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STATE OF NEW JERSEY Plaintiff/ Respondent vs. MICHAEL OLENOWSKI, Defendant/Petitioner	**SUPREME COURT OF NEW JERSEY** Docket No. C-677 QUASI-CRIMINAL ACTION Before the Supreme Court Special Master, Hon. Joseph F. Lisa, P.J.A.D. (ret/recall).

BRIEF OF AMICUS CURIAE
NATIONAL COLLEGE FOR DUI DEFENSE (NCDD)
DUI DEFENSE LAWYERS ASSOCIATION (DUIDLA)
ASSOCIATION OF CRIMINAL DEFENSE LAWYERS OF NEW JERSEY (ACDL-NJ)
NEW JERSEY STATE BAR ASSOCIATION (NJSBA)

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ABBREVIATIONS:

Aa ..... Amicus Appendix

ARIDE ..... Advanced Roadside Impaired Driving Enforcement Course

ACDL ..... Association of Criminal Defense Lawyers of New Jersey

BAC ..... Blood Alcohol Content

CNS ..... Central Nervous System

DEC ..... Drug Evaluation and Classification Program

DIE ..... Drug Influence Evaluation

DRE ..... Drug Recognition Expert/Evaluator

DWI ..... Driving While Intoxicated

DUIDLA ..... DUI Defense Lawyers Association

EMT ..... Emergency Medical Technician

FTN ..... Finger-to-Nose

HGN ..... Horizontal Gaze Nystagmus

LAPD ..... Los Angeles Police Department

LOC ..... Lack of Convergence

MRB ..... Modified Romberg Balance

NCDD ..... National College for DUI Defense

NJSBA ..... New Jersey State Bar Association

NHTSA ..... National Highway Traffic Safety Administration

OAG ..... Office of the Attorney General of New Jersey

OLS ..... One-Leg-Stand

OPD ..... Office of the Public Defender

PCP ..... Phencyclidine, Phenylcyclohexylpiperidine

SFST ..... Standardized Field Sobriety Testing

VGN ..... Vertical Gaze Nystagmus

WAT ..... Walk-and-Turn

PRELIMINARY STATEMENT

The National College for DUI Defense (NCDD), the DUI Defense Lawyers Association (DUIDLA), the Association of Criminal Defense Lawyers of New Jersey (ACDL-NJ), and the New Jersey State Bar Association (NJSBA), hereinafter referred to jointly as "Amici," submit that the State has failed to meet its burden to clearly establish that the 12-step DRE protocol has received general acceptance in the relevant scientific community under the Frye/Harvey test. On the instant record, the State has failed to clearly demonstrate that the DRE protocol is sufficiently based upon valid science in terms of studies, expert testimony, or the New Jersey data set statistical report conducted by Dr. Martin.

In so failing, the record reveals that DREs are not merely technicians or observers; rather, they are performing medical diagnostic tests and interpreting clinical signs and symptoms without sufficient training or experience. Even the medical tests they perform are not sufficiently similar to proper medical procedures and methods to render them scientifically valid. DREs fail to make proper medical judgments and diagnoses. While DRE protocols may mimic medical diagnoses, they are not sufficiently similar to validate them as clinical diagnostic tests which can support proper expert testimony. Thus, despite repeated attempts, the State failed to demonstrate equivalence between the DRE protocol and medical diagnosis.

The limitations, practical or otherwise, of the DRE protocol for identifying drivers impaired by drugs to be unfit to safely operate a motor vehicle, under our laws or any laws, are so great as to render the State's attempts inadequate to establish scientific validity. Innumerable variables--individual tolerance, dosage, time of consumption, drug effects given dosage and active or inactive status with most people being on some prescription medication--diminish the validity and usefulness of the toxicology test and DRE protocol itself.

The true inquiry before this Court is whether the DRE protocol can identify drug-impaired unsafe drivers and rule out those not so impaired. The State has failed to clearly establish that the DRE protocol can sufficiently and reliably identify those who are impaired by drugs to the point where it is unsafe for them to drive. Furthermore, the DRE protocol cannot protect the innocent by sufficiently identifying motorists not under the influence of drugs.

Law enforcement expediency cannot justify wrongful convictions. Our criminal justice system must instill confidence that individuals will not be convicted of DWI or more serious offenses with serious penalties unless drug intoxication is proven beyond a reasonable doubt based on sound reliable evidence. The public should have the confidence that only those who are actually impaired will be taken off the roads for the safety of the motoring

public. In the interests of justice, this Court should reject the DRE protocol as it is not scientifically valid or otherwise fit for use to convict DWI or more serious offenders beyond a reasonable doubt. Drugged driving offenders were, are, and will be prosecuted and punished without the DRE protocol. Obviously intoxicated offenders will still be convicted based upon observations and video-recorded evidence. The State can still prosecute fatal accident and serious injury cases with blood samples and proper expert testimony. But closer cases should be proven using only methods of the highest scientific reliability and validity which are not embodied by the DRE protocol.

With the increasing prevalence and legalization efforts of certain drugs across the United States, proper detection and adjudication of intoxicated drivers has increased in importance. Given the national reputation of our State Supreme Court, its resolution of this issue will have a significant pursuasive impact in other jurisdictions considering the use of the 12-step DRE protocol to detect and convict drug-impaired drivers.

With these principles in mind, this Court should reject the State's attempt to validate the unscientific and unreliable 12-step DRE protocol. The State has failed to establish scientific reliability under the Frye/Harvey test on this record.

STATEMENT OF PROCEDURAL HISTORY

Police charged Defendant Michael Olenowski, now deceased, with DWI and related offenses in Hanover Township Municipal Court, where he was convicted as a third DWI offender. Convicted *de novo* on June 5, 2017, he appealed to the Appellate Division, which affirmed the convictions on November 27, 2018 (Docket No. A-4666-16). Olenowski petitioned the New Jersey Supreme Court for certification, which was granted. State v. Olenowski, 236 N.J. 622 (2019).

On November 18, 2019, the Supreme Court issued an Order (Docket No. 082253) remanding this matter for a plenary hearing to consider whether the testimony of an officer who is a Drug Recognition Expert (DRE) is admissible at trial, and if so, under what circumstances, framing the questions thus:

> 1. Whether DRE evidence has achieved general acceptance within the relevant scientific community and therefore satisfies the reliability standards of *N.J.R.E.* 702, *see* [*State v.*] *Cassidy*, 235 *N.J.*[482,] 491-92 (2017); *State v. J.L.G.*, 234 *N.J.* 265, 301 (2018); *Frye* [*v. United States*], 293 *F.* [1013,] 1014 [(D.C.Cir. 1923)]...;
>
> 2. Whether each individual component of the twelve-step protocol is reliable;
>
> 3. Whether all or part of the twelve-step protocol is scientifically reliable and can form the basis of expert testimony; and
>
> 4. Whether components of the process present limitations, practical or otherwise.

The New Jersey Supreme Court retained jurisdiction and assigned the Hon. Joseph F. Lisa, J.A.D. (retired on recall) as Special Master to conduct the Frye hearing on remand. Judge Lisa allowed various parties to participate with the Attorney General of New Jersey (OAG) representing the State and the New Jersey Office of the Public Defender (OPD) representing the defense. Various amici were also permitted to participate, including the aforementioned Amici.

Judge Lisa convened several case management conferences (1T through 18T)[1] and issued procedural orders. The Frye hearing was held from September 27, 2021 to January 18, 2022 (19T to 61T). After opening statements by OAG and OPD (20T), Judge Lisa heard multiple expert witnesses and received many exhibits in evidence. He ordered briefs to be submitted in lieu of closing arguments by 4:30 p.m. on March 11, 2022. The four Amici submit this brief jointly.

STATEMENT OF FACTS

Amici refer the Court to the facts in the Legal Argument portion of this brief.

[1] Amici adopt the transcript designations set forth in the January 18, 2022, Order of the Special Master (1T to 61T).

LEGAL ARGUMENT

POINT I

THE STATE FAILED TO CLEARLY ESTABLISH THAT THE 12-STEP DRE PROTOCOL IS GENERALLY ACCEPTED IN THE RELEVANT SCIENTIFIC COMMUNITY; THUS, THE PROTOCOL HAS FAILED THE FRYE/HARVEY TEST FOR ADMISSIBILITY.

As recognized by the New Jersey Supreme Court with its remand, the 12-step DRE protocol purports to rely on a novel scientific technique, triggering the necessity to determine admissibility under Frye v. United States, 293 F. 1013 (D.C.Cir. 1923), and State v. Harvey, 151 N.J. 117, 166-17 (1997). After a full Frye hearing, the State, contrary to its claims in opening, failed to "show beyond a reasonable doubt through expert testimony and scientific publications that DRE evidence is admissible" (20T5). The State failed to clearly establish either general acceptance in the relevant scientific community or scientific reliability to support expert testimony.

A. Legal Standard and Overview of DRE Protocol

In adopting Frye, the Harvey Court noted that in criminal cases, deductions by experts as to scientific testimony must be sufficiently established and have gained general acceptance in the particular field in which they belong. Id. at 169. The Harvey Court further stated that a proponent of a newly-devised scientific technology can prove its general acceptance in three ways:

1. By expert testimony as to the general acceptance, among those in the profession, of the premises on which the expert witness based his or her analysis;

2. By authoritative scientific and legal writings indicating that the scientific community accepts the premises underlying the testimony; and

3. By judicial opinions that indicate the expert's premises have gained general acceptance.

[Id. at 170.]

"Proving general acceptance 'entails the strict application of the scientific method, which requires an **extraordinarily high level of proof** based on prolonged, controlled, consistent and validated experience.'" Id. at 171 (quoting Rubanick v. Witco Chem. Corp., 125 N.J. 421, 436 (1991) (emphasis added)). The burden is upon the State in this case to "clearly establish" each of these methods. Harvey, supra, at 170; see also, State v. Cassidy, 235 N.J. 482, 492 (2018), and State v. Johnson, 42 N.J. 146, 171 (1964). "Essentially, a novel scientific technique achieves general acceptance only when it passes from the experimental to the demonstrable stage." Harvey, 151 N.J. at 171.

Indeed, because of the importance of protecting the innocent and requiring stringent proof of scientific reliability, the Appellate Division, applying the Frye test, recently invalidated DNA evidence derived from a low copy number (LCN) used by a medical examiner along with its FST software statistical program. State

v. Daniel Rochat, __ N.J. Super. ___, (App. Div. 2022) (slip op.), decided January 28, 2022, Docket No. A-0103-17.

1. Brief History of DRE Program

The history and nature of the 12-step DRE protocol sheds light on whether any of the Harvey grounds, may justify admission of so-called DRE expert testimony.

The Drug Recognition Evaluator (DRE) protocol is a creation of law enforcement, not science. It was created in the early 1970's by Los Angeles Police Department (LAPD) police officers to deal with an apparent increase in driving while under the influence of drugs (21T198). LAPD then collaborated with the National Highway Traffic Safety Administration (NHTSA) to conduct a curriculum and standardized training program which spread to other states in the 1980s (21T109). Thomas Page helped develop the DRE curriculum (20T200 TO 201). Page testified that the drug matrix used to classify categories of drugs was created by law enforcement (20T201) (S-44) with the intention to assist the DRE (23T113). Only a law enforcement officer may be a certified DRE, and the curriculum is taught primarily by other law enforcement officers (21T102).

The International Association of Police Chiefs (IACP) later became involved to coordinate the Drug Evaluation and Classification (DEC) program, or DRE protocol (20T168). IACP issues minimum standards which all DREs must follow (26T72).

Sgt. Gibson, DRE Coordinator for the New Jersey State Police, testified that the New Jersey DRE program began in 1991, and that there are more than 450 DREs in New Jersey, second only to California (26T49). Gibson further testified that DREs have taken the five-day DWI course, the DUI Detection and Standard Field Sobriety Test course, the two-day ARIDE course and the seven-day DRE Participant's course (26T50). This further demonstrates how the DRE protocol was created **exclusively** by and for law enforcement, not by or through science.

