

Runway Safety Team Case Study / Workshop

Presented to: **Regional Runway Safety Seminar**

By: **Captain Peter Budd**

Technical Officer

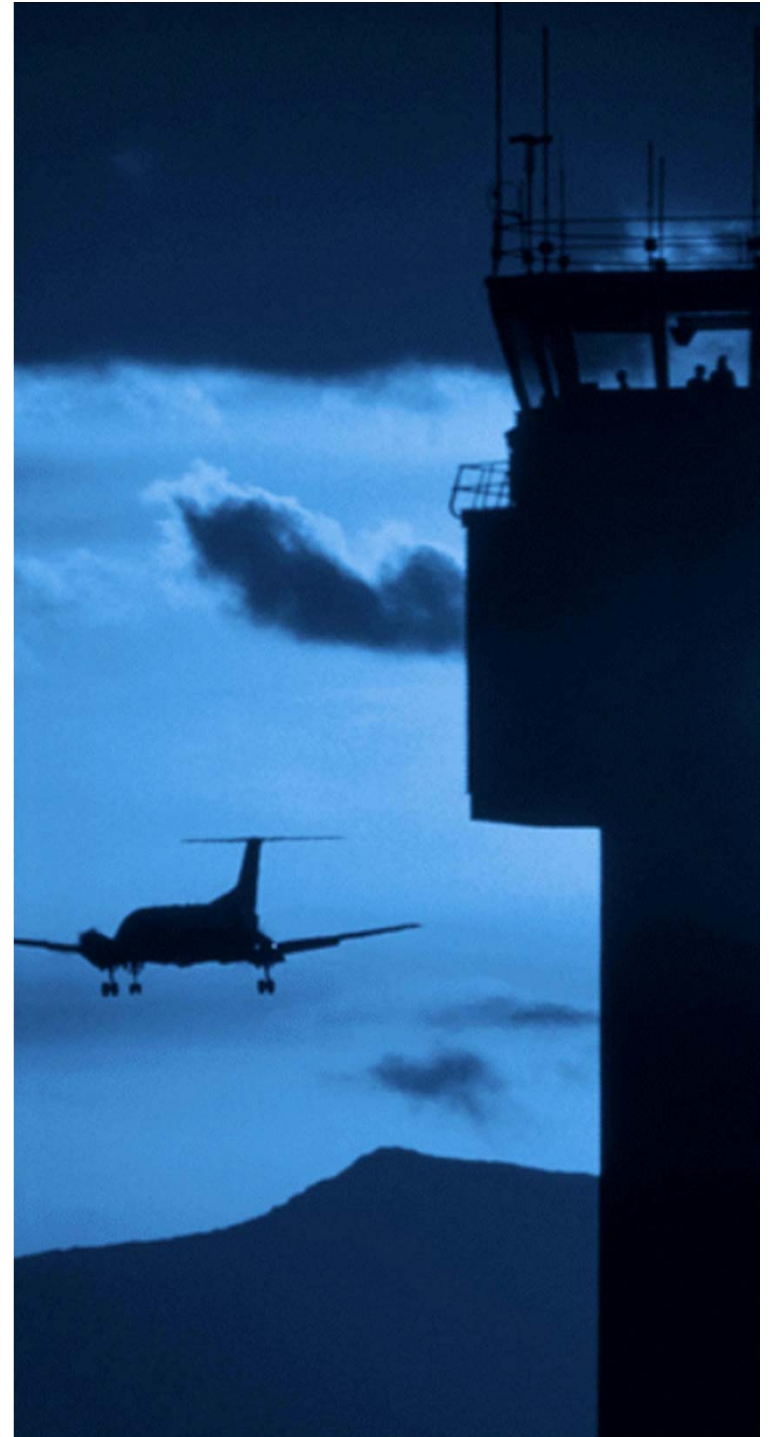
ICAO Universal Safety Oversight Audit Programme

Supported by:

John Lott

Chris Pokorski

Michael de Leon



RST Workshop-Task 1

- **Form a Team-**
ATC
Pilot/Operator
Airport Operator

RST Workshop-Task 2

- **Elect a Chairman**









FRANK JR

Goldhofer

AA.com

22770 Goldhofer



Runway Safety Team (RST)

ATO Garden City Regional (GCK)-KS
Office of Runway Safety Training Animation Series

Aircraft Info: March 18, 2010 (V/PD) - Vehicle Deviation Category A

Play Pause Exit
Rwd Fw Mute

Turn Text Off

This is a recreation of an actual air traffic incident. It does not represent the official investigation or official report.

