NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594

June 26,2000

Group Chairman's Factual Report - ADDENDUM

AIR TRAFFIC CONTROL GROUP

DCA00MA006

A. ACCIDENT

Operator:	EgyptAir, Flight 990 (MSR990)
Location:	60 nm Southeast of Nantucket Island, Mass. (N40.20, W69.45)
Date:	October 31, 1999
Time:	About 0648 Coordinated Universal Time[1] (UTC)
Airplane:	Boeing 767-366ER, SU-GAP

B. AIR TRAFFIC CONTROL GROUP

Chairman: William English, National Transportation Safety Board

C. ADDENDUM TO THE INVESTIGATION

SECTION D, SUBSECTION 2.0

New York Air Route Traffic Control Center (ZNY) was staffed and operated in a midnight shift configuration. In this configuration Area F is staffed by four fully rated controllers. One controller assumes the Controller-in-Charge responsibilities. A first line supervisor assumes responsibility for the entire control room. Sectors and positions are combined. On the night of the accident, sectors 65 and 86 were combined, and one controller was responsible for the Radar, Radar Associate, and Assistant positions of both sectors.

Air Route Traffic Control Center (ARTCC) displays present radar information to controllers using a feature known as "mosaicing". ARTCC's cover large geographic areas that can not be covered by a single radar site. Many Air Route Surveillance Radars (ARSR), and terminal digital radars such as ASR-9, are fed into the ARTCC's Host computer to create a usable display. The ARTCC's area is divided into a grid of 16 nautical mile squares called sort boxes. Each sort box is programmed to use information from the most appropriate radar site for that geographical area. Controller displays

[1] All times are Coordinated Universal Time (UTC) based on a 24-hour clock, unless otherwise noted.

(DSR), and FAA NTAP data extractions, will only indicate targets assigned to the individual sort boxes. Both beacon (transponder) and search (primary) sources are selectable. Backup sites are also adapted in the event of failure or maintenance release.

The anomalous propagation mentioned in the Airplane Performance Study was not visible to the ZNY controller in the sort boxes surrounding MSR990 (See attachment A-I). The accident site is contained within ZNY sort box number 3235. Preferred radar site for both beacon and search in that sort box is the North Truro ARSR-4 (QEA or NOR). The nearest sort box adapted to display Riverhead ARSR-4 (QVH or RIV) is number 3232. The southeast corner of sort box 3232 is at approximately N40° 20′/ W070° 18′, which is 40 miles west of the accident site and 12 miles north of MSR990's flight path. The Boston ARTCC (ZBW) sort box grid is not coincident with the ZNY grid. In addition, the preferred and backup sites are adapted differently. The ZBW sort boxes surrounding MSR990's flight path are programmed to use targets from Riverhead ARSR. NTAP extractions obtained from ZBW include the anomalous propagation.

William English
ATC Group Chairman

Attachment?. ZNY Sort **Box** diagram.

Sort box 3298			Sort box 3299			Sort box 3300		
	Beacon	Search		Beacon	Search		Beacon	Search
Pref.	QEA	QEA	Pref.	QEA	QEA	Pref.	QEA	QEA
Supp	QVH	QVH	Supp	QVH	QVH	Supp	QVH	QVH
3rd	QHA	QHA	3rd	QHA	QHA	3rd	QHA	QHA
Sort box 3234			Sort box 3235			Sort box 3236		
	Beacon	Search		Beacon	Search		Beacon	Search
Pref.	QEA	QEA	Pref.	QEA	QEA	Pref.	QEA	QEA
Supp	QVH	QVH	Supp	QVH	QVH	Supp	QVH	QVH
3rd	QHA	QHA	3rd	QHA	QHA	3rd	QHA	QHA
			° Approx accident site					
Sorthox 3170			Sort box 3171			Sorthox 3172		
	Beacon	Search		Beacon	Search		Beacon	Search
Pref.	QEA	QEA	Pref.	QEA	QEA	Pref.	QEA	QEA
Supp	QVH	QVH	Supp	QVH	QVH	Supp	QVH	QVH
3rd	QHA	QHA	3rd	QHA	QHA	3rd	QHA	QHA

Not to scale. All Sort Boxes are 16nm Square
QEA =North Truro
QVH = Riverhead
QHA = Hartford/Cummington