

January 4, 2022

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Mr. Matthew M. Graves  
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Re: SNA Report Review

Dear Mr. Racine and Mr. Graves:

On April 6, 2020, Bruce Budowle<sup>1</sup>, James Carroll<sup>2</sup>, and Todd Weller<sup>3</sup> were requested by the United States Attorney's Office (USAO) and the Washington, D.C. Office of the Attorney General (OAG) to initiate an audit of the Washington, D.C. Department of Forensic Sciences (DFS). This audit resulted in four reports, with the final report issued on March 18, 2021.<sup>4</sup> On April 2, 2021, the ANSI National Accreditation Board (ANAB) suspended the accreditation of DFS, citing the information contained in the final report.<sup>5</sup> SNA International was subsequently contracted by the government of Washington, D.C. "to review forensic operations to identify issues and

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<sup>1</sup> Bruce Budowle is the Director of the Center for Human Identification; he has 39 years of forensic science experience primarily in the areas of DNA, serology, and quality assurance.

<sup>2</sup> James Carroll is a qualified forensic firearm and toolmark examiner and crime laboratory manager with 24 years of forensic science experience.

<sup>3</sup> Todd Weller is a qualified forensic firearm and toolmark examiner with 21 years of forensic science experience.

<sup>4</sup> Interim Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory Division, Department of Forensic Science, District of Columbia, May 21, 2020; Addendum to Interim Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory Division, Department of Forensic Science, District of Columbia, June 4, 2020; 2nd Interim Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory Division, Department of Forensic Science, District of Columbia, August 9, 2020; and Final Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory Division, Department of Forensic Science, District of Columbia, March 18, 2021

<sup>5</sup> Letter from Pamela Sale, Vice President, Forensics, ANAB to DFS Director Jenifer Smith, April 2, 2021.

recommend steps to put DFS on a path to regain and sustain accreditation.”<sup>6</sup> SNA issued its report on December 8, 2021.

We (the audit team commissioned by USAO and OAG) have reviewed the report prepared by SNA and agree with the vast majority of SNA’s findings and recommendations. The SNA auditors also have identified a number of serious issues with the DFS laboratory that will require substantial commitment by the D.C. government and DFS to regain and sustain accreditation. We laud the SNA audit team for its thoroughness and attention to detail that support our findings and that also uncovered many other problems inherent in the DFS system. In an effort to continue to contribute to the improvement of the DFS laboratory system, the USAO and OAG have asked that we report any disagreements with, or suggested modifications to, the recommendations contained in the SNA Report. We recommend additional consideration of a few issues which are summarized below.

### **Organizational Structure of DFS**

DFS is presently structured to include two distinct functions under its umbrella, the Public Health Laboratory (PHL) and the Forensic Science Laboratory (FSL). These laboratories have completely different functions and serve different customer bases, have different stakeholders, and have different quality assurance needs and accreditation requirements. SNA understood this distinction and made recommendations to reorganize DFS to better separate the management of these functions. These recommendations include the creation of an Executive Director position to head DFS, as well as a Chief Forensic Science Officer to head the FSL. SNA also recommended the creation of a Chief Quality Officer position.<sup>7</sup>

SNA recommended that the Executive Director have a background in science, business, or law, as well as extensive management experience, preferably with D.C. government. The Chief Forensic Science Officer should have extensive experience in forensic science, to include experience directing forensic laboratories. SNA also recommended that a Chief Quality Officer position be created to support both the PHL and the FSL, and who reports to the Executive Director.

We believe the Executive Director should have a background in science with extensive experience in (forensic) laboratory management. The Executive Director will be overseeing a major scientific operation, and therefore will often have to arbitrate scientific issues within the DFS. We are

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<sup>6</sup> DC Department of Forensic Science Laboratory Assessment Report, December 8, 2021, SNA International, Executive Summary, p.ES1

<sup>7</sup> Ibid., Section 4.1.3, p.18-22

concerned that a person with a background in law and/or business will lack the necessary scientific and quality assurance foundations for these important decisions.