2. Overview of 12 Steps of the DRE Protocol

The 12-step DRE protocol is a 12-part examination that DREs use to supposedly determine if a suspect is impaired, if the impairment is due to drugs or a medical condition, and, if drugs are involved, the category of drug or drugs impairing the suspect. The 12 steps are:

> **(1)** a breath test to apparently rule out impairment by alcohol or the combination of alcohol and drugs;
>
> **(2)** an interview of the suspect by the arresting officer;
>
> **(3)** preliminary examination and initial pulse rate;
>
> **(4)** eye examinations involving horizontal gaze nystagmus (HGN), vertical gaze nystagmus(VGN), and lack of convergence(LOC);
>
> **(5)** four divided attention tests: Modified Romberg Balance Test (MRB), Walk and Turn (WAT), One Leg Stand (OLS), and Finger to Nose (FTN);
>
> **(6)** vital signs of blood pressure, temperature check, and a second pulse rate check;

(7) dark room examination to check pupil size as eye reacts to light sources and an examination nose/mouth for drug use;

(8) check muscle tone;

(9) examine for injection sites and obtain third pulse rate;

(10) interrogate suspect regarding ingestion of drugs;

(11) form an opinion on whether suspect is under influence of drugs, and what category of drug is responsible for the impairment[2]; and

(**12)** collect an oral fluid, urine, or blood toxicology sample for laboratory analysis.[3]

Even a cursory review of the 12-step process suggests scientific principles underlying many of them. In some steps, the police officer, without formal medical or pharmacological training, is asked to perform medical tests upon the suspect and to correlate certain observations with drug use and to identify categories of drugs.[4]

The State has failed to show that the DRE protocol is sufficiently reliable to form the basis of expert testimony under our Rules of Evidence. N.J.R.E. 702 provides the framework for admissible expert testimony in New Jersey: "If scientific,

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[2] The seven categories of drugs are: (a) central nervous system (CNS) depressants, (b) CNS stimulants, (c) dissociative anesthetics, (d) narcotics analgesics, (e) hallucinogens, (f) inhalants, and (g) cannabis (marijuana).

[3] In New Jersey, urine is almost always collected.

[4] For a more detailed discussion of the 12 steps, see the testimony of Thomas Page (21T9-58).

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." This Rule requires that (a) the intended testimony be by a witness with sufficient expertise, (b) the intended testimony concern a subject matter beyond the ken of the average juror, and (c) the **subject of the testimony must be at a state of the art such that the expert's testimony could be sufficiently reliable.** Harvey, 151 N.J at 169 (citing State v. Kelly, 97 N.J. 178, 208 (1984) (emphasis added)). Thus, scientific reliability is a pre-condition to admissibility which the State failed to demonstrate in the present case.

B. Three Prongs of Frye/Harvey Test

1. General Acceptance by the Relevant Scientific Community.

Defining the relevant scientific community is important to the Frye/Harvey analysis and the validity of any judicial decision is affected by this selection. In applying Frye/Harvey to the instant record, we must consider what is the relevant scientific community regarding the 12-step DRE protocol and whether the protocol is generally accepted in those fields.

Frye demands general acceptance in the scientific, not the law enforcement, community. Harvey further illuminates this standard, noting that proof of general acceptance within a

scientific community can be "elusive" and "entails the strict application of the scientific method, which requires an extraordinarily high level of proof based on prolonged, controlled, consistent, and validated experience." 151 N.J. at 171, citing Rubanick, 125 N.J. at 436. While general acceptance need not be unanimous, it must be wide. Harvey, supra, at 171.

The relevant scientific community for the DRE 12-step protocol includes medical doctors, pharmacologists, neurologists, ophthalmologists, psychiatrists and toxicologists. In People v. McKown, 875 N.E.2d 1029, 314 Ill.Dec. 742 (Ill. Supreme Ct. 2007), the Illinois Supreme Court rejected HGN testimony regarding alcohol intoxication under the Frye test. There, the court cited State v. Superior Court [Blake], 149 Ariz. 26. P.2d 171 (1986), and how it set out to define the scientific community as to HGN. Blake found that "it stands to reason that experimental psychologists in behavioral psychology would be interested in verifying the validity of the HGN test and should be considered in the relevant scientific community." Id. at 180.

The relevant scientific community is not the law enforcement community; nor does it include such entities as NHTSA, IACP, and the like. The alleged general acceptance by the "traffic safety community" alluded to by Dr. Fiorentino is not part of the relevant scientific community (49T77).

While various endorsements by regional, state, and local organizations were cited by the State, very few national organizations in these fields have endorsed the DRE protocol. For example, Dr. Guzzardi pointed out that the American Medical Association, the largest medical organization in the country, has not endorsed the DRE protocol (60T43), nor has the American College of Emergency Physicians or the American College of Medical Toxicologists (60T43). Dr. Taylor, a criminologist and research methodology expert, noted that the DRE program and studies do not meet relevant standards for scientific acceptability in the social science community (54T15, 19). Dr. Brainard was not aware of general acceptance of the DRE protocol in the psychological field (52T92). There are presumably hundreds, if not thousands, of organizations in the relevant fields which have not endorsed the DRE protocol.

Perhaps most telling as to the lack of general acceptance came from the State witnesses. Dr. Nelson admitted that the medical field thinks little about DREs, and he could not say if the DRE program was accepted in the medical community (46T106, 119). Dr. Shisterman testified that he never heard of the DRE program and had to be provided with an overview by the State (56T32). Without awareness, there certainly can be no acceptance.

As this Court elicited, many jurisdictions and agencies choose not to have a DRE program, showing that the DRE protocol is

not universally used or "generally accepted" (35T117 to 118). Yet, drugged driving prosecutions carry on. Thus, it is important to step back and view the DRE program in proper context -- as a creation of law enforcement advocated by traffic safety entities seeking endorsements from the legitimate scientific realm.

2. Authoritative Scientific and Legal Writings.

A second method of clearly establishing or satisfying the Frye/Harvey standard for general acceptance in the relevant scientific community is in the form of scientific and legal writings. Despite its arguments to the contrary, the State failed to demonstrate scientific validity and acceptance through either published and unpublished studies or through OAG attempts to validate the New Jersey DRE protocol through allegedly empirical data. One must be familiar with principles of scientific method and methodology to adequately assess the scientific validity of the studies and experiments discussed in the record.

Many experts had their own perspective on these issues, along with their own definitions of various concepts involved with assessing scientific validity. It is easy to get bogged down in statistical analysis. However, some principles are basic to understanding the scientific method and scientific validity. These principles should be applied to each study or writing submitted by either side.

Dr. Brainerd addressed these issues directly and logically (52T). As an expert in experimental psychology, research methodology, research design, and evaluation of research and mathematical modeling (52T40 to 41), he described four principles: (1) a clear testable hypothesis; (2) experimental methods and principles with a known error rate associated to conduct statistical inferences; (3) peer-reviewed publications so there is confidence that other experts have judged the results statistically reliable and based on a proper hypothesis and research methods; and (4) replicability such that that the original investigator or later ones with new subjects can build a literature of replication. This is what Rubanick was referring to by "prolonged, controlled, consistent and validated." The peer review process is also important because this often determines the degree of the validity of results.

Underlying the scientific method are certain biases and sources of conflict of interest which must be considered by the factfinder assessing scientific validity of studies or writings. One important source of conflict is the origination or funding. The more independent of such influence, the more valid the study should be deemed. If an agency pays for the research, this can skew the objectivity of the results (54T56). Dr. Shisterman concurred that what is desired are more diverse studies and independent ones without conflict of interest (57T76).

Sample size or bias in selection of the study sample can also affect the validity of the results. We see this most starkly with the missing data in the OAG data set. The more jurisdictions and subjects involved, the more likely valid generalizations and inferences may be made to a larger population (52T59-60, 62-63). Dr. Adams noted that sample size is deficient in many of the studies, and the larger the sample size, the better (61T210, 217). The ultimate issue is also affected by the proper sample size or population of interest, whether the arrestee or the driving public. See Point II.

Numerous studies correlate levels of alcohol concentration with degrees of impairment, but there are no such studies regarding drug concentrations. Despite citing the NHTSA validation studies from the 1980s, they were neither published nor peer-reviewed (D-23 Compton and D-24 Bigelow). The same is true of a 1994 Arizona "validation" study (D-25). Dr. Fiorentino admitted as much (49T172). Mr. Page also acknowledged that the three so-called DRE foundational studies did not analyze the ability of the DRE to identify medical conditions and no standards exist for DREs to do so (23T71). The three "foundational" studies are the ones cited in the 2018 DRE manual which purport to scientifically validate the DRE protocol (21T127).

Dr. Brainerd also criticized the three so-called DRE foundational studies cited in the DRE manual to validate the

protocol. He noted that any experiment or study should meet the hypothesis as to whether drivers are so impaired that they cannot drive safely (52T52 to 56). The Bigelow study dosed people but had no toxicology results, while the other two foundational studies had toxicology reports but no test of driving impairment (52T56). The lack of any casual link to driving activity is a key defect in many of the studies, as Dr. Earleywine noted (53T14). In the Bigelow study, the three DREs were experienced officers and not a representative sample (52T42).

Dr. Brainerd noted that the Compton study, like the other two reports, was a technical report solicited by and paid for by government agencies (53T43). The Adler/Burns study (D-25) was a retrospective study of only experienced DREs. He also noted that a retrospective DRE study which uses only toxicology results that agree with the DRE opinion does not allow one to say that A predicts B. More negative cases are needed (52T80). Dr. Brainerd also testified that none of these three studies were peer-reviewed (52T67). The three older studies do not follow the scientific method (52T93) and have little influence in the relevant fields (52T75). The State admits it was not arguing these three studies satisfy their burden, adding credence to their lack of validity (52T111). Yet, as Dr. Citek admitted, these three studies were used in the training manual of 2018 to validate the program (37T106).

Other studies proffered by the State are also problematic. Dr. Taylor noted that the 2009 Beirness study (S-332) did not separate the lab from field DRE opinions necessary to analyze the results (54T75-76). The 2007 Beirness study (D-587) was published in the "Canadian Society of Forensic Science" which was in the bottom fifth of journal rankings (54T49). Even so, Dr. Adams pointed out that DRE opinion was only accurate 39.7 percent of the time (61T56 to 57). Amy Adams admitted that the 2010 Porath/Beirness study (S-365) used only completed DRE evaluations which were correct or confirmed by toxicology (51T152). Dr. Earleywine testified that the Hartman (S-108) study only used individuals between 17 and 59 and, incredibly, some of the DREs and subjects knew each other (53T29). Law enforcement was used as a control group and it was known they would not test positive, rendering the study invalid (53T31). Dr. Taylor, after reviewing all the testimony and studies, concluded that the DRE program and studies do not meet the relevant standards for scientific acceptability in the social science community (55T14). As for the 2019 Porath/Waller study (S-140), Dr. Taylor testified that the authors only focused on records where the DRE opinion was confirmed by a blood test ensuring potentially misleading results because the negative results are necessary (55T159).

The Popafotiou 2005 study (S-157) involved marijuana and 40 participants. It concluded that SFSTs were a moderate predictor

of driver impairment. Dr. Guzzardi noted that the Beirness and Popafotiou studies are not mentioned in DRE manuals and that the conclusion on the latter study was not "moderate" as the number of false positives was greater than true positives (60T158). One third of the individuals were identified as impaired when they were not (60T163). Even Dr. Citek similarly noted that the placebo group missed the heel to toe, improper turn, and number of steps just as often as the dosed group, which could lead to a large number of false positives (38T69 to 70).

It is difficult to identify drivers impaired by marijuana (60T30, 39). Delta-9-THC is the active ingredient in cannabis or marijuana (60T25). Most cases with marijuana are not obvious, and the drug stays in an individual's system for three weeks (60T34). Dr. Guzzardi referred to the study by McCartney, et al. (A-56) (60T27-28), designed to see if a presumptive amount of THC could identify impaired drivers, similar to BAC studies (60T28). The study concluded this was not possible (60T30). Regular marijuana users can drive safely if they do not consume a high dose just before operation (60T34).

Misinformation about signs of marijuana abounds among DREs. Sgt. Gibson showed the court a photograph of an alleged "green tongue" as a sign of marijuana use (S-67). He later admitted this idea came from field training and is not in training manuals (28T106). Dr. Guzzardi has seen hundreds of marijuana impaired

individuals but never a "green tongue" and noted that green tongue is not mentioned in the Hartman study (60T36-37). Thus, it is not "generally accepted" that marijuana can cause a green tongue (60T36). The photo was probably ingestion of green herbs (60T37). One can only wonder what other false signs of impairment are being used by DREs.

