



December 2022

Rapid DNA Pilot Preliminary Report

In accordance to ESSB 5693 | Section 402(14)

WSP's Rapid DNA Pilot Program

'Rapid DNA' is a term used to describe the application of specialized instrumentation that allows for a fully automated process of developing a DNA profile from a sample in two hours or less without the need for conventional lab work or human interpretation. This technology is suitable for single-source samples such as known reference samples that have a reliably high yield of DNA from only one source. Rapid DNA technology is in its infancy and work by the manufacturers and national working groups is ongoing to develop it so that it is one day robust enough to also process difficult crime scene samples that often include mixtures with more than one source of DNA, and are of limited quantity and/or quality of DNA. Based on what is being communicated within the national forensic DNA community, the WSP Crime Laboratory expects these future development efforts for Rapid DNA to be able to process crime scene samples to take an additional two years, at minimum.

An investigative tool relied upon in the criminal justice community is the Combined DNA Index System (CODIS) database, which is a national database administered by the FBI linking DNA profiles from known individuals (convicted offenders) with matching DNA profiles from crime scene samples, as well as linking matching DNA profiles from multiple crime scenes together. Federal law and the FBI authorize who accesses this database, what sample types are allowed to be entered, and the DNA technologies used to develop the database profiles. Federal law now allows DNA profiles generated by an FBI-approved Rapid DNA instrument to be entered into the CODIS database, but is currently limited to only reference DNA samples processed at an accredited crime laboratory, or at FBI-approved booking stations for arrestee samples in those states with arrestee DNA collection laws (which is not currently applicable to Washington State). In fact, DNA profiles developed from crime scene samples using Rapid DNA are strictly prohibited by the FBI from being uploaded or searched in CODIS; therefore, CODIS could not be used for the search of any Rapid DNA profiles from crime scene evidence at this time.

The mission of the Washington State Patrol (WSP) Crime Laboratory is to enhance public safety with high quality forensic science. One objective towards meeting this mission is to build and maximize our CODIS database by entering the DNA profiles from all Washington's lawfully owed offender samples, and all eligible crime scene samples. The larger size of the DNA database, the more cases that the WSP can provide investigative leads to, as WSP is able to link, at a national level, offender samples to crime scene samples and multiple cases together, providing valuable information on serial perpetrators. As mentioned above, in order to enter DNA profiles into CODIS from crime scene samples, the WSP is required to use FBI-approved technologies. Should crime scene samples be tested using Rapid DNA technology, which is currently prohibited by the FBI for CODIS, the evidence would have to be resampled and retested by the crime laboratory using the FBI-approved DNA procedures in order to upload any resulting profiles into the CODIS database. These samples would also have to be resampled and retested using approved technologies to ensure the forensic DNA results would be admissible for the downstream judicial process. This resampling and retesting of crime scene evidence would duplicate crime laboratory efforts and constrain WSP DNA casework resources that are focused on meeting the sexual assault kit testing law (RCW 5.70.050), and the timely testing of the other submitted cases such as homicides and assaults.

In 2021, the legislature provided \$1,320,000 of the general fund—state appropriation for fiscal year 2023 to the Washington State Patrol to implement an enhanced forensic capabilities pilot program using Rapid DNA technology. The goal of the pilot program is to provide expedited DNA

technology and forensic services to assist in the processing of mass disaster scenes, convicted offender samples, as well as crime scene evidence and reference samples pertaining to crimes that are typically given lower priority, in as little time as 90 minutes. The WSP has researched the latest developments on Rapid DNA technology, as well as federal and state laws surrounding DNA databases and requirements that would be applicable to any mirror copies of the CODIS database. This information was used to design the Rapid DNA Pilot Program to strategically implement the technology and not negatively impact DNA operations, the preservation and integrity of any evidence, or the WSP's participation in CODIS.

