SUPREME COURT OF NEW JERSEY

A-56 September Term 2018

STATE OF NEW JERSEY,

Plaintiff-Respondent,

v.

MICHAEL OLENOWSKI,

Defendant-Appellant.

SUPPLEMENTAL REPORT OF FINDINGS OF FACT AND CONCLUSIONS OF LAW

Submitted to the Supreme Court April 13, 2023

On second remand from the Supreme Court of New Jersey to assess the reliability and admissibility of DRE evidence under the Daubert-type standard adopted in its February 17, 2023 opinion, State v. Olenowski, 253 N.J. 133 (2023).

Joseph E. Krakora, Public Defender, attorney for appellant (Margaret McLane, Assistant Deputy Public Defender, of counsel and on the brief; Mary Claire Wolf, First Assistant Deputy Public Defender; Kelsey Baack, Assistant Deputy Public Defender; and Kimberly Schultz, Assistant Deputy Public Defender).

Matthew J. Platkin, Attorney General, attorney for respondent (Sarah C. Hunt, Deputy Attorney General of counsel and on the brief; Adam D. Klein, Deputy Attorney General; Mohammad Mahmood, Deputy Attorney General; Erik Daab, Supervising Deputy Attorney General; Robyn Mitchell, Supervising Deputy Attorney General, and Stephen J. Wenger, Deputy Attorney General).

Defense Amici Curiae

John Menzel, attorney for the New Jersey State Bar Association, and Jeralyn L. Lawrence, President, of counsel, and on the joint brief with the National College for DUI Defense.

Steven W. Hernandez, attorney for the National College for DUI Defense and on the joint brief with the New Jersey State Bar Association.

Pashman Stein Walder Hayden, attorneys for the Association of Criminal Defense Lawyers of New Jersey (Aidan P. O'Connor of counsel and on the brief; Marc Yenicag).

Evan M. Levow, attorney for the DUI Defense Lawyers Association, joins in the joint brief of the National College for DUI Defense and the New Jersey State Bar Association, and the brief of the Office of the Public Defender.

Alexander Shalom and Jeanne LoCicero, attorneys for the American Civil Liberties Union of New Jersey, of counsel and on the brief).

State Amici Curiae

Jeffrey H. Sutherland, Cape May County Prosecutor, for the County Prosecutors Association of New Jersey (Jeffrey H. Sutherland, President; Monica do Outeiro, Assistant Monmouth County Prosecutor, Laura Sunyak, Assistant Mercer County Prosecutor, Joseph B. Paravecchia, Assistant Hunterdon County Prosecutor, Gretchen Pickering, Assistant Cape May County Prosecutor, and David M. Liston, Assistant Middlesex County Prosecutor).

Porzio Bromberg and Newman, PC, attorneys for the New Jersey State Association of Chiefs of Police (Vito A. Gagliardi, Jr., of counsel and on the brief; David Disler and Weston J. Kulick).

LISA, P.J.A.D. (retired and temporarily assigned on recall), Special Master

I. Introduction

This supplemental report and my earlier report in this action (submitted on August 18, 2022, and cited as "SM Report") must be read in conjunction with each other.

The earlier report was in response to the Court's referral to me as a Special Master to conduct a hearing and make findings of fact and conclusions of law regarding the admissibility of DRE evidence under the principles of Frye v. United States, 293 F. 1013 (D.C. Cir. 1923).

During the pendency of this case, including after I submitted my earlier report, New Jersey adhered to the Frye standard for admissibility of expert testimony in criminal and quasi-criminal cases. In my prior report, I found that, based on the evidence presented in the hearing I conducted, DRE evidence satisfied the Frye standard of general acceptance within the scientific communities to which it belongs, which I identified as medicine and toxicology.

However, because the DRE protocol is used in law enforcement, and not in the medical and toxicological communities, I noted that "the DRE protocol is not widely known by members of those communities" and, for that and other reasons I will mention shortly, this case is "not a typical fit for the Frye paradigm." State v. Olenowski, 253 N.J. 133, 141-42 (2023) (quoting SM

Report at 310). The lack of "direct" or "actual" general acceptance "is not because there is debate or disagreement" within those communities, but because of lack of knowledge of the overall protocol. SM Report at 116.

However, I also found that the drug matrix utilized in the DRE protocol is consistent with similar matrices used in the medical field and "that the DRE protocol replicates generally accepted medical practices for identifying the presence of impairing drugs and their likely identity through a toxidrome recognition process" that is similar to that used in the medical field. SM Report at 331. I also found "that the training DREs receive is comparable to that received by medical technicians and that DREs are thus enabled to reliably apply the protocol." Ibid. I concluded that "by implication, the DRE protocol as a whole and its individual components are generally accepted in the scientific communities to which they belong, namely medicine and toxicology." Ibid.

I concluded my previous report with this summary of my findings of fact and conclusions of law:

> I conclude for all of the reasons stated in this report that DRE testimony is reliable. The reliability is established by the expert testimony presented by the State, which establishes that the DRE protocol replicates generally accepted medical practices for identifying the presence of impairing drugs and their likely identity through a toxidrome recognition process. This testimony has also established that the

> DRE matrix comports with matrices designed for this purpose and generally accepted and used in the medical field. This testimony has also established that the training DREs receive is comparable to that received by medical technicians and that DREs are thus enabled to reliably apply the protocol. Therefore, by implication, the DRE protocol as a whole and its individual components are generally accepted in the scientific communities to which they belong, namely medicine and toxicology.
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> As with all evidence, and as I have stated repeatedly regarding each individual step, DRE evidence and the DRE opinion will be tested by cross-examination and the factfinder will ascribe to it such credibility assessments and weight allocations as he or she deems appropriate.
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> The State has clearly established that the Frye standard for admissibility has been met. Accordingly, based upon the evidence in this hearing, DRE evidence satisfies the reliability standard of N.J.R.E. 702 and should be admissible in evidence.
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> [SM Report at 331-32.]

After I filed my report and the case returned to the Supreme Court for argument and ultimate adjudication, the Court determined that, in light of the contents of my report and the arguments in the briefs submitted by the parties, consideration should be given to abandoning the Frye standard in criminal and quasi-criminal cases and replacing it with the principles of Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993).

At the Court's request the parties briefed that limited issue, and after oral argument the Court issued its opinion on February 17, 2023. Olenowski, 253 N.J. 133. The Court held that it would "adopt a Daubert-type standard going forward to assess the admissibility of expert evidence under N.J.R.E. 702 in criminal and quasi-criminal cases." Id. at 154-55 (noting, as it did when adopting the same standard for civil cases in In re Accutane Litigation, 234 N.J. 340, 396-400 (2018), that "[t]he Daubert factors will help guide trial courts as they perform their important role as gatekeepers"). The Court again remanded the case to me "to assess the reliability and admissibility of DRE evidence in the first instance under the standard adopted here." Ibid.

I convened a case management conference with counsel for the State and defendant, as well as all amici, on February 24, 2023. At that time, all counsel agreed that "the record was complete and it contained all of the evidence that would be required to assess reliability under the Daubert standard and that there was no need for further evidence." (62T7). I agreed with counsel in that assessment (62T7-62T8), and ordered "that the record as it stands is complete and will not be reopened to allow any further evidence." CMO #19, February 24, 2023, p. 3, par. 1. I further ordered that on or before March 10, 2023, counsel for the Attorney General's office and the Office of the Public Defender (OPD) file supplemental briefs regarding application of Daubert principles to

the evidence presented in the Special Master proceeding, and that amici were permitted (but not required) to file supplemental briefs by the same date. Id. at p. 3 par. 2

Those briefs have been filed, and this supplemental report follows. Upon its filing, the case returns to the Court for consideration of the merits, namely whether DRE evidence is sufficiently reliable to be admitted in evidence under the principles of Daubert and In re Accutane Litigation.

Based on the record established in this Special Master proceeding, and based upon all of the findings of fact and conclusions of law as set forth in my prior report and for the reasons stated in this supplemental report, I find that the State has clearly established that DRE evidence, in the form of opinions or otherwise, when analyzed under Daubert-Accutane principles, meets the reliability standard of N.J.R.E. 702 and is therefore sufficiently reliable to be admitted in evidence.

II. Daubert-Accutane Principles

In its February 17, 2023, opinion, the Court set forth the Daubert-Accutane principles, both in general terms and as applicable to the facts and the issue in this case. There is no need to repeat them in their entirety here. For context in reading this document, a brief summary follows.