RST-Workshop Format

- RST process
- Review case study scenarios
- Questions/feedback-at any time

ICAO's Runway Safety Page

www.icao.int/runwaysafety

The screenshot shows the ICAO Runway Safety website. At the top, there is a navigation bar with a 'Home' link, a search bar, and the date 'October 7, 2011'. Below this is the ICAO logo and the tagline 'Uniting Aviation on Safety | Security | Environment'. A main banner features the ICAO logo and the text 'ICAO Runway Safety Site'. On the left, there is a vertical menu with links for 'HOMEPAGE', 'EVENTS', 'RESOURCES', 'NEWSROOM', and 'RUNWAY SAFETY PROGRAMME PARTNERS'. Below the menu is a 'RUNWAY SAFETY TEAM PORTAL' section with a large blue 'enter' button circled in red. The main content area includes a 'RUNWAY SAFETY' graphic with the ICAO logo and a globe, followed by text explaining ICAO's role in runway safety and a list of resources available on the site. A section titled 'RUNWAY SAFETY PROGRAMME PARTNERS' lists the responsibilities of these partners.

Home | October 7, 2011

ICAO • OACI • ИКАО
Uniting Aviation on
Safety | Security | Environment

Back to ICAO Safety Page

ICAO Runway Safety Site

- HOMEPAGE
- » EVENTS
- » RESOURCES
- » NEWSROOM
- RUNWAY SAFETY PROGRAMME PARTNERS

RUNWAY SAFETY TEAM PORTAL

enter

ICAO has been called upon by the international civil aviation community to exercise leadership in the effort to reduce the number of runway-related accidents and incidents worldwide. Starting with the Global Runway Safety Symposium (GRSS), we aim to raise awareness and share information as a means to generate effective solutions.

As a result of the GRSS, ICAO and its [Runway Safety Programme Partners](#) are now working together on a series of concrete measures to minimize the risks of runway incursions, runway excursions and other events linked to runway safety by:

Establishing, promoting and enhancing multi-disciplinary runway safety teams at individual airports.

On this site, you will find:

- What is being done to improve runway safety outcomes worldwide
- Best Practices related to runway safety from around the globe
- Information on our Regional Runway Safety Seminars (RRSS)
- Analysis of global runway safety data
- Tools for use by Runway Safety Teams designed to help them help themselves; and
- Links to useful runway safety documents provided by ICAO and our Runway Safety partners.

RUNWAY SAFETY PROGRAMME PARTNERS

- Provide expert speakers and/or moderators for the GRSS;
- Support subsequent regional Runway Safety Workshops through provision of venues, speakers and logistic backup (either financial or technical);
- Promote the GRSS and the Runway Safety Programme through their media and networks;
- And contribute to the Runway Safety Programme through the provision of technical input.

RST-Workshop Task 3

- Log in to ICAO Runway Safety Site
- <http://www2.icao.int/en/RunwaySafety/Pages/Toolkits.aspx>
- Locate resources tab
- What resources are available?
- What contents of EASA web site can you use?
- What contents of FAA web site can you use?

RST-Workshop Task 4

- Log in to your runway safety team portal
- User name Password
- studenttwo student02
- **studentthre** **student03**
- studentfour student04 studentfive student05
- studentsix student06
- **studentseve** **student07**
- studenteight student08 studentnine student09
- studentten student10

ICAO's Runway Safety Page

www.icao.int/runwaysafety

The screenshot shows the ICAO Runway Safety Site registration page. At the top, there is a navigation bar with 'Home', 'Français', a search icon, and the date 'October 7, 2011'. Below this is the ICAO logo and the tagline 'Uniting Aviation on Safety | Security | Environment'. A 'Back to ICAO Safety Page' link is visible. On the left, a sidebar titled 'ICAO Runway Safety Site' contains a menu with 'HOMEPAGE', 'EVENTS', 'RESOURCES', 'NEWSROOM', and 'RUNWAY SAFETY PROGRAMME PARTNERS'. The main content area is titled 'Register for the Runway Safety Team Portal'. It includes a registration description, a note about secure access, and two buttons: 'Register' and 'Log In'. The 'Log In' button is circled in red. Below the buttons are instructions for registration and login. At the bottom, there is a copyright notice and the ICAO logo.

