



Safety Management:  
Theory to Practice

The 14th Annual FAA/CAA/Transport Canada  
Human Factors in Aviation  
Maintenance Symposium  
Vancouver, British Columbia - March 28-30, 2000

The 14th Annual FAA/CAA/Transport Canada  
**Human Factors in Aviation Maintenance Symposium**  
Vancouver, British Columbia - March 28-30, 2000

**“Safety Management: Theory to Practice”**

**The Program:**

- The Leading Edge: The Role of the Regulator in the Safety Equation
- The “Nuts and Bolts” of Safety Management
- The Benefits of Safety Management

**Workshops:**

- Human Performance in Aviation Maintenance
- Integrating Human Factors Programs into your Management of Safety
- Shift Management and Fatigue
- Assessing Safety Within Your Organization Through Error Reporting, Data Management and Data Analysis

# Welcome to the 14th Annual Human Factors in Aviation Maintenance Symposium

By now it is almost a cliché to say that the majority of accidents are attributable to human error. It may be a cliché, but it is true. This does not, however, justify the common perception, described by James Reason, that “individual human inadequacies and errant actions are the principal causes of all accidents”. Reason goes on to tell us that we “cannot change the human condition, but [we] can change the conditions under which people work”. Ensuring our tools and equipment, procedures, system design and working conditions are compatible with human capabilities and limitations will pay greater benefits in safety and efficiency than anything else we can do. This is why we chose the theme “Safety Management: Theory to Practice” for this symposium.

We started with a fairly optimistic view of the people in the aircraft maintenance world. Most of us are capable, well-meaning people who want to do a good job. We are, however, human and we all make mistakes. Careful attention to the human factors that affect all of us can increase the chance that we will do the job right and minimize the opportunity for us to make those critical mistakes. Advances in the social sciences and organizational behaviour have provided some powerful tools to optimize the performance of our people and our systems. All that scientific knowledge, however, does nothing for us until we actually apply it. That is management’s role: to translate those scientifically derived facts and principles into practical workplace solutions that will help people protect themselves from error. To do this, management needs to know in pragmatic, down to earth terms:

- a) what the science tells us; and
- b) how to incorporate those scientific principles into how we organize, direct, and develop our people and systems.

We have tried to portray this in our symposium planning. We have invited the best authorities in both management and science from around the world to speak to us and conduct practical workshops designed to encourage maximum participation from you. We hope that, when you leave Vancouver, you will have a better understanding of:

- What safety management is;
- How safety management will pay off for you (morale, productivity, safety);
- Where the regulator fits in your safety management plan;
- What you can expect as a return on investment in safety management;

- Some of the human factors that should be considered in developing your safety management plan;
- The way ahead - How do you integrate human factors into your safety management plan? and
- Practical advice on some of the most important human issues in aviation maintenance such as fatigue, scheduling and human factors training.

You will get as much out of this symposium as you put into it. So enjoy yourself, but do not sit back. We all have unique experiences and backgrounds; sharing those will raise the level of our collective knowledge. The success of the symposium depends on your participation.

**Jim McMenemy**  
*HFIAM Technical Committee Chairperson*  
*Human Performance Specialist, Safety Services*



## Accommodations

The symposium will be held at the Waterfront Centre Hotel, 900 Canada Place Way, Vancouver, British Columbia. The Waterfront Centre is uniquely located downtown on the shores of Burrard Inlet, overlooking Stanley Park and the north shore mountains. Approximately 70% of the guest rooms enjoy spectacular harbour views, while the downtown financial core and shopping are just steps away. Guest rooms at the Waterfront Centre are divided into five categories, and each room is equipped to accommodate the business traveler.

Please telephone the Waterfront Centre Hotel Reservations Department at (604) 691-1991 or fax your request to (604) 691-1808 by February 9, 2000, to reserve your room at the special conference rate of \$150 plus applicable taxes. Be sure to mention you are attending this symposium.

### Travel Arrangements

Vancouver is readily accessible through Vancouver International Airport which is served by Canada's two major carriers, Air Canada and Canadian Airlines International, and most international carriers. There are many ground transportation services such as buses, shuttles, taxis and limousines, all available curbside in front of both terminals.

