

#12 Dangerous Goods Air Carrier Survey, October 16, 1997

Dangerous Goods Air Carrier Survey

Availability of hazardous materials information to emergency responders in aviation accidents.

October 16, 1997

A.H. Lasseigne-Accident Investigator

In our continuing investigation of the Federal Express cargo aircraft accidents in Newburgh, NY and Newark, NJ, the following carriers were surveyed as to their procedures for providing hazardous materials shipping information to emergency responders in an aviation accident. The following carriers were selected on the basis of their fleet size, type of dangerous goods cargo operations, and the number of reportable incidents during the past 10 years.

Carrier	Type ¹
	I
Airborne Express	Cargo Only
Federal Express	Cargo Only
UPS	Cargo Only
	II
Northwest	Cargo Only and Pax/Cargo
Swissair	Cargo Only and Pax/Cargo
United Airlines	Cargo Only and Pax /Cargo
	III
British Airways	Pax/ Cargo
Delta	Pax/ Cargo

The above carriers were surveyed during September 12 thru 22, 1997 and were asked to supply examples of their hazardous materials documentation along with their procedures for generating information about the identity and quantity of hazardous materials onboard in the event the shipping documents on the aircraft were lost. Specifically, each interviewee, a senior staff member in the carrier's dangerous goods cargo operations, covered the following areas:

- Carrier's dangerous goods operations; i.e. carrier type, fleet size, route dangerous goods volume, corporate restrictions.
- Description of shipping documents carried on board the aircraft, i.e. Notification of Pilot-in-Command form (PNF or NOTOC) per 49 CFR 175.33 or ICAO Technical Instructions 5.4.1.4.
- Description of company procedures and methods to provide information to emergency responders about the dangerous goods on board an aircraft if the shipping documents on board the aircraft are destroyed or cannot be retrieved.
- Specific information needs of the emergency responders about dangerous goods on board during an aviation accident or incident.

¹ The reference to carrier by types, i.e. Type I,II, and is solely to facilitate discussion and does have any other significance.

The following is a summary of the responses received by carrier type.

Type I Carriers.—All three of the Type I “Cargo Only” carriers are US-based and operate as both domestic and international carriers. Each carrier operates more than 100 aircraft in “Cargo Only” service. The daily shipments of dangerous goods range from 6,000 to 1,000 packages per day, representing < 1% of the total volume of freight volume. Type I Carriers, as operators of “Cargo Only” dangerous goods shipments are permitted under the regulations to carry packaging with larger amounts of dangerous goods than passenger aircraft (Type III Carriers).

The pilot notification forms for all of the Type I Carriers consist of two parts: a separation “pouch” containing a list of the various commodities by hazardous class and a separate airbill for each dangerous goods package. All of these PNF’s are designed to meet 49 CFR 175.33 requirements. Type I Carriers routinely rely on the actual airbills to satisfy 49 CFR requirements for shipping documentation or Pilot Notification Forms.

On international flights two of the three carriers surveyed used their own PNF rather than ICAO guidelines. One of the Type I carriers (Airborne Express) uses exclusively for international shipments the PNF recommended by ICAO Technical Instructions 5.4.1.4. This PNF provides in a one-page and single line format the following: the shipping name, UN number, hazard classification, packing group, etc. for each dangerous goods package. This PNF can list as many as 14 dangerous goods shipments per page. (See Table 1, ICAO NOTOC.)

When requested in an emergency, carrier staff initially contacts the departure Hub to retrieve the PNF’s containing the airbill information and then a hard copy of the PNF would be sent by fax to the requester. As yet PNF’s are not electronically stored “on-line” in any of the carriers’ computer. Carriers do maintain “on line” their load plans which are readily assessable in their computer systems and can provide limited information in an emergency such as the dangerous goods container, location and hazard class(s).

Type II Carriers.—Two of the three Type II (Cargo Only and passenger/cargo) carriers are US-based. The Type II fleet size ranges from 500 for the largest to 60 aircraft for the smallest; each carrier on the average operates about 8 aircraft in dedicated “Cargo Only” service. Reportedly, the daily shipments of dangerous goods represent approximately < 1% of the total freight volume and most of the dangerous goods shipped, approximately 97%, are shipped as COMAT.

The PNF’s for all the carriers surveyed are in ICAO format with the usual hazard/shipping information listed on discrete single line.

Table 1. Pilots Notification Form (ICAO Technical Instructions 5.4)

Station	Air Waybill #	Proper ship name	Class division	UN #	Number of Pckags	Net quantity	RAM-Catgry	Code/CAO	ULD # / Postion
		#1							
		#2							
		#3							
		#4							
		#5							

One carrier (United Airlines) generates a single PNF for each shipment; while the other carriers surveyed use multiple entry PNF's (above) with several dangerous goods shipments listed on each page. Swissair stores all PNF information (as an approved standardized ICAO electronic version of the PNF) on-line prior to aircraft departure on all flights. The PNF can be immediately retrieved by computer at any of nine stations along Swissair's routes. In an emergency, copies of the above (1-page) PNF's could be either faxed from the departure station or accessed on-line depending of the carrier's capability.

Many of the carrier's surveyed questioned the value of all the information on the ICAO 1-page NPF/NOTOC format in providing necessary information to the emergency responders. Recently, March 1997, Swissair has adopted a new "simplified" NOTOC, containing the following information, i.e. *UN #, Classification, Name, Quantity, Drill Code and Destination, etc.* The simplified Swissair NOTOC in addition to the standard NOTOC is also stored by computer "on-line" for immediate assess. According to the carrier, this approach is intended to facilitate the emergency response efforts in quickly identifying the dangerous goods by location and what emergency actions to take.

Type III Carriers.—One of the Type III (passenger/cargo) carriers is foreign based. The fleets range in size from 600 to 215 aircraft. One carrier estimated that the daily shipments of dangerous goods represent approximately 3% of the total freight volume; and 97% of the dangerous goods shipments are usually COMAT. The other carrier estimated that they handle approximately 150 dangerous goods pieces per week.

The PNF's for all the carriers surveyed are in ICAO format with usual hazard/shipping information listed on a discrete single line. (See Table 1, ICAO Pilot Notification Form). Carrier personnel identified at least five elements that are needed by emergency service personnel at an accident site: UN #, shipping name, packaging group, quantity and location.

A.H.Lasseigne
10/17/97

National Transportation Safety Board
Washington, D.C. 20594

Shipping Documentation for Hazardous Materials

A. Person Interviewed

Name: Tom Tagert
Position: Dangerous Goods Manager
Carrier: Airborne Express (ABX)
Address: P.O. Box 662
Seattle, WA 9811
Date: 9-16-97
Phone/Fax: [REDACTED]

B. Carrier Operation

Type of carrier: Cargo only Passenger only Passenger and cargo
 Domestic International limited to charter and contract

Size of fleet: Cargo only aircraft 114 Passenger aircraft 0

Major routes:

Hub locations: (Domestic) Wilmington, OH, Waco, TX, and Fresno, CA

Volume of general freight shipped per day, month, or year: N/A

Volume of dangerous goods shipped per day, month, or year: 1.5 to 2% of total freight volume

Corporate restrictions on dangerous goods accepted for shipment:

- *Class 1, Explosives other than Division 1.4s.*
- *Division 2.3 toxic gas; Division 2.3.*
- *Division 4.2 pyrophoric materials.*
- *Hazardous wastes.*
- *Prior approval is required for certain "listed" dangerous goods.*

C. Dangerous Goods Shipping Documentation

Description of the shipping documents carried on board the aircraft.

Dedicated "Notification of Pilot-in-Command" form (49 CFR 175.33; *ICAO Technical Instructions 5.4.1.4*): (All the following items were indicated on form)

- Airway bill number Shipping name UN identification number
 Hazard class or division Packing group Net quantity per package
 Cargo only listing Destination Location on aircraft.

- *For domestic flights, ABX attaches (staples) a copy of each shipper's declaration for dangerous goods (See A-1) to the completed captain's copy of the Pilot Notification (See A-2) which is retained in the cockpit of the aircraft. A separate Pilot Notification form is completed for each ULD and the ULD Identification Tag is affixed to the Pilot Notification Form.*
- *For international flights the Pilot Notification follows the ICAO format with a dedicated single line entry for each dangerous goods package in the ULD. [This format lends itself for rapid transmission in an emergency to emergency responders.]*

Description of company procedures and methods to provide information to emergency responders about the dangerous goods on board an aircraft if the shipping documents on board the aircraft are destroyed or cannot be retrieved.

- *When a local ABX station is notified of a dangerous goods incident, the station will notify the ABX division, who in turn notifies the flight control center, executive board, and a dangerous goods specialist.*
- *The Pilot Notification's for all flights are available at the departure Hub for fax transmittal to requester.*
- *The aircraft load plans for all flights are viewable "on-line," which lists the hazardous materials classes in each of the ULD's. (See A-3.)*

What specific information about the dangerous goods on board do you believe is needed by emergency responders to an aviation accident or incident?

