etc: In recent years, no solids were used. It may not be disclosed.
12.4 Have you experienced any corrosion problems with de-icers? Some problems with corrosions at vehicles.
12.5 Have you employed any special means to economise on chemical use? Heated aircraft stands at the docks A and B.
12.6 Do you have any other comments on experience with chemicals? No.
12.7 Do you use other chemicals or sand on operational areas? No.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Boschung system 2000; 3 sensors per RWY (9 in total), 1 sensor in the landside areas.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? Facilities will be extended at the airport expansion.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: The system is a good aid for monitoring the weather impact in connection with winter services.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: No.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? Both, dedicated de-icing positions (de-icing pad F and C) and on-stand de-icing.
14.3 Is glycol recovered? If so, please state methods: Yes, glycol is recovered. The material is collected in storage basins for wastewater treatment. On 20 hectares it is treated for biological degradation by micro-organisms of the soil. The high concentrated part is distilled and recycled; the rest as carbon denitrification goes to the Zurich waste water treatment or on a sludge stabilisation digesting tower.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? BV-11; 2 units.

ZVARTNOTS

ZVARTNOTS
"Armenia" International Airports C.J.S.C.

PART 1: GENERAL AIRSIDE SAFETY

1. AIRPORT NAME: Zvartnots International Airport

2. MOVEMENT AND MANOEUVRING AREA DATA

2.1 Please list the identities of primary operational facilities and the surface areas (for example: total RWY length (or lengths), Take Off Run Available (TORA), RWY width, shoulder widths, total apron area, ramp area, other): RWY 09, TORA 3,850m, TODA 4,250, ASDA 3,850m, LDA 3,850m. RWY 27, TORA 3,850m, TODA 4,150m, ASDA 3,850m, LDA 3,850.
2.2 Landing aids for each RWY (e.g. CAT II): RWY 09: CAT II. RWY 27: PAPI.

3. SAFETY MANAGEMENT SYSTEMS

3.1 The ICAO Manual on Certification of Aerodromes specifies that: "The aerodrome operator shall establish a Safety Management System for the aerodrome." Has your airport made any recent changes to its SMS following the reappraisal of risks and hazards identified by internal/external SMS audits? Yes.

4. FOREIGN OBJECT DAMAGE (FOD) PREVENTION

4.1 Describe your airport's programme to control FOD in terms of:
a) Training: All airport and airline personnel and airport tenants should receive training in the identification and elimination of FOD, including the potential consequences of ignoring it.
b) Inspection by airline, airport, and airplane handling agency personnel: Airline personnel, when feasible, should join the airport staff in daily airside inspections. This practice helps increase familiarity with local airfield conditions, and promotes effective communication between the airport and airlines.
c) Maintenance (use of sweeping, magnetic bars, rumble strips, FOD containers etc): Maintaining control of FOD includes using several methods: Sweeping and FOD containers.
d) Co-ordination of multiple agencies using airport (airlines, handling agents etc): Yes.
4.2 General: Are there any special systems or software solutions you employ for FOD control? (Please specify product name and add any comments): No.

5. RUNWAY INCURSION PREVENTION

5.1 What is the primary method of monitoring vehicle and aircraft movements on the ground? Visual monitoring from ramp control in cooperation with ATC.
5.2 Are any design or engineering changes being undertaken/required to eliminate perceived hazards? No.
5.3 What safety devices are currently employed? (A-SMGCS; Airport Movement Area Safety System - AMASS; or ASDE-X, the Model X Airport Surface Detection Equipment): No.
5.4 Comment on the use of any innovative warnings or guards – use of paint, signs, lighting and other lower-cost technologies: Yes.
5.5 What specific procedures are there for training and awareness among pilots, controllers, mechanics, airport vehicle operators, and other people who work at the airport? Six-month refreshing training for drivers (communication).
5.6 Have the reporting procedures for runway safety incidents been set up jointly with other parties active in these processes? Further, do they safeguard the 'non-punitive' principles such as 'no-penalty' reporting? Yes.