### Registration

Registration is \$350 in advance and \$400 on-site. The registration fee includes three luncheons, copies of presented papers, and all applicable taxes. Mail or fax the attached registration form to:

Jacqueline Booth-Bourdeau (AARPC),  
330 Sparks Street, 2nd floor,  
Ottawa, Ontario K1A 0N8  
Fax: (613) 952-3298

Registrations will also be accepted by e-mail using the web form found at <http://www.tc.gc.ca/aviation/mainten/aarpc/registration.htm>

On-site registration will commence at 7:00 a.m., Tuesday, March 28, 2000. To be fully refundable, cancellations must be received before February 28, 2000; after that date, a \$100.00 cancellation fee will be charged.

### Additional Information

For additional information, visit our web site at:

<http://www.tc.gc.ca/aviation/mainten/aarpc/hfiam.htm>

**Tuesday, March 28, 2000,  
Waterfront Ballroom, Waterfront Center - Plenary Session**

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**Conference Welcome and Introduction of the Technical Program 08:00**  
*Master of Ceremonies - Dr. William B. Johnson, Vice-President, Galaxy Scientific Corporation*

**Opening Remarks**

*The Honorable David M. Collenette, P.C., M.P., Minister of Transport (invited)*

**Keynote Address - Reducing Human Error Through Safety Management Practices**  
*Dr. James Reason, Professor of Psychology, University of Manchester*

**Session 1**

**The Leading Edge:**

**The Role of the Regulator in the Safety Equation 09:15 - 12:15**

It is often said that safety cannot be regulated. What, then, is the role of the governing authorities in the safety equation? This session will look at the education, research and rule-making efforts of four regulatory authorities in the area of human factors and safety management.

**Speakers:**

- **Mr. Don Sherritt**, Director, Aircraft Maintenance & Manufacturing, Transport Canada
- **Mr. Nick Lacey**, Director of Flight Standards Service, Federal Aviation Administration
- **Captain Daniel Maurino**, Coordinator, Flight Safety and Human Factors Programmes, International Civil Aviation Organisation
- **Mr. Jim Done**, Deputy Chief Surveyor, UK Civil Aviation Authority

**Lunch 12:15 - 13:15**

**Speaker:**

- **Mr. Art LaFlamme**, Director General Civil Aviation  
**Safety management in Civil Aviation**

**Session 2**

**The "Nuts and Bolts" of Safety Management 13:15 - 16:50**

In the past few years a significant amount of attention has been paid to human factors training and awareness in the field of aviation maintenance and

manufacturing. This session goes beyond human factors in that it offers an insight into the elements that comprise a safety management system. Safety management offers a holistic approach to understanding and mitigating human error. Participants will learn how to:

- a) focus attention on those areas within maintenance organizations that could benefit from human factors solutions;
- b) identify the human and organizational factors that make us error and accident-prone; and
- c) give managers and technicians practical ways to reduce errors and increase individual and team productivity.

**Speakers:**

- **The Safety Culture of Nuclear Power Utilities**  
*Mr. Ed Frederick - Three Mile Island Nuclear Power Facility*
- **Safety Assessment Tools, Data Analysis and the Importance of Information Feed-Back**  
*Mr. William B. Ashworth - Vice-President Maintenance, Quality & Engineering, BF Goodrich Aerospace*
- **Human Factors Interventions and Safety Management Programs**  
*Mr. Keith Jones - Vice-President Maintenance, Air Nova*
- **Shift Management: the Role of Fatigue in Human Error**  
*Dr. Drew Dawson - University of South Australia*
- **Corporate Discipline Within a Safety Management Environment**  
*Mr. Richard Desmarais, Safety Manager, Air Canada*

**Wednesday, March 29, 2000, Waterfront Ballroom - Plenary Session**

**Introduction to the Day's Activities 08:00**

*Master of Ceremonies - Dr. William B. Johnson, Vice-President, Galaxy Scientific Corporation*

**Session 3**

**The Benefits of Safety Management 08:15 - 12:30**

Significant advances have been made in the area of human error management through the practice of human factors interventions and safety management principles. Until now, however, very little quantifiable evidence has been offered demonstrating the return on investment of these programs. The aim of this

session is to demonstrate some of the tangible and intangible benefits derived from the practice of safety management within the workplace. We also focus on some of the problems incurred, the failures experienced, and the underlying reasons for these occurrences. Participants will leave this session with practical advice on how to maximise the benefits of safety management and avoid the pitfalls experienced by our speakers. This workshop will provide concrete evidence that human error can be managed through sound safety management practices.