One study from 1996 concluded that DRE officers were only correct 44 percent of the time when they formed the opinion that the subject was impaired due to drugs rather than alcohol (D-436). Heishman, Singleton & Crouch, Laboratory Validation Study of Drug Evaluation and Classification Program: Ethanol, Cocaine, and Marijuana (1996). Dr. Fiorentino admitted that the two Heishman and Schectman studies were peer-reviewed and eliminated steps two and ten which inject subjective potential bias through interviews and admissions (49T173). Dr. Citek admitted that the Shinar study (D-428) was peer-reviewed and double blind and that the specificity results were only 43 percent--less than a coin toss (37T6 to 8).

These studies and others were also discussed in another case in which a full Frye hearing on the DRE protocol was conducted. In State v. Brightful, et al., 2012 Md. Cir. Ct. LEXIS 1 (Md. Cir. Ct. 2012), the court had the guidance of scientific experts to interpret scientific literature on the DRE protocol. The testimony there was substantially similar to that here. One defense expert was Dr. Jeffrey Janofsky, an associate professor of psychiatry at

Johns Hopkins University School of Medicine. In Brightful, the court cited Janofsky's testimony and stated:

> Peer reviewed and published literature must be performed before a 'technique' like the DRE would be accepted among the medical and scientific communities. He testified that the Heishman Study 1, Heishman Study 2, the Shinar Study, and the Schectman Study represent the extent of the peer reviewed and published literature that exists on the subject of the DRE protocol. He testified that these studies did contain the necessary information for specificity and sensitivity ratios and were conducted in a double-blind fashion. He further testified that the Heishman, Shinar, and Schectman studies conclusively show that the DRE, when tested and looked at appropriately, is not an accurate predictor of the presence of drugs and the four studies show that a police officer's predictions are either no better than chance or worse than chance. (Tr.9/23/10 at 212). Dr. Janofsky noted he could find no scientific literature which correlates nystagmus, pupil size, reaction to light, lack of convergence, pulse rate, blood pressure, or body temperature (all separate components of the DRE) with driving impairment while intoxicated on drugs. (Dr. Janofsky Report, p. 7.)
>
> [Id. at 35-36.[5]] See also D-436, D-428, and A-31.]

Apart from the above writings, the State attempted its own New Jersey "study," collecting data from New Jersey DREs between

[5] See Heishman SJ, Singleton EG, Crouch DJ. (1996) Laboratory Validation Study of Drug Evaluation and Classification Program: Ethanol, Cocaine, and Marijuana, J. Analyt. Tox., Vol. 20, pp. 468-483; Heishman SJ, Singleton EG, Crouch DJ. (1998) Laboratory Validation Study of Drug Evaluation and Classification Program: Alprazolam, d-Amphetamine, Codeine, and Marijuana, J. Analyt. Tox. Vol 22, pp. 503-514; Schechtman E, Shinar D. (2005) Modeling Drug Detection and Diagnosis with the Drug Evaluation and Classification Program, Acc. Anal. Prev. Vol. 37, pp. 852-861 and Shinar D. Schechtman E. (2005) Drug Identification Performance on the Basis of Observable Signs and Symptoms, Acc. Anal. Prev., Vol. 37, pp. 843-851.

2017 and 2018 and placing the data in various categories (43T21). However, Dr. Brian Martin admitted that he simply deleted the missing 27 percent of toxicology reports from the data set, knowing that their absence was not random (43T80, 44T5). As such, this was an inadequate attempt as experts from both sides opined that the OAG missing data in missing toxicology reports was problematic.

Dr. Taylor testified that a diagnostic test cannot be evaluated for predictive validity without all the data (54T92). The deletion of the 27 percent of missing toxicological reports from the dataset did not meet scientific standards (55T15). Dr. Taylor opined that, after accounting for the missing data, there was only a 50-50 chance of the DRE correctly identifying drug impairment (55T132 to 133), and that other factors such as admissions by the arrestees affected the connection between the DRE opinion and the toxicology results (55T88).

Dr. Shisterman, the State's rebuttal witness, testified that missing data in the OAG dataset was a source of bias as to specificity (57T55). Specificity involves the ability of the DRE to recognize true negatives (56T42). The impact on specificity was so great that Dr. Shisterman did not feel the specificity results could be reliable (56T114 to 115). There were simply not enough true negatives; this skewed both specificity and sensitivity (56T143; 149).

Dr. Shisterman also opined that the OAG dataset does not allow for a determination that someone who is not impaired would be correctly identified by the DRE (57T93). Dr. Martin similarly opined that the remaining data showed a low 21 percent success rate at identifying those not under the influence on the roadside data (44T237). Dr. Shisterman also noted that 105 drivers were pulled over with negative toxicology results, and 80 of those were incorrectly identified and criminalized (57T123).

Dr. Adams reaffirmed concerns of Drs. Taylor and Shisterman as to the OAG dataset, noting that the range of specificity was so broad it could not reliably measure specificity and that his analysis showed the specificity was within a range of 2 percent to 22 percent (61T220 to 222). The missing data also affects accuracy, as this is a function of specificity and sensitivity, the former of which could be anywhere from 0 to 100 percent in the OAG dataset, according to Dr. Shisterman (56T143, 149).

Thus, at a minimum, there is serious disagreement among experts as to the general acceptance of the 12-step DRE protocol. The State has not clearly established this prong of the Frye/Harvey test by any quantum of proof.

3. Judicial Opinions.

The State asserted in its opening it would satisfy its Frye/Harvey burden with expert testimony, publications, and DRE evidence, and not with the judicial opinions prong of the test

(20T5). Regarding both judicial decisions and authoritative legal and scientific writings, Harvey states that "when reviewing a decision on the admission of scientific evidence, an appellate court should scrutinize and **independently** review the relevant authorities, including judicial opinions and scientific literature." 151 N.J. at 167 (emphasis added). While the State does not rely on the judicial opinions prong of Frye/Harvey, this Court should.

The only published New Jersey cases to consider drug impairment in a possibly relevant context are State v. Bealor, 187 N.J. 574 (2006), and State v. Doriguzzi, 334 N.J. Super. 530 (App. Div. 2000). Bealor did not involve the validity of the DRE protocol and only concerned marijuana. The analysis in Doriguzzi is persuasive. That court used the Frye/Harvey test to invalidate the HGN expert testimony because it was scientific, and the court could not take judicial notice of its general acceptance based on judicial decisions and scientific writings. The State's arguments in Doriguzzi--that HGN was merely an observation of the officer and not scientific--were similar to the Attorney General's in this case. See id. at 536. There, as here, the State failed to show by expert testimony the general acceptance of HGN by the scientific community. See also City of Wichita, 341 P.3d 1275, 1283 (Sup. Ct. Kan. 2015), in which the Supreme Court of Kansas stated, "And at this point in the state of Kansas, the HGN test has no more

credibility than a Ouija Board or a Magic 8 Ball." As such, the Special Master should similarly reject the rulings below which purport to validate the 12-step DRE protocol based solely on judicial decisions. The Supreme Court's remand in the present case further implies that the State has not and cannot satisfy the judicial opinion prong of the Frye/Harvey test.

This court may consider case law from foreign jurisdictions. In Doriguzzi, supra, the court noted, "General acceptance within the scientific community consists of more than just counting up how many cases go in a certain direction. General acceptance is not an end in itself." Id. at 546. A qualitative analysis of the out-of-state cases dealing with the DRE protocol and applying the Frye test reveals that the 12-step DRE protocol should not be accepted as admissible expert testimony.

In those states which apply the Frye test, two supreme courts, one court of appeals, and one circuit court have examined the 12-step DRE protocol under that standard. The Washington Supreme Court found the protocol to be scientific under Frye. The Minnesota Supreme Court and the Florida Court of Appeals ruled that the DRE protocol was not a novel scientific technique. In the comprehensive 2012 decision, based upon a full hearing of multiple experts on both sides, a Maryland circuit court found the DRE protocol to be scientific but to fail the Frye test.

In State v. Baity, 991 P.2d 1151 (Wash. 2000), the Washington Supreme Court analyzed the DRE protocol under the Frye test and held that it constituted novel scientific evidence. Id. at 1153. The court then determined that the relevant scientific community was NHTSA, the IACP, the American Bar Association, and the American Optometric Association, and this community had generally accepted the DRE protocol. Id. at 1160. The court held that the DRE evidence was admissible scientific evidence and that DRE officers were properly qualified experts. Id. at 1161. The major flaw in Baity was the definition of the relevant scientific community. As argued above, law enforcement entities such as NHTSA and IACP are not scientific ones. Both of these organizations are long-time proponents of the DRE program, and both have a vested interest in its acceptance and use. Id. at 1154. "[G]eneral scientific recognition may not be established without the testimony of 'disinterested and impartial experts,' disinterested scientists whose livelihood was not intimately connected with' the new technique." People v. Tobey, 257 N.W.2d 537, 539 (Mich. 1977), citing People v. Barbara, 255 N.W.2d 171, 180 (Mich. 1977). The American Bar Association is not part of any scientific community. Moreover, optometrists are not physicians.

In State v. Klawitter, 518 N.W.2d 577 (Minn. 1994), the Minnesota Supreme Court determined that the DRE protocol was not sufficiently scientific to require a Frye analysis. There, the

defendant was charged with being under the influence of marijuana. The court deemed the protocol a list of things or observations by a trained officer. Id. at 584. While deemed "out of the ordinary," the court found HGN and VGN were not new or emerging scientific techniques. Ibid. As such, the Klawitter Court failed to properly analyze the DRE protocol under the Frye general acceptance standard. However, the court did find that the DRE testimony could not be used as expert testimony, but only as to whether the individual was under the influence. Id. at 585.

Klawitter and other cases also failed to recognize that the DRE protocol as an integrated whole 12-step process is novel and emerging and far from scientifically valid. Williams v. State, 710 So.2d 24 (Fla. Dist. Ct. App. 1998), followed the Klawitter Court in holding that the DRE protocol was insufficiently scientific to trigger the Frye test. Williams at 25. The court erroneously reasoned that the majority of tests of the DRE protocol were not beyond the ken of the average juror and just because some of the other tests were borrowed from the medical profession did not give the protocol scientific status. Id. at 28. While the HGN, VGN, and LOC were deemed scientific, the Williams Court found them not to be new or novel and thus not subject to the Frye test. Ibid. However, unlike Klawitter, any officer who testifies with a foundation could be deemed an expert. Williams at 41, n.23. The officer is testifying as an expert based upon testimony which

is not outside the ken of the average juror. Because the purpose of Frye is to ensure that expert testimony is sufficiently reliable, the reasoning in Klawitter and Williams is simply erroneous and should not pass the scrutiny of this Court.

As stated in Doriguzzi, supra, "Reliance upon other courts' opinions can be problematic: 'unless the question of general acceptance has been thoroughly and thoughtfully litigated in the previous cases,...reliance on judicial practice is a hollow ritual.'" 334 N.J. Super. at 545, citing McCormick Sec. 203, at 870 n.20. Reliance on judicial decisions and even analysis of scientific writings should depend upon the quality of the underlying record.

Only where a full hearing with extensive scientific expert testimony from both sides has occurred may a court adequately analyze general acceptance of the 12-step DRE protocol. Such a case was litigated in a Maryland county circuit court in 2012. In State v. Brightful, et al., 2012 Md. Cir. Ct. LEXIS 1 (Md.Cir.Ct. 2012)[6] (Aa-1), the court directly considered general acceptance of the DRE protocol under Frye, and the admissibility of DRE expert testimony under Maryland law and its evidence Rule 702. The court heard 10 days of expert testimony which included six government

[6] Although unpublished, the opinion is cited and attached under R. 1:36-3. Amici are unaware of any unpublished opinions with full hearings to the contrary.

experts and three defense experts: Dr. Francis Gengo, a clinical pharmacologist, Dr. Neal Adams, an ophthalmologist at John Hopkins University's Wilmer Eye Institute who also testified in this case on behalf of the defense, and Dr. Jeffrey Janofsky, an associate professor of psychiatry at Johns Hopkins School of Medicine. The Brightful court made these findings of fact and conclusions of law:

> The DRE protocol fails to produce an accurate and reliable determination of whether a suspect is impaired by drugs and by what specific drug he is impaired.
>
> The DRE training police officers receive does not enable DREs to accurately observe the signs and symptoms of drug impairment, therefore, police officers are not able to reach accurate and reliable conclusions regarding what drug may be causing impairment.
>
> The State failed to prove by a **preponderance of the evidence** that the drug evaluation and classification program is not new or novel and is generally accepted within the scientific community and, therefore, it is subject to analysis under *Frye v. United States* and *Reed v. State.*
>
> The drug evaluation and classification program does not survive a *Frye/Reed* challenge because it is not generally accepted as valid and reliable in the relevant scientific community which includes pharmacologists, neurologists, ophthalmologists, toxicologists, behavioral research psychologists, forensic specialists and medical doctors.
>
> For the reasons set forth above, the Court hereby grants Defendants' Motion to Exclude the Drug Recognition Expert Protocol and Drug Recognition Expert Opinion.
>
> [Id. at 39-40 (emphasis added).]