More importantly, we recommend a more substantial restructuring of DFS. It is impractical for a forensic science laboratory to be so closely integrated with a public health laboratory due to the differing functions of each laboratory.<sup>8</sup> While in an ideal world the current DFS structure could work, the challenges that have been experienced suggest that separating the PHL and FSL into dedicated laboratory systems would be more effective in keeping the FSL on track. Each should have its own leadership structure, to **include dedicated quality assurance units**. The FSL should be headed by a Chief Forensic Science Officer<sup>9</sup> with extensive experience in forensic science, to include experience managing a large-scale accredited forensic laboratory. The FSL's Chief Quality Officer<sup>10</sup> should report to the Chief Forensic Science Officer, who is qualified to evaluate and arbitrate quality assurance concerns. We acknowledge that D.C. government is complex and recommend that the Executive Director be supported by a chief of staff (or equivalent) with extensive management experience in D.C. government.<sup>11</sup> This structure would ensure that final decisions are science and quality based.

### Quality Management

SNA made a number of recommendations with regard to quality management at DFS.<sup>12</sup> These recommendations include quality assurance training, effective root cause analysis, monitoring effectiveness of corrective actions, and a number of other measures. Based on our own observations and those of SNA, quality assurance at DFS requires a complete overhaul, and the majority of SNA's recommendations are prudent.

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<sup>8</sup> There are some examples of forensic analyses performed by public health laboratories, but the vast majority of USA forensic laboratories are solely dedicated to the forensic science function.

<sup>9</sup> SNA titled this position Chief Forensic Science Officer. The title "Director" is commonly used in other forensic science laboratories to describe the head of scientific/forensic operations.

<sup>10</sup> SNA titled this position Chief Quality Officer. The title "Quality Manager" is commonly used in other forensic science laboratories to describe the head of quality assurance.

<sup>11</sup> It is worth considering an even more substantial restructuring in which DFS is divided into two entirely separate government agencies: the FSL and PHL. In this structure, the Chief Forensic Science Officer (CFSO) would be the agency head of the FSL. This structure may make the CFSO position more desirable for recruitment purposes because it would allow the greater autonomy of which a qualified candidate may be accustomed. If this structure is selected, the CFSO should have his/her own chief of staff for the same reasons we state above. We also note that, under this structure, there is no reason that the FSL and PHL cannot remain co-located in their present facility.

<sup>12</sup> DC Department of Forensic Science Laboratory Assessment Report, December 8, 2021, SNA International, Section 4.1.9, p.29-35

One of SNA's recommendations is to create a quality unit with a *supportive* role in both the FSL and the PHL.<sup>13</sup> The responsibility for the majority of quality assurance functions within the FSL would then be placed on the technical leaders within each forensic unit. Perhaps this recommendation by SNA is based on a perception that the quality unit has historically had too much authority over the individual forensic units.<sup>14</sup> As stated above, we recommend that the FSL has its own *dedicated* quality unit. Furthermore, we recommend that the quality unit's role be greater than merely a supportive role. We have previously interviewed former DFS quality assurance personnel and reviewed quality assurance documents. From the information we gathered it appears that the quality unit at DFS did not have the necessary authority to implement quality improvements.

We recommend that quality assurance within the FSL be centralized in the quality unit with a quality manager who possesses the necessary authority to approve or reject, and maintain the records of, method validations, analytical procedures, examiner training, etc. The quality manager should also have the authority to suspend analytical operations when necessary to ensure quality. Technical leaders in each forensic unit should be required to participate in quality assurance training and should be responsible for quality assurance practices in their respective units, under the watchful oversight of the quality manager. Centralized quality assurance has the advantage of ensuring consistency throughout the laboratory and providing a system of checks and balances. A lack of centralized quality assurance may lead to fragmented policies and procedures, inconsistent quality assurance throughout the laboratory, conflicts of interest caused by forensic units overseeing their own quality assurance, etc. Any concern about the quality unit having too much authority over forensic units can be addressed by formalization of the infrastructure and monitoring, as is done in most forensic laboratory operations, by the Chief Forensic Science Officer or Executive Director, depending on the organizational structure adopted.