6. BIRD AND WILDLIFE CONTROL

6. Please detail your habitat management policy and how it reduces the attraction of the airfield to birds: Flight ornithological security assurance. Due exposure and liquidation of conditions contributing to bird concentration in the airport and nearby area. Flight ornithological maintenance is aimed at prevention of bird strike in airport area. Due and qualitative execution of prophylactic (prevention) works for scaring birds. Training of interested candidates for the improvement of their knowledge. Performance elaboration and fulfillment for flight ornithological security improvement in Zvartnots International Airport. Due to the above mentioned policy, bird strikes reduced by 20% each year.
6.1 Do your staff attend recognised bird





control training courses? Yes.
6.2 Are your bird control staff working on the airfield continuously, hourly, less than hourly? Our bird control staff is working on the airfield continuously.
6.3 What specialist equipment do you employ for bird control? (Please state relevant supplier/manufacturer): Bird patrols in vehicles, Bioacoustics Super BirdX peller PRO, electronically generated noise, propane cannons - Zon Mark, pyrotechnics, shooting to scare, netting hangar rafters, ponds.
6.4 Do you carry out a bird strike risk assessment? Yes.
6.5 Do your staff log all their bird control activities (to manage success in dealing with the problem, and to use in defence in case of lawsuits)? Yes.
6.6 Does your airport have problems with other wildlife (deer, for example) and, if so, how are these issues being addressed? No.

7. CRASH FIRE RESCUE

7.1 Please detail your CFR vehicle inventory stating: vehicle type; chassis (e.g. MAN); axles (4X4, 6X6); capacities (kg/litre and type); year of manufacture: Type: Crash Fire Rescue, Model: Striker-3000, Chassis: Oshkosh, Axles: 6x6 (Oshkosh axles), Capacity: Water – 11,350 litres, Foam (AFFF) – 1,590 litres, Dry chemical – 225 kg, year of manufacture: 2007.
7.2 Future developments – are there plans to purchase or dispose of any equipment? Yes.
7.3 If your airport possesses a Fire Training Simulator, is this available to other airports for training purposes? The airport is planning to construct a training centre, which will include the simulator.

PART 2: WINTER SERVICES QUESTIONNAIRE

8. RECENT WINTER CONDITIONS

8.1 What is the designated period of winter readiness? From November to March
8.2 Average annual days of snow: 10-15 days
8.3 Average snow depth: 5cm
8.4 Maximum snow in 24 hours: 20cm
8.5 Annual number of days of de-icing activities: 50 days

9. WINTER ORGANISATION

9.1 How many airport-employed or sub-contracted winter services personnel are available per shift? 40

10. WINTER EQUIPMENT INVENTORY

10.1 Please list specialist snow clearing, de-icing and other relevant winter equipment stating purpose, manufacturer and number of units (for example, compact jet sweeper, Schmidt, CJS 720, 4 units): Snow sweeper Scania Vammas, 3 pieces; Snow plough PM-130, 11 pieces; Snow collector D-902, 1 piece; Snow collector DE-226, 1 piece; Snow plough KAMAZ PM-116, 1 piece; ZIL-4502 liquid chemical reagent machine, 1 piece; ZIL-130 solid chemical reagent machine, 1 piece; Grader, 1 piece; Loader, 1 piece; Dump trucks, 3 pieces; Universal mechanism “Bobcat”, 1 piece (mini loader); Mitsubushi L-200, 1 piece; Gazel (light truck), 1 piece; Nissan (pick-up), 1 piece; Global Ground Support, 3 pieces (de-icing truck); Iveco Haestra Eisbar 2, 2 pieces (de-icing truck); Aerotech Herman Nelson BT 4000-46, 2 pieces (heaters, only external heating).