The State in Brightful failed to satisfy the preponderance of the evidence standard to prove general acceptance--a standard less stringent than the "clearly establish" showing required in New Jersey. This Court should follow Brightful.

POINT II

MULTIPLE COMPONENTS OF THE 12-STEP DRE PROTOCOL ARE NOT SCIENTIFICALLY OR OTHERWISE RELIABLE TO PROPERLY FORM THE BASIS OF EXPERT TESTIMONY USED TO CONVICT A MOTORIST BEYOND A REASONABLE DOUBT OF DRIVING WHILE INTOXICATED BY DRUGS, OR OTHER SERIOUS OFFENSES.

Ample evidence (or should we say the lack of evidence) shows that multiple steps of the 12-step DRE protocol are simply invalid and unreliable not only because they have not been scientifically tied to identifying significant drug impairment but also because the actual methods and procedures used in the steps are erroneous and not medically acceptable or generally acceptable in the medical or scientific community. The same applies to the DIE as a whole.

Unrebutted testimony by Dr. Guzzardi and Dr. Adams supports this conclusion. Dr. Guzzardi is a medical doctor with many years of experience in the emergency room and poison center (59T7-8, 14). He has examined hundreds of individuals for drug intoxication and is thoroughly familiar with the DRE protocol, having testified about it in many courts and having personally performed 11 of the 12 tests the DRE protocol seeks to mimic (59T14, 30). The Court deemed Dr. Guzzardi to be an expert in general medicine, medical

toxicology, DIE (DRE protocol) and SFSTs (59T68). Dr. Adams, an expert with impeccable credentials in general medicine and ophthalmology, has testified in many states on the validity of the DRE program (61T15-27, 34). As our Supreme Court directed, we now address the purported scientific reliability of each of the 12 steps, individually and collectively, even though the State's expert, Page inexplicably believes it makes no sense to do so (21T97).

STEP 1 - BREATH ALCOHOL TEST:

The initial breath test to rule out alcohol is unobjectionable if done within the confines of correct procedures set forth by our State Supreme Court (59T86-87).

STEP 2 - INTERVIEW OF ARRESTING OFFICER:

The second step of the DRE protocol involves the DRE officer interviewing the arresting officer to learn of the latter's observations and information about the arrestee. In New Jersey, the DRE is typically called into the police station after a full custodial arrest of the subject has taken place, presumably upon probable cause of DWI by something other than alcohol. This step is controversial because it involves a strong potential for confirmation and verification bias and its impact upon the "population of interest" in terms of evaluating the scientific validity and reliability of the DRE protocol.

As State witness Dr. Shisterman pointed out, using only subjects who have been identified through some type of early test or screening process implicates verification bias because the DRE is influenced by the prior probable cause finding and testing by the arresting officer (57T57). Dr. Shisterman also described this as "referral bias," noting that it inflates the sensitivity (identifying true positives) and deflates specificity (identifying true negatives) (56T77). Dr. Guzzardi also testified this step is a source of potential confirmation bias (59T90).

More profound than referral bias is the determination of the population of interest. Dr. Shisterman described this determination as depending on the question you are studying (56T80). While the State has argued that only arrestees subject to the DRE process are the relevant population of interest, further reflection and analysis suggests that such a view is scientifically incorrect and skews a proper evaluation of the validity of the DRE protocol. This Court expressed concern about defining the proper population of interest (57T20 to 21).

Dr. Shisterman explained that, as to sensitivity, the DRE program is high if the population of interest is limited to arrestees (56T80). However, without a sufficient sample of true negatives, scientific validity cannot be properly assessed (57T22). Even the issue of false positives, which impacts driver liberty, cannot be sufficiently analyzed based on insufficient

data as in the New Jersey OAG study, according to Dr. Shisterman (57T23). Thus, the proper sample or population of interest is all adult drivers – not just arrestees, as opined by Dr. Earleywine (53T28). The proper way to look at this issue is to consider the desire to eliminate or lessen false positive results. Any reliable diagnostic test should work with a ten percent prevalence rate or one over 50 percent. Even Dr. Citek noted that changing prevalence changes accuracy (35T151), and that arrestees, as a group, have a high prevalence of impairment (35T210). Should we measure the accuracy of a sharpshooter by how many fish he or she can shoot in a barrel? We think not. As Dr. Shisterman stated, when searching for the best diagnostic equipment or test, we want both a high sensitivity and a high specificity (57T9), and as Dr. Taylor stated, whether and to what extent the DRE adds to the results after the arrest or stop is important (54T22).

To analyze how reliable the DRE protocol is at identifying unimpaired motorists, the population of interest must be broadened beyond arrestees with their high prevalence rate of impairment. Even State witness Dr. Fiorentino admitted that an inappropriate prevalence rate as to impairment is a weakness in a scientific study (48T132). Thus, the State would need to clearly establish the reliability and accuracy of the DRE protocol to a larger population of interest to prove the protocol meets the Frye/Harvey

standard. We urge this Court to consider the impact on the general motoring public in assessing the DRE protocol.

STEP 3 - PRELIMINARY EXAMINATION AND FIRST PULSE:

As Dr. Guzzardi explained, while it is proper to obtain as much information as possible when performing a diagnosis, this can be a form of potential confirmation and other bias, as DREs routinely interview subjects about drug use or obtain information from the arresting officer. However, DREs are not trained to understand the nuances of taking a medical history (59T96), and the way questions are asked could influence how the answers are interpreted (59T91). DREs take a rudimentary medical history to rule out a medical condition by asking six questions: (1) Are you sick or injured? (2) Do you have physical defects? (3) Are you diabetic or epileptic? (4) Are you taking insulin? (5) Are you under a doctor or dentist's care? (6) Are you taking medications or drugs? (59T98) (A-45). These six questions are not adequate to take a medical history or to determine driving impairment (59T98, 102).

DREs are not trained and do not have a sufficient medical background to understand the implications of the answers to these questions or to ask follow-up questions (59T98-99). In New Jersey, DREs typically receive only about 56 hours of DRE training, 16 hours of ARIDE training, and 24 hours of SFST training (28T91). As Sgt. Gibson testified, there are no follow up questions in the

manuals (28T65 to 66). In stark contrast, medical doctors go through four years of college, three years of medical school, and internship, residency, and other training for years.

Physical defects could have multiple meanings such as weight, age, and back issues; seizures can occur without epilepsy or diabetes, the latter of which can have complications unrelated to insulin (59T99 to 100). To perform a proper diagnosis, the DRE would have to know – at a minimum – the medications the subject is taking, their doses, and potential side-effects of that medication (59T100).

As Dr. Guzzardi correctly concluded, the medical history taken by the DRE is not only inadequate but would never be considered generally accepted in the medical community (59T101). The DRE simply cannot sufficiently interpret medical history to determine if any impairment rendered the motorist unable to safely drive (59T102).

STEP 4 - EYE EXAMINATION (HGN, VGN, LOC):

The **HGN** test, an integral part of the 12-step process, has been held by our Appellate Division to be a novel scientific test which may not be used in the case in chief to prove even alcohol intoxication. See State v. Doriguzzi, 334 N.J. Super. 530 (App. Div. 2000). There is nothing in this record to counter this settled conclusion relative to drug impairment.

Dr. Guzzardi testified there are no direct studies which show that HGN or VGN can identify unsafe drivers (59T103). He has never seen HGN or VGN performed correctly under IACP standards, as it takes 80 seconds for both eyes with HGN and the DRE shortens or truncates the test (59T104). Dr. Guzzardi concludes that impairment cannot be detected by HGN, and that HGN is not generally accepted in the medical community for determining impairment by drugs (59T105).

Dr. Adams, who testified extensively about HGN and the eye tests in the context of the DRE protocol, noted that 300 different diseases or medicines can cause nystagmus (61T80) and that even an ophthalmologist cannot determine if a subject is impaired by a drug from these eye findings (61T56). Nystagmus, as defined by NHTSA, is jerking of the eye (61T63). In actuality, nystagmus is a slow drift from where the eye is supposed to be looking and not a jerk (61T64). Any data derived from this wrong definition is "garbage in and garbage out" (61T73). Moreover, there are 20 different types of eye movements that look like nystagmus but are not, including saccades, saccadic intrusion, square-wave jerks, square-wave pulses, macro saccadic oscillations, saccadic pulses, saccadic oscillations, ocular flutter, flutter dysmetria, micro flutter, voluntary saccadic oscillations and opsoclonus (61T66). It is difficult for even an ophthalmologist to distinguish between them (61T66).

Horizontal nystagmus is horizontal beating nystagmus (61T67). NHTSA's HGN test has three components: (1) end gaze nystagmus, (2) onset of nystagmus and (3) lack of smooth pursuit (61T63). The DRE does not even identify slow drift which, by its correct definition, is nystagmus (61T69). Moreover, the "jerks" seen could be from saccades which are normal (61T69). To perform a proper eye exam for nystagmus, Dr, Adams describes 11 steps (61T69 to 71). But these procedures and nuances are not taught to DREs (61T72). Dr. Adams also noted the 2005 Shinar and Schectman study (D-428) shows sensitivity of 72 percent, specificity of 43 percent, and false positives of 57 percent for HGN (61T75). Lack of smooth pursuit under the DRE manual involves a jump to catch up, but this is not true as it depends upon object speed, background, and the environment the subject is in (61T84). Many things can affect smooth pursuit such as age, diabetes, dry eye, stress, tiredness and medications (61T86). The DRE simply cannot make these distinctions (61T86).

The State's video demonstration (S-97) of HGN performed by Sgt. Gibson, a highly trained DRE state coordinator, shows he got it wrong, according to Dr. Adams (61T130 to 144). The three minutes excerpt involving the eye tests was entered into evidence as D-594. This shows that Sgt. Gibson took 22 seconds when he was supposed to take 16 seconds, as timing is important according to the studies, which renders the test as improper (61T134 to 137).

Timing is everything when it comes to HGN, if the officer does it too quickly, he can cause "fatigue nystagmus[7]" (S-31). It would be difficult to ensure or expect DREs in the field to take the proper 16 seconds (61T137). Gibson also did not have the stimulus in the correct position and had the subject look vertically, which is incorrect (61T132 to 134). Moreover, Dr. Adams observed three jerks of the subject's eyes on the video at maximum deviation (61T139 to 141). Thus, even if the HGN or other eye tests were scientifically valid as indicators of drug impairment, their improper performance renders them unreliable. Dr. Adams opined, in his expert opinion, that HGN is not generally accepted in the medical community as an accurate diagnostic tool (61T110).

Dr. Guzzardi testified that **VGN** is not generally accepted in the medical community for determining impairment by drugs and is only useful to identify PCP, not impairment (59T106). Certain neurological conditions may cause VGN, but not other drugs (59T105).

Regarding **Lack of Convergence** (LOC), Dr. Guzzardi testified that he has examined many patients for this condition and noted that, if he used this test to detect drugs, he would first check the subject's vision (59T108). A significant number of individuals with LOC have visual abnormalities, and this test is generally not

[7] See Advanced Roadside Impaired Driving Enforcement Participants Manual ARIDE), page 63, admitted into evidence as S-31.

used to detect drug impairment in the medical field (59T108-109). As such, this test is potentially more misleading than probative of drug impairment (59T109). Dr. Adams testified that convergence involves both eyes looking at a single object and all people have lack of convergence (61T89). The issue is when is this condition normal (61T90). Using the DRE protocol, one fourth to one third of all people will have LOC (61T91). Even Dr. Citek admitted that the LOC test has no clues or independent validation study as to BAC or drug use (36T61 to 66).

STEP 5 - DIVIDED ATTENTION TESTS (WAT, OLS, FTN, MRB):

The fifth step of the 12-step DRE Protocol involves the administering of four divided attention tests supposedly designed to test cognitive and motor function (59T110). Dr. Guzzardi has performed many such tests (59T111) and testified at length as to each of the four tests.