- *Shipping name and UN number are important for first responders.*
- *MSDS are not necessary for first responders.*
- *ABX occasionally relies on CHEMTREC to help locate shipper when product information or disposition is needed.*

Can airbill numbers be used to track dangerous goods shipments? How?

D. Additional Comments

In regard to the ABX Pilot's Notification form, note the difference format between the domestic(DOT) and international (ICAO).

Prepared by:  _____

FOLD AND PLACED INTO AIRBILL IN CLEAR POUCH... THIS SIDE UP
 FOLD

FROM (COMPANY NAME) ADDRESS CITY STATE PHONE		TO (COMPANY NAME) ADDRESS CITY STATE PHONE	
SHIPMENT VALUATION \$ <input type="checkbox"/> FULL VALUE INSURANCE <input type="checkbox"/> DECLARED VALUE <input type="checkbox"/> NO INSURANCE		SHIPMENT VALUATION \$ <input type="checkbox"/> FULL VALUE INSURANCE <input type="checkbox"/> DECLARED VALUE <input type="checkbox"/> NO INSURANCE	
ORIGIN AIRBILL NUMBER 8785280895 CUSTOMER AIRBORNE EXPRESS ACCOUNT NUMBERS		SHIPMENT VALUATION \$ <input type="checkbox"/> FULL VALUE INSURANCE <input type="checkbox"/> DECLARED VALUE <input type="checkbox"/> NO INSURANCE	
METHOD OF PAYMENT <input type="checkbox"/> BILL TO RECEIVER <input type="checkbox"/> BILL TO SENDER <input type="checkbox"/> BILL TO PARTY <input type="checkbox"/> BILL TO ADVANCE <input type="checkbox"/> CHECK NO. Amount <input type="checkbox"/> PAID IN ADVANCE		SHIPMENT VALUATION \$ <input type="checkbox"/> FULL VALUE INSURANCE <input type="checkbox"/> DECLARED VALUE <input type="checkbox"/> NO INSURANCE	
SEND BY (NAME/DEPT) CITY STATE PHONE		SHIPMENT VALUATION \$ <input type="checkbox"/> FULL VALUE INSURANCE <input type="checkbox"/> DECLARED VALUE <input type="checkbox"/> NO INSURANCE	
SENDER SIGNATURE DATE PREPRINT FORMAT NO.		SHIPMENT VALUATION \$ <input type="checkbox"/> FULL VALUE INSURANCE <input type="checkbox"/> DECLARED VALUE <input type="checkbox"/> NO INSURANCE	
AIRBORNE SIGNATURE DATE TIME ROUTE		SHIPMENT VALUATION \$ <input type="checkbox"/> FULL VALUE INSURANCE <input type="checkbox"/> DECLARED VALUE <input type="checkbox"/> NO INSURANCE	

Shipper's Declaration for Dangerous Goods This shipper's declaration for dangerous goods can be used for shipments prepared in accordance with D.O.T. Title 49 CFR, or I.C.A.O. Technical Instructions for the safe transport of dangerous goods by air.						
Proper Shipping Name Class or Division		UN ID NA Number Packaging Group		Subst. Packaging Risk Quantity and Type of Packaging		Packaging Inst. Authorization
<input type="checkbox"/> RADIOACTIVE <input type="checkbox"/> NON-RADIOACTIVE		Prepared per: <input type="checkbox"/> 49 CFR <input type="checkbox"/> ICAO / IATA		This shipment is within the limitations prescribed for: <input type="checkbox"/> CARGO <input type="checkbox"/> AIRCRAFT ONLY <input type="checkbox"/> PASSENGER AND CARGO AIRCRAFT		I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked, and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.
24 HOUR EMERGENCY PHONE NUMBER						

AIRBORNE EXPRESS
 EXECUTIVE OFFICES
 P.O. BOX 662
 SEATTLE, WA 98111 0662



USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL UNITED STATES ONLY.

ASSENT A HIGHER SHIPMENT VALUATION, CARRIER'S LIABILITY IS LIMITED TO \$100 PER PACKAGE, OR ACTUAL VALUE, WHICHEVER IS LESS. SPECIAL OR CONSEQUENTIAL DAMAGES ARE NOT RECOVERABLE. SEE TERMS AND CONDITIONS ON REVERSE SIDE OF THIS NON-NEGOTIABLE AIRBILL.

SCAC AIRB FED ID NO 91 0027469

DROP OFF LOCATION
 AIRBORNE TERMINAL
 DROP BOX

A-1





AF-2

PILOT NOTIFICATION OF DANGEROUS GOODS/HAZARDOUS MATERIAL

Page ___ of ___

This is to certify that the following Dangerous Good(s)/Hazardous Material(s), as indicated by the attached shipper's certification(s) and/or Shippers Declaration(s), have been inspected and meet all requirements set forth by the ICAO, IATA, 49CFR regulations.

X Signature of Authorized Person

For Domestic Flights Complete the first 5 columns below and attach Shippers Declaration for Hazardous Materials, check (✓) exemption if used.

For International Flights Complete all relevant information and attach Shippers Declaration for Dangerous Goods and applicable authorizations.

Table with columns: TRUCK NO, FLIGHT NO, DATE, ORIGIN, DESTINATION, AIRCRAFT NO, FLIGHT NO, DATE, FINAL DESTINATION, STATION, LOCATION, TOTAL, LOADED BY, CAPTAIN'S SIGNATURE.

DOMESTIC FLIGHTS

INTERNATIONAL FLIGHTS - All applicable items MUST be completed.

Main table with columns: CLASS, TOTAL QTY, CAO, DOT E, RAM T1, AIRWAY BILL NUMBER, UN or ID NO., PROPER SHIPPING NAME - TECHNICAL NAME, Subsidiary Risks, PACKING GROUP, NO OF PKGS, NET QTY PER PKG, RAM Cat Label, T.

AF-2



Signature

PRESS HARD WHEN WRITING Attach Shippers Declaration For Dangerous Goods if Required

Lasseigne Anthony

From: TOM.TAGART
Sent: Tuesday, September 16, 1997 4:10 PM
To: Lasseigne Anthony
Cc:
Subject: Load plan info

A3

Following is a quick overview of the first page of our aircraft load plans that are viewable on line. This can also be printed on command at any Airborne Office worldwide. This example is Flight 393 BFI to ILN last night.

FLIN FLIGHT/TRUCK LOAD PLAN - INQUIRY A/C OR TRUCK NO 812AX
 LOAD TYPE 05 DC8-61 SEAL# UPDATED BY GRB BFI ON 09/15/97
 FLYT# 0393 DATE: 091597 LEG: ILN SEE FLLD
 ORG BFI DEST BFI ILN BELLY 8180
 ATTN ILN OPS MAIN 47293
 CC TOTAL 55473
 LOAD MASTER MEDLEY REVENUE 43557
 NOTES EXPRESS 8865
 YVR CONTAINERS IN H1/570. H3/795 SDS 4968
 CAO HAZ IN A3 CAPACITY 90753
 % MAC 24.28
 X IF SSS ONBOARD LOCATION BUMPED FRT: Y
 HAZARDOUS MATERIALS ON-BOARD ('X' APPLICABLE CLASSES) PRE BUMP
 1.4 X2 3 X4.1 4.2 4.3 5 6 X7 8 X9 X EXPRESS 2800
 % WT DST SH WT DST SH WT DST SH SDS
 BELLY COMP1 F 2661 ILN MX TOT BUMP 2800
 BELLY COMP2 E
 BELLY COMP3 F 3319 ILN MX

Page 2 follows

FLLS LOAD PLAN SUMMARY FLYT # 0393 091597 DAY 1 AC NO 812AX AC TYPE DC8-61
 CONTAINER/PALLET COUNT
 BELLY 8180 WEIGHT BY SECTION/COMPARTMENT --- BY DESTINATION ----
 MAIN 47293 COMP WEIGHT COMP WEIGHT DST CNT DST CNT DST CNT
 TOTAL 55473 BELLY 1 2661 BELLY 2 0 ILN 099
 CAPACITY 90753 BELLY 3 3319 BELLY 4 2200
 REVENUE 43557
 EXPRESS 8865 MAIN DECK
 SDS 4968 SEC WEIGHT SEC WEIGHT
 A 1168 L 2529
 PRE-BUMP 0 B 929 M 2563
 EXPRESS 2800 C 1602 N 2655
 SDS 0 D 2637 P 2187
 TOT BUMP 2800 E 2780 Q 3224
 F 3438 R 3536
 %MAC 24.28 G 3210 S 2799
 CONTAINERS 99 H 3408 T 594
 EMPTY 1 J 3314 U 905
 PALLETS 0 K 3815

Lasseigne Anthony

From: TOM TAGART [REDACTED]
Sent: Tuesday, September 16, 1997 4:54 PM
To: Lasseigne Anthony; [REDACTED]
Subject: Load Plan Detail

Tom,
The following is an actual load plan (manifest) for Flt 220 operating between ILN (Wilmington OH Hub) and Kansas City, MO (MCI) on Monday night 9/15/97. If you have any questions, please just let me know. Via Email to:
[REDACTED]