**Speakers:**

- **The Integration of Safety Management Principles into the Corporate Culture**  
*Dr. John Lauber - Vice-President Safety and Technical Affairs, Airbus Industrie North America*
- **Managing Human Error within a Safety Management Environment - Successes and Failures**  
*Mr. Clifford J. Edwards - Quality Safety Manager, Shell Aircraft Limited*
- **Managing Human Error within a Safety Management Environment - Successes and Failures**  
*Mr. John Goglia - Board Member, National Transportation Safety Board*
- **The Role of Communication In the Reduction of Human Error**  
*Dr. James Taylor - Adjunct Professor, Human Factors School of Engineering, Santa Clara University*
- **The Return on Investment of Safety Management Practices**  
*Dr. Jose Blanco - Industrial Safety & Productivity Group, Laurentian University*
- **Investing in Human Factors Training: Assessing the “Bottom Line”**  
*Mr. John Stelly - Director, Systems & Training Technical Operations, Continental Airlines*

**Lunch (Mackenzie Ballroom and Malaspina Room) 12:30**

**Speaker:**

- *Mr. David Nowzek, Regional Director Civil Aviation, Pacific Region*  
**The Regulator and Safety Management: A Regional Perspective**

**Thursday, March 30, 2000**

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**Lunch (Waterfront Ballroom C) 12:00**

**Speaker:**

- *Mr. Ken Goosen, Vice-President Maintenance & Engineering, Canadian Airlines*  
**The Transition to Digital Maintenance Data & the Human Factors Implications**

# Workshop Schedule

## Wednesday, March 29 and Thursday, March 30, 2000, Waterfront Center Hotel

*The workshop schedule has been designed to give participants the opportunity to attend all three intermediate workshops. Each workshop will last for a half-day and will be offered three times during the symposium. The exception to this rule is the Human Performance in Aviation Maintenance Workshop. This workshop will be one and a half days long and is intended for those participants who are new to the human factors environment. It is an introductory level course designed to build awareness of those factors that contribute to human error.*

*Participation in all of the workshops is limited to 75 per session; registrations will be accepted on a first come, first served basis.*

### **Workshop 1**

#### **Human Performance in Aviation Maintenance**

*This a condensed version of Transport Canada's human factors course designed to build awareness of those factors that contribute to human error. Participants will be exposed to a model of human performance/human error and will learn error management and prevention techniques for the maintenance environment.*

#### **Facilitators:**

- Mr. Will Boles - Regional Aviation Safety Officer - Maintenance, Transport Canada
- Mr. Gordon Dupont - System Safety Services

### **Workshop 2**

#### **Integrating Human Factors Programs into your Management of Safety**

*This workshop is designed to offer participants the opportunity to talk to the expert. Delegates will hear from representatives from the following disciplines: the regulatory authorities; academia/research; maintenance; manufacturing; error management; training; corporate discipline; litigation and liability; human factors interventions; and, safety management. Workshop participants will have the opportunity to interact with the experts, ask questions and garner valuable information regarding establishing a safety management program in their organisation.*

*The workshop will be mediated by Mr. David Hall of the UK Civil Aviation Authority and will commence with two presentations: Establishing a Human Factors Programme; and, Using Human Factors Interventions to Manage Safety.*

**Facilitator:**

Mr. David Hall - Deputy Regional Manager Heathrow, UK Civil Aviation Authority

**Speakers:**

- **Establishing a Human Factors Programme**  
*Mr. Chow Hock Lin - Senior Quality Engineer, Singapore Airlines Engineering Company*
- **Using human factors interventions to manage safety**

### Workshop 3

**Introduction to the Tools of Safety Management :  
Shift Management and Fatigue**

*This workshop will introduce the evidence demonstrating the seriousness of fatigue as a safety issue and will highlight the countermeasures available to mitigate the effects of fatigue. Participants will learn the principles behind developing optimum personnel scheduling and individual countermeasures such as awareness and short and long term alertness maintenance techniques.*

**Facilitator:**

- *Dr. Drew Dawson - University of South Australia, Sydney, Australia*

### Workshop 4

**Introduction to the Tools of Safety Management : Assessing Safety Within Your Organisation Through Error Reporting, Data Management and Data Analysis.**

*This workshop deals with deriving practical solutions to real-life problems through an assessment of the level of safety in your organisation. You will leave this workshop with an understanding of your own information needs and how to use that information to monitor and adjust your management safety plan.*

**Facilitator:**

- *Mr. Jim McMenemy, Human Performance Specialist, System Safety*

**Speakers:**

- *Mr. Jerry P. Allen, Jr., Manager Human Factors, Delta Air Lines*
- *Commander John K Schmidt, Medical Service Corps, United States Navy*
- *Captain Rene Dacier, Flight Safety Officer, Air Nova*
- *Mr. Maury Hill, Manager, Macro Analysis, Transportation Safety Board of Canada*
- *Dr. Gary Eiff, Aviation Technology Program, Purdue University*