11. PROCEDURES AND METHODS

11.1 Please state here order of priority of snow clearance of main operational facilities (runways, taxiway, aprons etc) stating identity of each facility: Runway; taxiways, main taxiway; aprons; holding bays; other areas by necessity.
11.2 State the vehicles, formations and general method of runway, taxiway and apron clearance: Snow-cleaning from the RWY is done by patrol method by Scania-Vammas, PM-130 snow-cleaning machine. Snow cleaning is mainly done from RW axis-line to the edges, then the collected snow of the edges is cleared by the rotors. Cleaning process can be changed getting out of the wind direction changes.
11.3 After moderate snow, how quickly do you expect to achieve ‘black top’ on the runway? RW snow-cleaning must be done immediately when the snow begins, between take off /landing intervals.

12. EXPERIENCE WITH CHEMICALS

12.1 State which pavement de-icers you use, along with the quantities used last season. Comment on effectiveness of chemicals at low temperatures and achieved holdover times etc: The chemical reagents used last season: Solid: ANS (nearly 12 ton) and Clearway SF3 (nearly 14 ton); Liquid: Safeway KA-HOT (nearly 5 ton). The mentioned chemical reagents can be used till -400C temperature, except granular ANS chemical reagent (-120C).
12.2 Comment on storage capabilities of the chemicals that you use: Solid: nearly 52 ton; Liquid: nearly 51 ton.
12.3 Comment on your experience with solid de-icers, for example mixing ratios with liquids, “blow-away factor” etc: Zvartnots Airport doesn’t have such an experience.
12.4 Have you experienced any corrosion problems with de-icers? Zvartnots Airport doesn’t have such problems.
12.5 Have you employed any special means to economise on chemical use? Chemical reagents are used according to norms prescribed quantity.
12.6 Do you have any other comments on experience with chemicals? No.
12.7 Do you use other chemicals or sand on operational areas?
It isn’t expedient.

13. ICE WARNING SYSTEMS

13.1 State model and number of ice warning systems: Have not.
13.2 Have you plans to purchase further ice warning systems and if so, which model(s)? It isn’t expedient.
13.3 Comment on your experiences of the benefits/disbenefits of ice warning systems: Nil.

14. AIRCRAFT DE-ICING

14.1 Does the airport directly provide aircraft anti/de-icing operations? If so, please state vehicle or other facility manufactures, and number of units: No. It does by handling company ‘Zvartnots Handling’.
14.2. Are you required to have dedicated de-icing positions or do you de-ice on the parking area? Yes, we have dedicated de-icing positions.

15. FRICTION TESTING

15.1 What model(s) of friction tester do you use? Skiddometer BV11.

16. FUTURE DEVELOPMENTS

16.1 Are you about to change any of your airport’s methods? Yes.
16.2 Do you plan to purchase new equipment or vehicles? If so, please provide details: No.
16.3 Do you currently have equipment or other products on order? If so, please provide details including manufacturer and number of units: Yes.
1. DYNASET DWR Prime liquid chemical reagent dispensing special vehicle-equipment – 1 piece.
2. MKS5000 magnetic sweeper – 1 piece.

ZAUGG-SNOWSHARK

Wedge snow plough for rapid and easy snow clearance of runway edge lighting and taxiway edge lighting at airports, airfields and landing strips. Adjustable wedge snow plough with special plough-brush-blower technology for front or rear attachment to the three-point power lift of a tractor or the front lift of a wheel loader. The two plough swivel blades are fitted with plastic plates whose open, optimally concaved blade shape ensures an effective and wide ejection range. The width of the gap between the plough blades is 60cm when snow clearing in the open position. A special cleaning system (brush-blower technology) is used to remove the remaining snow from the lamps. Two adjustable casters on the paved runway or two adjustable guide shoes alongside the runway ensure accurate plough guidance. The ZAUGG-SnowShark wedge snow plough can be equipped with PUR, combi or steel cutting blades. Thanks to a stabilised lateral inclination, the plough adjusts well to uneven ground.

