**EBERT & ASSOCIATES**

**INC.**

3700 RIO GRANDE BLVD. N.W., SUITE 3

ALBUQUERQUE, NEW MEXICO 87107-3042

**(505) 344-2345**

**Facsimile (505) 344-2444**

***e-mail*: jebert@ebert.com**

***Website*: www.ebert.com**

**Expert Report of Dr. James I. Ebert, Certified Photogrammetrist (ASPRS)**

in the matter of Mellon v. TIGHAR

April 14, 2014

I am an anthropologist, an archaeologist, and a forensic scientist, and in each of these professional areas I make intensive use of the scientific methods and techniques of photogrammetry, photo analysis, digital imaging and image processing, and digital mapping technologies. I have more than 30 years of experience in the application of these methods and technologies in analyzing, measuring and mapping details of crime and accident scenes, archaeological and historic sites, and aspects of the interaction of the environment and cultural use of the landscape through time, using historic aerial and other photographs and image sources. I am a Certified Photogrammetrist [ASPRS] and have attached a resume and publications list detailing my education, experience, and qualifications.

Photogrammetry is defined by the American Society of Photogrammetry and Remote Sensing, our professional organization, as “the art, science and technology of obtaining reliable information about physical objects and the environment, through processes of recording, measuring, and interpreting imagery and digital representations of energy patterns derived from noncontact sensor systems.” Photo analysis is the process of identifying objects and conditions in aerial photographs and determining their nature, origin, meaning and significance.

Anthropology and archaeology are sciences that focus on the study and understanding of present and past human activities, ranging from those of ancient hominids (pre-human ancestors) and hunter-gatherers to historic and contemporary human industrial behavior, and how those activities both interact with the natural environment, and can be identified and detailed with reference to the materials people discard and the changes they cause in the landscape, and in surface and subsurface sediments and conditions.

In forensic or legal cases, I combine these scientific approaches and techniques to extract information from aerial and terrestrial photographs, other image sources such as video, and historic data such as maps and documentary evidence, to identify, measure, and map objects and details of the things and scenes depicted in such images.

I have been qualified in court testimony on 33 occasions between 1980 and the present as an expert witness in the use of photogrammetry, photo analysis, digital imaging and image processing, and digital mapping technologies as applied to forensic investigations, analyses, and reconstructions of crime, fire, and accident scenes, human land and resource use, and past and present human activities and their physical consequences through time.

In the present matter I was provided with digital data comprising:

• FullRes2010.mov: A full resolution copy of an eight-minute sequence of the 2010 ROV video

• Mellon Expert Disclosure: A folder containing the Plaintiff’s Disclosure of Experts, their CVs, and their reports and exhibits

• TIGHAR Eval 2010: TIGHAR’s response to the Plaintiff’s request for all data evidencing analysis of the underwater footage or photographs from the 2010 Niku VI expedition

Given these data, I was asked to review the video sequence and the Plaintiff’s experts’ reports and exhibits and evaluate the appropriateness of their method or methods as a basis of reaching their opinion.

My opinion is that the Plaintiff’s experts’ method is inappropriate as a basis for reaching their opinion, which is that the shapes of two underwater formations which appear in the 8-minute video segment which they, and I, viewed, are debris from Amelia Earhart’s Electra, specifically the aircraft’s tail wheel and part of the front landing gear.

The method the Plaintiff’s experts employ to reach this conclusion is to construct 3-dimensional CAD models of those aircraft parts based on dimensions taken from exemplar Electra parts. They then superimpose images of the 3D models on still frames from the video sequence by scaling the models and positioning them so they seem to “fit” over the shapes and sizes of the two features they contend are fragmentary remains of Amelia Earhart’s aircraft.

The two formations focused upon by the Plaintiff’s experts in the 8-minute video segment are identical in color and texture to the surrounding coral and/or sediments, giving no visual hint of consisting of metal and rubber. In addition, there is no way of determining scale in the video images, so they may be of virtually any size. For these reasons it is not appropriate, and even less is it conclusive in any way, to hypothesize that these are aircraft debris, rather than coral or rock formations. Photogrammetrists engaged in the identification of such ambiguous objects, features, or patterning in any imaged data insist on confirmation of their hypotheses by recourse to what is often referred to in the photogrammetric literature as “ground truth,” a term historically derived from its conception as a way of testing conclusions based on aerial photographs by inspection of the areas involved on the ground as well as onphotographs (or in this case, video images).

