IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

SOPHIA HELENA IN 'T VELD,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Civil Action No. 08-1151 (RMC)
	)	
DEPARTMENT OF HOMELAND	)	
SECURITY, *et al*.,	)	
	)	
Defendants.	)	
	)	

<u>DECLARATION OF EDWARD HASBROUCK</u>

I, Edward Hasbrouck, hereby declare as follows:

1. I am a travel expert, author, journalist, consumer advocate, and consultant, specializing in issues related to air travel and travel reservations technology. I am the author of "The Practical Nomad: How To Travel Around The World" (4th edition, 2007) and "The Practical Nomad Guide to the Online Travel Marketplace" (2001), both of which include consumer advice and information on the contents of travel reservation records and the privacy issues posed by this data. I have conducted extensive research on the contents of Passenger Name Records (PNR's) and other travel records. My reporting on this issue on my Web site won a Lowell Thomas Travel Journalism Award for investigative reporting in 2003, and my article, "What's in a PNR?" <http://hasbrouck.org/articles/PNR.html> is the most frequently cited reference for a general audience on PNR data.

2. From 1991 to 2006, I was employed as a travel agent, supervisor, trainer, and in-house consultant by a series of travel agencies specializing in complex around-the-world and multi-stop international airline tickets. From 1998 to 2006, I was the staff "Travel Guru" for Airtreks.com, an Internet-based travel agency in San Francisco with a worldwide clientele.

3. At different times during the course of my employment, I have used three of the four major global Computerized Reservation Systems (CRS's) on a daily basis to create, retrieve, modify, and work with air travel PNR's.

4. I have been trained in CRS usage and formats, CRS system administration, interpreting PNR's and PNR histories, and other advanced CRS topics. I have trained and supervised the training of other travel agents in CRS usage, PNR formats, and the interpretation of PNR and history data. At Airtreks.com, I was in charge of agency relations with CRS's, including CRS operations in a multi-CRS environment, negotiating new and renewal CRS contracts, and planning and coordinating agency conversions between CRS's.

5. As "key operator" or "superuser," I was responsible for creating and managing user logins, passwords, and permissions. I also worked as an in-house consultant and subject-matter expert on projects with in-house and third-party software developers and system integrators related to Airtreks' use of airfare data from multiple CRS's and other sources.

6. Each of the travel agencies for which I have worked has utilized a global sourcing strategy dependent on obtaining portions of customers' tickets from whichever vendor (ticket wholesaler), wherever in the world they might be, offered the lowest price. As a result, my day-to-day work exposed me to, and required me to be familiar with, the PNR data entry practices of an unusually wide range of airlines and travel agencies around the world. As part of my work, I visited and negotiated both prices and operational agreements, including methods for exchanging and transferring PNR and reservation data, with air ticket vendors in other countries, both in their offices where I could observe their procedures first hand, and at meetings of international consortia and networking groups of discount ticket exporters and importers.

7. I consider myself an expert in industry (airline, travel agency, and CRS) practices for the entry and international transmission, exchange, and sharing of PNR data, and in the norms and global variation in practices for PNR data entry and handling. I have testified on issues related to PNR data before the Transportation Security Administration and the Data Privacy Advisory Committee of the Department of Homeland Security. I have also travelled to Brussels to present testimony on these issues to meetings of the Article 29 Working Party of European Union national data protection authorities and the Committee on Civil Liberties, Justice, and Home Affairs (LIBE) of the European Parliament.

8. I have reviewed a 58-page document ("the Document") containing redacted versions of records provided by the Department of Homeland Security in response to a request on behalf of Ms. Sophie in 't Veld, including excerpts from PNR's related to some of her flights. I have also reviewed a 40-page "Declaration of Vania T. Lockett" ("the Declaration") related to this request.

9. In general, my expert professional opinion is that the Document and Declaration are insufficient to establish that a competent, diligent, or good faith search was conducted. On the contrary, they provide substantial evidence that the search for responsive records was conducted by a person or persons unfamiliar with the types of PNR and other travel data contained in these records, or the likely variations in PNR data entry formats and transformations of names, numbers, and other information,

10. A database of PNR's is not a simple list of numbers, such that it can be sorted into numerical order and searched with unambiguous results As the person to whom such customer service problems were referred by the agencies at which I worked, I know from experience that it is routine for a traveller or travel agent to be told that an airline has no

record of a reservation (a "NOREC"), only to find, when they are prompted to conduct their

search differently, that in fact they do have such a reservation.