Technical data of KPR-300 ZAUGG-SnowShark
Clearing width with closed plough: 3,000mm
Plough opening width: 600mm
Maximum clearance height above the lighting: 600mm
Plough height at the centre: 800mm
Plough height outside: 1,100mm
Weight, complete including Blower: 1,250kg
Hydraulic drive power requirement, minimal: 60l/min at 180 bar



The ZAUGG-SnowShark wedge snow plough can be equipped with PUR, combi or steel cutting blades. Thanks to a stabilised lateral inclination, the plough adjusts well to uneven ground.

Introducing the latest addition to the family

The Dynatest Runway Friction Tester 6875EU







Ford Transit based with FAA/ICAO approved gear providing highly accurate Mu data.

The 6875EU continues our history of quality equipment for airport testing under harsh conditions.

Optional GPS, multiple temperature sensors and local language software makes this unit user friendly.

Dynatest has successful implementations of its **A.I.R.P.O.R.T.S** PMS in the Far East, Middle East and Europe. The Dynatest 6875 range is the RFT machine of choice for many international airports.

Dynatest®
www.dynatest.com
For further information contact us on runwayfriction@dynatest.com

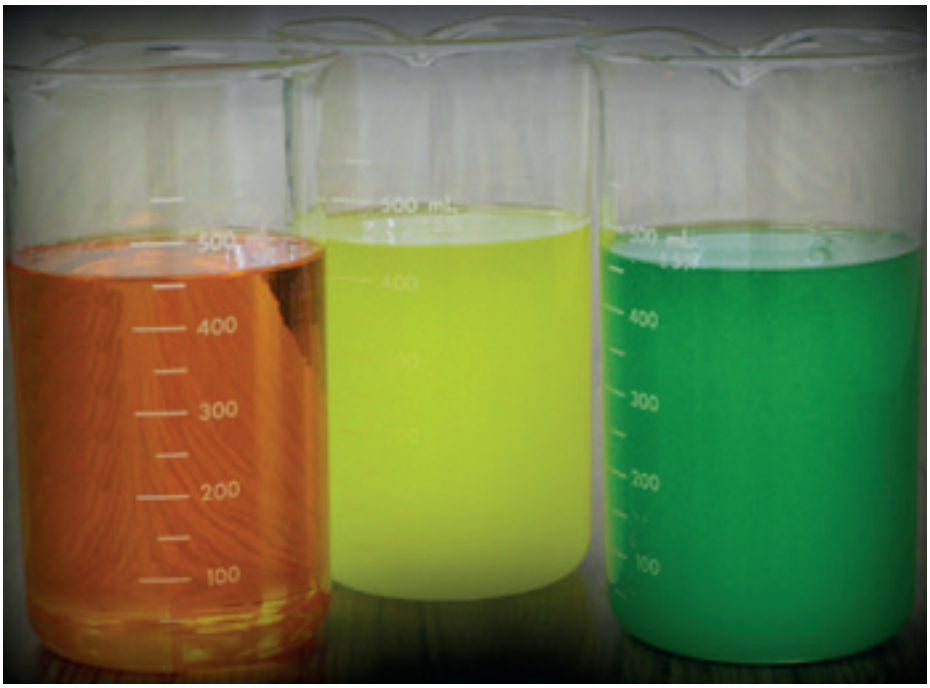
WORLDWIDE SUCCESS FOR BOSCHUNG GROUP

In 1947 Marcel Boschung Senior laid the foundation of the company bearing his name, which in the course of the last 65 years has become one of the leading manufacturers of machinery and equipment used in the field of cleaning and maintaining of airports, roads and municipalities. The Boschung Group counts nowadays a total of nearly 650 employees, and well established branch companies in Germany, France, Austria, USA, Russia and China. Furthermore a network of experienced agents and partners operating worldwide are its guarantee for a successful and promising future.
The Jetbroom – a special, unique and extremely economical all-year multifunctional sweeper/blower machine – is one of the group's bestsellers on airports worldwide and is also available in a towed version. Various spreaders and de-icers (solid, liquid, solid/liquid) for all purposes, snow blower/cutter, multi-purpose and -functional carriers, compact and mounted sweepers are rounding up its product range for an efficient maintenance service. Together with Boschung Mecatronic Ltd – specialised in ice early warning systems, automatic thawing agent spray systems, BORRMA-web and the brand new Runway Contamination Depth measurement system, the Boschung Group supplies the full range of equipment needed for a safe, cost-effective and ecological maintenance of various working surfaces from a single source – perfectly demonstrating its 'Surface Condition Management' (SCM) philosophy.