# Agenda

Time	Room	Tuesday, March 28, 2000	Speaker
08:00 - 08:15	Waterfront Ballroom	Conference Welcome	Dr. William Johnson, Galaxy Scientific Corporation
08:15 - 08:30		Opening Remarks	Minister of Transport (Invited)
08:30 - 09:15		Keynote Address	Dr. James Reason
<b>09:15 - 12:15</b>	<b>Waterfront Ballroom</b>	<b>Session 1 - The Leading Edge: The Role of the Regulator</b>	
09:15 - 09:55		Transport Canada	Mr. Don Sherritt, Director, Aircraft Maintenance & Manufacturing
09:55 - 10:15	Waterfront Foyer	Break	
10:15 - 10:55		International Civil Aviation Organization	Captain Daniel Maurino
10:55 - 11:35		Federal Aviation Administration	Mr. Nicholas Lacey, Director, FSS
11:35 - 12:15		United Kingdom Civil Aviation Authority	Mr. Jim Done, Deputy Chief Surveyor
12:15 - 13:15	Mackenzie Ballroom	Lunch	
12:45	Malaspina Room	Luncheon Speaker	Mr. Art LaFlamme, DGCA
<b>13:15 - 16:50</b>	<b>Waterfront Ballroom</b>	<b>Session 2 - The "Nuts and Bolts" of Safety Management</b>	
13:15 - 13:55	Waterfront Ballroom	Human Factors Interventions and Safety Management	Mr. Keith Jones, Air Nova
13:55 - 14:35		Shift Management: The Role of Fatigue in Human Error	Dr. Drew Dawson, University of South Australia
14:35 - 14:50	Waterfront Foyer	Break	
14:50 - 15:30		Safety Assessment Tools, Data Analysis and the Importance of Information Feed-back	Mr. William B. Ashworth, BF Goodrich Aerospace
15:30 - 16:10		The Safety Culture of Nuclear Power Utilities	Mr. Ed Frederick
16:10 - 16:50		Corporate Discipline within a Safety Management Environment	Mr. Richard Desmarais, Air Canada
18:00 - 20:00	Mackenzie Ballroom	Ice Breaker Reception	

Time	Room	Wednesday, March 29, 2000	Speaker
08:00 - 08:15	Waterfront Ballroom	Introduction	Dr. William Johnson, Galaxy Scientific Corporation
08:15 - 12:30	Waterfront Ballroom	Session 3 - The Benefits of Safety Management	
08:15 - 08:55		The Integration of Safety Management Principles into the Corporate Culture	Dr. John Lauber, Airbus Industries North America
08:55 - 09:35		Successes and Failures	Mr. Clifford J. Edwards, Shell Aircraft Ltd.
09:35 - 10:15		Successes and Failures	Mr. John Goglia, National Transportation Safety Board
10:15 - 10:30	Waterfront Foyer	Break	
10:30 - 11:10		The Role of Communication in the Reduction of Human Error	Dr. James Taylor, Santa Clara University
11:10 - 11:50		The Return on Investment of Safety Management	Dr. Jose Blanco, Laurentian University
11:50 - 12:30		Investing in Human Factors Training: Assessing the "Bottom Line"	Mr. John Stelly, Continental Airlines
12:30 - 13:30	Malaspina Room	Lunch	
13:00	Mackenzie Ballroom	Luncheon Speaker	Mr. David Nowzek, RDCA, Pacific Region
13:30 - 17:00		Workshops	
13:30 - 14:45	Waterfront Ballroom A	Workshop 1	Mr. Will Boles, Mr. Gordon Dupont
13:30 - 14:45	Waterfront Ballroom B	Workshop 2	Mr. David Hall, UK CAA
13:30 - 14:45	Waterfront Ballroom C	Workshop 3	Dr. Drew Dawson, University of South Australia
13:30 - 14:45	Cheakamus Room	Workshop 4	Mr. Jim McMenemy, Transport Canada
14:45 - 15:00	Waterfront Foyer	Break	
15:00 - 17:00	Waterfront Ballroom A	Workshop 1	Mr. Will Boles, Mr. Gordon Dupont
15:00 - 17:00	Waterfront Ballroom B	Workshop 2	Mr. David Hall, UK CAA
15:00 - 17:00	Waterfront Ballroom C	Workshop 3	Dr. Drew Dawson, University of South Australia
15:00 - 17:00	Cheakamus Room	Workshop 4	Mr. Jim McMenemy, Transport Canada