FLIN FLIGHT/TRUCK LOAD PLAN - INQUIRY A/C OR TRUCK NO 968AX
LOAD TYPE 12 DC9-40 SEAL# UPDATED BY SAL ILN ON 09/15/97
FLYT#: 0220 DATE: 091597 LEG: MCI SEE FLLD
ORG ILN DEST ILN MCI BELLY 2467
ATTN OPS MAIN 23958
CC SAL TOTAL 26425
LOAD MASTER CHRIS BRECKEL REVENUE 20339
NOTES EXPRESS 7920
SECURITY IS IN K4,H4,D4. SDS
CAPACITY 30975
% MAC 19.91
X IF SSS ONBOARD LOCATION BUMPED FRT: N
HAZARDOUS MATERIALS ON-BOARD ('X' APPLICABLE CLASSES) PRE BUMP
1.4 2 3 X 4.1 4.2 4.3 5 6 X 7 X 8 X 9 X EXPRESS
% WT DST SH WT DST SH WT DST SH SDS
BELLY COMP1 F 0440 HOR TOT BUMP
BELLY COMP2 F 1030 MIX X
EXP,93=MCI,186=TOP,126=LOU/EXP,358=8K/MIX
BELLY COMP3 F 0785 MIX X
772=HOR/EXP,13=KJC
BELLY COMP4 F 0212 MIX XH PF1=FWD 4=SUMM 7=FLLD
170=HOR/EXP,42=MCI/HAZ 13=NXT LEG 14=PREV LEG

Page 2 (This is a summary screen, give an overview of containers on board and what stations they are destined to. Also specific section weights)

FLLS LOAD PLAN SUMMARY FLYT # 0220 091597 DAY 1 AC NO 968AX AC TYPE DC9-40
CONTAINER/PALLET COUNT
BELLY 2467 WEIGHT BY SECTION/COMPARTMENT --- BY DESTINATION ----
MAIN 23958 COMP WEIGHT COMP WEIGHT DST CNT DST CNT DST CNT
TOTAL 26425 BELLY 1 440 BELLY 2 1030 MCI 010 HOR 002 OSB 005
CAPACITY 30975 BELLY 3 785 BELLY 4 212 TOP 005 8K 002 KJC 016
REVENUE 20339 CLR 005 JEB 003 DKK 005
EXPRESS 7920 MAIN DECK LOU 001 MIX 001
SDS 0 SEC WEIGHT SEC WEIGHT
A 535 L 380
PRE-BUMP 0 B 1959
EXPRESS 0 C 2373
SDS 0 D 2662
TOT BUMP 0 E 3341
F 2790
%MAC 19.91 G 2323
CONTAINERS 55 H 3052
EMPTY 0 J 2690
PALLETS 0 K 1853

Page 3 (This is the detail screen. Shows the weight and destination of each container on board and under the heading SH the type of freight in the container and or the type of container in that position)



A5

WT	DST	SH	WT	DST	SH	
A	0315	MCI WC	0220	HOR XR	A	
B	0340	MCI WH	0229	HOR XR	B	
	0251	OSB XR	0392	TOP R		
	0337	8K MR	0410	TOP R		
C	0601	MCI XR	0381	TOP R	C	
	0472	KJC R	0276	CLR XR		
	0333	JEB R	0310	OSB XR		
D	0291	CLR XR	0466	KJC R	D	
	0448	JEB R	0509	MCI R		
	0522	KJC XR	0426	KJC R		
E	0846	DKK XR	0521	MCI R	E	
	0697	KJC XR	0426	KJC R		
	0385	TOP XR	0466	MCI R		
F	0342	JEB XR	0262	CLR XR	F	
	0389	8K MR	0435	KJC R		
	0458	KJC R	0904	KJC R		
G	0622	DKK R	0282	CLR XR	G	
	0351	OSB XR	0267	LOU XR		
	0489	KJC R	0312	OSB XR		
H	0725	KJC XR	0460	MCI R	H	
	0459	MCI R	0357	KJC R		
	0308	CLR XR	0743	KJC R		
J	0386	MIX XR	0509	DKK R	J	
	0597	KJC R	0328	KJC R		
	0340	OSB XR	0530	MCI R		
K	0496	TOP R	0504	DKK R	K	
	0491	DKK R	0362	MCI R		
L	0380	KJC R			L	

BELLY 002467
 MAIN 023958
 TOTAL 0026425
 CAPACITY 0030975

SH CODES
 X = EXPRESS PACK
 S = SAT. DEL.
 2 = SDS
 H = HAZ MAT
 C = CAO HAZ
 I = CAO INACCESS HAZ
 M = MIXED
 R = RED CONTAINER
 W = WHITE CONTAINER
 U = BALLAST

National Transportation Safety Board
Washington, D.C. 20594

Shipping Documentation for Hazardous Materials

A. Person Interviewed

Name: Jeff Barrington
Position: Dangerous Goods Cargo
Carrier: British Airways World Cargo
Address: P.O. Heathrow Airport
Hounslow-Middlesex TW621S
Date: 9-22-97
Phone/Fax: [REDACTED]

B. Carrier Operation

Type of carrier: Cargo only Passenger only Passenger and cargo
Domestic International

Size of fleet: Cargo only aircraft _____ Passenger aircraft 215

Major routes: 240 cities in 180 countries

Hub locations: Gatwick, UK

Volume of general freight shipped per day, month, or year:

Volume of dangerous goods shipped per week: 150 pieces

Corporate restrictions on dangerous goods accepted for shipment:

- UN 1169, UN 1197, and ID 8035 (irritating aromatic substances)

C. Dangerous Goods Shipping Documentation

Description of the shipping documents carried on board the aircraft.

Dedicated "Notification of Pilot-in-Command" form (49 CFR 175.33; *ICAO Technical Instructions 5.4.1.4*): (All the following items were indicated on the form)

- | | | |
|--|---|--|
| <input type="checkbox"/> <u>Airway bill number</u> | <input type="checkbox"/> <u>Shipping name</u> | <input type="checkbox"/> <u>UN identification number</u> |
| <input type="checkbox"/> <u>Hazard class or division</u> | <input type="checkbox"/> <u>Packing group</u> | <input type="checkbox"/> <u>Net quantity per package</u> |
| <input type="checkbox"/> <u>Cargo only listing</u> | <input type="checkbox"/> <u>Destination</u> | <input type="checkbox"/> <u>Location on aircraft.</u> |

British Airways uses two systems for tracking dangerous goods:

- *British Airways Cargo Control System (BA-80) - BA uses ICAO 1-page format for NOTOC's for domestic and international flights. This provides a full description of the shipping information. See attached (B-1).—British Airway NOTOC for non-consolidated shipments aboard passenger aircraft.*
- *British Airways Departure Control System - Contains abbreviated information on the dangerous goods, such as, the airbill number, UN number, and hazard class, and location.*

Description of company procedures and methods to provide information to emergency responders about the dangerous goods on board an aircraft if the shipping documents on board the aircraft are destroyed or cannot be retrieved.

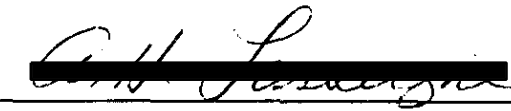
- *BA Departure Control System stores on-line the abbreviated information and can be viewed anywhere in its system or sent by fax to any appropriate requester. This NOTOC is prepared prior to flight departure.*

What specific information about the dangerous goods on board do you believe is needed by emergency responders to an aviation accident or incident?

- *4 dangerous goods elements needed in an emergency - UN identification number, packaging group, quantity and location.*

Can airbill numbers be used to track dangerous goods shipments? How?

D. Additional Comments

Prepared by: 

BRITISH AIRWAYS

747-436 LOAD & BALANCE

Special load - notification to Captain

(5)

Prepared by

(3)

A/C Regn

(4)

Date

(1)

Station of loading

(2)

Flight

B-1

BRITISH AIRWAYS

Dangerous Goods

Dangerous Goods Station of unloading	Air Waybill No (last 4)	Proper shipping name	Class or division for Class 1 also compatibility group	UN or ID number	Subsidiary risk	Number of packages	Net quantity or transport index per package	For radioactive material - the category of the package	Packing group	Code	CAO (X)	Loaded ULD ID	Compartments/Position
SVO	1234	BUTYRYL CHLORIDE	3	2353	8	2	1L		II	RFL			31P
SVO	5678	MERCURY OXIDE	6.1	1641		1	25KG		II	RPG			31P
SVO	9012	RADIOACTIVE MATERIAL SPECIAL FORM NOS.	7	2974		1	3.0TL	III		RRY			32P
NRT	3456	CARTRIDGES, SIGNAL	1.4S	0405		3	15KG			RXS			41P
(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)		(18)

Other special load - including AVI MUM VAL HUM (19)		Content/Description		Quantity		Code		Loaded ULD ID		Compartments/Position	
Station of unloading	Air Waybill No (last 4)	No of packages									
NRT	7890	1	REVOLVERS	10KG	MUW						5
NRT	8432	1	DIAMONDS	1KG	VAL						22L

Additional information

(20)

There is no evidence that any damaged or leaking packages have been loaded on the aircraft

Loaded as shown

(21)

Captain's signature

(22)

B-1

**National Transportation Safety Board
Washington, D.C. 20594**

Shipping Documentation for Hazardous Materials

A. Person Interviewed

Name: David Littlejohn
Position: Technical Advisor-Dangerous Goods Manager
Carrier: FedEx
Address: 2900 Business Park
Memphis, TN 338118
Date: 9-15-97
Phone/Fax: [REDACTED]

B. Carrier Operation

Type of carrier: Cargo only Passenger only Passenger and cargo
 Domestic International

Size of fleet: Cargo only aircraft 584 Passenger aircraft 0

Major routes:

Hub locations: Domestic: Indianapolis, Indiana; Memphis, TN, Oakland, CA, Newark, NJ, Dallas, TX
Foreign: Narita, JA, and Philippines

Volume of general freight shipped per day, month, or year: 3.0 million pieces

Volume of dangerous goods shipped per day, month, or year: 6,000 pieces

Corporate restrictions on dangerous goods accepted for shipment:

- *Class 1 and 7 for carriage outside US without pre-approval.*
- *Division 6.1 toxic gas, forbidden*
- *Selected Class 8 (Corrosives); Oxidizers PCB's, and Hazardous Waste.*

C. Dangerous Goods Shipping Documentation

Description of the shipping documents carried on board the aircraft.