The Jetbroom – a special, unique and extremely economical all-year multifunctional sweeper/blower machine – is one of Boschung Group's bestsellers on airports worldwide and is also available in a towed version.

PROVIRON DE-ICERS VERY POPULAR IN EUROPE

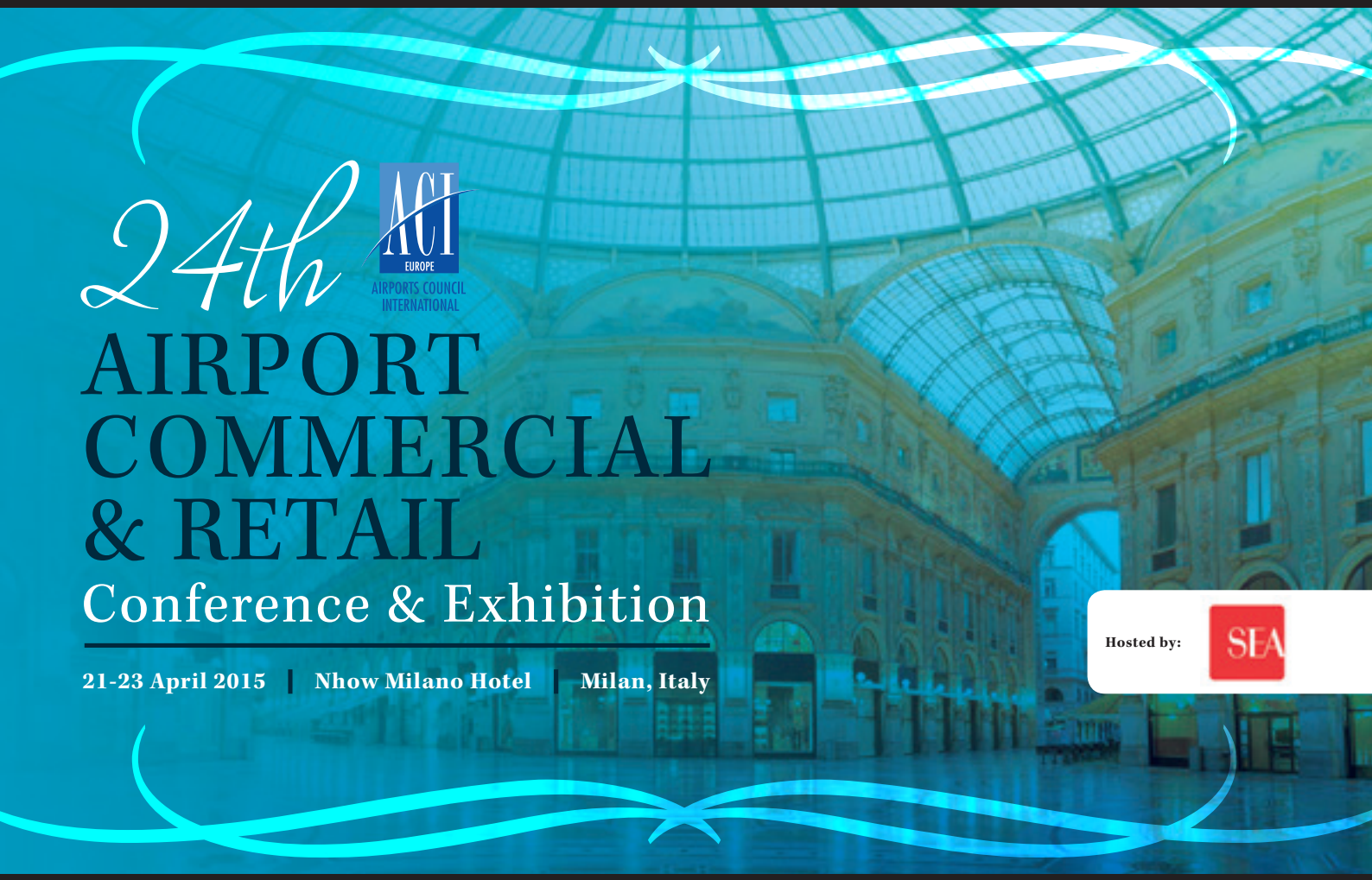


Proviron manufactures Type I, II and IV fluids. All fluids fully comply with the latest SAE AMS requirements and are FAA approved/listed.

For over 15 years, Proviron has successfully established itself in the market as a reliable and trusted manufacturer/supplier of environmentally friendly runway and commercial de-icers. Proviron supplies acetate and formate based de-icers in liquid and solid form.
In 2013 Proviron entered the aircraft de/anti-icing market. Proviron teamed up with its long-term business partner Cryotech (USA), a world leader in de-icing technology, to manufacture Cryotech's products in Europe. Cryotech products are very popular in the US and the Cryotech brand is held in high esteem.
Proviron manufactures Type I, II and IV fluids. All fluids fully comply with the latest SAE AMS requirements and are FAA approved/listed.
The decision for Proviron to enter this new market was to some extent customer driven. In recent years winter demand for de-icers in Europe has risen to record levels, due to the air traffic growth and to winters being more extreme, whereas the limited number of de-icer manufacturers in Europe remained static.