11. My experience with PNR's -- in which my job responsibilities included evaluating

airline and travel agency claims to have conducted a search without finding any responsive

record -- confirms the general principle that to evaluate whether an adequate search of a

computerized database has been performed, one must know:

> (1) what input was provided (typically either through a line command or
> commands, or the completion of a query form or forms in a graphical user
> interface);
>
> (2) using what methodology for identifying responsive records (typically query
> software implementing a particular algorithm, such as exact matching, Boolean
> matching, regular expression matching, Bayesian scoring, or "fuzzy" matching
> of phonetically or otherwise similar data); and
>
> (3) against what target database (typically either the full text of the target
> database, a subset of selected fields or data categories, or an index or indexes
> constructed in a particular manner, either manually or automatically, form
> either full text of certain fields).

12. None of this information is provided in the Document or the Declaration. Without

this essential information as to what is actually meant by the simplistic and conclusionary

term "search," the Document and Declaration are insufficient to establish that whatever was

done constituted a diligent or competent search. Moreover, anyone experienced and

competent in retrieving PNR's and other travel records would be aware of these issues, and

would identify the exact query, the algorithm, and the data or subset or index against which

the query was run. The absence of this information thus causes me to have substantial doubt

as to the competence, diligence, and/or good faith of those who conducted the "search" and

prepared the Document and Declaration.

13.   Pages 1 and 28 of the disclosed Document appear to consist of completed forms used as the input to some sort of graphical query-based retrieval system for TECS data. Only the fields for departure years 2001 through 2008, and the field for a passport number, are completed. Entirely different passport numbers were used in the queries shown on page 1 and page 29. It is impossible to tell, either from this Document or the Declaration, how these two passport numbers were obtained. I presume that they were the result of an initial search of some other records system or index, using some other query tool, based on some elements of the personal information provided in Ms. in 't Veld's request (which I was able to review, since it was included as an exhibit attached to the Declaration, and which did not appear to include any passport numbers). On its face, the disclosure Document appears to be incomplete in failing to show what query was made, against what database, to yield these passport numbers.

14.   Although there are labels on pages 1 and 28 for what appear to be query input fields for "LAST NAME, "FIRST NAME", "LIKE LAST NAME (DEFAULTS TO EXACT"), and "LIKE LAST NAME (DEFAULTS TO EXACT)", none of these fields are completed on either page 1 or 28. It appears that the queries documented on these pages were solely by passport number, and limited to the years 2001 through 2008. If any query by name was made, neither that query nor any response to it is included in the documents. But the Declaration states on p. 4 that "CBP searched TECS (including APIS and NIIS) using the Plaintiff's name and passport number." In this claim, the Declaration appears to be inconsistent with the Document, which shows two searches by different passport numbers (obtained in an undisclosed manner), and no search by any name. If the name search mentioned in the Declaration was in fact performed, both the query and any results are

missing from the disclosed Documents, without explanation or any claimed basis for the withholding.

15. From my experience, I know that similar name searches and searches on multiple name versions are essential to finding all responsive PNR data for a particular person. Searches requiring an exact match of a unique identifier, such as a passport number or PNR record locator, routinely fail because of the frequency of errors in data like passport numbers as entered in PNR's or airline departure control systems, and transmitted from them to DHS as part of APIS data. This is apparent from the ADIS data on pages 29 through 57 of the Document, which shows two different passport numbers for Ms. in 't Veld. These are not the same as the two passport numbers used for the TECS queries on pages 1 and 28. One is the same as the number used for the query on page 1, and the other is obviously erroneous, the result of a single character error in data entry.

16. Many other single character insertions, omissions, or transpositions could easily occur. There is no evidence that the search algorithm implemented and used by the DHS in responding to this or any other request actually searches for the results of such simple data entry errors, much less more complex ones. In a travel agency business context, I would not consider that someone under my supervision had conducted a diligent search for PNR's if they had only searched for an exact match for a unique identifier. It is particularly suggestive of a lack of competence, diligence, and/or good faith that, although the query form on pages 1 and 28 of the document clearly shows the existence of some sort of fuzzy or similar name matching facility, it appears not to have been used to search for records potentially responsive to Ms. in 't Veld's request.

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17. CRS's were developed in the United States, in mainframe databases that represented text in EBCDIC. As a result, they typically use a very limited character set. The ATA/IATA "Reservations Interline Message Procedures - Passenger" (AIRIMP) protocol for messaging between airlines, travel agencies, and CRS's requires passenger names to be represented solely in the 26 upper- case letters of the English alphabet. No diacritals (accent marks or accented letters) or punctuation can be included in AIRIMP messages. As a result, none are typically permitted in names entered in PNR's. And no spaces are permitted within a surname in an AIRIMP message.

