



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

April 12, 2018

**Attachment 21 – NTSB Email Correspondence with Air Canada Regarding ACARS, CRM
Training, and Fatigue Policies**

OPERATIONAL FACTORS/HUMAN PERFORMANCE

DCA17IA148

From: [Marcel Comeau](#)
To: [Silva, Sathya](#)
Cc: [Etcher Shawn](#)
Subject: RE: DCA17IA148 - Fatigue [G]
Date: Monday, January 15, 2018 1:42:43 PM

Answer to last question;

The quiz has to be corrected to 100% for completion. If the candidate gets the question wrong they must complete it again.



Marcel Comeau
Manager, Corporate Safety Investigations
Chef de Service-Enquêtes-Sécurité de
L'entreprise



From: Silva, Sathya [mailto:]
Sent: Friday, January 05, 2018 7:06 PM
To: Marcel Comeau
Cc: Etcher Shawn
Subject: RE: DCA17IA148 - Fatigue

Thanks Marcel. Also – is there a score that pilots are required to earn on the multiple choice quiz at the end in order to pass?

Sathya S. Silva, Ph.D.
Human Performance Investigator
National Transportation Safety Board



From: Marcel Comeau [mailto:]
Sent: Friday, January 5, 2018 4:55 PM
To: Silva, Sathya < >
Cc: Etcher Shawn < >
Subject: Re: DCA17IA148 - Fatigue

Good afternoon Sathya, the .doc is online training and all pilot had to take it, for the PPT that was the Annual recurrent training for pilot, the schedule and content for the ART changes annually based on requirements and what Fit Ops need to concentrate for the coming year as an example if we see an increase in SOP non-compliance and CRM the ART will be concentrated on this subject and the regulated training required for that year.

For your question on the dates and how often this will take me a little bit of time to retrieve the info from the SME.

Marcel
Sent from my iPad

On Jan 5, 2018, at 4:31 PM, Silva, Sathya <[REDACTED]> wrote:

Hi Marcel,

Just a few questions about the fatigue materials you sent over. I need some context for the report.

- Is the .doc an online training course? Who is required to take it and how often? When was it brought online?
- who is the .ppt audience? How long is that session trained? When it is conducted? How often?

Thanks for being so responsive!

Sathya

Sathya S. Silva, Ph.D.

Human Performance Investigator

National Transportation Safety Board



From: [Marcel Comeau](#)
To: [Silva, Sathya](#)
Cc: [Etcher Shawn](#)
Subject: Re: Air Canada Training Manual [G]
Date: Thursday, January 25, 2018 5:35:15 PM

Good evening Sathya, sorry for the late reply but here is the info requested.
Here is the info on the CRM training you are looking for.

Intro To Command (ITC) – CRM 3 hours

- Leadership and Decision making (Professional Management)
- Threat and Error Management

Command Scenario Review Day – 8 hours

- CRM skill use with real life scenarios and accidents incidents.

Pilot Indoctrination Training (PIT) – CRM 12 hours

- Air Canada's CRM Manual and markers (Situational Awareness, Professional Management, Communication, Planning, Decision Making and Problem Solving, Workload Management, Active Monitoring)
- Air Canada's Threat and Error Management Model
- Errors
- Normalization of Deviance
- Conflict Resolution
- Case studies
- AQP CRM Grading review

Annual Recurrent Training (ART) – 6 hours

- Air Canada's CRM Manual and markers as per PIT
- Air Canada's Threat and Error Management Model
- SOP Compliance

AQP 101 (Instructor Training) – 4 hours

- Air Canada's CRM/ TEM Model
- CRM Grading Guidelines

Marcel
Sent from my iPad

On Jan 23, 2018, at 11:19 AM, Silva, Sathya <[REDACTED]> wrote:

Training syllabus is fine. I just need planned duration for CRM for the new hire, recurrent, upgrade, and instructor course.

Thanks for the fatigue training info!

S

Sathya S. Silva, Ph.D.

From: Marcel Comeau [mailto: [REDACTED]]
Sent: Tuesday, January 23, 2018 10:55 AM
To: Silva, Sathya < [REDACTED]>; Etcher Shawn < [REDACTED]>
Subject: RE: Air Canada Training Manual [G]

Good morning Sathya, would a training syllabus be acceptable? Flight crew training manual what fleet??

Didn't I provide this before?

Sorry Sathya for the late response plse see below:

Sorry for the tardy response. The answers are next o the questions.

-Is the .doc an online training course? The doc is an online training course that is actually presented in Microsoft Articulate and run through the SABA eLearning platform. This module is compatible with the iPads the pilots have been issued.

Who is required to take it and how often? All pilots took this training in 2015. All new hires have been given this module since then and pilots returning to service from any type of leave. All pilots currently flying here will have had this training.