As mentioned in the WSP Rapid DNA Program Plan (December 2021), portions of the original pilot's design have been determined to not be feasible as written. Instead, the pilot program will be implemented in a phased approach due to WSP DNA resources, as well as the growth and ongoing development of Rapid DNA technology. The phased approach of this pilot project will allow time for the advancement of the technology while incorporating it into laboratory operations with its approved and robust applications. Phase I of the pilot project will be testing and using the technology on those sample types currently validated and approved by the FBI, and forming a mass disaster DNA response program. The sample types appropriate for the Phase I are reference samples (oral swabs, blood), such as those from a convicted offender, suspect, or a relative searching for a missing person, as well as other single-source samples such as unidentified human remains (bone, teeth, tissue). Phase II of the pilot project will assess the suitability of Rapid DNA to test crime scene samples. Implementing the technology in stages will allow WSP to gain valuable experience and expertise with the Rapid DNA technology in order to be in a proactive position to implement Rapid DNA on crime scene evidence samples as soon it is approved by the FBI. The advent of Rapid DNA technology is an exciting recent and ongoing development in the field of forensic DNA testing, with many promising applications. The WSP is appreciative of the opportunity to implement the technology into its system to provide expedited DNA services. Per ESSB 5693, WSP is to provide a preliminary report to the legislature to describe major milestones and achievements to the program to date, as well as to respond to various operational questions surrounding these new protocols and how they will tie into current laboratory operations, as well as the protection of individual privacy and civil liberties.

WSP's Major Milestones and Achievements as of October 2022

- The two new forensic scientist positions funded by this project were established in spring 2022 with an effective start date of July 1, 2022. In May 2022, the positions were advertised and both positions were filled by internal candidates by July 2022:
 - The technical lead DNA forensic scientist project position in the CODIS laboratory was filled via promotion of a senior CODIS forensic scientist with almost 17 years of DNA experience with the WSP.
 - The DNA forensic scientist project position in the Vancouver laboratory was filled via a lateral transfer of a senior Vancouver high-throughput forensic scientist with over six years of DNA experience with the WSP. The resulting vacancy due to the internal transfer was backfilled in September 2022 and training of this new hire is currently in progress.
- Ongoing research into Rapid DNA regulations, available instrumentation, and programs in other states was conducted. This information was utilized to develop specifications required for the competitive procurement process for the Rapid DNA instruments. A draft Request for

Qualifications and Quotations (RFQQ) was submitted to WSP's Supply Section in October 2022, where it is currently undergoing review by Procurement Specialists.

- Customer outreach meetings have been held with representatives from several Washington law enforcement agencies to discuss their interest in the technology. In addition, an informational flyer was created in July 2022 to communicate information about the pilot program and educate WSP crime laboratory users on the current capabilities of Rapid DNA technology. The flyer has been disseminated through the Washington Association of Sheriffs & Police Chiefs and WSP crime laboratories to WSP's user agencies.

Protocols on the Operation and Use of the Program

- Phase I of the pilot project will be limited to those sample types currently validated and approved by the FBI. The sample types appropriate for the Phase I are reference samples (oral swabs, blood), such as those from a convicted offender, suspect, or a relative searching for a missing person, as well as other single-source samples such as unidentified human remains (bone, teeth, tissue).
- Phase II of the pilot project will assess the suitability of Rapid DNA to test crime scene samples. Integration into crime laboratory operations is contingent upon how Rapid DNA technology and FBI regulations further develop.
- Selection of and the procurement of the Rapid DNA instrumentation, software, and supplies will follow WA State procurement laws.
- The Rapid DNA technology, instrumentation, and methods will be fully validated/performance checked by WSP prior to implementation, following the applicable FBI Quality Assurance Standards.
- The Rapid DNA instrumentation will reside within WSP property, and the use of the instrumentation and supplies will be restricted to approved WSP personnel only.
- Operation of the instrumentation and the evaluation of any resulting DNA profiles will be conducted by trained and fully-qualified WSP forensic DNA scientists.
- To remain in good standing with the National DNA Index System (NDIS), WSP is required to be the only entity who has access to the CODIS database and any mirror copies of that database. Therefore, WSP will continue to retain complete control of the DNA data contained within CODIS, safeguarding the confidentiality and integrity of DNA records. WSP is prohibited from providing access to and/or releasing DNA records and PII to any non-NDIS approved entities, so WSP must maintain the control of this system and any resulting DNA data to remain in compliance.