18. As a result, Ms. in 't Veld's surname -- which includes two spaces and an apostrophe -- cannot be completely or unambiguously entered into a PNR. I know from experience that failure to retrieve a reservation for a person with such a name often results from differences in how the name is represented in a PNR. Among the likely ways that her name might be entered, particularly by airline or travel agency staff in the United States, unfamiliar with the Dutch language and Dutch names, would be:

> INTVELD/SOPHIA
> TVELD/SOPHIA IN
> VELD/SOPHIA INT
> VELD/SOPHIA IN T

19. In a travel agency, I would expect a competent agent, attempting to retrieve all PNR's related to Ms. in 't Veld, to search for names similar to any of these permutations, using the default of all major CRS's to search by similar, not exact, name. But according to pages 4 and 5 of the Declaration, searches were made using "name" (singular). And the query form on pages 1 and 28 shows that the search system -- even if a name search were performed, of which there is no evidence -- defaults to an exact rather than a "like" or similar name search. The failure to document a search for names similar to multiple likely

permutations causes me to doubt the competence, diligence, and/or good faith of the search, as well as whether other responsive records might exist that were not found.

20. In order to evaluate the adequacy of any search by name, it would be essential to know that the "LIKE NAME" functionality had been used, *and* to know what algorithm it uses. That algorithm is also directly relevant to TSA's recent rulemaking for "Secure Flight," since the TSA has based its justification for its Secure Flight proposal in part on its critique of the "similar name" matching algorithms implemented by CRS's and used by the airlines they host for "watchlist" matching as well as PNR queries. If the TSA does, in fact, have a superior fuzzy name matching algorithm available for use in Secure Flight, it seems indicative of a lack of diligence that DHS wouldn't use it when attempting to identify records responsive to FOIA requests.

21. Page 2 of the Document appears to show the response to the query on page 1. This lists 5 arrival-departure pairs, the details of the TECS records for which are showing on pages 3-19 -- except for pages 10-11, which show TECS detail records for an additional arrival-departure pair on 4/27/08 and 5/2/08 inexplicably absent from page 2. There is no clue in the Document or Declaration as to how pages 10-11 were identified or retrieved or why the arrival and departure to which they pertain was not listed on page 2. This calls into question the efficacy of the algorithm and/or the completeness of the data set that produced the query results on page 2, since they did not identify the records on pages 10-11. This creates doubt in my mind as to how many other pages like pages 10-11, also not shown on page 2, might exist. More information about the search would be needed to resolve this discrepancy.

22. Pages 20-26 of the Document contain redacted excerpts from PNR's related to the itineraries that included the arrivals and departures indexed on page 2, as well as those on

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pages 10-11. I am unable to find any indication in the Documents or the Declaration as to how these PNR excerpts were indexed, searched for, or retrieved. Especially in light of the incompleteness of the index on page 2, this leaves me in doubt as to whether additional responsive PNR data may exist but not have been retrieved.

23.   Each of these PNR's is incomplete, and contains unambiguous internal evidence of its incompleteness. In each case, what is displayed is the so- called "face" of the PNR, and the "history" or audit trail. The history is a change log but not an access log. It shows who made each change to the PNR, when, and from what terminal or airline office or agency address, but does not record who retrieved or viewed the PNR if they made no changes.

24.   The face of a PNR typically includes flags to the existence of additional data which can be displayed with additional commands. For example, the Sabre PNR on page 20 for American Airlines flights 171 and 172[*] includes the line, "VCR COUPON DATA EXISTS *VI TO DISPLAY". This indicates that a "Virtual Coupon Record" for an electronic ticket exists as part of this PNR. If you had the face of this PNR displayed in a Sabre command-line terminal or terminal emulator, the command "*VI" would retrieve and display the VCR data, such as the fare basis and ticket designator (which might indicate a discount available to members of a particular organization or persons attending a particular convention). Similarly, the following line, "TICKETING DATA EXISTS - *T TO DISPLAY" indicates the existence in the PNR, but not on its face, of additional information about the issuance of the tickets, such as the details of a credit card used as payment, the cardholder, their address, etc. There are similar references to the existence of electronic ticket and other records in the remainder of the PNR excerpts included in the document.

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[*] Sabre was originally developed by American Airlines for its internal use, and still assumes a default of AA when a flight number is specified without an airline code.

25. For the foregoing reasons, based upon my expertise and review of the Document and Declaration, I do not believe that the individuals who conducted the search in this case used methods that could have been reasonably expected to locate all of the information responsive to Ms. in 't Veld's request.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Executed in the City and County of San Francisco, California

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Edward John Hasbrouck

12 November 2008
Date