N.J.R.E. 702, governing the admissibility of expert testimony, provides: "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise."

> To satisfy the rule, the proponent of expert evidence must establish three things: (1) the subject matter of the testimony must be "beyond the ken of the average juror"; (2) the field of inquiry "must be at a state of the art such that an expert's testimony could be sufficiently reliable"; and (3) "the witness must have sufficient expertise to offer the" testimony.
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> [State v. J.L.G., 234 N.J. 265, 280 (2018) (quoting State v. Kelly, 97 N.J. 178, 208 (1984)).]

The fundamental structural difference in the shift from Frye to Daubert analysis can be expressed as follows. In assessing whether proffered expert testimony meets the "sufficiently reliable" prong of N.J.R.E. 702, to allow it to be placed before the factfinder, "Frye permits judges to consider only whether the subject of the testimony has been 'generally accepted' in the relevant scientific community." Olenowski, 253 N.J. at 139. Thus, judges do not directly assess reliability. Judicial inquiry defers to the community of experts in the field to decide by a sufficient consensus of opinion. Under Daubert,

judges are empowered "to directly examine the reliability of expert evidence and consider a broader range of relevant information." Ibid.

The Court described several shortcomings of the Frye standard: It is "'unsatisfactorily constricting' as a way to assess the reliability of 'novel or emerging fields of science,'" id. at 150 (quoting Accutane, 234 N.J. at 380); it presents the "difficult threshold question" of "identifying the relevant scientific community in which general acceptance must be measured" when, "[i]n some instances, scientific evidence may be studied by multiple scientific communities or none at all," id. at 150-51; and it creates an "unworkable distinction" "between scientific and technical or other specialized knowledge," id. at 152, a distinction which has now been removed by one of the cases in the so-called "Daubert trilogy," Kumho Tire Co. v. Carmichael, 526 U.S. 137, 141-42, 147 (1999).[1]

Indeed, for more than one reason, this "case is 'not a typical fit for the Frye paradigm.'" Olenowski, 253 N.J. at 142 (quoting SM Report at 310). For example, with DRE evidence "two areas of expertise are implicated under N.J.R.E. 702," both "'specialized knowledge that DREs acquire'" and "'scientific expertise' underlying '[t]he validity of the DRE matrix and the procedures and methods for applying it.'" Id. at 141 (alteration in original)

[1] The third case in the trilogy is General Electric Co., v. Joiner, 522 U.S. 136 (1997), holding that Daubert decisions are reviewed for abuse of discretion.

(quoting SM Report at 307-08). And, in this case the parties disputed the identity of the appropriate scientific community. SM Report at 310. Further, "error rates associated with DRE evidence" were a significant point of contention in the parties' "briefs to the Special Master and the Court," but "error rates . . . are not directly covered by Frye's general acceptance standard." Olenowski, 253 N.J. at 142-43. Finally, and most critically, "the relevant scientific communities -- medicine and toxicology -- were largely unfamiliar with the DRE protocol," while "those most familiar with the protocol -- traffic safety engineers, law enforcement professionals, and DRE coordinators and officers -- were not scientists." Id. at 151.

Thus, the Court concluded that "Daubert's focus on methodology and reasoning, which we apply in civil cases, is a superior approach to criminal cases as well." Ibid.

The "methodology-based standard to determine admissibility" outlined in Daubert "'entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.'" Id. at 147 (quoting Daubert, 509 U.S. at 592-93). This preliminary assessment must be made at the outset by way of a "Rule 104(a)" hearing, Daubert, 509 U.S. at 592, which is what this Special Master proceeding is. See N.J.R.E.

104(a). The methodology-based standard "applies not only to testimony based on scientific knowledge but also to testimony based on technical or other specialized knowledge." Olenowski, 253 N.J. at 154.

"Daubert provided a non-exclusive list of four factors -- commonly referred to as the 'Daubert factors' -- to help courts apply [that] standard." Id. at 147 (citing Daubert, 509 U.S. at 593-94). Those factors are:

> (1) whether the scientific theory or technique can be, or has been, tested; (2) whether it "has been subjected to peer review and publication"; (3) "the known or potential rate of error" as well as the existence of standards governing the operation of the particular scientific technique; and (4) general acceptance in the relevant scientific community.
>
> [Ibid.]

"Focusing on testing, peer review, error rates, and other considerations better enables judges to assess the reliability of the theory or technique in question." Id. at 151-52.

In Daubert and its progeny, the Supreme Court emphasized Daubert's flexibility. Id. at 148. "[T]he Daubert factors do not 'necessarily' -- or 'exclusively' -- 'appl[y] to all experts or in every case.' The test, instead, grants the trial court 'broad latitude when it decides how to determine reliability." Ibid. (second alteration in original) (internal citation omitted) (quoting Kumho Tire, 526 U.S. at 141-42). "[A] trial court should consider the specific factors

identified in Daubert where they are reasonable measures of the reliability of expert testimony." Kumho Tire, 526 U.S. at 152.

Moreover, in adopting a "Daubert-type standard" in criminal and quasi-criminal cases, the Court "decline[d] 'to embrace the full body of Daubert case law as applied by state and federal courts.'" Olenowski, 253 N.J. at 154 (quoting Accutane, 234 N.J. at 399). Just as "Daubert's non-exhaustive list of factors does not limit trial judges in their assessment of reliability[,] . . . caselaw from other jurisdictions . . . can be persuasive but is not controlling." Ibid.

While the inquiry is flexible, its "focus . . . must be solely on principles and methodology, not on the conclusions that they generate." Id. at 147 (alteration in original) (quoting Daubert, 509 U.S. at 595). As expressed in Accutane, "proper gatekeeping in a methodology-based approach to reliability for expert scientific testimony requires the proponent to demonstrate that the expert applies his or her scientifically recognized methodology in the way that others in the field practice the methodology." 234 N.J. at 399-400. This approach requires an ultimate determination of whether the relevant "scientific community would accept the methodology employed by [the expert] and would use the underlying facts and data as did [the expert]." Id. at 400.

"Proposed testimony must be supported by appropriate validation -- i.e., 'good grounds,' based on what is known." Daubert, 509 U.S. at 590.

III. Positions of the Parties

The State relies on the comprehensive record established over forty-two days of testimony, along with hundreds of documentary exhibits, and the detailed factual findings I made in my previous 332 page report, in support of its contention that the DECP and its protocol must be found to be sound because the evidence satisfies the critical determination in the reliability analysis, namely whether comparable experts accept the soundness of the methodology, including the reasonableness of relying on the type of underlying data and information. The State further asserts that consideration of each of the Daubert factors helps to guide that determination (Sb9). Additionally, the State advances a group of general factors that it contends further validate the reliability of the DRE protocol.

In a letter brief, amicus the New Jersey State Association of Chiefs of Police adopts the position of the State of New Jersey as set forth in the Attorney General's brief.

On behalf of defendant, the OPD divides its arguments into two parts. In Part A, consuming the first half of the argument section of its brief (OPDb5-OPDb25), it argues that the evidence does not support the critical finding I

made in my prior report that the toxidrome recognition methodology used by DREs "is based upon methods and procedures that comport with generally accepted medical methods and procedures in identifying likely drug use and the category of the drug or drugs involved." (OPDb6) (quoting SM Report at 12). To the contrary, the OPD argues, the DRE protocol is unreliable because "[i]t does not mirror the only reliable methodology for identifying a toxidrome as the cause of someone's symptoms — the differential diagnosis methodology." (OPDb4-OPDb5) (emphasis added).

In the second half of its brief (OPDb25-OPDb42), the OPD argues that the four Daubert factors further demonstrate that DRE evidence is unreliable. As to the first, it argues that the protocol's ability to identify drug impairment could be but has never been tested. Regarding the second factor, it argues that the majority of DRE studies were not peer-reviewed, and the few peer-reviewed studies do not establish reliability. Under factor three, the OPD contends the State has failed to establish that the error rate of the DRE protocol is acceptably low. In this argument, the OPD does not mention the other component of the third factor, "the existence of standards governing the operation of the particular scientific technique." See Olenowski, 253 N.J. at 147. Finally, as to factor four, general acceptance in the relevant scientific community, it refers back to and incorporates by reference its extensive

argument in Part A that DREs "do not follow the only reliable method used by the medical and toxicological fields" (OPDb41) (emphasis added), namely a differential diagnosis that considers and rules out "the possible non-drug causes of any perceived impairment." (OPDb6).