Home | Français | October 7, 2011

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Safety | Security | Environment

Back to ICAO Safety Page

ICAO Runway Safety Site

- HOMEPAGE
- » EVENTS
- » RESOURCES
- » NEWSROOM
- RUNWAY SAFETY PROGRAMME PARTNERS

Register for the Runway Safety Team Portal

Register for FREE access to the Runway Safety Team Portal to **enter data, monitor, analyze, summarize and chart** your Runway Safety Team's progress. You may also choose to share information and best practices with other Runway Safety Teams or regional groups.

Once you have joined, you can access your information **securely, anywhere and anytime**, so no need to carry laptops or USB devices.

[Register](#) [Log In](#)

Click the button to register for access. In the form, enter your airport code as rationale.
Example: LGT

Returning users log in here.

Limited to Qualified Runway Safety Professionals Only

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(RST)-Team Composition

To be effective, a Runway Safety Team (RST) should include personnel from the:

- **airport management organization;**
- **airport traffic control tower (ATC);**
- **air operators;** and
- In some countries the regulator.

All attendees at the RST meeting are considered to be part of the team.

The Role of the RST

A Runway Safety Team (RST) convenes to discuss surface movement issues and concerns at a particular airport.

The team then formulates a Runway Safety Action Plan (RSAP) to address those concerns.

(RSAP)-Runway Safety Action Plan

Plan Preparation. As a minimum, the plan must include the following:

- (1) A list of participants, their affiliation, and a general overview of the team meeting.
- (2) Runway safety concerns, issues, or problems at the airport. These may include existing as well as new issues.
- (3) Best Practices. The team may determine that an operational practice observed at an airport is a best practice that should be shared with other locations. Each RSAP should include a section on best practices, if any, in use at that particular airport.

(RSAP)-Plan Preparation

(4) Specific Action Items. Action items should be airport specific and linked to a runway safety concern, issue or problem.

Consensus is required for assignment of an action item, in particular from the organization responsible for accomplishing the action.

Acceptance of an action item is voluntary. Proposed action items where consensus is not reached may be documented as safety recommendations.

(RST)-Administration

The Runway Safety Team (RST) should convene at a minimum of once every 3 months to review and/or update the plan, or more frequently as needed to address significant issues (for example, construction).

Any member of the RST can host the RST meeting.

The chairmanship/vice-chairmanship of the RST is decided by the members;

Election, consensus, rotational

(RST)-Resources

ICAO Runway Safety Site

<http://www2.icao.int/en/RunwaySafety/Pages/Toolkits.aspx>

- Handbook
- Documents
- Tool kits
- Links

http://www.faa.gov/airports/runway_safety/resources/lrsat/

Runway Safety Team (RST) Process

- Pre-RST visits (optional)
 - ATC, airport management, tenants.
- Daylight and nighttime airfield tour (optional)
 - Review actual or potential problem areas

Leading up to the...

- Runway Safety Team Meeting
 - Commitment on any necessary actions

Runway Safety Team (RST) Process

General expectations for RST meetings...

- Acknowledgement that there is room for improvement
- Recognition of potential for catastrophe
- Acceptance of responsibility
- Partnership among all stakeholders
- Commitment and dedication
- Ownership and aggressive pursuit of solutions
- Action to implement change
- Some topics may require further discussion

Primary Causes of Runway Incursions

- **Breakdown in Communications**
- **Lack of Airport Familiarity**
- **Loss of Situational Awareness**
- **Complacency**
- ***Normalization of Deviance***

Not following regulations, processes, standards.

Not stopping at a stop sign.

Not using a checklist.

Speeding.

Why is this important?

Questions?

Break.

Show Garden City Regional (GCK) training animation and start first case study.

