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Attn: <u>DDA B. Fladager</u>	<u>200</u>	<u>209-525-5550</u>
Name	Room	Telephone

From: Special Photographic Unit
 Name of Office

Subject: People v. Mouser
Response to letter of August 23, 1999

Special Handling Instructions: None

Originator's Name: Richard W. Vorder Bruegge Telephone: 202-324-0492

Originator's Facsimile Number: 202-324-1092

Approved: _____

Brief Description of Communication Faxed: Response to letter of August 23, 1999

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FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D. C. 20535

Date: September 10, 1999

To: JAMES C. BRAZELTON
District Attorney
Office of the District Attorney
Stanislaus County Courthouse
11th and I Streets
Room 200, 2nd Floor
P.O. Box 442
Modesto, CA 95353

Case ID #: 95D-HQ-1185111-5
Lab No. 990908006 HD

Reference:

Your No.

Title: People v. Mouser

Specimens received: August 27, 1999

Specimens:

- NE1 One (1) Maxell CD-R74, Labeled "Carpet Report Data"
Serial #08A9308L12A082F
- NE2 One (1) Maxell CD-R74, Labeled "Mr. Herman"
Serial #27B9211A25B266F
- NE3 One (1) page entitled "Reference: Gena Gamble Case"
- NE4 Two (2) pages depicting photocopies of images
- NE5 Four (4) pages entitled "Response to questions
regarding People v. Douglas Mouser"
- NE6 Ten (10) page report entitled "Photogrammetric Analysis
of Film Frames Genna Gamble Case"

Enclosure (1)

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FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D. C. 20535

Report of Examination

Examiner Name: Richard W. Vorder Bruegge

Date: September 10, 1999

Unit: Special Photographic

Phone No.: (202) 324-0492

Case ID #: 95D-HQ-1185111

Lab No.: 990908006 HD

Results of Examinations:

The NE1-NE6 materials relating to the photogrammetric analysis and photographic comparisons conducted by Gary Robertson & Assoc., Inc. were reviewed. These materials do not contain sufficient information to permit an exact replication of the photogrammetric analysis, therefore a complete assessment of the accuracy of the analysis cannot be made. Nevertheless, several observations can be made regarding the comparisons and conclusions drawn from this analysis.

The primary conclusion presented by Gary Robertson & Assoc., Inc. in the NE1 through NE6 materials can be summarized by the following statement which is included on the first page of the Adobe Acrobat file named "Carpet_Results.pdf" found on the NE1 CD: "The following test verifies that the carpet area on the back of the reclining seat found in the Honda is the same that made the imprint on Gena Gamble (sic) leg." In other words, the conclusion appears to be that the carpet in the questioned vehicle is the source of the imprint to the exclusion of all other sources.

The analysis presented in the NE1 through NE6 materials provides information that supports the opinion that the marks on the victim are consistent with the carpet area in the questioned vehicle. However, several fundamental issues were noted which must be addressed prior to one being able to conclude that the marks could only have originated from the questioned carpet.

In order to positively identify or "individualize" an impression as having originated from a specific source, one must follow the "Principle of Individualization" which states:

The individualization of an impression is established by finding agreement of corresponding individual characteristics of such number and significance as to preclude the possibility (or probability) of their having occurred by mere coincidence, and establishing

that there are no differences that cannot be accounted for. (Ref. Tuthill, H., *Individualization: Principles and Procedures in Criminalistics*, Lightning Powder Co., Inc., 1994)

This principle applies to the analysis and comparison described in the NE1 through NE6 materials.

The first issue arises from the fact that multiple differences are observed between the patterns depicted in the test impression (documented in Figures 6, 8, 10, 12, 17, and 20 of "Carpet_Results.pdf") and the marks depicted on the victim's leg (areas "A" and "B"). Note that a comparison of the marks on the body with the actual piece of carpet is the fundamental issue, not the comparison with the test impression. However, since the NE1 through NE6 materials do not identify the specific features on the carpet that are supposed to correspond to the marks on the body, an assessment of that comparison cannot be done with these materials. Instead, the following assessment is based upon a comparison with the test impressions.

Marks corresponding to individual stitches and "beads" are observed along the entire length of the test impression, yet the marks on the victim do not reveal a continuous set of "beads" or stitch marks. These differences may be attributable to any number of factors such as: differential fading of the marks on the victim over time; differences in the amount of pressure applied to produce these marks; and/or differences in the physiology of the victim and the test subject. However, the NE1 through NE6 materials include no remarks concerning these differences, nor do they attempt to identify any potential causes for these differences. Since the principle of individualization requires that one account for any differences before an impression can be individualized, a positive identification in this case cannot be made until the observed differences are accounted for. The NE1 through NE6 materials do not do that.

An observation with further bearing on this inconsistency involves differences in the visibility of the three small marks in 'area "A"' between the test impression images and in the victim images. According to Figures 9 and 10 of "Carpet_Results.pdf," the lower two marks on the victim's leg correspond to well-defined oval indentations observed on the model's leg. However, several comparable indentations between and below these two indentations on the model's leg do not have corresponding marks on the victim's leg. Furthermore, no such prominent indentation appears to be present on the model's leg (Figure 8) which would correspond to the top mark on the victim's leg (Figure 7). A positive identification in

this case requires that an explanation be provided to account for these differences.

The second issue is whether one can individualize the marks on the victim as having originated from a specific location on the carpet based solely on a comparison of the measurements. This involves two related questions. First, what is the specific accuracy of each measurement reported for the marks on the victim's body, and how much uncertainty is introduced by possible stretching or shortening of the skin when under the conditions generating the marks? Second, can it be shown that the "beads" and stitches purported to have created the marks on the victim are positioned relative to one another in a manner which is not replicated elsewhere on the carpet or on another item or set of items?

A statistical analysis of the positioning of the "beads" and stitches along the entire length of the exposed carpet would permit one to begin to assess the degree to which any set of marks can be individualized to a specific set of "beads" or stitches on that piece of carpet. Such an analysis is not reported in the NE1 through NE6 materials, although the dimensions of these features are reported to be "irregular." Even if such an analysis were to be completed for this piece of carpet, additional examination of the carpet from similar vehicles would be necessary to verify an individualization based on unique positioning of features on the carpet.

Assuming such an analysis were to be conducted, a fundamental finding would be a measurement indicating how much difference there is in the positioning between any two sets of "beads" or stitches. This becomes a critical issue when trying to associate the marks on the victim with specific points on the carpet to the exclusion of all other sources, at which point uncertainties in the measurements of the marks on the victim become relevant.

Whenever measurements are taken or calculated, whether photogrammetrically or through physical inspection, there will be an uncertainty or error associated with that measurement. In addition, the positioning of the marks exhibited in the autopsy photographs might not exhibit a one-to-one correspondence to the source of the marks, since the skin might be stretched or compressed when in contact with the source of the marks, generating apparent differences which represent additional error or uncertainty. Likewise, since the carpet is not a rigid object, and may be stretched or compressed, there could be some uncertainty in the relative spacing of specific features in the carpet when in contact with another object. Finally, there may also be some uncertainty associated with variations in the shape and size of individual

wounds over time, as was noted above regarding the visibility of individual marks.

The uncertainty associated with these factors is not specifically reported in the NE1 through NE6 materials for each of the measurements calculated for the marks on the victim (Figures 5, 7, 9, and 11 of "Carpet_Results.pdf"). However, the NE6 document identified as "Photogrammetric Analysis of Film Frames Genna Gamble Case" includes the following statement regarding the measurement of the carpet and the comparison with the marks on the victim: "The onsite verification found the measurements checked out to within 1 to 3 millimeters especially in the area of the stitch and fold of the carpet." Given this statement, in order to associate a specific set of "beads" and/or stitches to the marks on the victim to the exclusion of all other possible sources, it must be shown that no other set of "beads" and stitches are positioned in a manner that is within 1 to 3 millimeters of the first set. Given the fact that the distance between adjacent stitches and "beads" on the carpet appears to be on the order of 5 millimeters, an uncertainty of 1 to 3 mm is considerable. Even if the calculated uncertainties in the measurements are much less, it still must be demonstrated that no other set of "beads" and stitches are positioned in a manner that is within that uncertainty relative to the first set. This same requirement also applies to the "angular relationship" described in the document "Carpet_Results.pdf."

It must be noted that none of the issues or inconsistencies documented herein are considered sufficient to eliminate the carpet as the source of the marks on the victim's body. As stated above, the analysis documented in the NE1 through NE6 materials does provide information that supports the opinion that the marks on the victim are consistent with the carpet area in the questioned vehicle. The fundamental issue remains whether the carpet can be identified as the source of the marks on the victim to the exclusion of all other sources. The NE1 through NE6 materials do not provide sufficient information to justify such a conclusion.