### **Applying for Accreditation and Resuming Casework in the Forensic Biology Unit and Forensic Chemistry Unit**

SNA recommended that Quality Corrective Action Reports (Q-CARs) be completed in the Forensic Biology Unit (FBU) and Forensic Chemistry Unit (FCU), after which those units can apply for accreditation independent of the other DFS units and then resume casework.<sup>15</sup> In doing so, these units will assume internal responsibility for their own quality assurance programs. We wholeheartedly disagree with this recommendation and instead recommend that DFS wait until appropriate leadership and quality infrastructure are in place. Indeed, many of the issues

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<sup>13</sup> Ibid., Section 4.1.9.2, p.33

<sup>14</sup> Ibid., Section 4.1.9.2, p.35

<sup>15</sup> Ibid., Executive Summary, p.ES4 and Section 5.2.2, p.56

identified by SNA, and by us, were related to failed leadership and, consequently, a failed quality management system. Starting independent laboratories without first establishing appropriate overall leadership and a sound quality management system will not have the proper oversight, documentation, and conflict resolution in place to garner trust and confidence in DFS's work product. Furthermore, SNA has identified a number of systemic issues in DFS which include:

- training<sup>16</sup>
- courtroom testimony<sup>17</sup>
- independence and customer service<sup>18</sup>
- data management<sup>19</sup>
- validation<sup>20</sup>
- overall quality management<sup>21</sup>

Some of these systemic issues apply to the FBU and FCU, and details can be found in the SNA Report.<sup>22</sup> Our assessment of the issues identified by SNA indicates that some are quite substantial and may require further root cause analysis to determine effective corrective actions. Until the needed reforms and an appropriately robust quality management system are implemented, no forensic units within DFS should apply for accreditation and resume casework. Additionally, because of the lack of appropriate training and testing found in other forensic units

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<sup>16</sup> Ibid., Section 4.1.6, p.23

<sup>17</sup> Ibid., Section 4.1.6, p.25

<sup>18</sup> Ibid., Section 4.1.7, p.27

<sup>19</sup> Ibid., Section 4.1.8, p.29

<sup>20</sup> Ibid., Appendix Q, p.114, 115, 117 and Appendix S, p. 132-133

<sup>21</sup> Ibid., Section 4.1.9, p.29

<sup>22</sup> Ibid., Appendix S, p133: SNA reported Macro Root Cause Effects associated with the FBU:

“The FBU’s ability to critically review their validation summaries (v2.3, 2015, and v2.4 2017) was possibly hampered by their familiarity with the details of their validation experiments and the data generated, and the outcomes expected prior to conducting the experiments, causing them to omit essential details that would enable outside reviewers to decide whether the data depicted in the summaries supported the results and conclusions presented.

o The FBU did not have an independent outside expert critically review their STRmix™ validation data against their validation summaries, which resulted in the drafting of incomplete and confusing validation summaries.

o FBU overlooked or did not discuss outlier data, possibly due to confirmation bias, as exemplified by their omission of off-trend data from their discussion of the results.”

These findings are serious and require substantial work to address. The root cause identified by SNA appears to be confirmation bias. However, a more fundamental root cause may be insufficient training on how to conduct a validation study, how to perform statistical analyses, basic technical understandings, and understanding bias. Indeed, ignoring outlier data is a serious concern as such data are the ones that can lead to error in interpretations. SNA’s recommendation of re-analysis of the validation studies (which we support) is only a first step of the corrective action(s); rewriting protocols to conform to the limitations of STRmix and training analysts on the newly developed protocols also must occur.

within the DFS<sup>23</sup> and the concern raised about testimony regarding “FSL’s inability to meet customer needs regarding... courtroom testimony beyond the immediate facts of the case (e.g., expert testimony in admissibility hearings)”<sup>24</sup>, the competency of all examiners in the FBU and FCU must be carefully evaluated prior to resuming casework.

We also find this recommendation by SNA to be inconsistent with their overall recommendations of building a comprehensive overarching quality system for DFS, which is important to establish prior to setting up individual discipline services.

### **Latent Fingerprint Unit**

SNA performed a detailed assessment of the Latent Fingerprint Unit (LFU) and recommended that DFS work with stakeholders to re-examine the casework from the LFU since DFS began conducting examinations.<sup>25</sup> This recommendation appears to be based, at least in part, on an external skills assessment performed in 2012 on the eleven fingerprint examiners who were transferred from the Metropolitan Police Department to DFS. The external testing organization, Ron Smith & Associates (RS&A), reported that only two of the eleven examiners passed the skills assessment. RS&A also provided explanations of the negative impact that a lack of necessary skill can have on forensic testing. SNA was unable to identify any corrective action taken by DFS in response to this assessment.<sup>26</sup>

We agree with SNA’s recommendation to re-examine casework, but further recommend that USAO and OAG consider re-examining latent fingerprint casework of the Metropolitan Police Department, prior to the transfer of this function to the DFS. If examiners who transferred to DFS lacked necessary skills at the time of transfer, they likely lacked those skills prior to the transfer.