Runway Safety Team (RST)

Case Study #1

Case Study #2

Case Study #3

Case Study #4

In each case, what are the issues? What can be done to reduce risk?

Develop new action items.

Runway Safety Team (RST)

Case Study #1

Case Study #2

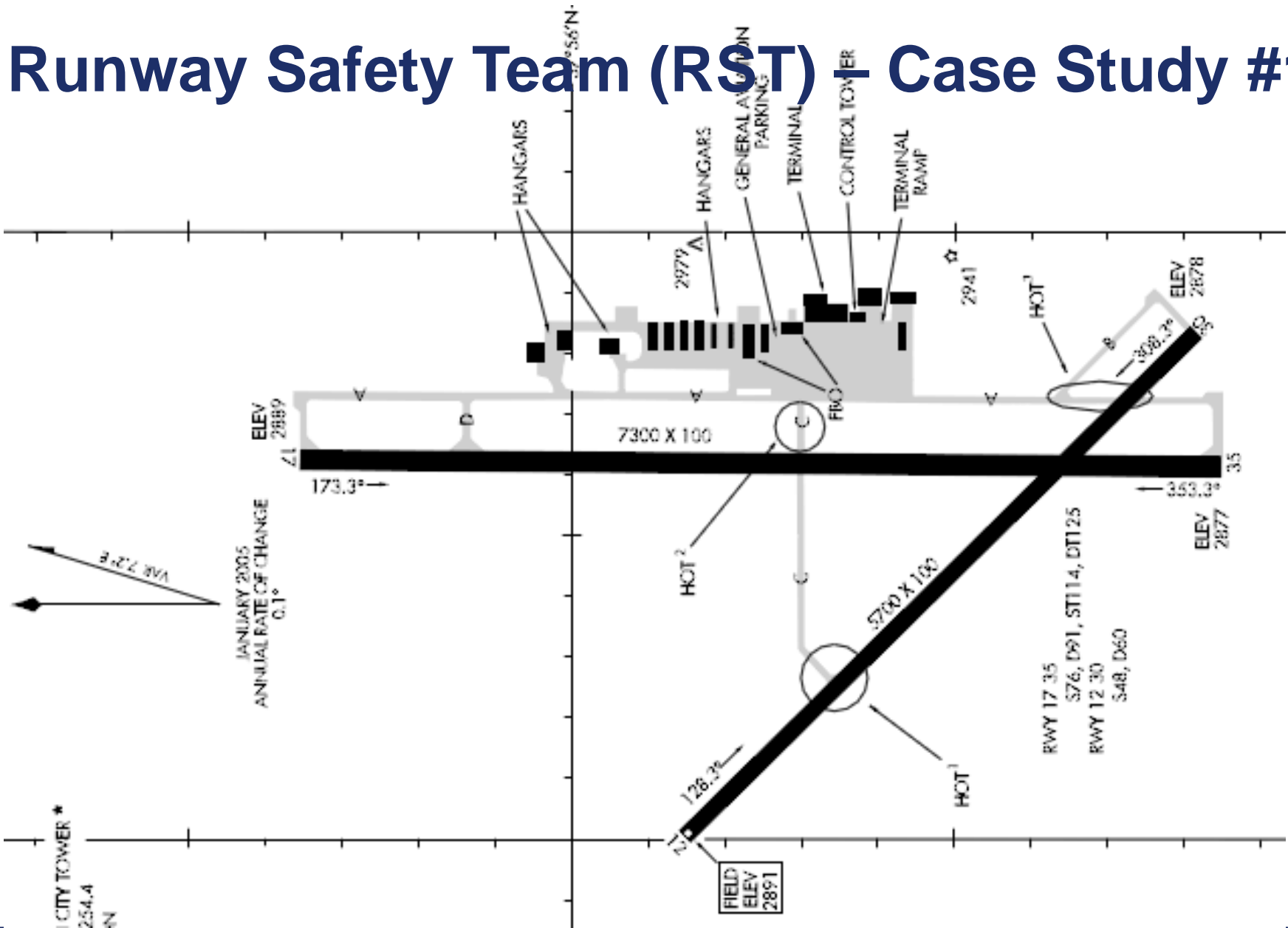
Case Study #3

Case Study #4

In each case, what are the issues? What can be done to reduce risk?