Several defense amici have filed briefs in support of the defense position advanced by the OPD. In a joint brief, the National College for DUI Defense and the New Jersey State Bar Association argue that the State has failed to meet its burden of clearly establishing the reliability of the DRE protocol under the Daubert factors. They argue that the record fails to clearly demonstrate that the protocol and resulting DRE opinions are sufficiently based on valid science. Their focus is primarily on scientific testing and statistical analysis. The DUI Defense Lawyers Association has submitted a letter advising that it joins in the joint brief of those organizations, as well as the brief filed by the OPD. The Association of Criminal Defense Lawyers of New Jersey has filed a letter brief contending that the evidence demonstrates an unacceptably high false positive rate with DRE opinions, which should render DRE evidence unreliable and inadmissible under Daubert principles. Finally, the American Civil Liberties Union of New Jersey has submitted a copy of its September 14, 2022, letter brief, which had been submitted to the Supreme Court in the first round of briefing after I filed my earlier report on

August 18, 2022. That letter brief focuses on statistical analysis, which the ACLU contends is of greater importance under Daubert principles than under Frye analysis.

IV. Analysis

Admissibility of scientific expert testimony under the methodology-based Daubert-Accutane standard requires a preliminary assessment and determination of whether the reasoning or methodology underlying the proffered testimony is scientifically valid and whether that reasoning or methodology properly can be applied to the facts in issue. Olenowski, 253 N.J. at 147. As applied to this case, it is the methodology of the DECP and the DRE twelve-step protocol that the State seeks to prove is scientifically valid.

Before analyzing the applicability and significance of the Daubert factors and any other relevant information, it is useful to reiterate the fundamental basis for the findings I made as expressed in my prior report.

In finding the DRE protocol sufficiently reliable, I made it clear in the introductory section that "[o]f all of the evidence presented in the case, the most important evidence, in my view, was the expert testimony provided by medical and toxicological experts."[2] SM Report at 11. I then elaborated that

[2] In Section III of my prior report, entitled "Witness Qualifications and Credibility Assessments" (SM Report at 18-76), I listed the sixteen witnesses by categories and, as to each of them, made detailed statements of their

the State's experts in these fields provided "compelling and persuasive evidence" that (1) the seven categories in the DRE matrix are consistent with those generally accepted in medicine, and (2) DREs can be and are adequately trained to perform all of the scientifically-based steps in the protocol because their training is comparable to the training of clinical technicians and other healthcare personnel utilized in the medical field. Ibid.

Throughout my report, particularly in Section VII, "Toxidrome Recognition" (SM Report at 114-79), I explained the evidential basis for those two foundational findings. In that section, I noted there was "really no dispute" that the seven toxidromes in the DRE matrix as well as the associated signs and symptoms applicable to each category are generally accepted in the medical and toxicological communities. Id. at 128. All of the medical and toxicological experts agreed on this point, including Guzzardi, the emergency medicine expert produced by the defense. Indeed, when Guzzardi was asked whether he would agree "that the [twelve] steps of the DRE protocol are either similar or the same as the steps that would be used in the medical profession" but that his real issue with the DRE program "is sometimes the DRE evaluators aren't as good as doctors," he responded: "[T]hat would be a summary of my opinion, yes." Id. at 133. In a similar vein, Guzzardi agreed "that the method

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qualifications and of my findings as to their credibility and the relative weight to be attributed to their testimony.

that the DRE is using is the same method that is used in medicine and is generally accepted in medicine," and stated: "It's similar to the methods used in medicine, and those methods are time-tested in medicine." Id. at 132 (emphasis added).

Thus, although Guzzardi did not disagree that the protocol mirrors the methods used in the medical community by healthcare professionals to assess an individual suspected of having ingested a toxic drug and determining which category of drug caused the impaired condition, he disagreed that DREs could be adequately trained to reliably perform the twelve-step protocol. And, with respect to the eye examinations portion of the protocol, the defense ophthalmologist, Adams, also disagreed.

Section VII of my previous report, "Toxidrome Recognition," included in Subsection C., "Training and Confirmation Bias Arguments," a discussion of the training issue. Id. at 169-76. What follows is a brief summary of the findings I made in that subsection.

With respect to the overall protocol, Nelson opined that "a nonmedical professional [can] be taught the principles of toxidrome recognition, so the idea that certain signs and indicators are consistent with certain toxidromes." Id. at 170-71 (alteration in original) (quoting 46T63). He concluded that "a nonmedical professional [can] be trained to perform the steps involved in

evaluating what signs might be present in an individual case." Id. at 171 (alteration in original) (quoting 46T63). Going through a litany of questions as to each of the steps in the DRE protocol, Nelson testified that "nonmedical professionals can be trained in looking for and observing each of the categories of expected signs and symptoms." Id. at 171 (citing 46T58-46T63). He based his opinions on his personal experience working with technical assistants in his clinic and, more broadly, on experience he has had in training nonmedical personnel in other contexts. See id. at 171-72.

As to the eye examinations, Fraunfelder opined that "lay people, including police officers, can be trained rather easily to conduct all of the required eye observations, which are not difficult to make." Id. at 172. He based this opinion on his own experience with ophthalmic technicians as well as a number of non-clinical experiences he has had or is aware of. Id. at 172-75.

I concluded this portion of Subsection C. of Section VII by finding that the State's medical experts, particularly Nelson, Fraunfelder and Citek, were "much better qualified and knowledgeable about the effects of drugs on the human body and the physiological processes that cause the signs and symptoms that DREs look for" than Guzzardi and Adams. Id. at 175. I therefore found the State's evidence "much more persuasive than that of the

defense in establishing that the training is more than adequate," and I noted that in Section V, dealing with DRE training, "it is shown that the training is very rigorous, the manuals are voluminous, and much information is covered, all of which is sufficient to qualify a DRE candidate who passes the required written and field tests to reliably make the necessary observations and assessments." Id. at 175-76.

Based on these findings and others contained throughout my prior report, I resolved the training issue favorably to the State's position, notwithstanding the position taken by the defense. The State's experts possessed superior qualifications and their testimony was more persuasive and authoritative.

Although I did not deem it necessary under a Frye analysis, I also assessed evidence of "reports and studies that have been issued over the last several decades" and concluded that, despite the limitations inherent in such studies, they "demonstrate a very high degree of reliability" and their findings are "consistent with" and "corroborate and support" my findings of reliability "based upon the testimony of the State's medical and toxicological experts." Id. at 13. See also Section IX of my earlier report, "Studies and Reports." Id. at 221-86.

Similarly, I also assessed the statistical evidence pertaining to the New Jersey DRE data for two years of DRE evaluations in actual enforcement

situations. I found that the data "provides further support for my finding of reliability in DRE performance" and also supports my reliability finding "based on the State's expert testimony." Id. at 16. See also Section VIII of my earlier report, "New Jersey DRE Data From 2017 and 2018." Id. at 179-221.

The two foundational findings, that the twelve-step DRE protocol is scientifically valid and reliable and that police officers can be and are adequately trained to reliably implement it, constituted a direct assessment of reliability regarding those two key issues, which, in turn, supported my finding of general acceptance by implication within the medical and toxicological communities. The implication was based on the premise that "the scientific community would accept the methodology employed by [DREs] and would use the underlying facts and data as did [DREs]." Accutane, 234 N.J. at 400 (emphasis added).

In effect, my findings on these two key aspects of the reliability assessment were based on direct proof provided by expert testimony that the methodology utilized in the protocol is scientifically valid and can be reliably performed by DREs, and that it can be properly applied to the facts in issue in a DUID trial. I reiterated in my conclusion section that "reliability is established by the expert testimony presented by the State, which establishes that the DRE protocol replicates generally accepted medical practices for

identifying the presence of impairing drugs and their likely identity through a toxidrome recognition process." SM Report at 331. I also found that further support for those two findings was supplied by the reports and studies of the DRE protocol and by the analysis of the two years of DRE data.

These observations, in my view, go a long way in adapting my detailed and extensive factual findings as set forth in my prior report to the Daubert-Accutane standard. Under this new methodology-based flexible standard, this method of "how to determine reliability" is sanctioned. Olenowski, 253 N.J. at 148 (quoting Kumho Tire, 526 U.S. at 142). And, because the findings pertain to the methodology itself, there is no need to imply anything else. This newly adopted standard for criminal and quasi-criminal cases in New Jersey is indeed a much better fit for the issue in this Special Master proceeding than the very restrictive Frye standard.