Dedicated "Notification of Pilot-in-Command" form (49 CFR 175.33; *ICAO Technical Instructions 5.4.1.4*): (All the following items were indicated on the form)

- Air bill number Shipping name UN identification number
 Hazard class or division Packing group Net quantity per package
 Cargo only listing Destination Location on aircraft.

- *Fed Ex attaches copies of the Pilot's Notification of Loading of Dangerous Goods (Part B. See F-1) to the captain's copy of Notification of Dangerous Goods Loading (Part A, See F-2). The assembled Parts A and B are retained in the cockpit and both comprise the Pilot Notification.*
- *A Dangerous Goods Separation Pouch or Part A is prepared for each ULD and lists the hazard classification of each dangerous goods..*

Description of company procedures and methods to provide information to emergency responders about the dangerous goods on board an aircraft if the shipping documents on board the aircraft are destroyed or cannot be retrieved.

- *When a local Fed Ex station is notified of a dangerous goods/aircraft accident, the station notifies the Fed Ex GOCC in Memphis for assistance in coordinating the retrieval of the Pilot Notification forms; usually the Fed Ex departure facility is contacted to forward the Pilot Notification forms by fax to a requester.*
- *UN numbers and quantity should be all that is necessary to identify what emergency response actions to take. Current emergency response requirements in the DOT Emergency Response Guide do not depend solely on the name of the material but on the four digit UN ID number for access of emergency guide information. Questions the need for all the product information required to be listed in the NOTOC.*

What specific information about the dangerous goods on board do you believe is needed by emergency responders to an aviation accident or incident?

- *Questions what are the actual information needs of the first responders during the first hours of an emergency; shipping names are too technical to make tactical decisions.*

Can airbill numbers be used to track dangerous goods shipments? How?

- *Believes that universal application of on-line accessibility to dangerous goods would be cost prohibitive (Applegate Bill - \$10/package).*

D. Additional Comments

The FedEx load plan identifies the ULD's containing dangerous goods.

Prepared by:





NOTIFICATION FOR LOADING OF DANGEROUS GOODS (PART B)

File Copy
(Within 90 Days)

PREPARE THIS FORM IN INK OR BLUE GEL INK PRINT FOR ONLY

No. **131850** Origin: **NRT** Date: **07/30/97**

Shipping Name, Class or Division, UN or ID#, Pkg Group, Subcategory Risk, or other codes as appropriate, or DOT-XXXX Dangerous When Wet (Per Title 49 CFR & IATA/CAO)	A X	C A O	# of Pkgs	Net Qty Per Pkg	Tracking Number	Container #/ Body Comp	
						In	Out
EXPUMERY PRODUCTS 3 UN1266 III	X		1	15L	023-8016 3521		

Emergency Telephone # **1-800-424-9300**

Dangerous When Wet Placard
 TRUCK & JACARD BOX WEIGHT CLASS / lbs

ICG AIRCRAFT ONLY IF APPLICABLE FedEx M-00505 4/96 LOGOS # 107338 © 1997 FedEx. All Rights Reserved

Proper Shipping Name	Class or Division	UN or ID No.	Pack- ing Group	Sub- category Risk	Quantity & type of packing	Inst.
EXPUMERY PRODUCTS	3	UN1266	III		ONE (1) 4G x 15L	309

Additional Handling Information
EMERGENCY CONTACT : 1-800-424-9300

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Name/Title of Signatory
M. UEMATSU / EXPORT MANAGER
 Place and Date
TOKYO JUL. 29, 1997
 Signature
(see warning above)

MEMBFX
MEMJFKF 310548
FDR FLT: 0014-30
ND-11 N611FE

LEG DATE: 07/30/97

ORG: AN [REDACTED] EWR
BLOCK: 0000 0000

CY/SEAT: 3 FUELS==> TAXI 2,000 T/O 136,000
MODE: L BALLAST AUX: 0

BALLAST F-3

POS	ULD NO.	WEIGHT	DES	CB	HGT	CD	SERVICE	LOAD	PACKAGE	DES
1L	PMC80219FX	2,526	BOS	10	NS2	S	IX1 HAZ	SLD	BOS	
		CON SCAN: REMARKS: X P-3								
2L	PMC4718FM	3,372	EWR	10	NS2	S	IX1 HAZ	MIX	JFK	EWR
		CON SCAN: REMARKS: X P-3								
3L	AMJ46987FX	3,290	BOS	10		S	BSO	SLD	BOS	
		CON SCAN: 501100832044 REMARKS: IPBSO								
4L	AMJ45695FM	4,380	EWR	10		S	IPD IBX	MIX	YYZ	
		CON SCAN: 500942218414 REMARKS:								
5L	AMJ41989FM	4,860	EWR	10		S	IPD IBX	MIX	CDG	
		CON SCAN: 500942218220 REMARKS: E4								
6L	AMJ42187FM	4,970	EWR	10		S	IPD IBX	MIX	CDG	
		CON SCAN: 500942218219 REMARKS: E3								
7L	AMJ47830FX	2,700	CDG	73		S	IPD IBX		CDG	
		CON SCAN: 500942218388 REMARKS: E4								
8L	PMCB413FT	10,280	JFK	10	AF2	S	IX1	SLD	JFK	
		CON SCAN: REMARKS: X 78								
9L	PMC4228FM	10,450	JFK	10	MD2	S	IX1	SLD	JFK	
		CON SCAN: REMARKS: X 78								
10L	AMJ41640FM	5,836	EWR	10		S	IBX	SLD	ZRA	
		CON SCAN: 501045968073 REMARKS: CLRD IBX								
11L	PMC3221FM	5,049	JFK	10	AF2	S	ATA	SLD	JFK	
		CON SCAN: REMARKS: X 88								
12L	PMC2069FM	3,197	JFK	82	AF2	S	IX1		JFK	
		CON SCAN: 8888888888 REMARKS: TL ON/RM2								
13C	PAG1597FM	7,460	JFK	55	LW1	S	IX1	SLD	JFK	
		CON SCAN: REMARKS: X 80								
14C	PMC0865FM	3,131	EWR	10	RM2	S	IX1	MIX	JFK	PIK OTH
		CON SCAN: REMARKS:								
31	JUL 0548	HQCAC0AD 12943 @ WBP022								

*
*
*
*

National Transportation Safety Board
Washington, D.C. 20594

Shipping Documentation for Hazardous Materials

A. Person Interviewed

Name: Martin L. Thon
Position: Senior Specialist-Safety and Dangerous Goods
Carrier: Northwest Airlines, Inc.
Address: Department C5690
5101 Northwest Dr.
St. Paul, MN 55111-3034
Date: 9-18-97
Phone/Fax: [REDACTED]

B. Carrier Operation

Type of carrier: Cargo only Passenger only Passenger and cargo
 Domestic International

Size of fleet: Cargo only aircraft 8 Passenger aircraft 380

Major routes:

Hub locations: Detroit, Michigan, Memphis, TN, Minneapolis, MN, Narita, Japan

Volume of general freight shipped per day, month, or year:

Volume of dangerous goods shipped per week: $\frac{1}{2}$ -1%

Corporate restrictions on dangerous goods accepted for shipment:

- *Division 6.1, Poisonous (toxic) substances, Packing Groups I and II will be only accepted only on all-cargo aircraft.*
- *"Poison Gas" label shipments*

C. Dangerous Goods Shipping Documentation

Description of the shipping documents carried on board the aircraft.

Dedicated "Notification of Pilot-in-Command" form (49 CFR 175.33; *ICAO Technical Instructions 5.4.1.4*): (All the following items were indicated on the form)

- Airway bill number Shipping name UN identification number
 Hazard class or division Packing group Net quantity per package
 Cargo only listing Destination Location on aircraft.