The Modified Romberg Balance Test (MRB) is a modification of the Romberg Balance Test used in the medical community as a potential sign of drug impairment, given that some drugs can affect balance (59T117). Medical personnel did not make the modifications to the test, and Dr. Guzzardi did not know who made them, even after searching the literature (59T118). Dr. Citek testified that tilting the head back is not a method utilized in the medical community and this modification was invented by the law enforcement community (37T214 to 215).

The Romberg Balance Test, unmodified and used by doctors, tests balance and the cerebellum function (59T112). In citing an accepted medical text (A-47), Dr. Guzzardi described the proper Romberg Balance Test performed by medical doctors. The patient stands in front of the examiner with feet together and heels and toes touching. The examiner first does a baseline test with eyes open (59T124) and then instructs the patient to extend her arms with palms facing up and eyes closed. If there is no movement, the test is negative. If there is swaying for balance, the test is positive (59T114 to 115). The DRE, in performing the MRB, has the subject tilt the head back with eyes closed for what the subject estimates as 30 seconds, then open the eyes, tilt the head forward, and say stop (59T122).

In contrast to the DRE procedure, doctors do not have the patient tilt their head back as this distorts the vestibular canals, inducing sway (59T116). Nothing in the DRE protocol manuals or scientific literature defines what amount of sway is normal (59T117). Medical doctors do not have the patient estimate the passage of time, as the DRE does (59T117). No study or literature explains the function of this passage of time component regarding drug impairment (59T125). This is novel and not accepted in the medical profession (59T126). Doctors also do a baseline test with eyes open. Again, this modified test is not standardized which alone renders it unreliable. Dr. Guzzardi noted that he has

never observed any medical personnel perform the DRE-created MRB (59T119). Doctors do not use it. Its results are subjective and not generally accepted in the medical or scientific community, peer-reviewed, or scientifically correlated with the inability to drive (59T119, 127-28).

The Finger-To-Nose test (FTN) is a neurological diagnostic test designed in legitimate medicine to test understanding, visual, and cerebellar function (59T129). Dr. Guzzardi has conducted this test often on patients (59T129). Neither the MRB nor FTN, as performed by DREs, has validating clues or decision points as they are not standardized or scientifically valid. The proper method to medically conduct this test is to ask the patient to touch their nose and the examiner's finger quickly and smoothly. The main point of the test is to see if the patient can approximate the nose (59T132). The examiner holds a finger at arm's length, and the patient touches the finger and then his or her nose. This is repeated several times and the patient is asked to close the eyes and repeat the movements. If a cerebellar disease is present, the patient will overshoot the target or have a tremor as the finger approaches the target (59T131) (A-47, p.628). The FTN test is difficult to use to find a cognitive deviation (59T132). For demonstrating the correct method of conducting the FTN test, see A-63. Dr. Guzzardi stated that it takes experience to do the test correctly and to interpret the results (59T134).

While FTN is accepted in the medical community to determine cerebellar dysfunction and other medical causes, the DRE performs it differently which renders it unacceptable (59T137 to 139). According to the ARIDE instruction manual (A-46), the DRE has the subject stand with arms at side and not in front. The eyes are closed for the entire exam when they should be open for proper understanding. Dr. Guzzardi noted that no text, book, or article in the literature references this method of conducting FTN. It is not accepted in the general medical, emergency medical, or medical toxicology community for determining impairment or intoxication by drugs (59T138).

As for the walk-and-turn (WAT) test, Dr. Guzzardi testified that drugs can affect the central nervous system, muscles, and the ability to understand commands. But understanding the subject's gait and manner of walking is the important neurological test (59T139 to 140). Without proper understanding of the gait, it is impossible to know what the WAT test indicates (59T142). As there are many causes of abnormal gait, it is difficult to link it to alcohol or drugs (59T142). That is why, in medicine, the patient is asked to walk on their toes, on their heels, and in tandem to determine gait (59T144). The DRE test is more designed to see if instructions can be followed and does not appear in medical texts. Nor is it accepted in the medical or medical toxicology communities for determining impairment by drugs (59T145 to 146).

Like WAT, the one leg stand (OLS) test is not accepted in the medical community for determining impairment by drugs for the same reasons Dr. Guzzardi previously described (59T145). WAT and OLS have not been scientifically validated for drugs (59T156). No text or article specifically links SFSTs or the DRE protocol to drug impairment such as to be unsafe to drive (59T157). As noted in Goldfrank's Text, Chapter 11, (Aa48), Dr. Palmer noted that the early studies of the field sobriety tests were of limited scientific merit (59T157 to 159).

Dr. Guzzardi further opined that the four tests in this step combined are not generally accepted in the medical community for determining drug impairment (59T159 to 160). Mr. Page admitted that the SFSTs are only "validated" as to alcohol and not drugs (25T93). Even the San Diego SFSTs Validation Study warned against relying too heavily on SFSTs as to determining driving impairment. As Dr. Guzzardi read from the NHTSA sponsored study:

> Many individuals, **including some judges**, believe that the purpose of a field sobriety test is to measure driving impairment. For this reason, they tend to expect tests to possess "face validity," that is, tests that appear to be related to actual driving tasks. Tests of physical and cognitive abilities, such as balance, reaction time, and information processing, have face validity, to varying degrees, based on the involvement of these abilities in driving tasks; that is, the tests seem to be relevant "on the face of it." Horizontal gaze nystagmus lacks face validity because it does not appear to be linked to the requirements of driving a motor vehicle. The reasoning is correct, but it is based on the incorrect assumption that field

> sobriety tests are designed to measure driving impairment.
>
> Driving a motor vehicle is a very complex activity that involves a wide variety of tasks and operator capabilities. It is unlikely that complex human performance, such as that required to safely drive an automobile, can be measured at roadside. The constraints imposed by roadside testing conditions were recognized by the developers of NHTSA's SFST battery. As a consequence, they pursued the development of tests that would provide statistically valid and reliable indications of a driver's BAC, rather than indications of driving impairment. The link between BAC and driving impairment is a separate issue, involving entirely different research methods. Those methods have found driving to be impaired at BACs as low as 0.02 percent, with a sharp increase in impairment at about 0.07 percent (Moskowitz and Robinson, 1988; Stuster, 1997). Thus, SFST results help officers to make accurate DWI arrest decisions even though SFSTs do not directly measure driving impairment.

A-31 and 59T154-55.

The distinction between a screening tool for arrest and evidence of driving impairment itself is a crucial one that runs throughout this record. Even so, the San Diego Study exposed an unacceptable false arrest rate for the three SFST battery, HGN/WAT/OLS. As Dr. Guzzardi noted, HGN had a 37 percent false arrest rate (59T151-52)(A-31), WAT had a 53 percent false arrest rate (59T152-53)(A-31). The OLS has a 41.3 percent false arrest rate (A-31).

Because the three test battery has poor specificity, it undermines a DRE's ability to recognize true negatives. Given the high false arrest rate, the poor specificity of HGN/WAT/OLS to determine impairment by drugs or alcohol, and the high likelihood

that courts will misunderstand their intended purpose, the Court should expand the holding in Doriguzzi to disallow the use of WAT and OLS as proof of impairment in the State's case at trial.

STEP 6 - Blood Pressure, Temperature, Second Pulse:

Without any medical training, the DRE protocol calls for the DRE to check various vital signs, including blood pressure, temperature, and pulse. Dr. Guzzardi testified as to each procedure. Pulse is a good indicator of general health and the strength of heart contractions (59T161). The examiner is looking to see if the pulse is regular or irregular (59T163). The DRE acceptable pulse range is 60 to 90 when 50 to 100 is actually medically acceptable, according to Dr. Guzzardi (59T164). Therefore, a 55 pulse would be outside the normal range for the DRE protocol (59T164). Dr. Nelson, a State witness, also testified that 50 to 100 was a normal range (59T165; 42T62). But a 95 would also be considered a sign of drug impairment to the DRE, even though considered medically normal (59T170). This adds to the risk of false positives. Dr. Guzzardi also noted that the reason for taking the pulse three times in the DRE protocol is not rooted in scientific literature or published elsewhere (59T171).

The DRE protocol also calls for the DRE to take the subject's blood pressure. Blood pressure reflects the heartbeat (59T177). To properly conduct a blood pressure test, Dr. Guzzardi testified a good stethoscope or other device is needed, and a blood pressure

cuff which fits the arm of the subject (59T177). In his demonstration, Sgt. Gibson's device malfunctioned (59T177). Moreover, blood pressure is difficult to take correctly. The patient must first relax, then hold the arm at heart level (59T179). The examiner must listen to the sounds of the blood pulsating through the artery. If the cuff is too small, the blood pressure will elevate; if the cuff is too large, it will artificially lessen (59T180). Many factors can affect blood pressure such as the anxiety of the arrestee (59T182). Moreover, the examination room must be quiet without background noise (59T183). This rarely occurs in a police station.

The normal range for systolic blood pressure is 120 to 140 (59T183). For diastolic blood pressure, 60 to 80 is a normal range (59T184). Ten percent of the population has hypertension which can be affected by anxiety, fitness, and exercise (59T184). Fit and thin people also have lower blood pressure (59T184). Dr. Guzzardi also stated that a therapeutic amount of a drug can affect blood pressure and that a person out of range can properly operate a motor vehicle (59T186). DREs lack the experience, training, and understanding to perform and interpret this test in a way that is medically acceptable.

The DRE also takes the arrestee's body temperature during Step 6. According to Dr. Guzzardi, normal oral temperature ranges between 95.0 and 99.6 degrees Fahrenheit as stated in Goldfrank's

medical text (59T187-88). Dr. Nelson testified that the normal temperature range is 96.8 to 100.4 degrees (42T62). The DRE 2018 instructor's manual guide lists the normal temperature range at 97.6 to 99.6 degrees (A-44) (59T189 to 190). Thus, some normal temperature results will be deemed abnormal by the DRE and a sign of drug impairment, increasing false positive evaluation conclusions (59T190). Therapeutic levels of a drug can also affect temperature and impairment cannot be diagnosed by temperature. Temperature is not an indicator of drug use in the medical community, according to Dr. Guzzardi (59T191 to 192).

In sum, measurements of blood pressure, pulse, and body temperature are more likely to mislead and be misunderstood than have value in determining drug impairment associated with unsafe driving (59T193). In combination, the three tests are not accepted in the medical community for such a purpose (59T193), but especially not as performed by a non-medical professional.

Step 7 - Darkroom/Ingestion Examination:

A medical professional would not use pupil size to assess drug impairment (59T194-96). No valid study correlates pupil size with impairment and driving (59T197).

Pupil size may show an effect by a drug as even a therapeutic amount of a drug can have such an impact, but not impairment (59T197). For example, a small amount of an opioid can cause pinpoint pupils (59T205). Even Dr. Citek testified that a certain

percentage of people have constricted pupils in normal lighting (37T201 to 205). And the quality of room light can also affect the pupil size, according to Dr. Citek (59T201).

Medical professionals assess pupil size in room light and darkness, but as done by the DRE, these procedures are not generally accepted in the medical community for assessing drug impairment (59T198). The combination of darkroom and direct light assessments as used by the DRE is not found in any text or generally accepted in the medical community (59T199).

Dr. Adams testified that a variety of things can affect pupil size, including eye drops, brain disorders, and medications (61T94), as well as diabetes, illness, the intensity of the penlight used by the DRE, or the room light itself (61T97-98). There is no standard for what the lighting conditions should be; no one has defined "dark" (61T99).

The DRE cannot adequately determine pupil size (61T99). A scale is needed to define abnormality (61T96). Indeed, Dr. Adams notes that the "pupilometer" itself is a "screener" and should not be used as a diagnostic tool (61T100 to 101). Dr. Adams also notes that eyelid tremors can be caused by stress, caffeine, lack of sleep, and dry eyes (61T104). The DRE cannot distinguish between them (61T104).

With regard to the video demonstration by Sgt. Gibson, Dr. Adams testified that Gibson was actually inducing pupil

constriction as the subject was looking at the penlight up close (61T142). This is known as "accommodation convergence" (61T142). As such, Gibson performed this test incorrectly (61T143). A correct method would have been for the subject to look at something in the distance and then to check the pupils (61T143).

As to all the DRE eye tests as a group of DRE protocol components, Dr. Adams opined that they are not generally accepted in the medical community as an accurate diagnostic tool or reliable in identifying drug impairment (61T109 to 110). This includes HGN, LOC, and other eye movements, as well as pupil size.