I will now proceed to consider each of the four Daubert factors, as well as the general factors urged by the State, and the significance of each of them in the overall reliability determination of DRE evidence. I do so with two caveats in mind. First, the "technique" being tested for reliability is the overall DECP and DRE twelve-step protocol. The ultimate reliability analysis must focus on the entirety of the process. However, for analytical purposes, it is important to recognize that only several steps contain scientific or

scientifically-based components that are disputed in this proceeding. They are steps three, four, six, seven, eight and nine, which include taking vital signs, conducting various examinations of eye signs and symptoms, and muscle tone assessment. Although steps one (Alcotest examination) and twelve (toxicology analysis, if a sample is given) are clearly scientific, the reliability of the methodology and technology utilized in each of those steps is not disputed. All other steps consist of routine police work and observations that any layperson could easily make and describe. SM Report at 310-15. Notwithstanding these distinctions, it has been universally agreed by all witnesses that an evaluator, whether in the medical context or a DRE, would never base an opinion of impairment by drug use on one or only a few factors, but would consider all factors because "toxidrome recognition requires piecing together certain pieces of information that individually might be objective or slightly subjective but together paint a coherent picture." Id. at 315 (quoting Nelson's testimony at 46T64-46T65).

The second caveat is that, as noted earlier in this supplemental report, under Daubert's flexible approach, the four Daubert factors do not necessarily or exclusively apply to all experts or in every case, and trial courts are granted broad latitude when deciding how to determine reliability. Accordingly, a trial

court should consider the specific factors enumerated in Daubert only where they are reasonable measures of the reliability of expert testimony.

The first Daubert factor permits courts to consider whether a "technique," such as that embodied in the DECP and the DRE twelve-step protocol, "can be, or has been, tested." Olenowski, 253 N.J. at 147. This technique has been studied extensively over a number of decades. In my original report, I devoted two full sections, Section VIII regarding the New Jersey data (SM Report at 179-221), and Section IX, "Studies and Reports" (id. at 221-86), thus comprising a total of 107 pages, to a rather in-depth discussion of the analysis of the New Jersey data and the reports of these studies. Throughout the studies involving drugs, researchers and analysts based impairment on observed behavior, conduct and manifestations of the subject and tested it against toxicology results. The statistical experts followed the same approach in analyzing the New Jersey DRE data.

The State agrees that there has been extensive testing, and that because of the nature of the subject matter, neither field nor laboratory tests can be perfect, as both are fraught with inherent limitations (Sb9-Sb10). Throughout my previous report, I too acknowledged the many inherent shortcomings and limitations that could not be avoided in the various kinds of studies and analyses. In Section VI, "Limitations in Chemical Testing" (SM Report at

101-14), I explained some of those limitations. The State further argues that the presence of inherent limitations does not prevent these studies from producing results that support reliability of the technique that is at issue in this case.

The defense position is simple and blunt: "It is possible to test whether DREs can employ the protocol to identify drug-impaired drivers, yet that testing has never occurred." (OPDb28). The OPD argues that there are two fatal flaws in the testing procedures that have been used for all these years: There is no clear definition of an "impaired" driver, and the presence of a drug does not, by itself, prove any impairment at the time of operation (OPDb28-OPDb29).

I reject the OPD's arguments out of hand. As to the definition of "impairment" in the context of violations of N.J.S.A. 39:4-50(a), I disposed of this argument with a thorough discussion in my prior report. SM Report at 117-24. The definition is firmly established in our jurisprudence, dating back at least to 1964:

> The language "under the influence" used in the statute has been interpreted many times. Generally speaking, it means a substantial deterioration or diminution of the mental faculties or physical capabilities of a person whether it be due to intoxicating liquor, narcotic, hallucinogenic or habit-producing drugs. In State v. Johnson, 42 N.J. 146, 165, 199 A.2d 809 (1964), an intoxicating liquor case, we stated that "under the

> influence" meant a condition which so affects the judgment or control of a motor vehicle operator as to make it improper for him to drive on the highway. More recently, in State v. DiCarlo, 67 N.J. 321, 338 A.2d 809 (1975), we held that an operator of a motor vehicle was under the influence of a narcotic drug within the meaning of N.J.S.A. 39:4-50(a) if the drug produced a narcotic effect "so altering his or her normal physical coordination and mental faculties as to render such person a danger to himself as well as to other persons on the highway." Id. at 328, 338 A.2d at 813.
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> [State v. Tamburro, 68 N.J. 414, 420-21 (1975).]

Indeed, when presented with those definitions, the defense medical expert, Guzzardi, agreed. He responded: "I agree with that definition, and it seems to be very reasonable to me." SM Report at 123 (quoting 60T52-60T53).

As to the OPD's other argument, that testing against toxicological analysis is inappropriate, I stated throughout my prior report and have again stated in this supplemental report that the substantial credible evidence at the hearing established that toxicology is the "gold standard" in this context, not because it is perfect (it is not), but because it is the best measure available to establish the presence of a drug in a person's system. And I have also stated, and neither the State nor anyone disagrees, that, based on the testimony of medical experts and toxicologists, proof of the presence of a drug does not by itself prove impairment caused by that drug. This is why step twelve,

toxicological analysis, can only support or corroborate an opinion given by a DRE under step eleven, but cannot stand as independent proof of impairment.

The OPD outlines a five-part test procedure that it contends should be utilized (OPDb28). It would consist of a clear and objective definition of impairment, which would then be correlated to a certain standard on a driving simulator. Some members of a test group would then be dosed with a drug until they reach that level of impairment when operating the simulator. DREs would then evaluate those individuals and other individuals in the group who are not impaired under this preset standard when operating the simulator. The OPD cites testimony by Brainerd, but the citations provided contain only a general discussion of testing (52T45-52T50). There is no mention of the five-step test suggested by the OPD.

There is no evidential basis for the OPD's suggested methodology. Further, the evidence establishes that in laboratory studies researchers are unable "to replicate common field conditions, most specifically . . . the dosing levels and multi-drug use commonly seen in the field." SM Report at 274. Without expert testimony explaining how the OPD's suggested test would work, I cannot take judicial notice that it would be fine to keep giving more and more of a toxic drug to an individual until that individual's performance on a driving simulator crossed some performance-standard line. Ethical

considerations and, in some cases laws, set limits on allowable dosing and, in some cases even prohibit any dosing at all with some drugs (such as LSD and opiates) because of the obvious danger to the subject. And who would set the simulator to its "impaired" level, and by what scientific standard? And, what would be the specific terms of the suggested clear and objective definition of impairment?

As I stated at length in my previous report, it is my conclusion that the results of the studies and reports, and the analysis of the New Jersey DRE data, support my finding of reliability of DRE protocol based on the testimony of the witnesses presented by the State. Accordingly, Daubert factor one provides substantial support for my finding of reliability of the DRE protocol based on the testimony of experts.

The second Daubert factor is whether the technique under review "has been subjected to peer review and publication." Olenowski, 253 N.J. at 147 (quoting Daubert, 509 U.S. at 593). The State answers this question in the affirmative, noting that in my prior report I analyzed many such articles and a number of them were published in peer-reviewed journals (Sb10) (citing SM Report at 244-86). The State also points out that several reports that I found particularly relevant and supportive of my reliability finding based on testimony were indeed published in peer-reviewed journals (Sb10-Sb11)

(citing SM Report at 261-72). The State also points out that earlier studies, conducted during the early years of the development of the DECP, were published by NHTSA and, although not published in peer-reviewed journals, were reviewed by other scientists as part of the internal agency review process before publication (Sb11) (citing 21T110-23 to 21T111-12).

The DRE protocol has been the subject of many publications over many years. SM Report at 244-86. The Beirness/Canada study, Vaillancourt study, three Porath and Beirness studies (2009, 2010, 2019), and the 2016 Hartman study were all published in peer-reviewed journals. Id. at 261-69; (48T175). Of these, I found the Beirness/Canada and Vaillancourt studies most relevant and useful because they "assessed the overall reliability of DREs evaluating subjects in the field" and reviewed data from a relatively large number of evaluations conducted over several years. SM Report at 272. While acknowledging the limitations of these field studies (e.g., constitutional and practical limitations make a double-blind study impossible), I found them "supportive of the reliability of the DECP" for reasons discussed in my previous report. Ibid.

Three laboratory studies in the record--the two Heishman studies and the Shinar study--were also published in peer-reviewed journals. Id. at 47, 274-75, 281. However, I found them only "marginal[ly] useful[]" due to serious

limitations in their designs "that rendered the data gleaned unhelpful or distorted if used as a measure for the accuracy of the portions of the truncated DRE protocol that was administered" in those studies. Id. at 282-85. Accordingly, "I d[id] not credit the OPD's contention that the comparatively low accuracy numbers found in these laboratory studies undercut the strong and persuasive findings of the most meaningful field studies discussed above." Id. at 285.

Additionally, I found that SFST studies in the record "show that the inclusion of the SFSTs in the DECP is beneficial and assists the DRE in evaluating whether subjects are physically capable of safely driving a vehicle and in observing many of the signs and symptoms related to detecting ingestion of many types of drugs." Id. at 244. Of these studies, the 2005 Papafotiou study and 2014 Porath and Beirness SFST study were published in peer-reviewed journals. Id. at 238-39.

I summarized my findings regarding the reports and studies as follows:

> Overall, the results of the many studies related to the DECP that have been undertaken since 1985 and that were entered into evidence by the parties support the State's position that the DRE protocol has consistently been found to be a reliable method for detecting impairment by drugs. The findings of the studies discussed in [Section IX], despite the inherent limitations that cannot be avoided in actual law enforcement scenarios, are consistent with my findings regarding the New Jersey data set analysis in

> section VIII, and they corroborate and support my findings regarding the credible expert testimony in section VII ["Toxidrome Recognition"].
>
> [Id. at 285-86.]

My assessment of the peer review and publication factor remains the same as stated above. This factor provides substantial support for the reliability finding I have made based on expert testimony.

Factor three contains two components, the known or potential rate of error and the existence of standards governing the operation of the particular scientific technique. The first component implicates two categories of evidence presented in this proceeding in which error rates were discussed, namely the New Jersey DRE data from 2017 and 2018, and the studies and reports compiled over the last several decades. I provided in my previous report a thorough discussion of these categories in Sections VIII and IX, respectively. The subject matter of the second component of this factor, pertaining to the existence of standards governing operation of the particular scientific technique, namely the DECP and the DRE twelve-step protocol, is covered in Sections IV ("Background to DECP"), and V ("DRE Training") of my prior report. Of course, throughout my entire prior report, commentary on both of these topics is included where applicable.

Before discussing error rates, it is important to note that the so called "errors" are not necessarily errors within the subject matter of this case. As discussed at length in my prior report, the universally recognized gold standard over the decades against which to test an opinion of drug impairment based on observational assessment has been a toxicology evaluation. As I discussed thoroughly in my prior report, and as the parties well recognize, this is not a perfect gold standard. Indeed, there are many aspects of the toxicological testing process that can and do result in missing the presence of an impairing drug in a subject's system even if it is there (or was there at the time of operation). See Section VI of my prior report, id. at 101-14, for a more thorough discussion.

Therefore, when we talk about a DRE making an error by opining that the observed impairment in a subject was caused by a drug, it is said that a negative toxicology result proves that the DRE opinion was wrong. This is not the case. The opinion might very well be a correct one, but the lab did not pick up the presence of the drug for any one or more of the reasons why the presence of drugs is missed. These include, for example: rapid dissipation of the drugs or metabolites; the quantity in the subject's system at the time a biological sample was provided was below the cutoff level for which the lab tests; and the impairing drug was one of many for which laboratories do not or

cannot feasibly test, such as ever-changing synthetic cannabinoids and other frequently changing drugs that are in circulation for street use. Id. at 106-13.

For example, Nelson testified that for some drugs, it is not really even feasible to try to find them through toxicological analysis. He stated: "We don't test for meperidine, for example. We would never find it. We don't test for fentanyl. We wouldn't find it." Id. at 137 (quoting 46T242). Miles explained that "[n]o instrument exists that can provide a readout of all drugs present in a particular biological sample." Id. at 105 (citing 50T81). She elaborated that,

> due to several factors, laboratories "will never test for every drug that's out there," despite diligent efforts to do so and "the best technology today." "So if a DRE finds impairment, opines a category, and our testing is negative, that doesn't mean that the evaluation was incorrect; it likely points to our toxicology is lacking."
>
> [Id. at 106 (quoting 50T79-50T80).]

Verdino explained that the OFS toxicology units in New Jersey do not pursue synthetic cannabinoids:

> At least five years ago we did an evaluation on synthetic cannabinoids, specifically, the JWH line of synthetic cans. And we discovered that the ever-changing face of synthetic cannabinoids was too daunting for the laboratory to keep up with. There's so many being derived every day, and we couldn't – sorry – with a screening test we couldn't keep up.

> And the manufacturers of the screening tests couldn't keep up. The manufacturers of the certified reference materials couldn't keep up. And this type of class [of] drugs needs a specific pretreatment in order to see the drug in biological matrices.
>
> [Id. at 110-11 (quoting 29T21-6 to 17).]

Verdino also testified that the OFS toxicology units do not test for LSD because the sophisticated equipment that is required is not available. Id. at 112. They also do not test for inhalants, but if they have information that the DRE opined that the subject was impaired by an inhalant, they would send the sample to an outside laboratory, because the OFS technology would not pick it up because it dissipates extremely quickly. Id. at 107, 112-13.

The import of this circumstance is that, in this context, error rates, when they are capable of being calculated based on the available data, can at best be described as a conservative metric. In other words, assuming the data is sufficient to allow for reliable calculation of an error rate, that value is the highest that can be calculated. The error rate might actually be lower. Of course, it would be inappropriate to speculate on whether it is in fact lower or how much lower, but it is fair to recognize that it is a conservative top-of-the-line number.

False positives in the DRE context, therefore, are not the same as false positives in many other areas of study. Syndromic analysis is derived from

recognizable patterns of abnormalities, not pathognomonic tests like those used for COVID-19 or HIV. Nelson explained it this way:

> Like the opioid toxidrome would be a nice one where we think about somebody who's got a depressed level of consciousness, they have small pupils, they have depressed respiratory drive, they might have absent or reduced bowel sounds. And those things together, when you see them, while they may not be pathognomonic, meaning diagnostic for, that syndrome, they're very representative of that syndrome; and in the right context, they're essentially diagnostic.
>
> [Id. at 129 (quoting 42T41-11 to 20).]

Nelson also explained the "fundamental distinction [that] is inherent in the definition of a diagnostic test, as distinct from the practice of toxidrome recognition." Id. at 135. He explained that

> in the medical field such things as x-rays, blood tests to detect cholesterol levels, and antigen tests are diagnostic tests because they are "typically fairly objective." They have performance characteristics that are generally very good, "but they tend to rely on a definitive objective standard whereas toxidrome recognition requires piecing together certain pieces of information that individually might be objective or slightly subjective but together paint a coherent picture."
>
> [Ibid. (quoting 46T64-46T65).]

As Nelson expressed it, "If there's a test to order I would say yes. Not everything has a test, but if it does, we would order it." Ibid. (quoting 46T24).

Thus, in the medical context, if there is a suspicion of a broken arm, you order an x-ray, but if no definitive test exists for the suspected condition, and "syndrome" implies there is no diagnostic test, "[t]here really is little in the way of truly credible real-time testing that will help us make a decision as to the actual diagnosis. So we base our decision on next steps based on our syndromic analysis." Id. at 135-36 (quoting 46T24-8 to 18).

Regarding error rates, the State argues that reliability of the DRE protocol is supported by the very low error rates contained in studies on which I relied in my prior report, including the Beirness/Canada, Vaillancourt, and Hardin studies. Accuracy rates in these studies range from about 85 to 95%. Further, the State points to the limited information derived from the statistical analysis of the New Jersey data, where it was impossible to reliably calculate an error rate because the data contained too few negative toxicology results (only 105, of which 82 were false positives and 23 were true negatives). However, although specificity could therefore not be reliably calculated, as a result of which accuracy could also not be reliably calculated, the State points to the one important metric that could be reliably calculated based on the data available, namely sensitivity. This metric measures the ability of DREs to correctly opine the presence of impairing drugs in individuals who have those drugs in their system as established through toxicology testing, which was

calculated "at an extremely high rate, at or approaching 90%." Id. at 220-21. And, although no false positive rate could be reliably calculated based on the small number of cases in the data set with negative toxicology results, the number of those was only 82 out of 2552 non-training cases, or 3.2%. While it is not possible to calculate a reliable false positive rate, this low number of false positives is a favorable factor in supporting the reliability of the process. Further, some of these 82 individuals might have indeed used impairing drugs which were not revealed in their toxicology analysis for the many reasons previously discussed.

The OPD acknowledges that there was not enough data to calculate a reliable false positive rate (OPDb36), and it attributes the low number of false positives to the high prevalence population tested.[3] However, as Schisterman said more than once, that is part of the question being asked, namely what is

[3] Notwithstanding this acknowledgement, the OPD attempts to calculate theoretical error rates (OPDb36-OPDb37). The OPD's initial calculation of a false positive rate is consistent with Martin's specificity calculation (OPDb36; 44T234; 44T237), but Martin himself advised against using the specificity data (43T68; 43T99). Schisterman testified that a reliable specificity could be calculated "if the sample we had was a hundred times bigger" (56T160), i.e., if the State had data from many decades of DWI enforcement. The OPD also recalculates the false positive rate after factoring in all 305 cases in which the DRE opined no impairment and requested no sample as if all these cases were true negatives. The OPD does not identify any expert testimony endorsing this speculative exercise, which also fails to resolve the problems Martin and Schisterman identified with the specificity-related data. These attempts find no support in the evidence, and without expert testimony have no basis for reliability.

the composition of the population in question. Here, it is drivers who were driving improperly and stopped by the police, who after some investigative activity found probable cause to believe the driver was operating under the influence of alcohol or drugs, and then alcohol was ruled out by an Alcotest examination, after which the DRE was called in to evaluate the individual. This is the process that defined the population in question.

Schisterman further opined that the only way to determine sensitivity and specificity with respect to the general population of drivers would be to conduct a test where drivers are pulled over at random and evaluated by a DRE, followed by a toxicology analysis. This, of course, is not a study that is possible due to constitutional constraints and other factors. SM Report at 216-17. However, the results of the data analysis of actual cases over the two-year period were not surprising with the high-prevalence population evaluated, and there is nothing wrong with the results shown. The very high sensitivity rate shows that the DREs are excellent at identifying true positive cases. The low number of false positives, while not establishing a false positive rate, does factor into the corroborative effect of the New Jersey data analysis to my finding of reliability based on expert testimony. Id. at 220-21.

Finally, regarding error rates, the OPD argues that if the State is not capable of proving an error rate that is acceptably low, defendants should not

bear the adverse effects of that lack of proof. I find this argument unpersuasive. With respect to the New Jersey data, it must be remembered that its use in the case was not initiated by the State as part of its proof. At the very beginning of this Special Master proceeding, the defense requested the data by way of a discovery demand made through the case management process, and the State, without opposition, provided it. The purpose for which the defense wanted this information was to have it analyzed by a statistician. Both sides then had it analyzed and all of the statisticians testified. This was not a preplanned study. This was a retrospective analysis of actual cases that occurred in the most recent two years for which the data was then available.

The argument that defendants should not be adversely affected and are therefore deprived of their presumption of innocence and of holding the State to its obligation to prove guilt beyond a reasonable doubt is unpersuasive. The issue in this proceeding is whether DRE evidence is sufficiently reliable to be admissible in evidence. A DRE opinion of drug impairment does not establish a per se violation. A positive toxicology report does not prove impairment, but is proffered only as evidence that might support and corroborate an opinion rendered by a DRE based on that DRE's evaluation. Indeed, a negative toxicology result would favor the defendant.

On the second component of the third factor, namely the existence of standards governing the operation of the particular scientific technique, the OPD has said nothing in its brief. The State points to the long process of initiating and developing the DECP and the DRE protocol until it reached a level of standardization and developed into a program used in all fifty states, all provinces of Canada, and a number of other countries. Along the same lines, the State points to the rigorous training, certification and recertification procedures, the continuing utilization of the Technical Advisory Panel (TAP), and the supervision, administration and support of the International Association of Chiefs of Police (IACP) and the Department of Transportation, National Highway Traffic Safety Administration (NHTSA) as the administrative and regulatory authorities. According to the State, these factors assure that the program is standardized, that it maintains a continuing process, with the advice and input of relevant experts, to continually be aware of new information that might affect the program, and that evaluations by DREs will be performed in accordance with a standardized procedure. These circumstances, according to the State, are very supportive of a reliability determination.

As to the first component of factor three, error rates, I agree with the State, and I reject the argument made by the defense. I find that the error rate

component of this factor does support and corroborate my finding of reliability based on expert testimony, subject to the limitations discussed here and throughout my prior report.

On the second component of this factor, standards governing the operation of the protocol, which the defense did not address, I also agree with the State. Section IV, "Background to DECP," and Section V, "DRE Training," in my prior report deal directly with this second component, and I discuss these same issues in many other places throughout that report. This component of this factor has established and continually maintains a well-organized structure for the DECP that provides careful and competent supervision and management and assures the reliable implementation of the standardized DRE protocol generally, and particularly in New Jersey, which is the subject of this proceeding. I attribute significant weight to this component.

The fourth Daubert factor allows consideration of general acceptance in the relevant scientific community.

The State argues that this factor supports a reliability finding because I have already found that the DRE protocol is generally accepted by the medical and toxicological communities, although by implication because the members of those communities are not generally aware of the protocol. Further, the State relies on my secondary findings, (1) that the DRE protocol is a version of

toxidrome recognition adapted for law enforcement and replicates generally accepted medical practices in identifying the presence of impairing drugs and the likely categories of drugs in individuals exhibiting indicia of impairment, in which alcohol intoxication has been ruled out by an Alcotest examination and there is no evidence that impairment stems from medical or other injury conditions, and (2) that the signs and symptoms recognized by the DRE program as being associated with each of the seven drug categories in the DRE matrix comport with matrices designed for the same purpose and that are used and generally accepted in the medical field. Finally, the State relies on my finding that experts in the medical field accept that laypeople with training comparable to DREs are capable of performing similar evaluations, supporting the conclusion that the training DREs receive is sufficient to enable reliable application of the DRE protocol (Sb17), i.e., to provide DREs with the "specialized knowledge" required by N.J.R.E. 702.

The OPD begins by stating what is undisputed: That I have found that the medical and toxicological communities have not directly or actually generally accepted the DRE protocol because they are generally unfamiliar with it, and therefore this factor is not met. More importantly, according to the OPD, there could not be implied general acceptance because the DRE protocol does not follow the only reliable method used in the medical and toxicological

fields to determine drug impairment as the cause of observed signs and symptoms. The OPD asserts that the only method used for that purpose in the medical and toxicological fields is the differential diagnosis procedure, in which all plausible causes of a condition must be ruled out by testing before a final diagnosis can be reached.

I find the OPD's position unpersuasive. First of all, while I adhere to my finding of general acceptance by implication, the distinction between direct and actual general acceptance versus implied general acceptance is no longer a critical consideration under Daubert principles. As the Court noted, Frye has been criticized as both unduly restrictive and unduly permissive for various reasons, including that it might exclude scientifically reliable evidence that is not yet generally accepted but admit scientifically unreliable evidence that, although generally accepted, cannot meet rigorous scientific scrutiny. Olenowski, 253 N.J. at 150. The Court observed that this is such a case that could be hamstrung by Frye's rigid and uncompromising approach. Id. at 151.

Following the Daubert-type standard now in effect, however, that obstacle is eliminated. Trial courts may now directly assess reliability, basing their ultimate determination on whether the relevant "scientific community would accept the methodology employed by [the expert] and would use the underlying facts and data as did [the expert]." Accutane, 234 N.J. at 400

(emphasis added). Thus, the question comes down to whether experts in the relevant field would accept the DRE protocol as reliable if they were aware of it. Based on Nelson's testimony in particular, and, with respect to the eye examination components of the protocol, also upon the testimony of Fraunfelder, it is clearly established that the medical and toxicological communities would accept the DRE methodology. The testimony of other State witnesses also contributes to that finding, namely the testimony of the two toxicologists, Verdino and Miles, and the optometrist, Citek. And, it is undisputed that the seven toxidrome categories and their respective signs and symptoms in the DRE matrix are the same facts and data used in the medical field. The methodology in conducting the toxidrome analysis is also the same.

Having resolved that preliminary issue under this factor, I will now explain why I reject the OPD's differential diagnosis argument. To begin with, the context in which an individual comes into contact with an emergency physician is because the individual is in very significant distress and that individual and/or others around the individual believe there is a need for immediate medical treatment. That individual enters the emergency department seeking medical treatment.

On the other hand, in the DRE context the typical situation is that a driver has been driving in some improper manner and is stopped by a police

officer. During the roadside interaction, the officer observes the driver's demeanor, including such things as impaired coordination, speech and cognitive function, and poor performance on psychophysical tests. The officer may learn from the driver of consumption of alcohol or drugs either through statements or other evidence. Once sufficient information is gathered, the officer has probable cause to arrest for violation of the DWI law. The driver is taken to the stationhouse where further tests are typically conducted and an Alcotest examination is performed. If the alcohol examination results in either zero BAC or a very low BAC that is inconsistent with the driver's behavior, the officer calls in a DRE for further evaluation. By the time the DRE arrives, the driver has been in constant contact with the police for about two hours.

The DRE then arrives and interviews the arresting officer to be briefed on all of the information then available. The DRE then conducts an initial interview and assessment of the driver, during which the DRE asks a series of required questions about the driver's medical condition, whether he or she is under the care of a doctor or dentist, whether the driver takes any prescription medications and if so in what dosages and when they were last taken, and the like. Appropriate follow-up questions are asked depending on the answers. The DRE also inquires about any injuries or illnesses that might account for the observed behavior, such as loss of balance or impaired speech.

In their training, DREs learn of signs or symptoms of various conditions that might be causing manifestations that are also consistent with drug impairment. These include bipolar disorder, conjunctivitis, diabetes, head trauma, multiple sclerosis, stroke, and shock, specific symptoms of which are explained to DREs in training (25T40; 27T94; 28T43-28T48; S-33 at pdf 269-70). DREs are also advised more generally that seizures, endocrine disorders, infections, and neurological and psychological conditions can mimic drug impairment (28T48-28T49; S-33 at pdf 270).

In both the emergency department and the police department, if indications derived from the time of initial contact point the doctor or the DRE in the direction of drug use, that is the path that is followed in the evaluation, not only to determine and confirm drug use, but also the category of drug. The initial interaction, whether by a medical clinician or a DRE, begins the differential diagnosis process. But the starting point and the circumstances are not the same.

A person comes into an emergency department undifferentiated as to why they are in distress to an extent that they believe they are in need of medical attention. Initial questioning and observations often point the clinician in the direction of probable drug intake. But the need to differentiate between drug usage or a medical condition is more pronounced because that is

the very first contact and the person came because of the belief that medical attention was needed.

In the DRE context, by the time the DRE arrives, the driver has been in the custody of and observed by police officers for about two hours and they have gathered much information, which is passed on to the DRE. The driver is not seeking medical attention for a perceived medical problem. The DRE then obtains more firsthand information, both verbally and from observation of the driver. Putting all of that together with what was learned from the interview with the arresting officer, this driver is typically sufficiently differentiated to point the DRE in the direction of probable drug use as the cause of impairment. So this marks the beginning of the DRE's syndromic process.

As previously stated, because there are no available real-time diagnostic tests, the decision on next steps "is based on . . . syndromic analysis." SM Report at 136 (quoting 46T24-17 to 18). Once this starting point is reached, the applicable process in medicine, which is replicated in the DRE protocol, is to begin differentiating between which drug or drugs are most likely the cause of the observed manifestations. This is done by the eye examinations, muscle tone assessment, vital signs, balance tests, and the whole battery of procedures and information gathering that are included both in the medical profession standards and in the DRE protocol.

In Section VII of my prior report, "Toxidrome Recognition," I discussed this issue:

> Nelson further explained that the diagnostic tests that have the capacity to be definitive to either confirm or rule out the suspected condition have been tested and proven in terms of accuracy and precision and studied in diverse patient populations and diverse settings. Therefore, "we know how it performs when we apply it to our patients and patient populations." [46T31] If some suspected condition has a diagnostic test that's perfect, such that "[i]t's always right or always wrong," you get that test. [46T32] "But for things that don't have tests, that we just have syndromic analysis, it's a little softer to make that decision." [46T32] Thus, Nelson concluded that "[f]unctionally," in the context of searching for the presence of a drug in someone's system, syndromatic analysis or toxidromic analysis [is] the equivalent of a diagnostic test. [46T32]
>
> Regarding the designation of toxicological testing as the gold standard, Nelson commented that "it doesn't have to be perfect, but it's got to be what we've accepted as the best answer we can get." He continued that, in the context of seeking to detect the presence of drugs in a person's system, the syndromic analysis is indeed "a diagnosis." [46T35]
>
> Nelson's position is consistent with the testimony of both toxicologists, Verdino and Miles, that laboratories cannot be expected to pick up every drug that is opined by a DRE. Indeed, many of these drugs are unknown and have no reference standard or testing procedure.
>
> [Id. at 140 (alterations in original).]

Because many factors prevent a toxicological analysis of a urine sample from being capable of almost always producing a definitive "yes-or-no" answer like an x-ray would, the syndromic analysis is paramount. The "gold standard," in this context, is not a panacea. The toxicology result is a "one-way street," meaning that it states the most conservative top-of-the-line estimate of an "error" rate.

In Section V of my initial report, entitled "DRE Training" (Id. at 93-101), I explained that in the field-testing portion of the DRE training program DREs must complete a minimum of twelve evaluations, and at least 75% of those evaluations must be supported by forensic testing applying the more stringent DECP standard. Id. at 99-100. That 75% standard was recommended by toxicologists who head up programs around the country who concluded that a 75% corroboration rate "really was sufficient and really gave them confidence that this is – that the evaluations are working, that the officers are making correct decisions." Id. at 100-01.

Assessing Nelson's testimony in the context of the OPD's differential diagnosis argument, Nelson was very clear about the role of toxicological testing. He said that "the clinical findings are much more important than the drug test results unless the drug test results support the clinical findings. But if it doesn't, then it's easy to explain why it doesn't." (46T75-21 to 24). He

also commented that a positive toxicological result "is something we like to add in to support our diagnosis," which was made based on clinical findings. SM Report at 146. Where there is no definitive test that is available in real time, and, as the word "syndrome" implies, there is no definitive diagnostic test, "we base our decision on next steps based on our syndromic analysis." Id. at 136.

Thus, Nelson's emphasis throughout his testimony was that when dealing with a syndrome, including the toxidromes that DREs look for, it is the evaluator's assessment of the combination of signs and symptoms that take precedence and "when you see these findings in combination in the right patient, they largely predict the category they're listed in." Id. at 137 (quoting 46T242). However, "[t]hey're not perfect. They're syndromes. These are not objective diagnostic tests. But if you got back a [confirmatory] diagnostic test in a patient with this syndrome, then you'd feel pretty good about it." Ibid. (alterations in original) (quoting 46T242).

The record evidence produced by the State very clearly establishes that the syndromic analysis process is a form of the traditional and more involved and time-consuming differential diagnosis process of arriving at a conclusion as to the cause of a condition. In the latter, time is not always critical and definitive testing is available to rule out possible causes for the condition.

Nevertheless, the former is the process that is generally accepted in the medical field and utilized every day in emergency departments, particularly when recent drug use is suspected and no real-time definitive testing is available. Nelson explained that syndromic analysis is a "diagnostic process," and whether it is the same as a physician's diagnosis or something else, he did not have an answer. But in the context of syndromic analysis it is, in that sense, the process by which a conclusion is reached (46T35-9 to 13).

Nelson agreed that "if the clinical signs that you've seen point you in the direction of drug use, . . . you then start to figure out what drug that might be specifically or what kind of -- type of drug." (46T28-9 to 14). When asked what process he would follow, he said "like every other differential[,] drug use has a differential too. And we look at the various signs and symptoms that the patient has. And we rank, prioritize the most likely underlying drug-related cause." (46T28-19 to 25). Nelson explained that the process of toxic syndrome recognition "is important because it provides a tool for rapid detection of the suspected cause and can focus the differential diagnosis to only a few chemicals with similar types of effect." (46T56-15 to 22). He noted that this same importance and method also apply to use of the process by law enforcement, and that law enforcement personnel can easily be trained to recognize toxidromes (46T58-46T63).