- *On both domestic and international flights, Northwest uses the ICAO 1-page format for Pilot Notification. Each Pilot Notification has sufficient room to list up to 6 different airbills. (SeeN-1.)*

Description of company procedures and methods to provide information to emergency responders about the dangerous goods on board an aircraft if the shipping documents on board the aircraft are destroyed or cannot be retrieved.

- *Northwest flight dispatch would contact originating station of the flight and obtain Pilot Notification(s) by fax.*

What specific information about the dangerous goods on board do you believe is needed by emergency responders to an aviation accident or incident?

- *Doubt if all of the Pilot Notification information is really needed by emergency responders.*

Can airbill numbers be used to track dangerous goods shipments? How?

D. Additional Comments

Prepared by: 



N-1

N-1

Notification To Pilot-In-Command

NORTHWEST AIRLINES	FLIGHT	DATE	ORIGIN	DESTINATION	TRANSFER FLIGHT	DATE	TRANSFER STATION	FINAL DESTINATION
--------------------	--------	------	--------	-------------	-----------------	------	------------------	-------------------

DAANGEROUS GOODS ALL CLASSES (EXCEPT CLASS 7)

AIRBILL NO. } COMAT	UNCL.	PROPER SHIPPING NAME	CLASS OR DIVISION (SEE CLASS 1, COMPT. GROUP)	UN OR ID NUMBER	SPECIALTY MARK (WHEN APPLICABLE)	PACKING GROUP I, II, OR III (WHEN APPLICABLE)	PIECES	NET QUANTITY PER PACKAGE (IN KG/LBS/KG)	TOTAL NET QUANTITY (IN KG/LBS/KG)	ICAO EMERGENCY DIBLL CODE	THIS SHIPMENT IS WITHIN THE LIMITS FOR (DELETE NON-APPLICABLE)		CHECK IF HAZARDOUS SUBSTANCE "H"	CHECK IF LIMITED QUANTITY (LTD QTY)	ORIGIN STN LOCATED IN CONTAINER & DIBL/POSITION	TRANSFER STN LOCATED IN CONTAINER OR DIBL/POSITION	COMPLETED BY ESE/ESC	
											PSGR & CARGO ACT	CARGO ACT ONLY						
							X	=			PSGR & CARGO ACT	CARGO ACT ONLY						
							X	=			PSGR & CARGO ACT	CARGO ACT ONLY						
							X	=			PSGR & CARGO ACT	CARGO ACT ONLY						
							X	=			PSGR & CARGO ACT	CARGO ACT ONLY						

*(OPTIONAL) DESCRIPTION OF COMMODITY:

EMERGENCY RESPONSE TELEPHONE NUMBER

RADIOACTIVE MATERIALS CLASS 7

AIRBILL NO. } COMAT	UNCL.	PROPER SHIPPING NAME	UN OR ID NUMBER	NAME OF RADIOISOTOPE	FORM	ACTIVITY PER PACKAGE	CATEGORY (DELETE NON-APPLICABLE)	TOTAL PACKAGES	TRANSPORT INDEX PER PACKAGE	ICAO EMERGENCY DIBLL CODE	THIS SHIPMENT IS WITHIN THE LIMITS FOR (DELETE NON-APPLICABLE)		CHECK IF FESILE MATERIAL *	(ORIGIN STN) LOCATED IN CONTAINER OR DIBL/POSITION	(TRANSFER STN) LOCATED IN CONTAINER OR DIBL/POSITION	COMPLETED BY ESE/ESC		
											PSGR & CARGO ACT	CARGO ACT ONLY						
							WHITE I YELLOW II YELLOW III				PSGR & CARGO ACT	CARGO ACT ONLY						
							WHITE I YELLOW II YELLOW III				PSGR & CARGO ACT	CARGO ACT ONLY						

DOCUMENTATION CHECKED, PACKAGING INSPECTED, PACKAGE SIZE, COMMODITY/QUANTITY WITHIN LIMITATIONS AND FORM:

AIRCRAFT LOADED, LOCATION VERIFIED, CONTAINERS/PACKAGES INSPECTED TO VERIFY NO LEAKAGE, DAMAGE, AND PACKAGE INTEGRITY HAS NOT BEEN COMPROMISED:

PREPARED BY _____ (NWA REPRESENTATIVE)

BY _____ (ESE/ESC)

NOTICE TO PILOT IN COMMAND:

FOR A COCKPIT CREW CHANGE SHORT OF FLIGHT TERMINATION, THIS FORM IS TO REMAIN IN THE COCKPIT CLIPPED UNDER THE APPROACH CHART AND AN ENTRY IS TO BE MADE IN THE MAINTENANCE LOG FOR THE OUTBOUND CREW (FLIGHT OPERATIONS MANUAL REF: 14.55.5).

THE ABOVE LISTED DANGEROUS GOODS SHOWN IN THE TRANSFER COLUMN HAVE BEEN TRANSFERRED; LOCATION VERIFIED; CONTAINERS/PACKAGES INSPECTED TO VERIFY NO LEAKAGE, DAMAGE, NOR HAS THE PACKAGING INTEGRITY BEEN COMPROMISED:

BY

1ST COPY: PILOT-IN-COMMAND 2ND COPY: LOAD CONTROL 3RD COPY: LEAVE ON BOX FOR TRANSFER STATION 4TH COPY: LEAVE ON BOX FOR TRANSFER STATION 5TH COPY: ATTACH TO ORIGINATING STATION AIR WAYBILL (AWB)

National Transportation Safety Board
Washington, D.C. 20594

Shipping Documentation for Hazardous Materials

A. Person Interviewed

Name: A. Muri
Position: Manager-Dangerous Goods
Carrier: SAirGroup/Swisscargo
Address: 8058 Zurich-Airport
Date: 9-18-97
Phone/Fax: [REDACTED]

B. Carrier Operation

Type of carrier: Cargo only Passenger only Passenger and cargo
 Domestic International

(In reference to "Cargo Only": some leased Cargo Aircraft's operating on behalf of Swisscargo under Swissair dedicated flight numbers.)

Size of fleet: Cargo Only aircraft 0 Passenger aircraft 62

Major routes:

Hub locations: Zurich and Geneva, Switzerland Basie-Mulhours Switzerland/France
Brussels, Belgium for SwissCargo

Volume of general freight shipped per day, month, or year: at Zurich approximately 1500 tons turnover

Volume of dangerous goods shipped per week: unknown

Corporate restrictions on dangerous goods accepted for shipment:

- Gallium, UN 2803 requires prior transport permission.

C. Dangerous Goods Shipping Documentation

Description of the shipping documents carried on board the aircraft.

Dedicated "Notification of Pilot-in-Command" form (49 CFR 175.33; *ICAO Technical Instructions 5.4.1.4*): (All the following items were indicated on the form)

- | | | |
|--|---|--|
| <input type="checkbox"/> <u>Airway bill number</u> | <input type="checkbox"/> <u>Shipping name</u> | <input type="checkbox"/> <u>UN identification number</u> |
| <input type="checkbox"/> <u>Hazard class or division</u> | <input type="checkbox"/> <u>Packing group</u> | <input type="checkbox"/> <u>Net quantity per package</u> |
| <input type="checkbox"/> <u>Cargo only listing</u> | <input type="checkbox"/> <u>Destination</u> | <input type="checkbox"/> <u>Location on aircraft.</u> |

- *Developed a "simplified" NOTOC which contains: message, UN number, classification, name, quantity, drill code, and destination.*

See NOTOC Simplified (S-3,S-4)

- *All Swissair NOTOC's are on-line accessible by computer at any of its on-line stations.*

See NOTOC System (S-2)

- *In addition to the "simplified: NOTOC, the pilot also has the standardized ICAO NOTOC which follows the ICAO format and is available at the station of departure in the computer system.*

NOTC Form, manual (S-1)

Description of company procedures and methods to provide information to emergency responders about the dangerous goods on board an aircraft if the shipping documents on board the aircraft are destroyed or cannot be retrieved.

- *Swissair relies on an emergency cargo group to gather all the shipment documents in an aircraft incident.*
- *Upon request, copies of the NOTOC at any departure hub could be easily forwarded to a requester by fax.*
- *NOTOC information available within minutes, depending on daytime.*

What specific information about the dangerous goods on board do you believe is needed by emergency responders to an aviation accident or incident?

- *Questions the value of the standardized NOTOC form in an emergency, i.e. the ICAO NOTOC . At any accident site, no one can understand the NOTOC except the*

pilot. Therefore, Swissair developed the "simplified" NOTOC which is intended to save time and reduce confusion in an emergency.

Can airbill numbers be used to track dangerous goods shipments? How?

Yes, within own EDP-System if on-line.

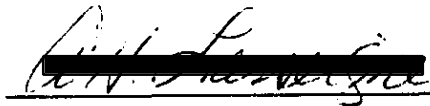
D. Additional Comments

Swisscargo is an independent company with SAirGroup. Swisscargo buys all cargo capacity from Swissair, Crossair, Sabena, CityBird, Sobelair and all ranging sales and distribution worldwide.