When was it brought online? 2015 see above

who is the .ppt audience? The powerpoint was presented in 2012 during an inclass session. All pilots that were on the line during this time received the training as part of their mandatory Annual Recurrent Training.

How long is that session trained? Was approximately a half an hour.

When it is conducted? This module was superseded by the on line module.

How often? The inclass module was only run once.

<image001.jpg>

Marcel Comeau

Manager, Corporate Safety Investigations
Chef de Service-Enquêtes-Sécurité de
L'entreprise



From: Silva, Sathya [mailto:

Sent: Tuesday, January 23, 2018 9:55 AM

To: Marcel Comeau; Etcher Shawn

Subject: Air Canada Training Manual

Hi Marcel,

Can you provide us with a flight crew training manual, please? I'm in need of the prescribed training duration for each of the CRM courses.

Thanks,
Sathya

Sathya S. Silva, Ph.D.
Human Performance Investigator
National Transportation Safety Board


From: [Marcel Comeau](#)
To: [Silva, Sathya](#)
Cc: [Elcher, Shaun](#)
Subject: Re: ACA759 Questions [G]
Date: Tuesday, March 20, 2018 3:02:30 PM
Attachments: [image002.png](#)

Yes pretty close, I forgot to remove one <cr><lf> after ATIS Q.

Sent from my BlackBerry — the most secure mobile device — via the Rogers Network

From: [REDACTED]
Sent: March 20, 2018 2:50 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: ACA759 Questions [G]

Thanks Marcel,

So the difference in what I pulled out and what you pulled out are on the line breaks.

Here's what I have:

QU DDLXCXA
ATSACXA 080621
DAI
AN C-FKCK
- /ATSACXA.T12/KSFO ARR ATIS Q
0556Z SFO ATIS INFO Q 0556Z. 31012KT 10SM CLR 17/09 A2993 (TWO NINER NINER THREE)
QUIET BRIDGE VA IN USE. LNDG RWYS 28R. DEPG RWYS 1L. NOTAMS... RWYS 28L, 10R
CLSD. RWYS 1R, 19L CLSD. TWY J CLSD. TWY S1 CLSD. TWY F CLSD BETWEEN TWY L, RWY
1L, TWY F1 CLSD BTWN TWY L, RWY 1L. RY 28L ALS OTS, RY 28L/10R CL LGTS OTS
MULTIPLE CRANES UP TO 275 FEET, WEST AND SOUTH OF SFO AIRPORT. ASSC IN USE AC TVT
TRANSPNDR WITH MODE C ON ALL TYS AND RWYS. READBACK OF ALL RWY HOLDING
INSTRUCTIONS IS REQUIRED. ALL ACFT ARE RQRD TO INCL ACFT CLSGN IN ALL RDBKS AND<
ACKMTS. ...ADV5 YOU HAVE INFO Q.281B

And yours:

07/08/2017 06:21:11
QU DDLXCXA
.ATSACXA 080621
DAI
AN C-FKCK- /ATSACXA.T12/KSFO ARR ATIS Q<CR><LF>
0556Z SFO ATIS INFO Q 0556Z. 31012KT 10SM CLR 17/09 A2993 (TWO NINER NINER THREE
J.
QUIET BRIDGE VA IN USE. LNDG RWYS 28R. DEPG RWYS 1L. NOTAMS... RWYS 28L, 10R
CLSD, RWYS 1R, 19L CLSD. TWY J CLSD, TWY S1 CLSD. TWY F CLSD BETWEEN TWY L,
RWY
1L, TWY F1 CLSD BTWN TWY L, RWY 1L. RY 28L ALS OTS, RY 28L/10R CL LGTS OTS
MULTIPLE CRANES UP TO 275 FEET, WEST AND SOUTH OF SFO AIRPORT. ASSC IN USE AC
TVT
TRANSPNDR WITH MODE C ON ALL TYS AND RWYS. READBACK OF ALL RWY HOLDING
INSTRUCTIONS IS REQUIRED. ALL ACFT ARE RQRD TO INCL ACFT CLSGN IN ALL RDBKS AND
ACKMTS. ...ADV5 YOU HAVE INFO Q.281B

Regarding the highlighted parts. I included those on the line prior since the line break occurred after those words. Bad assumption?

