

Dry Ice Carried on board a Quest Diagnostics Beech Baron Model 58 Aircraft.

During Quest's interview with the FAA HazMat New Jersey Security Field Office Inspectors they stated:

"Although Quest Diagnostics does not have any specific policy for the maximum amount of dry ice that can be loaded on one of their Beechcraft Barron aircraft... approximately 14-21 packs will contain 5 pounds of dry ice max, concluding that one of these flights will never contain more than 105 pounds of dry ice". The 105 pounds came directly from Quest.

As per the Pilot's Operating Handbook (POH), the aircraft cabin volume is 59 cubic feet. Hawker Beech Engineering has provided this office with an updated cabin volume of 146 cubic feet with only the two pilot seats installed. This number does not include the instrument panel, instruments, center pedestal structure, engine control mechanisms, additional cabin furnishings, cargo or crew. The accident aircraft contained two crew, their flight bags, a portable oxygen bottle and ten specimen packages measuring 12" x 17" x 20". This obviously decreases cabin volume to well below 146 cubic feet.

DOT/FAA/AM-06/19 Office of Aerospace Medicine (Reference Material used for this)

Utilizing the formula contained in the above referenced document we may assume a 2% sublimation rate; an allowable CO² concentration of 0.5%; a cabin volume of 146 cubic feet (although we know it to be less); and one cabin air change per hour. This yields an allowable load of dry ice of 4.15 pounds. With all variables being equal, each additional complete air change will allow an additional 4.15 pounds to be carried. We know that the accident aircraft was carrying approximately 50 pounds of dry ice (10 specimen packages x 5 pounds of dry ice per bag). Extrapolation tells us that a minimum of 12 complete air changes per hour would be required to maintain the safe limit of 0.5% concentration of CO². Hawker Beech Engineering does not publish and cannot provide any data relative to the number of air changes the BE-58 undergoes per hour. The assumption of 15 air changes proffered by Quest is a convenient number to support the amount of dry ice aboard the accident aircraft; however it has no basis in verifiable fact.

X = Dry Ice Weight in pounds

$$X = \frac{(\text{CO}^2 \text{ concentration}) (\text{Aircraft Volume}) (\text{Complete air changes per hour})}{(\text{Sublimation Rate})}$$

$$X = \frac{(0.005) (146) (1)}{(0.176)}$$

X = 4.15 Pounds/Complete air change per hour

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Security and Hazardous Materials

SPECIAL AGENT STATEMENT

I, Ryan Pohlke, am a Special Agent of the Federal Aviation Administration (FAA) authorized in accordance with 49 U.S.C. Section 40113 to perform investigations, inspections and other duties imposed by law and regulations.

On September 23, 24 & 25, 2009, FAA hazardous materials (hazmat) Special Agents Ryan Pohlke and Hank Cenknier of the New Jersey Security Field Office, accompanying FAA Flight Standards Inspectors Charles Emering and Thomas Mancuso, responded to Atlantic Aviation at Teterboro Airport (TEB). The purpose of this response was to perform routine inspections of all Quest Diagnostics inbound and outbound flights to determine compliance with Title 14 and 49 CFR. Hazmat inspections were simultaneously conducted with all airworthiness inspections.

On 9/23 & 24/2009, between the hours of 2000 and 0400, six Quest Diagnostic flights were inspected, three inbound and three outbound. During these inspections it was determined that none of these flights actually transported regulated hazmat. On four of the six flights, only 2-3 green Quest Diagnostics ventilated insulated packs were observed to contain exempt human specimens packaged with dry ice. However, exempt human specimens are not regulated under the HRM and the dry ice quantity and markings satisfied the Title 49 CFR 173.217(c)(5) exception. Specifically, one side of the ventilated insulated pack is marked with "Exempt Human Specimens" and the visible attached paperwork states "Frozen: 5LBS Dry Ice MAX." It was also observed that these shipments were marked with orientation arrows on two opposite vertical sides.

On 9/24/2009, at approximately 1215 hours, I spoke with Quest Diagnostics Safety and Regulatory Compliance Officer, Nick Pagerly (610-376-6333), located at their Headquarters in Reading, PA. According to Mr. Pagerly, Quest Diagnostics will rarely transport a regulated hazmat onboard their aircraft and primarily transports exempt human specimens packaged with less than 5lbs. of dry ice within their green ventilated insulated packs. Most of their regulated hazmat shipments are shipped commercially via UPS or FEDEX. No NOTOC copies were available because they haven't transported a regulated hazmat in the last 90-days. However, Mr. Pagerly was made aware of the shipping paper and notification requirements within Title 49 CFR 175.33. Also, Mr. Pagerly stated that although Quest Diagnostics does not have any specific policy for the maximum amount of dry ice that can be loaded on one of their Beechcraft aircrafts, on average, only about 40 - 60 percent of the total cargo load will actually contain dry ice. With his calculations, an aircraft like their Raytheon Beechcraft will hold approximately 35 full packs maximum. Therefore, only approximately 14 - 21 packs will contain 5lbs. of dry ice MAX, concluding that one of these flights will never contain more than 105lbs. of dry ice. Mr. Pagerly stated that this scenario would happen very infrequently and is a worst case scenario.

Interviewed/Reviewed On 9/23 & 24/2009 At _____
By Special Agent Ryan Pohlke File No. N/A