Step 8 - Muscle Tone Examination:

Of the many medically unacceptable and invalid tests conducted by the DRE as part of the 12-step DIE, the muscle tone exam best represents the failure of the DRE protocol to even approach scientific or medical diagnostic validity.

Sgt. Gibson demonstrated how DREs do this examination (A-52). Dr. Guzzardi performed the examination on video for the Court (A-63). To examine for muscle tone, the DRE grasps a subject's arms and slowly moves down each arm in turn to assess whether muscle tone is flaccid, normal, or rigid (A-45). None of these terms are standardized or defined, and the test appears to be similar to a police frisk. Doctors examine muscle tone differently (59T214). Their exam is more extensive. As Dr. Guzzardi demonstrated, he

extended and flexed the subject's arm internally and externally rotating it (59T208) (A-63).

DRE determinations of flaccidity or rigidity do not reflect any text or what is taught in medical school (59T216). Moreover, muscle tone is only an issue for PCP and central nervous system depressants (59T206), with which high dosages are necessary to make muscles flaccid (60T5). A subject flaccid in the legs would not be able to walk, stand, or drive (60T6-7).

Step 9- Injection Site Examination, Third Pulse:

This step of the DRE protocol has the DRE check the body parts of the arrestee for physical signs of drug injection. If the scar or mark is older, recent drug use is not indicated, but a fresh puncture wound is a potential indication of recent use (60T9). However, this step can also mislead in that confirmation bias could mask consideration of other possible causes of the mark such as a recent blood test or blood donation, IVs, chemotherapy, and other conditions the DRE does not ask about and is not experienced or sufficiently knowledgeable to recognize.

Step 10- Interrogation, Subject's Statements:

As in Step 2, Step 10 of the DRE protocol involves seeking information external to the physical examination of the subject via the DRE's interrogation of the arrestee. The DRE will ask questions including what medications or drugs the arrestee is using, how much was consumed, and when they were consumed (A-45)

(60T13). While it is generally accepted in the medical community to ask questions as to drug use, the DRE does not sufficiently understand medications, the subject may not tell the truth, and the effects of any drug will depend on when taken and the dosage, according to Dr. Guzzardi (60T14 to 16). At this stage, confirmation bias also becomes a source of weakening the validity of the DRE protocol. If told that someone is using a particular drug, this may skew the evaluation (60T14).

Step 11 - DRE Evaluator's Opinion:

The State contends that, after conducting the above-mentioned ten steps, the DRE can competently and validly opine as to whether the arrestee is impaired by a certain drug or class of drugs to the point that the arrestee is unfit to drive. But the output is only as good as the input. Garbage in, garbage out.

Because many of the steps of the DRE protocol are deficient, the opinion based upon those steps is also deficient. If the components of the DRE protocol are inaccurate, the conclusions will be inaccurate (60T117). As Dr. Guzzardi explained, the DRE is not a medical doctor. The DRE needs much more training and experience to properly evaluate, take a proper medical history, perform neurological and vital sign tests, and understand the effects of medications to opine as to impairment related to driving ability (60T21). Steps 2, 3, and 10 infuse the already incompetent DRE with confirmation bias as shown in the studies (60T23).

Without a full medical history, it is very difficult to assess drug intoxication from a physical exam alone (60T23 to 24). The incomplete and inadequate training of DREs renders it impossible for them to make medical decisions, whether as a medical rule-out or of drug impairment to a reasonable degree of medical certainty (60T24). Dr. Guzzardi opined to a reasonable degree of medical certainty that neither the DRE procedure itself, medical texts, nor medical journals indicate that the DRE protocol is generally accepted in the scientific and medical community for impairment of drugs (60T24, 168). An officer with seven days of DRE training, even with SFST and ARIDE school, simply cannot provide a reliable opinion as to impairment by drugs using the 12-step DRE protocol (60T25).

As Dr. Adams opined, no reliable studies exist to show the DRE program is effective, reliable, valid, or accurate for determining the presence or absence of impairment (61T42). The false positive rate is generally high in the studies (61T42). The matrix used to classify drugs into categories can only be used as a screening tool, yet the DRE uses it as a diagnostic tool to opine to a certain degree of certainty (61T48). Placing a footnote at the bottom of the matrix does nothing to eliminate or alleviate the major obstacle of drug variability upon individuals in terms of dosage and effects (61T54). The DRE is using insufficient medical judgment to give weight to certain symptoms (61T52).

Not all drugs cause the exact same side effects all the time. As Dr. Adams noted, a variety of factors affect how a drug presents itself in a human, including what the drug is, how it is used, interaction between drugs, and metabolism (61T54). He said, "The bottom line is that the science does not support the use of the DRE evaluation to determine--to make a judgment or opine this driver has used one or more categories of drugs and/or alcohol or even impaired based on one or more categories of drug and/or alcohol" (61T79-4 to 9). As such, DRE opinion should not be used to imprison motorists.

STEP 12 - Toxicological Specimen:

As an expert on the DRE program and medical toxicology (59T68), Dr. Guzzardi opined that, without toxicology, a DRE diagnosis is incomplete (60T21, 23). Doctors ordinarily have test results before submitting a diagnosis (60T23).

Even the State's toxicology experts recognize the limitations of the toxicology test. Whether viewed as "confirming" or "supporting" the DRE opinion or as a necessary component of the protocol, these limitations weaken the validity of the toxicology test, and the protocol, for determining impairment by drugs related to operating a motor vehicle.

While perhaps the most objective of the 12 steps, one important limitation of toxicology as used in New Jersey is the specimen tested--urine. The experts agree that a blood is better

for accuracy because it better reflects the effect of the drug at the time of operation than urine because blood quantifies the amount of drug in the system (60T38 Guzzardi) (29T72 Verdino) (Miles 50T212-14). A quantifiable blood test is generally accepted in the medical community to determine drug impairment (60T40). Urine determines only use or presence of a drug (60T38 to 39). For example, marijuana stays in the system for weeks and a positive urine will not tell us about the effects on the driver at the time of operation.

State witness Page agreed that toxicology results do not equate to impaired driving because the lab only determines the presence of a drug (23T85). He also admitted there was no definition of impairment itself in any of the manuals or texts (23T31 to 34). State toxicologist Verdino also admitted the toxicology test does not show impairment (28T168). She noted that New Jersey as a urine state, has limits on quantification, as opposed to Pennsylvania which is a blood state (29T72, 91). In serious cases of injury or death in New Jersey, a blood test can show of impairment with the additional testimony of an expert (29T116-19, 27T112).

A second major limitation of the toxicology test and the DRE protocol itself is the variability of drugs and the tolerance levels of individual drivers. Verdino testified that many things can cause impairment including the time of the drug taken and the

dosage (28T167-68). Dr. Citek noted that half-life of drugs and the absorption, distribution and metabolism of the individual impacts impairment (42T149-53). Dr. Nelson also opined on toxicology's limitations in that drugs taken hours or days ago may not still be active today, and the presence of the drug in the urine may be so low that there is no clinical effect (46T72, 86).

The matter becomes more complex with polydrug use regarding timing and quantity (42T236-38 Citek). As Verdino stated, a toxicology test alone cannot tell us whether a therapeutic level of a drug is present in the system (29T133). This is exacerbated by the fact that 57 percent of all adult motorists use prescription drugs (59T77).

Amy Miles, the Wisconsin State Toxicologist and IACP Technical Advisory Panel member (50T20, 48), highlighted another limitation on toxicology test in that many designer drugs cannot even be detected by toxicology test given present technology (50T79 to 82). Wisconsin is a blood state, and she noted that with blood, a drug's therapeutic levels could be determined (50T214). Blood is preferred because it provides more detail (51T8). Blood is also the most common sample tested toxicologically among the states (51T32).

One disturbing and surprising aspect of Miles' testimony was her assertion that, if the DRE opinion does not match toxicology, it is more likely means that the lab test was incorrect and the

DRE opinion is still correct (50T80). This assertion shows her bias--a bias common to others in the traffic safety community. It is an assertion neither supported nor corroborated in the record, and it conflicts with her testimony in an earlier proceeding that she was not aware of a toxicology test ever differing from a DRE opinion (51T101).

On a practical level, the only things that distinguish blood testing from urine testing are cost and resources. No evidence was produced by the State to show that New Jersey possesses fewer resources than Wisconsin or Pennsylvania regarding their DRE programs. The reliance of New Jersey on urine makes its DRE program weaker or less accurate than the programs in blood jurisdictions.

There is a large divide between accepted medical procedures and the DRE protocol as practiced in New Jersey and elsewhere. The State has attempted throughout the Frye hearing to equate DRE opinion to medical diagnosis after considering the totality of information gathered (20T6; 117). At first contending before the New Jersey Supreme Court that the DRE protocol is not a scientific technique and, therefore, not governed by Frye (OAG Amicus brief to N.J. Supreme Court at 5), the OAG now maintains that the DRE process is "similar" to a medical diagnosis and that DREs are more than trained observers.

The DIE unsuccessfully attempts to facially mimic legitimate medical procedures in its various steps. Compounding the illegitimacy of these incorrect and deficient procedures is the fact that DREs simply do not have the training, experience, or knowledge to make a medical diagnosis, whether for determining drug impairment or ruling out medical conditions.

There can be no doubt that what DREs do is considered a diagnostic process. As Dr. Nelson asserted, a DRE is not the same as a doctor (46T35). Dr. Adams noted that while DREs appear to be making a diagnosis at a police station, in the medical field, technicians gather data and observe while doctors interpret, diagnose, and use medical judgment (61T113). As Dr. Citek noted, doctors make medical judgements and are not trying to remove people from the highways (40T44).

DREs receive no formal medical training (21T101 Page). DREs are not even EMTs (28T91 Gibson). The 56 hours of DRE training, even after the lesser ARIDE and SFST training, do not provide adequate medical training to make the diagnoses and judgment calls that DREs are called on to make (59T96). Even if part of the DRE protocol is "similar" to a medical diagnosis (60T115), any similarity is woefully deficient and fails to make a DRE diagnosis and opinion medically acceptable or scientifically valid.

CONCLUSION

The 12-step DRE protocol is a scientifically unreliable law enforcement tool this Court should deem inadmissible as expert scientific evidence for depriving motorists of their liberty and prosecuting them for serious offenses. The State failed to clearly establish that the protocol has general acceptance in the relevant scientific community under the Frye/Harvey test.

Respectfully submitted,

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Dated: March 11, 2022

IN THE CIRCUIT COURT FOR CARROLL COUNTY

STATE OF MARYLAND	*
v.	*
CONSOLIDATED CASES:	*
Charles David Brightful K-10-40259	*
Harvey Alexander Carr K-10-40331	*
Ryan Thomas Mahon K-09-39370	*
Valerie Ann Mullikin K-09-39636	*
Ronald Dale Teeter K-10-40300	*
Jennifer Adeline Flanagan K-10-40167	*
Christopher James Moore K-09-39569	*
Darrell Patrick Peyok, Jr. K-10-40686	*
Ryan Lucas Mullinex K-10-40575	*
Bonnie Denise Brisco K-10-40783	*
Perry Gilbert May K-10-40717	*
Matthew Bridger Farley K-11-41045	*
Jessica Leigh Clark K-11-41336	*
Rosemary Lynn Button K-11-41468	*
Richard John Holmes K-11-41475	*
Jack Edward Manger	*

K-11-41490
Michael Wayne Husey *
K-11-41506
Troy Adam Director *
K-11-41595
Timothy Charles Robertson *
K-11-41610
Daniel Paul Cannavo *
K-11-41627
Jonathan Tyler Carroll *
K-11-41323
Ryan Lee Anderson *
K-12-42335
Amy Michelle Giaraffa *
K-11-42127
Stephanie Anne Baumes *
K-11-42203
Bonnie Denise Brisco *
K-11-41519
Richard Clarence Poling *
K-11-42185
Mark Gertz *
K-11-42060
Defendants *

* * * * * * * *

MEMORANDUM OPINION AND ORDER

This matter came before the Court September 20, 21, 22, 23, 27, 28, 29, 30, 2010 and February 14 and 15, 2011 on the issue of whether the drug recognition expert protocol and drug recognition expert testimony are admissible in the State of Maryland for prosecutions of persons suspected of

driving under the influence of drugs or controlled dangerous substances. After hearing testimony and the arguments of counsel the Court held the matter *sub curia*.