S

Sathya S. Silva, Ph.D.
Human Performance Investigator
National Transportation Safety Board
[REDACTED]

From: Marcel Comeau <[REDACTED]>
Sent: Tuesday, March 20, 2018 10:20 AM
To: Silva, Sathya <[REDACTED]>
Cc: Etcher Shawn <[REDACTED]>
Subject: RE: ACA759 Questions [G]

For question 2;
This is from the raw file ARINC sent to us and it contains all the special characters that the avionics parse out. Below I have removed the characters in the "Q" ATIS from ARINC. Hopefully this is what you were looking for?? Do you want me to translate the "Q" ATIS msg??
07/08/2017 06:21:11
QU DDLXCXA
.ATSACXA 080621
DAI
AN C-FKCK- /ATSACXA.T12/KSFO ARR ATIS Q<CR><LF>
0556Z SFO ATIS INFO Q 0556Z. 31012KT 10SM CLR 17/09 A2993 (TWO NINER NINER THREE
)
QUIET BRIDGE VA IN USE. LNDG RWYS 28R. DEPG RWYS 1L. NOTAMS... RWYS 28L, 10R
CLSD, RWYS 1R, 19L CLSD. TWY J CLSD, TWY S1 CLSD. TWY F CLSD BETWEEN TWY L,

RWY
1L, TWY F1 CLSD BTWN TWY L, RWY 1L. RY 28L ALS OTS, RY 28L/10R CL LGTS OTS
MULTIPLE CRANES UP TO 275 FEET, WEST AND SOUTH OF SFO AIRPORT. ASSC IN USE AC
TVT
TRNSPNDR WITH MODE C ON ALL TYS AND RWYS. READBACK OF ALL RWY HOLDING
INSTRUCTIONS IS REQUIRED. ALL ACFT ARE RQRD TO INCL ACFT CLSGN IN ALL RDBKS AND
ACKMTS. ...ADVS YOU HAVE INFO Q.281B

Below are 2 examples how an ACARS would display the information without the special characters:

QU DDLXCXA
.QAGCSAC 080041
M4P
AN C-FKCK/PI AC0759/GL YYZ/MA 787I
- -// ATC PA01 YYZOWAC 08JUL/0041 C-FKCK/220/AC0759
TIMESTAMP 08JUL17 00:26
PRE-DEPARTURE CLEARANCE
FLT ACA759 CYYZ
M/A320/W FILED FL320
XPRD 2234

USE SID GOPUP2
DEPARTURE RUNWAY 05
DESTINATION KSFO
CONTACT CLEARANCE DELIVERY WITH
IDENTIFIER 282K

GOPUP2 SLLAP BAE ONL KD75A
KD72U KU63Q DTA KU54M RUMPS
INYOE DYAMD3
END

QU DDLXCXA
.QAGCSAC 080139
M4P
AN C-FKCK/FI AC0759/GL YYZ/MA 795I
- - PNT PA01 08JUL/0139 C-FKCK/220/0759
TAKE OFF DELAY DETECTED
PLEASE PROVIDE ETO
END

Marcel

From: Silva, Sathya [mailto: [REDACTED]]
Sent: Monday, March 19, 2018 4:13 PM
To: Marcel Comeau
Cc: Etcher Shawn
Subject: ACA759 Questions

Hi Marcel,

2 questions for you –

1. Does Air Canada's pilot training program incorporate training on overcoming expectation bias? I.e. active questioning of expectation bias and/or flight path monitoring, and robust scenarios calling traditional expectation into question. If so, can you please provide documentation?
<https://flightsafety.org/files/flightpath/EPMG.pdf>
2. Can you (or someone you so choose) decode this ACARS message for me? I removed the line breaks myself but wanted to make sure I did it correctly. (I'm looking for a representation of how this would have been displayed to the crew)

07/08/2017 08:21:11
Input SMI = DAI
Message Length = 676
<CR><LF>
<SOH>QU DDLXCXA<CR><LF>
,ATSACXA 080621<CR><LF>

<STX>DAI<CR><LF>
AN C-FKCK<CR><LF>
- /ATSACXA.T12/KSFO ARR ATIS Q<CR><LF>
0556Z SFO ATIS INFO Q 0556Z. 31012KT 10SM CLR 17/09 A2993 (TWO NINER NINER THREE
)<CR><LF>
QUIET BRIDGE VA IN USE. LNDG RWYS 28R. DEPG RWYS 1L. NOTAMS... RWYS 28L, 10R<CR>
<LF>CLSD, RWYS 1R, 19L CLSD. TWY J CLSD, TWY S1 CLSD. TWY F CLSD BETWEEN TWY L,
RWY<CR><LF>
1L, TWY F1 CLSD BTWN TWY L, RWY 1L. RWY 28L ALS OTS, RWY 28L/10R CL LGTS OTS.<CR><LF>
MULTIPLE CRANES UP TO 275 FEET, WEST AND SOUTH OF SFO AIRPORT. ASSC IN USE AC
TVT<CR><LF>
TRANSPNDR WITH MODE C ON ALL TYS AND RWYS. READBACK OF ALL RWY HOLDING<CR><LF>
INSTRUCTIONS IS REQUIRED. ALL ACFT ARE RQD TO INCL ACFT CLSGN IN ALL RDBKS AND<
CR><LF>ACKMTS. ...ADVS YOU HAVE INFO Q,281B<CR><LF>
<ETX><EOT>

Thanks!