### **McLeod Case**

All but one of SNA’s conclusions regarding the McLeod Case<sup>27</sup> mirrored those that we previously reported.<sup>28</sup> SNA’s conclusion #3 is that “the FSL/FEU intermediate leadership made a technical error in the improper use of the inconclusive opinion.”<sup>29</sup> (emphasis added) SNA cited two reasons

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<sup>23</sup> Ibid., Section 4.1.2, p.18; Section 4.1.5, p.23; Section 4.1.6, p.23-26

<sup>24</sup> Ibid., Section 4.1.7, p.28

<sup>25</sup> Ibid., Executive Summary, p.ES4

<sup>26</sup> Ibid., Section 3.2, p.11

<sup>27</sup> Ibid., Section 2, p.5-9

<sup>28</sup> Note that we disagree with some (minor) details of SNA's summary of the McLeod case. However, the overall spirit and conclusions are concordant with ours and thus we believe it is not necessary to point out these differences.

<sup>29</sup> DC Department of Forensic Science Laboratory Assessment Report, December 8, 2021, SNA International, Section 2.3, page 8

proffered by DFS in support of the interpretation of inconclusive: 1) Inconclusive served as a middle ground when some examiners concluded identification and others concluded elimination and 2) the firearm was not available and, therefore, could not be examined to assess class characteristics. We believe there is compelling evidence that the decision to report inconclusive went well beyond a simple technical error.

As outlined in our March 18, 2021 report, interviews of DFS employees provided evidence that the inconclusive result(s) were not the result of an examiner's review of microscopic marks, but instead were decided amongst managers without further examination and without documented conflict resolution regarding the differences of opinion. There is strong support that at least two of the involved managers were aware that an inconclusive finding should be based on the examination of evidence and is not a middle ground when presented with conflicting findings. Had DFS employees believed that reporting inconclusive was appropriate because of the conflicting findings, they should have disclosed those conflicting findings (which they did not do). However, their otherwise detailed representations to ANAB and the Science Advisory Board made no mention of the elimination conclusions originally reached by Firearms Supervisor Jonathan Fried and Firearms Examiner Ashley Rachael, nor was there mention of Firearms Examiner Michael Mulderig re-confirming his (erroneous) identification and then changing his conclusion with inappropriate supporting documentation (i.e., only an email from his personal account). It was not until the USAO issued a subpoena for records from DFS and a judge subsequently ordered their production that the elimination conclusions were uncovered.<sup>30</sup>

In her letter to DFS notifying the laboratory of the suspension of its accreditation, ANAB Vice President of Forensics Pamela Sale stated that "ANAB has received credible evidence that the D.C. Department of Forensic Sciences, Forensic Science Laboratory Division, has **deliberately concealed information** from the ANAB assessment team, violated accreditation requirements, **engaged in misrepresentations and fraudulent behavior**, and engaged in conduct that brings ANAB into disrepute."<sup>31</sup> (emphasis added) As outlined in our Final Report, and the ANAB letter, conduct by DFS management with regards to the inconclusive finding was not simply a technical error.

## Conclusion

We advocate that DFS fully consider SNA's recommendations (with our few modifications) so that the organization can achieve the desired quality operations that all would hope they will achieve.

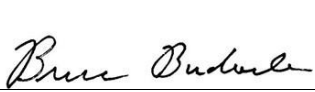


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<sup>30</sup> Final Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory Division, Department of Forensic Science, District of Columbia, March 18, 2021, p.1 and 6

<sup>31</sup> Letter from Pamela Sale, Vice President, Forensics, ANAB to DFS Director Jenifer Smith, April 2, 2021.

Our team supports the effort and is available to provide further input to the various stakeholders if our assistance would be beneficial.

Sincerely,

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| Bruce Budowle   | James Carroll   | Todd J. Weller   |