A description of how expedited DNA technology and forensic services will tie into the current operations of the State Patrol's existing Crime Laboratory Division:

- Currently, WSP does not have a robust DNA testing plan in the unfortunate event of a

mass disaster, such as that encountered in the 2014 Oso Mudslide. Additionally, WSP is limited in its abilities to assist law enforcement agencies and medical examiners/coroners to provide DNA services to identify human remains. This Rapid DNA pilot project will help fill this gap, to assist WSP with the potential ability to respond to these events to conduct rapid DNA testing of unidentified remains and those from relatives looking for their loved one.

- Due to current availability of resources in the WSP CODIS Laboratory, this laboratory section will perform Phase I of the Rapid DNA pilot project. The CODIS Laboratory will evaluate this technology to produce DNA results at a rapid rate for rush offender match confirmations and the quick testing/upload of rush convicted offender sample testing and database upload. This will provide hit confirmations and offender sample processing for rush, high-priority cases within 3-4 hours, compared to the routine weekly to monthly turnaround times.
- DNA profiles produced using Rapid DNA from crime scene evidence samples are currently prohibited from being entered into or searched against the CODIS database. Therefore, Phase II of the pilot project will be timed according to the pending authorization of the technology by the FBI.
- The two forensic scientist positions funded by this project will perform the validation and oversee the pilot project. The technical lead DNA forensic scientist will oversee the Phase I validation in the CODIS laboratory, as this laboratory has resources available at present. The second DNA forensic scientist position is currently being leveraged to increase high-priority DNA casework capacity in the Vancouver laboratory, but it is anticipated that they will contribute to the pilot project after Phase I.
- DNA profiles produced using Rapid DNA that meet FBI CODIS eligibility requirements will be entered into CODIS. Currently, eligible DNA profiles generated from Rapid DNA technology are limited to known reference samples.
- Rapid DNA technology is in its infancy, but is showing to be a promising and effective investigative and public safety tool. The manufacturers of Rapid DNA instruments and the FBI are in the process of evaluating and preparing the technology for crime scene samples over the next few years. The timeframe of this pilot program will serve WSP well to be in a proactive position to expand Rapid DNA technology when the FBI authorizes it for crime scene sample types.
- By taking a phased approach for this pilot project and beginning with only those sample types approved for Rapid DNA technology by NDIS, and to mass disaster remains that do not require the application of CODIS, the WSP will ensure it operates within the constraints of the MOU with the FBI, accreditation, and the federal Quality Assurance Standards. This will allow WSP to first become familiar with the instrumentation and technology while using it in its currently approved capacity before expanding it to Phase II.

Details of how the Washington State Patrol will protect individual privacy and civil liberties in relation to the program:

- The WSP's DNA Quality program operates within federal and state DNA regulations to ensure the protection of individual privacy and civil liberties. WSP has always demonstrated compliance with these regulations. Likewise, the procedures for the Rapid DNA pilot program will abide by federal and state regulations (whichever is more restrictive) in regards to DNA privacy and the release of PII generated as part of DNA testing and DNA databasing.
- WSP IT support will be leveraged to ensure the instrument's software, connection to the WSP network, and any DNA profiles retained in the instrument's closed system follow all security regulations.
- To remain in good standing with NDIS, WSP is required to be the only entity who has access to the CODIS database and any mirror copies of that database. Therefore, WSP will continue to retain complete control of the DNA data contained within CODIS, safeguarding the confidentiality and integrity of DNA records.
- Any matches resulting from DNA profiles generated by Rapid DNA will be confirmed by a currently or previously qualified forensic scientist prior to disclosure.
- DNA samples, such as those from crime scenes, suspects and/or convicted offenders, which are tested by WSP as part of this pilot program, will be legally obtained by law enforcement and/or with explicit consent for testing.

References:

- Flyer-'WSP's Rapid DNA Pilot Program and Frequently Asked Questions,' July 2022;
https://wsp.wa.gov/forensics/docs/crimelab/210464_Rapid_DNA_Pilot_Program_and_FAQ.pdf
- Implementation Plan for the WSP Rapid DNA Pilot Program, December 2021