Sathya

Sathya S. Silva, Ph.D.
Human Performance Investigator
National Transportation Safety Board
[REDACTED]

From: [Marcel Comeau](#)
To: [Silva, Sathya](#)
Cc: [Etcher Shawn](#)
Subject: RE: ACA759 Questions [G]
Date: Wednesday, March 21, 2018 1:00:49 PM

The video was part of the Annual Recurrent Training for that year and it is also given during the initial pilot training.

From: Silva, Sathya [mailto: [REDACTED]]
Sent: Wednesday, March 21, 2018 12:36 PM
To: Marcel Comeau
Cc: Etcher Shawn
Subject: RE: ACA759 Questions [G]

So when you say the video was available April 1, 2017 – how was this info disseminated to pilots? Was it required?

Sathya S. Silva, Ph.D.
Human Performance Investigator
National Transportation Safety Board
[REDACTED]

From: Marcel Comeau <[REDACTED]>
Sent: Wednesday, March 21, 2018 11:32 AM
To: Silva, Sathya <[REDACTED]>
Cc: Etcher Shawn <[REDACTED]>
Subject: RE: ACA759 Questions [G]

Its in the process of sending now, if you need further explanation just ask : -)
Below is the text I sent with the FTP.

To answer question 1.

The Continuation/Expectation Bias module was not available to our crews in 2017 as we will be rolling it out next month; however, the information regarding the gut feel was available to crews from April 1, 2017. The file that I have sent are the Expectation/Continuation Bias module that we will be rolling out next month as part of the ART 2018-2019 program. The presentation draws on an article by Key Dismukes and Loukia Loukopoulos entitled "The Limits of Expertise: When the Error Comes From the Expert". In the module, I use our current TEM model to suggest mitigation strategies against expectation and continuation biases. In addition, the presentation also makes reference to "gut feel", which was introduced in the ART 2017-2018 program, and reiterates the importance of listening to the gut as means of highlighting and/or correcting any unresolved discrepancies. I have also attached the gut feel

video that was introduced in this year's ART program for your reference.

Marcel

From: Silva, Sathya [mailto: [REDACTED]]
Sent: Monday, March 19, 2018 4:13 PM
To: Marcel Comeau
Cc: Etcher Shawn
Subject: ACA759 Questions

Hi Marcel,

2 questions for you –

1. Does Air Canada's pilot training program incorporate training on overcoming expectation bias? I.e. active questioning of expectation bias and/or flight path monitoring, and robust scenarios calling traditional expectation into question. If so, can you please provide documentation? <https://flightsafety.org/files/flightpath/EPMG.pdf>
2. Can you (or someone you so choose) decode this ACARS message for me? I removed the line breaks myself but wanted to make sure I did it correctly. (I'm looking for a representation of

how this would have been displayed to the crew)

07/08/2017 06:21:11

Input SMI = DAI

Message Length = 676

<CR><LF>

<SOH>QU DDLXCXA<CR><LF>

.ATSACXA 080621<CR><LF>

<STX>DAI<CR><LF>

AN C-FKCK<CR><LF>

- /ATSACXA.T12/KSFO ARR ATIS Q<CR><LF>

0556Z SFO ATIS INFO Q 0556Z. 31012KT 10SM CLR 17/09 A2993 (TWO NINER NINER THREE
)<CR><LF>

QUIET BRIDGE VA IN USE. LNDG RWYS 28R. DEPG RWYS 1L. NOTAMS... RWYS 28L, 10R<CR>
<LF>CLSD, RWYS 1R, 19L CLSD. TWY J CLSD, TWY S1 CLSD. TWY F CLSD BETWEEN TWY L,
RWY<CR><LF>

1L, TWY F1 CLSD BTWN TWY L, RWY 1L. RY 28L ALS OTS, RY 28L/10R CL LGTS OTS.<CR><

LF>MULTIPLE CRANES UP TO 275 FEET, WEST AND SOUTH OF SFO AIRPORT. ASSC IN USE AC
TVT<CR><LF>

TRNSPNDR WITH MODE C ON ALL TYS AND RWYS. READBACK OF ALL RWY HOLDING<CR><LF>
INSTRUCTIONS IS REQUIRED. ALL ACFT ARE RQRD TO INCL ACFT CLSGN IN ALL RDBKS AND<
CR><LF>ACKMTS.ADVS YOU HAVE INFO Q.281B<CR><LF>

<ETX><EOT>

Thanks!

Sathya

Sathya S. Silva, Ph.D.

Human Performance Investigator

National Transportation Safety Board