Attachments

- NOTC Form (manual) S-1
- NOTOC System S-2
- NOTOC Simplified S-3,S-4

Prepared by:



Special Load Notification to Captain

(NOTOC)

Station of Loading: _____ Flight and Date: _____ Registration: _____ Prepared by: _____

Dangerous Goods		Class or Division For Class Comput. Group	UN or ID Number	Sub. Risk	Number of Packages	Net Quantity (kg/L) or Transport Index per package	Radio-active Mater. Categ.	UN Pack- ing Group	Code (see re- verse)	CAO (X)	LOADING POSITION	
Station of Un- loading	Air Waybill Number										ULD ID Code	Cpt./Pos.

(*): There is no evidence that any damaged or leaking packages containing dangerous goods have been loaded on the aircraft

Other Special Load		Supplementary Information	Code (see reverse)	Loading Position
Stat. of Unload.	Air Waybill Number			

TEMPERATURE REQUIREMENTS

Heating required for _____ °C (Specify)

Cooling required for _____ °C (Specify)

Captain's Signature (when required):

Loaded as shown*

*To be filled in the Loading Position

51

SPECIAL LOAD NOTIFICATION TO CAPTAIN

S-2

FROM FLIGHT DATE A/C REG
ZRH SR 0332 18SEP97

DANGEROUS GOODS

PROPER SHIPPING NAME

TO	AWB	CL/DV	UN/ID	SUB	PCS	QTY/TI	RRR	PKG	IMP	CAO	POS
		COMP	NSR	RSK			CAT	GRP	CODE		ULD CODE
001.ETHYL ALCOHOL	TLV 23731514	3	UN/		7	5.0LT			II RFL		...
			1170	DRILL	3L						PAJ15479SR
002.ETHYL ALCOHOL	TLV 23731514	3	UN/		15	3.9LT			II RFL		...
			1170	DRILL	3L						PAJ15479SR
003.DRY ICE	TLV 67859960	9	UN/		1	10.4KG			III ICE		...
			1845	DRILL	9L						ALD2664SR
004.CORROSIVE LIQUID. N.O.S. SULPHURIC ACID SOLUTION	TLV 55737474	8	UN/		2	350ML			III RCM		...
			1760	DRILL	8L						PAJ15479SR
005.CARBON DIOXIDE. SOLID	TLV 55737474	9	UN/		5	4.0KG			III ICE		...
			1845	DRILL	9L						PAJ15479SR
006.CHEMICAL KIT	TLV 55737474	9	UN/		4	95.0GR			II RMD		...
			3316	DRILL	9L						PAJ15479SR
007.DRY ICE	TLV 55297211	9	UN/		1	10.4KG			III ICE		...
			1845	DRILL	9L						ALD2664SR
008.PAINT, RELATED MATERIAL	TLV 56343921	3	UN/		3	15.1LT			III RFL		...
			1263	DRILL	3L						ALD2664SR
009.PAINT RELATED MATERIAL	TLV 56343921	3	UN/		20	5.6LT			III RFL		...
			1263	DRILL	3L						ALD2664SR

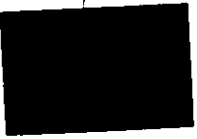
OTHER SPECIAL LOAD

SI NIL

THERE IS NO EVIDENCE THAT ANY DAMAGED OR LEAKING PACKAGES
CONTAINING DANGEROUS GOODS HAVE BEEN LOADED ON THE AIRCRAFT
AT THIS STATION

LOADED AS SHOWN

CAPTAINS SIGNATURE



S-3

ACARS
SRB176/.HB-IUH 29APR97 1126

SPECIAL LOAD NOTIFICATION TO CAPTAIN

FROM FLIGHT DATE A/C REG EDNO
ZRH SRB176 29APR97 HB1UH 1

DANGEROUS GOODS		TO POS	UN/ID	DRILL	QTY/TI	IMP	DESCRIPTION
SEL	A51	1133		3L			1LT RFL FLAMMABLE LIQUID
SEL	25	3082		9L			150LT RMD MISCELLANEOUS DANGEROUS GOODS
SEL	25	2588		6L			180KG RPB POISON
SEL	25	2811		6L			129GR RPB POISON
SEL	25	3316		9L			26.84KG RMD MISCELLANEOUS DANGEROUS GOODS
SEL	25	1564		6L			80GR RPB POISON
SEL	25	1624		6L			500GR RPB POISON
SEL	25	1629		6L			50GR RPB POISON
SEL	25	1646		6L			25GR RPB POISON
SEL	25	1993		3L			150ML RFL FLAMMABLE LIQUID
SEL	25	1993		3H			320ML RFL FLAMMABLE LIQUID
SEL	25	1486		5L			500GR ROX OXIDIZER
SEL	25	1477		5L			350GR ROX OXIDIZER
SEL	25	1474		5L			50GR ROX OXIDIZER
SEL	25	1469		5P			100GR ROX OXIDIZER
SEL	25	1813		6L			500GR RCM CORROSIVE
SEL	25	1824		6L			500ML RCM CORROSIVE
SEL	25	1789		6L			1000ML RCM CORROSIVE
SEL	25	3264		6L			8.5LT RCM CORROSIVE
SEL	25	3260		6L			500GR RCM CORROSIVE
SEL	25	2796		6L			74ML RCM CORROSIVE
SEL	25	3265		6L			26ML RCM CORROSIVE
SEL	25	3263		6L			250GR RCM CORROSIVE
SEL	25	1687		6L			3KG RPB POISON
SEL	25	3283		6L			6KG RPB POISON
SEL	25	1839		6L			4.5KG RCM CORROSIVE
SEL	25	2825		6L			1KG RPB POISON
SEL	25	3267		6L			800ML RCM CORROSIVE
SEL	25	2879		6L			100ML RCM CORROSIVE
SEL	25	2218		8F			500ML RCM CORROSIVE
SEL	25	2852		3L			100ML RFL FLAMMABLE LIQUID
SEL	25	2874		6L			100ML RPB POISON
SEL	25	2831		6L			400ML RCM CORROSIVE
SEL	25	2920		8F			5ML RCM CORROSIVE
SEL	25	2931		6L			500GR RPB POISON
SEL	25	2966		6L			50ML RPB POISON
SEL	25	2922		8P			100ML RCM CORROSIVE
SEL	25	1492		5L			500GR ROX OXIDIZER
SEL	25	1479		5L			100GR ROX OXIDIZER
SEL	25	1759		6L			100GR RCM CORROSIVE
SEL	25	1197		3L			18.1LT RFL FLAMMABLE LIQUID
SEL	21R	1687		6L			3KG RPB POISON
SEL	21R	2818		6L			1.2LT RPB POISON
SEL	21R	3316		9L			6.297KG RMD MISCELLANEOUS DANGEROUS GOODS
SEL	32P	1266		3L			437.2LT RFL FLAMMABLE LIQUID

ACARS
SRB176/.HB-IUH 29APR97 1127

SEL	31P	1266		3L			207.3LT RFL FLAMMABLE LIQUID
SEL	21L	2588		6L			30KG RPB POISON

OTHER SPECIAL LOAD
SEL 11P 2KG VAL VALUABLE CARGO
SEL 33L 37KG COOL STORAGE 1 TO 5 DEGREES C.

THERE IS NO EVIDENCE THAT ANY DAMAGED OR LEAKING PACKAGES CONTAINING DANGEROUS GOODS HAVE BEEN LOADED ON THE AIRCRAFT AT THIS STATION

END NOTOC
29APR/11.25.21Z

S-4

 Classification of Dangerous Goods

HAZARD CLASS	Division/ COMPAT.GPR.	CODE	DECODING (LABEL)
1	1.4 B 1.4 C 1.4 D 1.4 E 1.4 G	RXB RXC RXD RXE RXG	Explosives Cargo Aircraft Only
	1.4 S	RXS	Explosives (safety)
2		RNG RFG RCL	Non-Flammable Gas Flammable Gas Cryogenic Liquid
		RPG	Poisonous Gas Cargo Aircraft Only
3		RFL	Flammable Liquid
4	4.1 4.2 4.3	RFS RSC RFW	Flammable Solid Spontaneously Combustible Dangerous When Wet
	5.1 5.2	ROX ROP	Oxidizer Organic Peroxide
	6.1 6.1 6.2	RPB RHF RIS	Poison Harmful - Slow Away from Foodstuff Infectious Substance
7	CAT I CAT II & III	RRW RRY	Radioactive - White Radioactive - Yellow
		RCM	Corrosive
9		RSB MAG ICE RMD	Polystyrene Beads Magnetized Material Dry Ice Miscellaneous Dangerous Goods
		CAO	Cargo Aircraft Only

2. Other special Load

CODE	DECODING
AVI EAT FIL HUM PER LHO	Live Animals Foodstuffs Undeveloped Films Human Remains Perishables Live Human Organs

3. Animal Temperature Conditions

The average temperature requirements for each animal category group have been determined. However, essentially the shipper provides information about the temperature range to which the animal may be exposed, considering the length of the journey.