Time	Room	Thursday, March 30, 2000	Speaker
08:30 - 10:15	Waterfront Ballroom A	Workshop 1	Mr. Will Boles, Mr. Gordon Dupont
08:30 - 10:15	Waterfront Ballroom B	Workshop 2	Mr. David Hall, UK CAA
08:30 - 10:15	Mackenzie I	Workshop 3	Dr. Drew Dawson, University of South Australia
08:30 - 10:15	Mackenzie II	Workshop 4	Mr. Jim McMenemy
10:15 - 10:30	Waterfront Foyer	Break	
10:30 - 12:00	Waterfront Ballroom A	Workshop 1	Mr. Will Boles, Mr. Gordon Dupont
10:30 - 12:00	Waterfront Ballroom B	Workshop 2	Mr. David Hall, UK CAA
10:30 - 12:00	Mackenzie I	Workshop 3	Dr. Drew Dawson, University of South Australia
10:30 - 12:00	Mackenzie II	Workshop 4	Mr. Jim McMenemy
12:00 - 13:00	Waterfront Ballroom C	Lunch	
12:30		Luncheon Speaker 	Mr. Ken Goosen, CAIL
13:00 - 14:15	Waterfront Ballroom A	Workshop 1	Mr. Will Boles, Mr. Gordon Dupont
13:00 - 14:15	Waterfront Ballroom B	Workshop 2	Mr. David Hall, UK CAA
13:00 - 14:15	Mackenzie I	Workshop 3	Dr. Drew Dawson, University of South Australia
13:00 - 14:15	Mackenzie II	Workshop 4	Mr. Jim McMenemy
14:15 - 14:30	Waterfront Foyer	Break	
14:30 - 16:30	Waterfront Ballroom A	Workshop 1	Mr. Will Boles, Mr. Gordon Dupont
14:30 - 16:30	Waterfront Ballroom B	Workshop 2	Mr. David Hall, UK CAA
14:30 - 16:30	Mackenzie I	Workshop 3	Dr. Drew Dawson, University of South Australia
14:30 - 16:30	Mackenzie II	Workshop 4	Mr. Jim McMenemy



# Registration Form

14th Annual FAA/CAA/Transport Canada Symposium on Human Factors  
in Aviation Maintenance, March 28-30, 2000

Advance Registration Fee: \$350.00 On-Site Registration \$400.00

If you wish to attend Workshops 2-4 please select a time for all three workshops. If you will be attending Workshop 1 place a check mark in the appropriate box; please do not select any other workshops.

March 29, 2000 13:30 - 17:00	March 30, 2000 08:30 - 12:00	March 30, 2000 13:00 - 17:00
Workshop 1 (Human Performance in Aviation Maintenance) <input type="checkbox"/>	Workshop 1	Workshop 1
Workshop 2 (Session 1) (Integrating Human Factors Programs into your Management of Safety) <input type="checkbox"/>	Workshop 2 (Session 2) <input type="checkbox"/>	Workshop 2 (Session 3) <input type="checkbox"/>
Workshop 3 (Session 1) (Introduction to the Tools of Safety Management: Shift Management and Fatigue) <input type="checkbox"/>	Workshop 3 (Session 2) <input type="checkbox"/>	Workshop 3 (Session 3) <input type="checkbox"/>
Workshop 4 (Session 1) (Introduction to the Tools of Safety Management: Assessing Safety Within Your Organisation Through Error Reporting, Data Management and Data Analysis) <input type="checkbox"/>	Workshop 4 (Session 2) <input type="checkbox"/>	Workshop 4 (Session 3) <input type="checkbox"/>

Please Print Clearly or Type:

Name .....

Title .....

Organization .....

Address .....

Address .....

City .....

Province/Country .....Postal/Zip Code .....

Phone .....Fax .....

## Method of Payment

- Check Enclosed: Make Check Payable to the Receiver General for Canada
- MasterCard  Visa

Account # ..... Exp. Date .....

Cardholder Name .....

All Correspondence concerning registration and enrollment for the workshops may be directed to:

Jacqueline Booth-Bourdeau  
Aircraft Maintenance & Manufacturing, Transport Canada  
330 Sparks Street, AARPC, 2nd floor, Ottawa, K1A 0N8  
Telephone: (613) 952-7974 Fax: (613) 952-3298 E-mail: boothbj@tc.gc.ca