Develop new action items.

Runway Safety Team (RST) – Case Study #1



Runway Safety Team (RST) – Case Study #1

The image displays a software interface for an Air Traffic Operations (ATO) simulation at Garden City Regional (GCK)-KS. At the top left is the Federal Aviation Administration (FAA) logo. The main title is "ATO Garden City Regional (GCK)-KS" with the subtitle "Office of Runway Safety Training Animation Series". The central part of the interface shows a top-down view of the airport's taxiway and runway system, with various segments labeled A, B, C, and D. A north arrow is positioned to the left of the taxiway. Below the airport map is a legend with three circular icons: a Citation II 535BP aircraft, three Pronghorn animals, and an Airport 4 Vehicle. At the bottom of the interface, there is a control panel with buttons for "Play", "Pause", "Exit", "Rwd", "Fw", and "Mute". A "Turn Text Off" button is also present. The "Aircraft Info" section displays the date "March 18, 2010" and the incident description "(V/PD) - Vehicle Deviation Category A". A small disclaimer at the bottom of the simulation area reads: "This is a recreation of an actual air traffic incident. It does not represent the official investigation or official report."

Runway Safety Team (RST) – Case Study #1

An airport maintenance vehicle was cleared onto Taxiways Alfa and Bravo in pursuit of an animal. The vehicle entered Runway 35 at Taxiway Charlie without authorization and conflicted with a Cessna C560 that had landed same runway. The C560 then rotated and became airborne to avoid the vehicle and animal. As reported by the non-flying pilot: they recognized the conflict just before touchdown and aggressively rotated with the non-flying pilot applying additional backpressure to the controls. The rotation was early and resulted in a momentary stall warning. The main gear touched down before they became airborne again. A direct overflight occurred as the truck crossed the runway in pursuit of the antelope. The closest vertical proximity was estimated at 10 - 20 feet.

Runway Safety Tool

International Civil Aviation Organization
iSTARS Home News Support Contact References SIXSG AN Deficiencies RST

Welcome de Leon, Michael Profile Site Actions

Version: Published (6.0) Status: Published and visible to all readers

Page Workflow Tools Edit Page

Runway Safety

ADD MEMBER

UPLOAD A DOCUMENT

ADD EVENT

My RST Profile

Airport Code
Sonomo County STS

Data Sharing (press to toggle)

OFF

More RST Tools

Name
RST Report Manager

My RST Group

Name
RST Network

More RST Tools

Name
RST Report Manager

My RST Group

Name
RST Network

Runway Safety Tool

International Civil Aviation Organization
iSTARS Home News Support Contact References SIXSG AN Deficiencies RST

Advanced Search

Welcome de Leon, Michael Profile Site Actions

Version: Published (2.0) Status: Published and visible to all readers

Page Workflow Tools Edit Page

Runway Safety Report Manager

Report a problem >

NEW

My RST Profile

Airport Code
Sonomo County STS

Data Sharing (press to toggle)

OFF

My RST Summary Graph

Open Safety Issues by Risk

Risk	Count
High	2
Medium	1

Description

The list below shows the runway safety issues for the airport you are associated with.

RST Report List							
Name	Safety Issue	Level Of Risk	Date Identified	Completion Date	Airport	Shared	
STS120421-1624	Procedures		01/05/2012		STS	No	
STS111011-1621	Navigation Aids	Medium	07/10/2011	20/10/2011	STS	No	
STS-2011-10-07T09_03_49	Other	Medium	07/10/2011	14/10/2011	STS	No	
STS-2010-002	Runway/Taxiway Markings	High	30/07/2011	30/10/2010	STS	No	
STS-2010-001	Runway/Taxiway Markings	High	30/07/2011	30/10/2010	STS	No	

My Safety Alerts

Airport	Issue	Safety Issue	Level Of Risk	Status	Name
To create a new item, click "Add new document" below. There are no items to show in this view of the "RST Action Plans" document library.					

