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# M E M O R A N D U M

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TO: ALL LAW ENFORCEMENT OFFICERS  
FROM: JIM CLARK, EXECUTIVE DIRECTOR, ARKANSAS STATE CRIME LABORATORY  
SUBJECT: GUNSHOT RESIDUE ANALYSIS  
DATE: MARCH 20, 2001

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Gunshot residue may be emitted whenever a firearm is discharged. This residue can settle on the hands of the shooter and on any objects in close proximity.

Residue on hands is easily lost and must be collected as soon as possible. Washing or wiping hands can remove the residues. Handling or touching objects can transfer residues. Do not sample a suspects hands for gunshot residue if:

1. The subject has washed his/her hands
2. Six hours have passed since the time of the incident
3. The subject has a firearm in his/her possession

In these cases, clothing may prove a better sample. Gunshot residue may persist for a longer period of time on clothing than on skin. Clothing should be submitted in cases where sampling the suspects hands is inappropriate.

Negative gunshot residue results do not mean that a subject did not discharge a firearm. Residues could have been lost through normal activity. Some firearms do not emit gunshot residue. Some cartridges do not contain the elements antimony or barium, which are the elements that indicate a positive result for gunshot residue. Statistics gathered at the Arkansas State Crime Laboratory demonstrate that 50% of suicide victims had negative test results. Analyzing kits collected from suicide victims may cause confusion and may lead some to the erroneous conclusion that the victim was murdered.

Conversely, a positive gunshot residue result does not mean that a subject did discharge a firearm. These residues can also be obtained by handling a firearm or other objects bearing gunshot residue. Being in close proximity to a firearm at the time of discharge can also lead to positive gunshot residue test results. It is therefore not possible to reliably determine whether gunshot residue was obtained from defensive actions or discharging a firearm.

For these reasons, *the Arkansas State Crime Laboratory will not analyze gunshot residue kits collected from victims of homicides or suicides.* Agencies should continue to collect and submit gunshot residue kits from suspects, especially those who deny involvement with the incident.

Scanning electron microscopy (SEM) is used at the Arkansas State Crime Laboratory to analyze adhesive stubs for particle unique to gunshot residue. Other methods of collection (such as cotton swabs) do not allow for this determination. In the event that your agency inadvertently used a kit containing cotton swabs, please contact the Arkansas State Crime Laboratory for a listing of private laboratories that can analyze cotton swabs.