Groups	Temperature in storage environment	Groups	Temperature in storage environment
0 primates	20° - 23°C	6 birds (tropical)	18° - 20°C
1 cattles horses rhinos/elephants	12° - 15°C 10° - 15°C 12° - 15°C	7 chicks	17° - 20°C
2 tropical fish eels/fish	15° - 20°C 6° - 8°C	8 small rodents	10° - 15°C
3 lobsters reptiles	7° - 15°C 14° - 20°C	9 chinchillas	10° - 15°C
4 dog/cats insects	12° - 20°C 10° - 11°C	10 water mammals	5° - 10°C
5 carnivores vegetarians	12° - 15°C 18° - 20°C		

National Transportation Safety Board
Washington, D.C. 20594

Shipping Documentation for Hazardous Materials

A. Person Interviewed

Name: Carl B. Kole
Position: Senior Staff Representative-Environmental Administrator Dangerous Goods
Carrier: United Airlines
Address: World Headquarters-WHQSY
P.O. Box 60666.
Chicago, ILL 60666
Date: 9-12-97
Phone/Fax: [REDACTED]

B. Carrier Operation

Type of carrier: Cargo only Passenger only Passenger and cargo
 Domestic International

Size of fleet: 500

Major routes:

Hub locations: San Francisco, Los Angeles, CA; Seattle, WA, Chicago, IL.
Denver, CO; London, UK, Narita, Japan

Volume of general freight shipped per day, month, or year:

Volume of dangerous goods shipped per week: 1 to 3%
80% of the above is COMAT

Corporate restrictions on dangerous goods accepted for shipment:

- *Division 6.1, primary and subsidiary hazard class Poisons (toxic) substances.*
- *Certain listed Class 3 Flammable liquids and Class 8 Corrosive substances.*
- *Hazardous wastes.*

C. Dangerous Goods Shipping Documentation

Description of the shipping documents carried on board the aircraft.

Dedicated "Notification of Pilot-in-Command" form (49 CFR 175.33; *ICAO Technical Instructions 5.4.1.4*): (All the following items were indicated on the form)

- Airway bill number Shipping name UN identification number
 Hazard class or division Packing group Net quantity per package
 Cargo only listing Destination Location on aircraft.

- *United Airlines uses a separate Pilot Notification each dangerous goods package.*
- *The Pilot Notification is in the ICAO 1-page format. (See U-1&2.)*

Description of company procedures and methods to provide information to emergency responders about the dangerous goods on board an aircraft if the shipping documents on board the aircraft are destroyed or cannot be retrieved.

- *Upon request, copies of the Pilot Notifications from any departure hub could be easily forwarded to any requester by fax.*
- *Additionally, the United Airlines Departure Load Record (DLR), containing the container number and location, UN number and Transport Index, can be accessed by computer from any United Airline station or office.*


What specific information about the dangerous goods on board do you believe is needed by emergency responders to an aviation accident or incident?

- *Question the value of the Pilot notification form in an emergency. The captain who gets all this information will be confused by multiple product shipping names in an emergency. Pilot needs immediate info such as UN numbers, to make a decision.*

Can airbill numbers be used to track dangerous goods shipments? How?

D. Additional Comments

- Hazardous materials on passenger aircraft are of limited quantity and would not present the same level of risk that larger amounts on-board cargo aircraft would present.

Prepared by: 

UNITED AIRLINES

PILOT NOTIFICATION FOR DANGEROUS GOODS

EMPLOYEE LOADING SHIPMENT ON AIRCRAFT
COMPLETE ALL WHITE AREAS.

CARGO AIRCRAFT ONLY

CONTAINER/CART NBR.

BOARDING STATION	FLIGHT/DATE	24 HOUR EMERGENCY RESPONSE PHONE NO.

H - CODE	NBR. PKG.	TYPE PKG.	GROSS WT.	NET. QTY. PER PKG.	TTL. NET. WT.	LIQ. VOL.	FINAL DEST.	PROPER SHIPPING NAME	CLASS/DIV./ SUB. RISK.	AIRBILL NBR. BAG TAG/AIRMAIL	PIT NUMBER
H -							TSFR STA				
							TSFR STA				

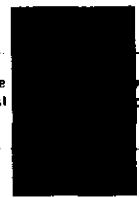
RADIOACTIVE MATERIAL

✓	PROPER SHIPPING NAME	CLASS	SUB. RISK	RADIONUCLIDE (S)		CHEMICAL FORM	PIT NUMBER
	RADIOACTIVE MATERIAL, N.O.S. (UN2982)	7					
	RADIOACTIVE MATERIAL, SPECIAL FORM, N.O.S. (UN2974)	7		ACTIVITY - AMOUNT	TBQ. GBQ. ETC.		
	RADIOACTIVE MATERIAL LOW SPECIFIC ACTIVITY N.O.S. (UN2912)	7				PHYSICAL STATE	
	RADIOACTIVE MATERIAL, FISSILE, N.O.S. (UN2918)	7				NUMBER PKGS.	CARGO A/C
		7				TYPE PKG. (CTN, CASK, ETC.)	*R.D.T.
		7		✓ CLASS LABEL	H-CODE		CL
		7		RADIOACTIVE WHITE I	H-4		YES
		7		RADIOACTIVE YELLOW II	H-5		
		7		RADIOACTIVE YELLOW III	H-6		
	HEIGHT OF TALLEST PACKAGE IN SHIPMENT	INCHES				T.I. PER PKG.	AIRBILL NBR.

PREPARED BY:	STATION	DATE:	TIME:

CONTAINER LOADED BY:	By signature, I certify that all outside packages have been inspected by me and their integrity has not been compromised; that is, there are no holes or visible evidence of leakage at time of loading into container. Also, on radioactive shipments there is no evidence of any seals being broken.	CAPTAIN PLEASE NOTE: Pit location must be enroute, manifest for through shipments must new Captain.
AIRCRAFT LOADED BY:	Verify that flight date and pit location information is correct and by signature, I certify that all outside packages (non-containerized) have been inspected by me and their integrity has not been compromised; that is, there are no holes or visible evidence of leakage. Also, on radioactive shipments there is no evidence of any seals being broken.	* R.D.T. MEANS RESEARCH, MEDICAL DIAGNOSIS AND TREATMENT. SEE REVERSE SIDE FOR ADDITIONAL INFORMATION.

TSFR STATION



UNITED AIRLINES

PILOT NOTIFICATION FOR DANGEROUS GOODS

UNITED AIRLINES

EMPLOYEE LOADING SHIPMENT ON AIRCRAFT
COMPLETE ALL WHITE AREAS.

DISTRIBUTION: Copy 1 - To Flight Captain
Copy 2 - Station File Copy (00)
Copy 3 - With Shipment

CONTAINER/CART NBR.

BOARDING STATION	FLIGHT/DATE	24 HOUR EMERGENCY RESPONSE PHONE NO.

H - CODE	NBR. PKG.	TYPE PKG.	GROSS WT.	NET. QTY. PER PKG.	TTL. NET. WT.	LIQ. VOL.	FINAL DEST.	PROPER SHIPPING NAME	CLASS/DIV./ SUB. RISK.	AIRBILL NBR. BAG TAG/AIRMAIL	PIT NUMBER
H -							TSFR STA		PACKING GROUP NBR.	PS	
							TSFR STA		CLASS I COMPAT- IBILITY GROUP.		

RADIOACTIVE MATERIAL

✓	PROPER SHIPPING NAME	CLASS	SUB. RISK	RADIONUCLIDE (S)	CHEMICAL FORM	PIT NUMBER
	RADIOACTIVE MATERIAL, N.O.S. (UN2982)	7				
	RADIOACTIVE MATERIAL, SPECIAL FORM, N.O.S. (UN2974)	7		ACTIVITY - AMOUNT	TBQ. GBQ. ETC.	
	RADIOACTIVE MATERIAL LOW SPECIFIC ACTIVITY N.O.S. (UN2912)	7			PHYSICAL STATE	PSGR A/C
	RADIOACTIVE MATERIAL, FISSILE, N.O.S. (UN2918)	7			NUMBER PKGS.	'R.D.T. PS YES
		7		✓ CLASS LABEL	H-CODE	FINAL DEST.
		7		RADIOACTIVE WHITE I	H-4	
		7		RADIOACTIVE YELLOW II	H-5	
		7		RADIOACTIVE YELLOW III	H-6	
	HEIGHT OF TALLEST PACKAGE IN SHIPMENT	INCHES			T.I. PER PKG.	AIRBILL NBR.

PREPARED BY:	STATION	DATE:	TIME:

CONTAINER LOADED BY:	By signature, I certify that all outside packages have been inspected by me and their integrity has not been compromised; that is, there are no holes or visible evidence of leakage at time of loading into container. Also, on radioactive shipments there is no evidence of any seals being broken.	CAPTAIN PLEASE NOTE: Pit location must be indicated enroute, manifest for through shipments must be left on new Captain.

AIRCRAFT LOADED BY:	Verify that flight date and pit location information is correct and by signature, I certify that all outside packages (non-containerized) have been inspected by me and their integrity has not been compromised; that is, there are no holes or visible evidence of leakage. Also, on radioactive shipments there is no evidence of any seals being broken.	* R.D.T. MEANS RESEARCH, MEDICAL DIAGNOSIS AND TREATMENT. SEE REVERSE SIDE FOR ADDITIONAL INFORMATION.