In an effort to support its argument that only a full-blown differential diagnosis process, with the use of objective, proven and definitive diagnostic tests to rule out every possible cause of the condition, is the only procedure recognized by the medical profession to make a medical diagnosis, the OPD puts forth three categories of argument. I find none of them persuasive.

First, the OPD presents a series of isolated quotes from Nelson suggesting that he agrees with its position even in the context of a patient where all indications from the history, presenting manifestations, relevant external evidence, and the like point the evaluator in the direction of likely drug use (OPDb7-OPDb10). However, many of these quoted passages deal with Nelson's description of the general practice of differential diagnosis in the medical field, which he would then contrast with the situation of an individual apparently under the influence of drugs, where there are no definitive, accurate diagnostic tests, and certainly none that can be done in real time. Those isolated passages do not present a true picture of the overall thrust of Nelson's testimony. He testified for two full days, and his testimony consumed 532 transcript pages (42T; 46T). Testimony was elicited from him about cases where a full-blown differential diagnosis is appropriate and necessary, which he then explained, but this was to contrast those situations to drug cases.

The second category of evidence consists of citation to a number of medical texts that were entered into evidence "during" Nelson's testimony (OPDb10-OPDb11). The apparent effort is to associate these isolated passages from the texts with Nelson, the State's leading medical expert. While I do not question the authenticity of the quoted language from each text as contained in the OPD's brief, none of these passages are accompanied by any transcript citations to testimony. Therefore, the context of the passages and their relevance to the issues in this case are not known and I do not find this useful in the analysis.

Finally, the OPD discusses ten cases from various jurisdictions around the country, with quoted passages that indicate the courts would not permit medical causation evidence in the absence of a thorough differential diagnosis by the proposed medical expert (OPDb11-OPDb16). These were toxic tort cases and other cases with complex causation issues. In all of them, the plaintiff had a known (and usually very serious) condition of undetermined origin. In many of the cases, that condition was dormant for many years, and there were many possible causes, including such things as diet, lifestyle, smoking, alcohol consumption, natural environmental causes, other medical conditions the claimant had, and the like. The analysis there could be done

deliberatively over an extended period of time with the use of diagnostic testing.

This after-the-fact analysis has no relationship to the need for real-time analysis of a patient in an emergency department in a stressful condition apparently caused by the recent intake of drugs or of a driver in police custody being evaluated for observed impairment in attempting to determine whether recent drug use was the cause, and there are no real-time objective diagnostic tests available. The complex causation cases regarding a known condition of undetermined origin obviously require a thorough and detailed differential diagnosis. But with both emergency department and DRE cases, once the evaluator is pointed in the direction of probable recent drug use a toxidromic analysis process is the appropriate procedure.

Of course, whether an apparent drug user presents at an emergency department or is taken into a police station, the evaluator must be on the lookout for other possible causes and provide for appropriate medical action if indicated. No one questions that doctors and other medical professionals such as physician assistants, nurse practitioners and nurses possess a greater ability than DREs to detect a medical issue. However, that does not mean that DREs are not sufficiently trained and capable of performing this function adequately in the context in which they are evaluating an individual in custody, who has

been in custody for hours, much the same as EMTs and other first responders or medical technicians do. Nelson testified that based on his review of the DRE materials he was confident that DREs could perform all of the functions covered by the protocol, which, of course, would include a reasonable ability of detecting a medical problem.

The methodology used and the data and information relied on by DREs in the toxidromic analysis process in reaching an opinion regarding the ingestion of impairing drugs as the cause of impairment are the same as that used by members of the medical and toxicological communities. Accordingly, the methodology is a generally accepted one within those communities, and members of those communities, if they were aware of the DRE program and all of its particulars, would accept them. This conclusion is derived from the substantial, credible and persuasive evidence presented by the State in this Special Master proceeding. As I previously found, the State has established that the medical and toxicological communities "would generally accept the DRE protocol because it is in all material respects the same as theirs, including the level of training required." SM Report at 310.

Accordingly, factor four, notwithstanding the significant limitation that precludes direct and actual general acceptance, nevertheless does apply because it is the methodology that is dispositive, rather than knowledge of the

overall DRE protocol, which is used in police work and not generally known by members of those communities. I find that factor four, subject to this limitation, nevertheless provides substantial support in favor of the reliability determination I have made based on the expert testimony provided by the State.

Further, the State argues that under the flexible Daubert approach, which is not limited to the four suggested factors for consideration, a number of additional general factors apply and provide further validation for the reliability of the DRE protocol. These include: (1) the background and development of the DECP over the last forty to fifty years, in constant collaboration with medical and toxicological experts, resulting in the development of a technique modeled after that which has been utilized and generally accepted in the medical community for many years but adapted for use in law enforcement by trained police officers; (2) the standardization of the protocol, and the strict standards for training, certification and recertification of those officers, thus establishing their competence to perform the technique reliably; (3) the widespread use of the protocol throughout all fifty states and a number of other countries, under the regulatory authority of the IACP; (4) the ongoing support in this country since the 1970s of the NHTSA; and (5) acceptance by judicial pronouncement in all states in which the highest court

of the state has considered the issue and in some states by court rule or legislative enactment (Sb17-Sb19).

Factors (1) through (4) in this list have played a role in my analysis of the four Daubert factors and should not be double counted as separate factors. I do not give weight to the fifth suggested factor because our Supreme Court has clearly steered clear of designating New Jersey as a "Daubert state" and cautioned that decisions rendered in other states may be persuasive but are not controlling in deciding these issues in our courts. The rationales utilized in many of the states for allowing DRE evidence are many and varied. I discussed this in Section X of my prior report, "Judicial Opinions Re DECP." Accordingly, I do not attach separate weight to these general factors proffered by the State.

V. Conclusion

I first repeat what I stated at the outset: This supplemental report and my earlier report submitted to the Court on August 18, 2022, must be read in conjunction with each other. Throughout this supplemental report I have made numerous references to specific sections in the earlier report and I rely upon and adopt all of my findings of fact as set forth in that report. Because there was no supplemental hearing, the evidential record on which both reports is based is the same.

For all of the reasons set forth in my prior report and in this supplemental report, I conclude that the State has clearly established that the DECP and the twelve-step DRE protocol satisfy the reliability standard of N.J.R.E. 702 when analyzed under the methodology-based Daubert-Accutane standard now applicable to criminal and quasi-criminal cases in New Jersey. This finding is a result of my direct assessment of the reliability of the methodology of the DECP and the DRE protocol, which is based first and foremost on the credible, authoritative and persuasive testimony of the State's experts. This testimony established that the DRE protocol replicates the toxidrome recognition process used in the medical field for reaching a conclusion that an individual is impaired by the ingestion of drugs and identifying the likely category of drugs. The testimony also established that DREs utilize the same facts and data as used in the medical field, as contained in the drug matrices used in both fields, which categorize drugs based on the effects they cause and identify for each category a list of expected signs and symptoms. And, the procedure used by DREs in conducting the toxidromic process replicates the procedure used in the medical field. Therefore, DREs apply their scientifically recognized methodology in the way that those in the medical field practice the methodology, and members of the medical community would accept the methodology employed by DREs (if they were

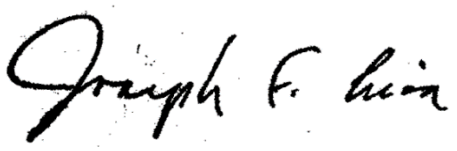
aware of the DRE protocol) and would (and do) use the underlying facts and data as do the DREs.

I also find that DREs can be and are adequately trained to reliably perform the steps in the protocol. This finding is also based on the testimony of the State's experts. This finding satisfies the third prong of the N.J.R.E. 702 reliability standard, i.e., that the witness must have sufficient expertise to offer the testimony. With DREs, the area of expertise is "specialized knowledge."

I further find that all four of the Daubert factors contribute to and support and corroborate my reliability finding, with some limitations as set forth in this supplemental report.

Considering all aspects of the gatekeeping function required by the Daubert-Accutane approach to reliability, DRE evidence, in the form of an opinion or otherwise, meets the requirements of N.J.R.E. 702 and should be admissible in evidence.

Respectfully submitted,



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Joseph F. Lisa, P.J.A.D.
(retired and t/a on recall)

April 13, 2023