Following these hearings Defendants filed their Motion To Exclude The Drug Recognition Expert Protocol and Drug Recognition Expert Opinion.

I. Background

The Drug Recognition and Classification Program ("DEC Program") was developed in 1979 by two sergeants with the Los Angeles Police Department. In 1986 the National Highway Traffic Safety Administration ("NHTSA") published the NHTSA, DRUG EVALUATION AND CLASSIFICATION TRAINING PROGRAM, STUDENT MANUAL ("DEC Manual") and in 1987 developed a national standardized curriculum. In 1990 the International Association of Chiefs of Police ("IACP") became the national certifying agency for the drug recognition examiners.

As part of the DEC Program, police officers with no formal scientific training enroll in a 72-hour

course designed to teach them about the characteristics and effects of seven different categories of drugs on all major systems in the human body.[1] These police officers are taught to administer a twelve-step drug evaluation and classification protocol to subjects suspected of impairment.[2] The

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[1] **7 Drug Categories**

1. Central Nervous System Depressants
2. Inhalants
3. Dissociative Anesthetics
4. Cannabis
5. Central Nervous System Stimulants
6. Hallucinogens
7. Narcotic Analgesics

[2] **12 Steps of the Drug Evaluation Process**

1. Breath Alcohol Test - A sample of breath is taken from the test subject to determine the ~~concentration of alcohol, if any, in the test subject.~~
2. Interview of Arresting Officer - The DRE consults with the investigator(s) to determine the circumstances leading up to the apprehension of the test subject.
3. Preliminary Examination - Initial examination of the subject. Some questions are asked in relation to the subject's medical/physical limitations.
4. Eye Examination - Eyes are examined for pupils being equal, the ability of the eyes to track a stimulus equally, to monitor the smoothness of that tracking, to look for Horizontal Gaze Nystagmus, as well as Vertical Gaze Nystagmus.
5. Divided Attention Tests - One Leg Stand is done with both legs. Walk and Turn test is done. Modified Romberg Balance test. And Finger to Nose test is done.
6. Examination of Vital Signs - Blood pressure, pulse and body temperature is taken.
7. Dark Room Examinations - Examination of the pupil sizes in near total darkness, under direct light, and in normal room light. Examination of the oral and nasal cavities are done at the same time.
8. Examination of Muscle Tone - Flexion and Extension of the muscles are tested, to see if there is flaccidity, or rigidity of the muscles.

test takes approximately 45 minutes to and hour. At the conclusion of the twelve-step analysis the officer must decide (a) whether the subject has been driving while under the influence of a drug or drugs and, of so, (b) what category or combination of categories of drugs is impairing the subject.

To become a certified Drug Recognition Examiner ("DRE") a police officer must take a 72-hour course and obtain a score of at least 80% on the final exam.

Although the DRE program is utilized in 45 states, the presence of the DRE program does not equate to widespread judicial acceptance by appellate courts nor acceptance in the medical community.

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9. Examination of Injection Sites - Examination of common injection sites to determine if the subject is using injected substances.
10. Suspects Statements / Other Observations - Soliciting information from the test subject which will corroborate signs and symptoms that the evaluator has observed.
11. Opinion of the Evaluator - The DRE makes a determination of the class or classes of drugs that a subject is under the influence based on a matrix of symptomology that has been developed during studies of subjects under the influence of known classes of drugs.
12. The Toxicological Examination - Blood, saliva or urine is obtained by demand, which is analyzed to determine what class of substances are present that corroborates the DRE's opinion.

II. Expert testimony

The State presented six expert witnesses: Dr. Karl Citek, Ms. Michelle Spirk, Mr. William Tower III, Officer William Morrison, Lt. Thomas Woodward and Dr. Zenon Zuk.

Dr. Karl Citek testified that he is an optometrist who is also a primary care physician. He testified that he did not attend medical school. (Tr. 9/20/10 at 38) He testified that he is a member of the adjunct faculty at the Institute of Police Technology and Management and teaches a course called Medical Foundations of Visual System Testing, a three-day course on the medical and scientific background behind the DRE protocol. (Id. at 26) Dr. Citek testified that he has given presentations and lectures to DREs for which he has received some compensation and has observed DRE certification training in Oregon, Florida and Louisiana on at least 100 occasions. (Id. at 35, 48) Dr. Citek testified that the DRE courses are commonly taught by other police officers. (9/20/2010 at 179, 203) He testified that the DRE is "making a diagnosis of whether the person is impaired by a drug or medical condition." (Tr. 9/20/10 at 154). Dr. Citek testified that he is not a member of the IACP or the DRE technical advisory board. (Id. 183) Dr. Citek testified that there is no set number of major or general indicators that a DRE needs to find to reach an opinion of drug impairment, although in his opinion only one indicator would not be enough to find drug impairment. He further testified that DREs are not instructed by the DEC Program that only one indicator would be insufficient. (Tr. at 208, 219) Dr. Citek described the DRE protocol as "a diagnostic test" that allows [DREs] "to differentiate not only between impaired and unimpaired people but, when impairment is

found, whether it is a medical or drug impairment." (Tr. 9/20/10 at 220) Dr. Citek testified that there are medical disorders that will actually cause smooth pursuit and distinct and sustained nystagmus at maximum deviation and when distinguishing between medical and drug impairment the DRE must understand how many clues are necessary to find HGN. (Tr. 9/21/10 at 25) Dr. Citek testified that these medical disorders are not explained in the DEC Manual and this is "another shortfall of this manual...and the training" and he has recommended in the past to make changes to the manual. (Id. at 25) Dr. Citek testified that there is "nothing in the medical or scientific community that validates that HGN makes you unable to drive safely." (Id. at 37)

Ms. Michelle Spirk testified that she has a Masters Degree in Bio-Chemistry and has been employed with the Arizona Department of Public Safety for twenty years. She testified that she supervises toxicologists who perform blood, alcohol, urine, and blood drug screening. (Tr. 9/21/10 at 79, 119) Ms. Spirk testified that she was been heavily involved in the DRE program since she began work in the Arizona State Crime Laboratory. She attended DRE school during her first year of employment. She testified that she sits on the Arizona DRE Steering Committee and attends monthly meetings. (Id. at 82-83) She testified that she teaches for the Arizona DRE program. She testified that she does not have a degree in toxicology, forensic toxicology, or any area of pharmacology. (Id. 92-93) The State offered her as an expert in the areas of pharmacology, clinical research, forensic toxicology and DRE protocol. The Court qualified Ms. Spirk to testify in the field of toxicology only. (Id. at 131) Ms. Spirk was allowed to testify "as to the possible effects of a drug, but not the effect on driving." (Id. 145)

Mr. William Tower III testified that he is a law enforcement liaison for the National Highway Traffic Safety Administration and International Association of Chiefs of Police (IACP). In 1987 he and two other specialists developed the DRE curriculum. (Tr. 2/14/11 at 12-15)

Mr. Tower testified that the DRE was developed by police officers from the Los Angeles Police Department. In 1979 the Drug Recognition program received the official recognition of the LAPD. Mr. Tower testified that in 1986 the National Highway Traffic Safety Administration ("NHTSA") became involved in order to make a more standardized manual and a certification process for use nationally. (Tr. 2/14/11 at 16-17, 22) Mr. Tower testified that NHTSA took parts of two programs existing at the time, the LAPD and the California Highway Patrol, and by 1987 developed a national standardized curriculum.(Id. at 25-26, 42) In 1990 the International Association of Chiefs of Police ("IACP") assumed control of the DEC Program. (Id. at 53) Mr. Tower testified that the program is utilized in 45 states.

Mr. Tower testified that a police officer who enters the DEC Program to become a DRE is not required to have any prior medical training. (Tr. at 182) An officer must take a standardized three-day course on field sobriety tests followed by a two-day DRE test. If the officer passes with 80 or above, he will begin the seven-day DRE school where he will learn the 12-step process and must take a 100-question test at the end and pass with a score of at least 80. (Id. at 27-28)

Mr. Tower testified that the DEC Program seeks to train police officers to conduct a "systematic and standardized" examination of a suspect in order to determine:

1. Whether the subject is impaired; and, if so,
2. Whether the impairment is caused by drugs or a medical condition; and, if drugs,
3. The category or combination of categories of drugs that are the likely cause of the subject's impairment.

(Id. at 30-32)

Mr. Tower further testified that in addition to the wide discretion in what weight to give the indicators on the matrix, the DRE is not even required to complete the 12-step protocol to reach an opinion as those steps are merely "preferred." (Tr. 2/14/11 at 95-96). **Mr. Tower testified that even if no drugs at all are found in the subject's blood, the DRE is "not going to change [their] opinion after you get the blood."** (Id. at 103-04) **Mr. Tower stated that the reason there would be no change in the officer's opinion is that "you are limited on what the lab can test for."** (Id. at 104) (Emphasis supplied.)

Officer William Morrison testified that he is a member of the Montgomery County Police Department. He is the coordinator for the Montgomery County Police Department's Chemical Test Unit. Officer Morrison testified that he maintains intoximeters and oversees blood testing and the County's DRE program. He is also responsible for training related to underage drinking, DWI and preliminary breath testing. Officer Morrison has been a certified DRE since 1991. Officer Morrison testified that he teaches DRE in-service training and has performed over 1,000 DRE evaluations. (Tr. 2/14/11 at 110)

He testified that as soon as a DRE is certified they are considered fully qualified to render an opinion, including ruling out medical causes, for any perceived impairment by the officer. (Id. at 80-91) He testified that the DRE is specifically making a medical diagnosis during the

examination by ruling out medical conditions during the examination. (Id. at 207)

He testified that when the matrix says "indicated" it means only that it indicates that several things could be present—it could indicate the presence of drugs, impairment by drugs, or could simply be impairment by a medical condition. (Tr. 2/15/11 at 25) Officer Morrison who testified that he has been involved with the program for 20 years and a long-time instructor testified that he had no idea why some indicators are called "Major" and others are called "General." (Id. at 25-26) Officer Morrison testified that he does not need to have any set number of indicators in order to find someone impaired because a DRE looks at the "totality of everything" and ultimately it comes down to their medical judgment. (Id. at 59, 65)

Lt. Thomas Woodward testified that he is the current commander of the Maryland State Police Barrack in Hagerstown, Maryland. He has served in law enforcement for thirty years and before his assignment in Hagerstown he was commander of the chemical test for alcohol unit. (Tr. 2/15/11 at 87) He testified that he has been State coordinator for the Maryland DRE program for the last ten years and is responsible for ensuring Maryland DREs are trained and certified according to IACP guidelines.
(Id. at 88)

Dr. Zenon Zuk testified that he has practiced medicine for 30 years and the majority of his practice involves workers' compensation cases. He has testified on behalf of the DRE protocol fifteen times. (Tr. 9/22/10 at 176) Dr. Zuk testified that he reviewed the DRE Manual before testifying today and prior to that he had not read the DRE Manual for fifteen years.

He testified that he performs work for the Western Branch of the United States Immigration Service and administered deportation protocol to be used during in-flight deportations. (Tr. 9/22/10 at 171-172) The purpose of the protocol was to insure that the Justice Department was not fined for emergency landings or aborted landings by medical mishaps in flight. (Id. 171-172) He testified that he sedated deportees with drugs to assure their cooperation and that one of the drugs he used was a PCP dissociative anesthetic call Droperidol. (Tr. 9/23/10 at 36) He testified that in 17 years he did a total of 182 sedations and that "in probably half the cases it would be considered against their will." (Id. at 36) He testified that "the effect on the individuals that I administered it so that it would--they would still perceive an awareness of an event that they were anxious about but they demonstrated less concern about it. So, it was - part of the reason why a dissociative anesthetic made so much sense--it really cuts off their ability to respond emotionally to what they know cognitively." (Id. 36)

He testified that he became interested in the DRE program because he wanted to learn the DRE skill set with its use of the Tharp's Equation. (Tr. 9/23/10 at 49) He testified that the Tharp's Equation is used by a DRE to quantify a suspect's blood alcohol content and also determine if a suspect is impaired by a drug. He testified that the Tharp's Equation is "blood alcohol content equals 50 minus angle of onset." (Id. at 50)
He testified that during his medical training he never saw or was taught that one could predict the presence of other drugs inside a human being based on the discrepancy between an angle of onset of nystagmus and the breath alcohol level. (Tr. 9/23/10 at 49, 84)

Defendants' called three experts: Dr. Francis Gengo, Dr. Neal Adams, and Dr. Jeffrey Janofsky.