RS_v0.3 (01 Aug 2011)

**INTERNATIONAL CIVIL AVIATION ORGANIZATION
RUNWAY SAFETY ACTION PLAN FORM**

Reference: **NEW** Status: Under Review Date closed:

General

Airport:

Date Identified:

Issue applies to: Runway Taxiway Ramp

Safety Issue

Navigation Aids Runway/Taxiway Markings

Approach Lights Runway/Taxiway Lights

VASI / PAPI Runway Surface Conditions

Airport Construction Obstacles

Other - Please specify below:

Safety Issue Description:

Actual / Potential Outcome

Runway Incursion - Aircraft Runway Excursion

Runway Incursion - Vehicle Abnormal Landing

Other - Please specify below:

Severity (actual or potential injury / damage) Low Medium High

Action Plan

Action Plan Description:

Est. Impl. Date:

Executing body: Airport Manager

Remarks / Notes:

Updates:

Date	Update
<input type="text"/>	<input type="text"/>

Add an Update

RS_v0.3 (01 Aug 2011)

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Specify location (runway number etc.): **Runway 35 at Taxiway Charlie**

Safety Issue

Navigation Aids Runway/Taxiway Markings Approach Vectoring

Approach Lights Runway/Taxiway Lights Communications

VASI / PAPI Runway Surface Conditions Meteorological

Airport Construction Obstacles Procedures

Actual / Potential Outcome

Runway Incursion - Aircraft Runway Excursion Birdstrike

Runway Incursion - Vehicle Abnormal Landing Wildlife Encounter

Other - Please specify below:

Severity (actual or potential injury / damage) Low Medium High

Action Plan

Action Plan Description:

RS_v0.3 (01 Aug 2011)

INTERNATIONAL CIVIL AVIATION ORGANIZATION

RUNWAY SAFETY

Action Plan

Action Plan Description: • Driver Training

Reference: **NEW** Status: **Under Review** Date closed: [Calendar]

General

Airport: Sonomo County

Date Identified: 05/03/2012 Create a Safety Alert? Yes No

Issue applies to: Runway Taxiway Ramp General

Specify location (runway number etc.): Runway 35 at Taxiway Charlie

Safety Issue

Navigation Aids Runway Excursion

Approach Lights Runway Excursion - Vehicle

VASI / PAPI Runway Excursion - Aircraft

Airport Construction Runway Excursion - Birdstrike

Other - Please specify below:

Safety Issue Description:

Actual / Potential Outcome

Runway Incursion - Aircraft

Runway Incursion - Vehicle

Other - Please specify below:

Severity (actual or potential injury / damage):

Action Plan

Action Plan Description: • Driver Training

Est. Impl. Date:

Executing body: Airport Management

Remarks / Notes:

Updates:

Date	Update

Add an Update Submit

Runway Incursion - Aircraft Runway Excursion Birdstrike

Runway Incursion - Vehicle Abnormal Landing Wildlife Encounter

Other - Please specify below:

Severity (actual or potential injury / damage) Low Medium High

Action Plan

Action Plan Description: • Driver Training

Add an Update Submit

Probability of occurrence

Qualitative definition	Meaning	Value
Frequent	Likely to occur many times (<i>has occurred frequently</i>)	5
Occasional	Likely to occur some times (<i>has occurred infrequently</i>)	4
Remote	Unlikely, but possible to occur (<i>has occurred rarely</i>)	3
Improbable	Very unlikely to occur (<i>not known to have occurred</i>)	2
Extremely improbable	Almost inconceivable that the event will occur	1

Severity of occurrences		
Aviation definition	Meaning	Value
Catastrophic	<ul style="list-style-type: none"> ➤ Equipment destroyed. ➤ Multiple deaths. 	A
Hazardous	<ul style="list-style-type: none"> ➤ A large reduction in safety margins, physical distress or a workload such that the operators cannot be relied upon to perform their tasks accurately or completely. ➤ Serious injury. ➤ Major equipment damage. 	B
Major	<ul style="list-style-type: none"> ➤ A significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of increase in workload, or as a result of conditions impairing their efficiency. ➤ Serious incident. ➤ Injury to persons. 	C
Minor	<ul style="list-style-type: none"> ➤ Nuisance. ➤ Operating limitations. ➤ Use of emergency procedures. ➤ Minor incident. 	D
Negligible	<ul style="list-style-type: none"> ➤ Little consequences 	E

Risk probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5	5A	5B	5C	5D	5E
Occasional 4	4A	4B	4C	4D	4E
Remote 3	3A	3B	3C	3D	3E
Improbable 2	2A	2B	2C	2D	2E
Extremely improbable 1	1A	1B	1C	1D	1E

Runway Safety Team (RST)

Case Study #1

Case Study #2

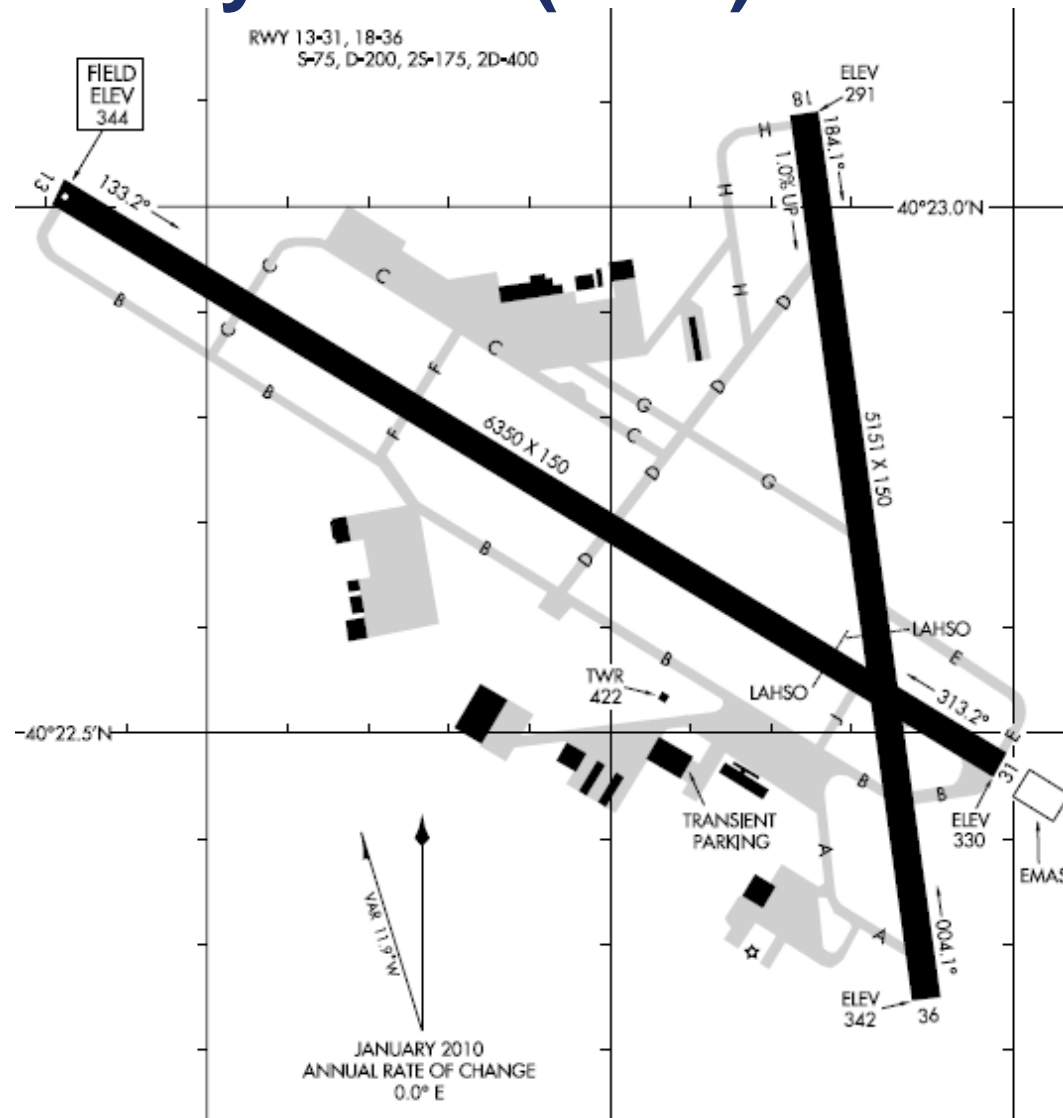
Case Study #3

Case Study #4

In each case, what are the issues? What can be done to reduce risk?

Develop new action items.

Runway Safety Team (RST) – Case Study #2



Runway Safety Team (RST) – Case Study #2

 **ATO Safety** Reading Regional Airport, PA
Training Animation Series



Airport Vehicle
Tractor 8

8270P
Citation 550
Wingspan 52ft
Length 47ft
Height 15ft

Aircraft Info

August 3, 2008
Operational Error (OE/D)
Category A - Accident

RDG0
AJS-

Turn Text Off

Play Pause Exit
Rwd Fwv Mute

This is a recreation of an actual air traffic incident. It does not represent the official investigation or official report.

Runway Safety Team (RST) – Case Study #2



Runway Safety Team (RST) – Case Study #2



Runway Safety Team (RST) – Case Study #2



Runway Safety Team (RST) – Case Study #2

Tower and Surface Movement Control were combined. Tower Control cleared a Cessna C550 to land on Runway 31. Two minutes later a tractor vehicle requested to proceed from the terminal ramp to the north ramp. Tower Control issued instructions to cross Runway 31 at Taxiway Delta. Two minutes later the C550 pilot reported to the Tower that they had collided with the tractor at the intersection of Runway 31 and Delta. The left wing hit the tractor as the vehicle drove northeast bound on the runway from Delta. There were no injuries or fire.

Runway Safety Team (RST)

Case Study #1

Case Study #2

Case Study #3

Case Study #4

In each case, what are the issues? What can be done to reduce risk?

Develop new action items.

Runway Safety Team (RST) – Case Study #3

1. Runway resurfacing project.
2. Aircraft and vehicle call sign similarity.
3. Off-airport laser event.
4. Seasonal changes (for example, rainy season, dust season, snow, fog, routine maintenance, construction projects).
5. Head of State operations

Choose one topic to discuss with your team. Identify issues. Develop and coordinate solutions.

Runway Safety Team (RST)

Case Study #1

Case Study #2

Case Study #3

Case Study #4

In each case, what are the issues? What can be done to reduce risk?

Develop new action items.

Runway Safety Team (RST) - Case Study #4



Runway Safety Team (RST) – Case Study #4

The airport has experienced a high number of pilot deviations on Taxiway M at Runway 25L over a period of several months. These pilot deviations involved aircraft taxiing out for departure on Runway 25L. Most of these events involved air carrier turbojet aircraft. In each case, air traffic controllers issued hold short instructions and the pilots acknowledged and read back hold short instructions.

Identify issues. Develop and coordinate solutions.

(RST) - Case Study #4-Initial Solution



(RST) - Case Study #4-Solution



May 6, 2006 through December 21, 2008...
17 pilot deviation incursions

Runway Safety Team (RST)

Case Study #1

Case Study #2

Case Study #3

Case Study #4

Case Study #5

In each case, what are the issues? What can be done to reduce risk?

Develop new action items.

Runway Safety Team (RST) – Case Study #5

The aircraft landed on Runway 12 after completing an ILS approach. The aircraft was traveling at the Vref (landing) airspeed of 148 knots, with a groundspeed of 162 knots with a tailwind component of 14 knots when the wheels made initial contact at about 4,000 feet down the 8,900 foot runway. The runway was reported as wet. The aircraft departed the end of the runway at a groundspeed of 63 knots. The flight data recorder indicated the rate of deceleration was normal for a wet runway. Runway 12 is not grooved.

Identify issues. Develop and coordinate solutions.





Runway Safety Team (RST) – Case Study #5

The aircraft landed on Runway 12 after completing an ILS approach. The aircraft was traveling at the Vref (landing) airspeed of 148 knots, with a groundspeed of 162 knots with a tailwind component of 14 knots when the wheels made initial contact at about 4,000 feet down the 8,900 foot runway. The runway was reported as wet. The aircraft departed the end of the runway at a groundspeed of 63 knots. The flight data recorder indicated the rate of deceleration was normal for a wet runway. Runway 12 is not grooved.

Identify issues. Develop and coordinate solutions.



Runway Safety – Everyone's Responsibility