National Transportation Safety Board
Washington, D.C. 20594

Shipping Documentation for Hazardous Materials

A. Person Interviewed

Name: Samuel S. Elkind
Position: Air Dangerous Goods Manager
Carrier: United Parcel Service
Address: 1400 North Hurstbourne Parkway
Louisville, KY 40223
Date: 9-15-97
Phone/Fax: [REDACTED]

B. Carrier Operation

Type of carrier: Cargo only Passenger only Passenger and cargo
 Domestic International

Size of fleet: Cargo only aircraft 200+ Passenger aircraft 5

(In reference to "passenger" aircraft: UPS aircraft are not used for cargo when carrying passengers.)

Major routes:

Hub locations: Domestic: Louisville, KY

Volume of general freight shipped per day, month, or year: 1.6 million pieces

Volume of dangerous goods shipped per day, month, or year: < .1% total volume or approximately 1,000 pieces

Corporate restrictions on dangerous goods accepted for shipment:

- All dangerous goods cargo are restricted to passenger aircraft quantities.
- Explosive 1.4s Division - only explosive category permitted
- 4.2 Spontaneous Combustible - not accepted.
- 4.3 Dangerous When Wet Powders - requires DOT exemption packaging
- All infectious substance - not accepted.
- Toxic materials - if accepted, must be in DOT exemption packaging
- Radioactive - limited to Radioactive White - I only, must be for medical use.

C. Dangerous Goods Shipping Documentation

Description of the shipping documents carried on board the aircraft.

Dedicated "Notification of Pilot-in-Command" form (49 CFR 175.33; *ICAO Technical Instructions 5.4.1.4*): (All the following items were indicated on the form)

- | | | | |
|--------------------------|---------------------------------|--------------------------|---------------------------------|
| <input type="checkbox"/> | <u>Shipping name</u> | <input type="checkbox"/> | <u>UN identification number</u> |
| <input type="checkbox"/> | <u>Hazard class or division</u> | <input type="checkbox"/> | <u>Packing group</u> |
| <input type="checkbox"/> | <u>Cargo only listing</u> | <input type="checkbox"/> | <u>Destination</u> |
| | | <input type="checkbox"/> | <u>Net quantity per package</u> |
| | | | <u>Location on aircraft.</u> |

- *UPS does not usually employ air waybills for its domestic U.S. service. Instead, most packages travel on a tracking label and address label.*
- *Individual shipper declarations (See UPS-1) are placed in a pouch/placard and the primary hazard class or division for each dangerous goods package is listed on the accompanying pouch placard. (See UPS-2 &3.)*
- *A Dangerous Goods Separation Pouch with the hazard classification list is prepared for each ULD.*
- *All of the individual pouches for each of the dangerous goods ULD's are assembled and placed inside an outer envelope which comprises the Pilot Notification form for the specific flight.*

Description of company procedures and methods to provide information to emergency responders about the dangerous goods on board an aircraft if the shipping documents on board the aircraft are destroyed or cannot be retrieved.

- *When a local UPS station is notified of a dangerous goods/aircraft accident, the UPS station notifies the departure Hub to obtain the shipper's declarations which are then send by fax to the appropriate requester.*

What specific information about the dangerous goods on board do you believe is needed by emergency responders to an aviation accident or incident?

- *The MSDS's are constantly a source of confusion in the transportation environment and do not lend themselves to providing useful information.*
- *Could the NOTOC requirements be simpler and still be effective?*

Can airbill numbers be used to track dangerous goods shipments? How?

- *Regarding the link between a tracking number and the contents of a hazardous materials shipment, UPS does not have such a link at this time. One of the obstacles to such a link is the size of the data required to be presented on a NOTOC. The most variable field is the technical name, required for certain proper shipping names (49 CFR 172.203(k)), which has no set size limit. From the point of view of computerized data management, this sort of free field poses a profound challenge.*

D. Additional Comments

(See Attached Letter, 8/22/97 from S. Elkind to J. Beckius.

Prepared by: _____

A. H. Stenzel

UPS Parcel Service

August 22, 1997

Mr. John Beckius
Federal Aviation Administration
5420 W. Southern Ave. - Suite 203
Indianapolis, IN 46241

Dear Mr. Beckius:

In response to your request for sample forms used by UPS Airlines for the "notification of pilot-in-command" (NOTOC), I enclose the documents utilized for our domestic Air Dangerous Goods small package service.

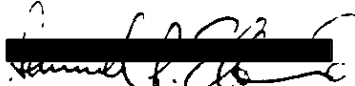
As I mentioned in our conversation, these forms are highly functional. The shipping paper executed by the shipper consists of multiple plies and affixes directly to each dangerous goods package. At each sortation point, the top layer is removed and used either for the vehicle driver or the NOTOC, depending on the method of onward transportation. This use of the multi-part shipping paper draws on a long-standing UPS practice from the ground system.

Key to the aircraft NOTOC procedures is the specialized "pouch/placard" form. The loader assembling our NOTOC takes a copy of each shipping paper from each dangerous goods package loaded into a position (aircraft ULD or belly compartment), and inserts it into a pouch/placard. The primary class or division for each dangerous goods package loaded into the container is written on the pouch/placard, which consists of a two-parts. The top part of the form serves as a ULD placard, while the lower portion, which is a carbonless duplicate of the placard, holds the shipping papers for the dangerous goods.

During aircraft loading, pouches from each position that holds dangerous goods are separated from the placard portions. The placard is replaced in the appropriate container window. The loading positions are confirmed on the pouches and they are gathered into an air dangerous goods envelope, representing a specific flight. This envelope, with its assembled forms, constitutes our NOTOC.

I hope this review adequately explains our procedures. If you have any further questions, please feel free to contact me at [REDACTED]

Sincerely,


[REDACTED]
Samuel S. Elkind
Air Dangerous Goods

Enclosures

RECEIVED

AUG 26 1997

IND CASFU

IR
US GOODS
LOPE

MS3

MAGED OR LEAKING PACKA
VE BEEN LOADED ON THIS A

LIFT ONE COPY
OF FORM AND
DETACH HERE

ups United Parcel Service

SHIPPING PAPER
FOR AIR SERVICES

UPS SHIPPER NUMBER

EMERGENCY CONTACT NUMBER

Prope

(Abbreviations not permitted)

MS-1

INSTRUCTIONS

SHIPPER

Use ball point pen and press firmly when preparing this form

IN LOADING

Remove one copy of form and insert in Hazardous Materials envelope or Dangerous Goods Pockets as provided

IN TRANSIT

Driver must have Hazardous Materials envelope in vehicle cab during transit. PIC must carry Dangerous Goods Pouch (NOTOC) on board aircraft

Hazard Class or Division (Abbreviations not permitted)

Identification Number

Packing Group

Mass or Capacity

Type Label(s) and Required Information (Abbreviations not permitted)

RECEIVER'S NAME

CITY & STATE

SHIPPER'S CERTIFICATION FOR HAZARDOUS MATERIALS

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. If this shipment contains radioactive material acceptable for passenger aircraft, such material is intended for use in, or incident to, research, medical diagnosis or treatment. This shipment is within the limitations prescribed for PASSENGER AIRCRAFT / CARLO AIRCRAFT ONLY (delete nonapplicable)

FOR CARRIER
USE ONLY

DATE

SLIC

DATE

SHIPPER'S

SIGNATURE X

HAZARDOUS MATERIALS

02111401
3 95 W



DANGEROUS GOODS

AIR CONTAINER POUCH

ORIGIN-DESTINATION STAMP

CHECKED BY _____ DATE _____

DATE	ORIGIN HUB & ACT	DEST HUB & ACT	SEQ
SCALE WEIGHT	FLIGHT DATE	TOTAL PACKAGES BAGGED & UNBAGGED	
CONTAINER NO	SEAL NUMBERS	% FULL	POSITION

ORIGIN-DESTINATION STAMP

CHECKED BY _____ DATE _____

TOTAL DRY ICE: _____ Lbs

LOADED:

SORT DATE


/ /

- NEXT DAY AIR
- 2nd DAY AIR
- 3 DAY SELECT
- INTERNATIONAL

THERE IS NO EVIDENCE THAT ANY DAMAGE OR LEAKING PACKAGES CONTAINING DANGEROUS GOODS HAVE BEEN LOADED ON/IN THIS ULD.

CONTAINS DANGEROUS GOODS

PRINT THE CLASS AND DIVISION OF ALL DANGEROUS GOODS LOADED INTO THIS CONTAINER

		 UPS-2	

**TOTAL DANGEROUS
GOODS PACKAGES**

Check here
if this ULD contains
any shipments within
"Cargo Aircraft Only"
quantities.



UPS-2

CONTAINER / PALLET

ID CODE

AIRLINE

DESTINATION

NET WEIGHT (Kg)

TARE WEIGHT (Kg)

TOTAL (Kg)

LOADED AT

FLIGHT

POSITION ON A/C

TRANSFER AT

FLIGHT

POSITION ON A/C

CONTENTS

REMARKS: