

# FBI Laboratory

2501 Investigation Parkway  
Quantico, Virginia 22135

## REPORT OF EXAMINATION

To: Milwaukee  
Squad 6/GBRA  
SA Gerald E. Mullen

Date: February 26, 2007

Case ID No.: 62D-MW-44363 - 61

Lab No.: 070201013 PM GH

Reference: Communication dated January 30, 2007

Your No.:

Title: STEVEN AVERY;  
TERESA HALBACH-VICTIM (DECEASED)  
DOMESTIC COOPERATION-HOMICIDE

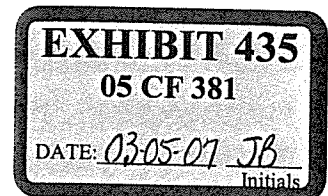
Date specimens received: February 1, 2007 and February 6, 2007

The following items were examined in the Chemistry Unit:

- Q46 Swab (Item 9569)
- Q47 Swab (Item 9574)
- Q48 Swab (Item 9572)
- Q49 Liquid blood sample from STEVEN AVERY (Item 9803)
- K2 Two control swabs (Item 9802)
- K3 Two control swabs (Item 9801)
- K4 Two control swabs (Item 9800)

This report contains the results of the chemistry examinations.

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**Results of Examinations:**

Specimens Q46-Q49 and K2-K4 were analyzed for the presence of ethylenediamine-tetraacetic acid (EDTA).

Specimen Q49 was listed as a liquid blood sample from STEVEN AVERY in a 10 milliliter (mL) lavender-top blood tube. It contained approximately 5.5 mL of blood. EDTA was identified in specimen Q49.

Specimens Q46-Q48 were reported to be collection swabs of blood stains from the crime scene associated with the death of TERESA HALBACH. Specimens K2-K4 were reported to be control swabs collected in relation to the Q46-Q48 swabs. EDTA, either as the free acid or as the EDTA-iron complex, was not identified on the Q46-Q48 or K2-K4 swabs.

The analysis for EDTA was carried out using liquid chromatography/tandem mass spectrometry in both positive and negative electrospray ionization modes.

**Remarks:**

EDTA is an anti-coagulant and enzyme inhibitor that is commonly used in blood collection tubes. Blood specimen collection tubes containing EDTA have lavender-colored tops and are the most common collection tube used to collect reference specimens for DNA testing.

The concentration of EDTA in its free acid form in a drawn blood tube is typically 1000-2000 milligrams per liter (mg/L), depending on the volume of blood and the capacity of the tube. At this concentration, the free acid and salt forms of EDTA are soluble in blood. EDTA readily forms water-soluble chelates with nearly all heavy metals, including iron in blood. Aqueous extractions of dried bloodstains allow for the isolation of EDTA (both as the free acid and as the EDTA-iron complex) if present.

Using the procedure employed in this case, EDTA is readily identified at a concentration of 13 mg/L. Additionally, EDTA is also detectable when a 1-microliter drop of EDTA-preserved blood is analyzed.

For questions about the content of this report, please contact Unit Chief Marc LeBeau at (703) 632-7408.

For questions about the status of remaining forensic examinations, if applicable, please contact Request Coordinator Michael VanArsdale at (703) 632-8809.

The submitted evidence was returned under separate cover of communication.



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Chemistry Unit  
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This report contains the opinions/interpretations of the examiner(s) who issued the report.

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