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*Dr. James I. Ebert*

**Rate of compensation**

$245 per hour

**Testimony by the witness within the preceding four years**

2013

**Chevron Corp. v. Donziger, et al.,** U.S. Federal Court, Case No. 11 Civ. 0691 (LAK). New York, NY. October 30, 2013.

**Dana Kruise, et al. vs Payne & Dolan, et al**., Milwaukee County Case No. 10 CV 018726. Deposition testimony, July 18, 2013, Milwaukee, Wisconsin.

2011

**El Rucio Land and Cattle Company, Inc., San Juanito Land Partnership Ltd., McAllen Trust Partnership, and James Argyle McAllen,** Plaintiffs, vs. Forest Oil Company and Daniel B. Worden, Defendants. Arbitration testimony before the honorable Daryl K. Bristow, Clayton J. Hoover, and Donato D. Ramos. November 7, 2011. Houston, Texas.

**Union Oil Consolidated Coverages Cases Truck Insurance Exchange, Plaintiff,** vs. Union Oil Company of California, Defendant and consolidated actions filed by Hartford Accident and Indemnity Company and Great American Insurance Company. Superior Court of California, county of Los Angelese, Central Civil West, No. BC 271474. Deposition testimony, April 26, 2011. Los Angeles, CA.

**El Rucio Land and Cattle Company, Inc., San Juanito Land Partnership, Ltd., McAllen Trust Partnership, and James Argyle McAllen, Plaintiffs**, vs. Forest Oil Corporation and Daniel B. Worden, Defendants. Arbitration before the Honorable Daryl K. Bristow, Clayton J. Hoover and Donato D. Ramos. Deposition testimony, March 22, 2011. Albuquerque, NM.

2009

**Union Oil Consolidated Coverages Cases Truck Insurance Exchange, Plaintiff,** vs. Union Oil Company of California, Defendant and consolidated actions filed by Hartford Accident and Indemnity Company and Great American Insurance Company. Superior Court of California, county of Los Angeles, Central Civil West, No. BC 271474. Deposition testimony, June 2-3, 2009. Los Angeles, CA.

**Matthew Mayo, an individual, Plaintiff,** v. City of Gig Harbor; Jon M. Park; and Wan Cha Park, husband and wife, d/b/a Harbor Arco AM/PM, and each of them, Defendants. Superior Court for the State of Washington, County of Pierce, No. 07-2-12908-7. Telephone Deposition testimony, March 23, 2009. Albuquerque, NM.

**Publications authored by witness within preceding ten years**

Ebert, James I.

2007 Photogrammetry, Photointerpretation, and Digital Imaging and Mapping in Environmental Forensics. In *Introduction to Environmental Forensics, 2nd Edition,* pp. 49-81, edited by Brian L. Murphy and Robert D. Morrison. Academic Press.

Hitchcock, Robert K. and James I. Ebert

2011 Where is that Job? Hunter-Gatherer Information Systems in Complex Social Environments in the Eastern Kalahari Desert.In *Information and Its Role in Hunter-Gatherer Bands*, pp. 133-166, edited by Robert Whallon, William A. Lovis and Robert K. Hitchcock. Ideas, Debates, and Perspectives 5, Cotsen Institute of Archaeology Press, Los Angeles.

Robert J. Blumenschine, Ian G. Stanistreet , Jackson K. Njau, Marion K. Bamford , Fidelis T. Masao, Rosa M. Albert, Harald Stollhofen, Peter Andrews, Kari A. Prassack, Lindsay J. McHenry, Yolanda Fernández-Jalvo, Eileen L. Camilli, James I. Ebert

2011 Environments and hominin activities across the FLK Peninsula during Zinjanthropus times (1.84 Ma), Olduvai Gorge, Tanzania. *Journal of Human Evolution (2011): doi:* 10.1016/j.jhevol.2011.10.001