The market introduction went much faster than expected by Proviron. The products have been very well received by airlines, ground handling companies and airports all over Europe. Customer feedback has been extremely positive, especially with regards to shear/storage stability and superb sprayability. The European aviation industry has clearly approved and accepted the Cryotech products and the popularity of the products keeps on growing.
By adding aircraft de/anti-icing products to its already successful range of runway de-icing products, Proviron has strengthened its position as one of the leading companies in the de-icing industry.

SAVE THE DATES

www.aci-europe-events.com



24th AIRPORT COMMERCIAL & RETAIL Conference & Exhibition

ACI EUROPE AIRPORTS COUNCIL INTERNATIONAL

21-23 April 2015 | Nhow Milano Hotel | Milan, Italy

Hosted by: SEA



25th GENERAL ASSEMBLY Conference & Exhibition

ACI EUROPE AIRPORTS COUNCIL INTERNATIONAL

24-26 June 2015 | Hilton, Prague | Czech Republic

Hosted by: Prague Airport CZECH AEROHOLDING GROUP



Let's beat the elements together

Aircraft de-/anti-icers:

- Cryotech Polar Plus® (80) *Type I*
- Cryotech Polar Guard® II *Type II*
- Cryotech Polar Guard® Advance *Type IV*

Runway & commercial de-/anti-icers:

- Provifrost® KA ECO *Liquid potassium acetate*
- Provifrost® KF ECO *Liquid potassium formate*
- Provifrost® NF *Solid sodium formate*
- Cryotech® E36 *Liquid potassium acetate*
- Cryotech® NAAC *Solid sodium acetate*
- Cryotech® CMA *Solid calcium magnesium acetate*
- Cryotech® CMA40 *Solid blend of 40% CMA and 60% rock salt*

Proviron

Call: +32 (0)3 870 88 20
Fax: +32 (0)3 877 23 33
Email: sales.deicer@proviron.com

Zone 2 - G.Gilliotstraat 60
2620 Hemiksem
Belgium

Oudenburgsesteenweg 100
8400 Oostende
Belgium

www.proviron.com

Proviron