Sample Acceptance Criteria for a Forensic Rapid DNA Program

🧬 Understanding Rapid DNA and Modified Rapid DNA 🧬

- Rapid DNA analysis is the fully automated (hands-free) development of a CODIS-eligible DNA profile from a sample in less than two hours currently used in booking stations
- Modified Rapid DNA analysis of crime scene sample data **requires** a partner laboratory's qualified analyst to review the data prior to CODIS upload, which takes additional time

⚠️ Limitations of Rapid DNA Instruments with Crime Scene Samples ⚠️

- Requires more DNA than conventional lab methods and is therefore less sensitive
- May not detect information from minor contributors in DNA mixtures due to ↓ sensitivity and/or data processing parameters on instrument
- Many crime scene sample types are **NOT suitable** due to minimal material and/or DNA from multiple people present (mixtures)

👍 Use Rapid DNA Instruments with Crime Scene Samples When There Is 👍

- ✓ A reasonable expectation that the material was left behind by the perpetrator of the crime
- ✓ No risk of consuming the material—must be able to perform conventional lab testing
- ✓ A **high-quality single-source profile is expected:**
  - **Blood**: visible stains
  - **Saliva**: filter paper from used cigarette butts; mouth areas of drinking containers and straws
  - Other presumed single source sample types validated by the laboratory

🚫 Not Ideal – Must Seek *Prior* Approval 🚫

- Certain sample types such as clothing, hats, vehicles, and firearms are more susceptible to partial results or DNA mixtures (even conventionally) and require software tools for analysis that are not yet applicable to Rapid DNA data.
- You **must obtain prior documented authorization** from the accredited laboratory responsible for DNA data review if attempting to process other sample types.
- Consider investigative importance, the amount of biological material, and ability to request priority DNA testing when seeking an exception.

🚨 Note: Use with Victim Identification (Human Remains, Disasters) 🚨

- ➢ Contact your partner Laboratory for appropriate use of Rapid DNA in these instances.

From Crime Scene Sample to Investigative Lead

Forensic Rapid DNA Timeline: Texas accredited laboratories

1	2	3	4	5	6	7
Sample selection, documentation, and collection	Transport to Rapid DNA instrument	Sample preparation for run	Rapid DNA instrument run time	Analysis and technical review by qualified, licensed DNA analysts.	Entry of profile into CODIS	Notification of investigative lead, if applicable
1 hour	Travel time dependent	15 minutes - varies by instrument capacity	2 hours	1 hour	15 minutes	TBD

The steps above demonstrate the **minimum** time taken for each step. Operationally, the turnaround time for the modified Rapid DNA process is expected to be **24 hours** or longer depending on the availability of staffing. The CODIS hit notification process requires typical verification steps.