Dr. Francis Gengo testified that he is a clinical pharmacologist with a post doctoral fellowship in pharmacokinetics and pharmacodynamics. Dr. Gengo has held various academic appointments at SUNY Buffalo including Associate Professor of Pharmacy, Associate Professor of Neurology in the School of Medicine and a courtesy appointment in the Department of Neurosurgery where he lectures to neurosurgery residents about the use of medications in patients who have acute neurologic problems. He currently holds two positions at the Dent Neurologic Institute: Director of Clinical Research for the Dent Neurologic Group and Chief Science Officer for the Dent Neuroscience Research Center. Dr. Gengo teaches medical and pharmacology students as part of a clinical rotation from SUNY Buffalo. Dr. Gengo testified that he is responsible for medication therapy management and conducts comprehensive reviews of patient records to determine specific efficacy and toxicity of patient medications and eliminate redundant medications. (Tr. 9/28/10 13-20)

Dr. Gengo has authored sixty-five peer reviewed and published articles and three of those articles are specifically in the area of drug impaired driving. He has contributed to text books in the field of clinical pharmacology, e.g., Neurology In Clinical Practice, Clinical Pharmacokinetics, and Drug Effects On Human Function. (Id. at 26-27)

Dr. Gengo testified that the DRE makes largely subjective observations. Dr. Gengo stressed that "the DRE technician...is not in a position to appreciate other diseases much less diagnose their presence" and

would have to exercise medical and pharmacologic judgment to do so. (Tr. 9/28/10 at 86) Dr. Gengo testified that he has not seen "any data to demonstrate that [DREs] can discern medical disease induced problems from drug induced impairment" and it is his opinion based on his training in pharmacology and clinical research that they cannot do this." (Id. at 87, 89) Dr. Gengo testified that the information collected by the DRE is simply not sufficient to render a medical diagnosis. (Id. at 90)

Dr. Gengo testified that while the DREs may be using well-established principles such as blood pressure, pulse, and eye examinations "those tools are being used by [DRE] technicians in a novel and unreliable way." (Tr. 9/29/10 at 90) He further testified that there is a difference between evaluating alcohol and drugs and the effect a specific drug has on an individual would have many more variables than one generally sees with alcohol. Dr. Gengo testified that a person suffering from withdrawal from methadone would be suffering from profuse sweating and would be distracted, agitated, irritable, and their blood pressure would be elevated. That person could appear to be under the influence of a drug when in fact there is not enough of the drug in their system. A DRE would have to distinguish somehow between signs and symptoms exhibited by someone who actually had no drug in their blood. (Tr. 9/28/10 at 62-63)

Dr. Gengo testified that the drugs referenced in the matrix are misclassified and that some of the drugs have a completely different effect on the body than what is predicted in the matrix. (Tr. 9/28/10 at 67) He testified that the classification system is far too broad and that even if the classification is limited to anti-depressants there are many different types that affect the central nervous system differently. (Tr. 9/28/10 at 64) He went on to say

that "the data has spoken for itself that [the DRE protocol] cannot reliably discern impairment from non-impairment and cannot reliably identify the medication allegedly causing the impairment." (Id. at 91) Dr. Gengo testified that the matrix lists duration of effects for certain drugs and that the information contained is all but meaningless because of the grouping. (Tr. 9/28/10 at 145) He testified that the seven categories are so vague and they contain such a diverse group of drug classes that the duration of effects contain little or no useful information. (Tr. 9/28/10 at 146)

Dr. Neal Adams testified that he is an ophthalmologist and was trained at Johns Hopkins University's Wilmer Eye Institute. Following his residency, Dr. Adams received a medical degree from Johns Hopkins University. He testified that he is licensed to practice ophthalmology in three states including Maryland. (Tr. 9/29/10 at 8-12) He testified that he was appointed Division Chief of Visual Physiology and Director of the Retinal Eye Institute at Wilmer Eye Institute while simultaneously holding the position of assistant professor of ophthalmology. He testified that he was designated a "Monumary Scholar," the school's highest teaching award. He received advanced training at the National Eye Institutes and thereafter held key clinical research positions utilizing National Institutes of Health grants. Dr. Adams accepted an appointment as Chair of the Ophthalmology Department at Texas Tech University Medical School. Dr. Adams has participated in multiple clinical trials involving the effect of pharmaceuticals on vision and other issues. (Id. at 18-20)

Dr. Adams testified that the "Tharp's Equation is a gross distortion of what is in the medical literature. Other than that, I don't find any

validity in the field of medicine or in the field of ophthalmology to this equation." (Tr. 9/30/10 at 23-26) Dr. Adams testified that he doesn't "agree with the DRE protocol in the way it is being used." (Id. at 83) He noted that the matrix "doesn't tell us relative weights of what is more important and what to evaluate in one manner versus a different manner. We are looking at almost a robotic matrix..." (Id. at 36) Dr. Adams gave his reasons for criticizing the way the DRE is taught to use the matrix:

> Medical judgment is using items that may be in a matrix and placing our own experience, our own understanding of the medical literature, placing the knowledge that we have gained into that matrix, understanding the relative weights of different items in that matrix and coming out with a judgment. So that even if we were using this matrix in its totality without anything else, there is an element of judgment that we as physicians would incorporate to assist us. And that is not present; that is, it is a very important component of the matrix that is not present in this matrix. And that is what I was trying to get at is how we as physicians interpret these.

(Id. at 37)

Dr. Adams testified that whether it is a doctor or "someone who has this specific expertise," the examiner must consider 11 questions before diagnosing nystagmus:

1) Is there nystagmus or instability present in the primary position of gaze? If so, is it voluntary or involuntary?
2) What is the wave form of a nystagmus, is it pendular or jerk?

3) What is the frequency of the nystagmus?
4) What is the direction and trajectory of the quick phase of nystagmus?
5) What is the effect of a center gaze on Nystagmus? Is it gaze evoked?
6) Is a nystagmus conjugate or disconjugate? Is it disconjugate, is it disassociated meaning mainly or only in one eye? Or is it disjunctive? Equal and oppose in the two eyes?
7) Is the nystagmus induced or influenced by maneuver such as head tilting, changes in head posture, convergence, covering of one eye, removal of visual fixation… closing of both eyes or hyperventilations?
8) Is the nystagmus periodic?
9) Is the nystagmus associated with any ocular or gaze palsy?
10) Is the nystagmus associated with any other involuntary movements, for example, involuntary movements of the head, eyelids, pallet or ear drum?
11) Is the nystagmus symptomatic and, in particular, is it causing ocillopsia?

(Tr. 9/29/10 at 27-29)

Dr. Adams testified that in the Shinar Study (Defense Exhibit 4) DREs found HGN in categories where a drug could not even cause HGN and in his expert opinion that demonstrates "that you really need two things to interpret nystagmus. You need a properly performed test and you need to understand nystagmus and be able to ask these other eleven questions to be able to determine where that nystagmus came from." (Tr. 9/29/10 at 57-58) He further testified that none of the questions that must be asked in order to properly diagnose nystagmus, however, are asked by the DRE. (Id. at 61) He testified that there are many medical conditions that can cause HGN including the

flu, measles, eye strain, glaucoma and heredity, as well as substances such as caffeine and aspirin and it is very difficult even for physicians to distinguish between medical conditions and alcohol or drugs. (Tr. at 62-64)

Dr. Jeffrey Janofsky testified that he is an associate professor of psychiatry at Johns Hopkins University School of Medicine. He is also an educator at The University of Maryland and the Maryland Judiciary as part of the ASTAR program. He testified that he teaches a clinical psychiatry program that involves medical students, nursing students and social work students. The program administers health care to patients who are ill mentally and physically and are either currently using drugs or have used drugs in the past. (Tr. 9/23/10 183-186) Dr. Janofsky was appointed a Clinical Professor of Psychiatry at the University of Maryland. He is co-director for the Pretrial Mental Health Screening Program for the District Court. He supervises University of Maryland medical students, residents and fellows who are rotating through forensic psychiatry, teaching them how to do various kinds of evaluations. He has authored twenty-four peer reviewed scientific journal articles that have appeared in the Journal of Academy of Psychiatry and the Law, The Journal of the American Academy of Psychiatry and the Law, as well as the Journal of the American Psychiatric Association. (Id. at 171-174)

He testified that peer reviewed and published literature must be performed before a technique like the DRE would be accepted among the medical and scientific communities. He testified that when he was asked to review the DRE program in 1992 he found that "there was actually not a single study regarding the DRE published in … peer review scientific literature." **He testified that if they're going to perform a test that purportedly predicts an impairment by a specific drug, which he believes no reasonable clinical**

practitioner would ever do, you would want a couple of peer reviewed studies that say you can do it considering it's about criminal sanctions." (Emphasis supplied.) (Tr. 9/23/10 at 200-01)

Dr. Janofsky testified that the DRE 12-step protocol and matrix is not a diagnostic test or a standardized protocol because it requires clinical medical judgment. (Tr. 9/23/10 at 216-18) Dr. Janofsky further testified:

> Folks that don't have such [medical] training, for example, laboratory technicians or aids can be trained to administer a protocol as long as it's done in exactly the same way every single time and the results can be clearly discerned from each stage.
>
> So you would never ask someone who is acting as a technician to use their judgment to decide which DRE factors on the matrix are most important or, even more ridiculously frankly, to rule out a medical condition. They can't do it. They don't have the training or experience to do it.
>
> So, when you design a protocol for a non-professional, it's very important that it be standardized in a way that can be done the same way over and over again that's reliable, meaning that when multiple people test the same subject they get exactly the same result and that it's valid. That it repeatedly actually measures what it purports to measure.
>
> All of the studies that I've reviewed showed first of all there is no reliable data at all and showed that the studies

are not valid when tested appropriately.

(Id.)

Dr. Janofsky testified that the matrix is not something accepted in scientific and medical communities. He replied when asked whether he knew anyone in the medical, psychiatric, scientific, or clinical research fields who accepted the matrix as useful:

> I have got to tell you, your Honor, DRE is something that's not foremost in the mind of those of us who take care of substance abusers, clinically or forensically. People are aware of it. But it's - no one I know of, no physician I know of would even consider using this matrix or the - even pieces of it in determining either whether someone was impaired on drugs or even more ridiculously to tell which specific drug category. It's ridiculous—I can't emphasize that enough.

Id. at 223.

Dr. Janofsky testified that there is a major difference between alcohol and drug interactions in the body. He further testified that the DEC Manual improperly equates the medical definition of impairment with impairment to drive. He testified that the DEC Manual does not address the concept that certain indicators may only show the "presence of the drug and not intoxicating levels causing behavioral impairment." (Tr. 9/27/10 at 96-97). Dr. Janofsky testified that while there are studies linking alcohol to driving impairment, no studies exist regarding the drugs the DRE lists in its seven categories. Dr. Janofsky also testified that the drugs identified in the seven drug categories are incorrectly lumped

together, i.e., the CNS depressant class which includes barbiturates, Benadryl, various benzodiazepines and antidepressant medications that no physician would group together because they have extraordinarily different neurophysiologic actions. (Tr. 9/27/10 at 57.) He testified that there are whole classes of drugs listed under CNS depressants that would have the opposite effect on the body than what is listed for that drug category in the matrix. (Id. at 58) He testified that this misinformation contained in the DEC Manual leads to unreliable and incorrect DRE opinions and demonstrates how difficult it is for someone with no medical background to make such a medical diagnosis. (Id. at 58) He testified that some drugs the DEC Manual lists as a CNS Depressant do not cause nystagmus even though the matrix says they do which in his opinion is "a major problem." (Id. at 90-91) He testified that this type of problem exists with all the types of drugs in the matrix. (Id. at 58-59) He further testified that there is no research to show that HGN impairs the ability of someone to drive and it is not used in the medical field as an indicator to show drug impairment. (Id. at 50-51)

Dr. Janofsky testified that vital signs are not something the medical community uses to show drug impairment, and he knows of no one in the medical field that does use vital signs as an indicator. (Id. at 51)

Dr. Janofsky testified that in his opinion the entire "totality of the circumstances" approach the DRE uses in reaching an opinion is "absolutely" a new and novel application that is not accepted in the medical community. (Id. at 70) Dr. Janofsky testified that "if the DRE is allowed to testify to a reasonable degree of a police officer's certainty that based on this matrix the person is intoxicated, the Court will

be receiving inaccurate and false evidence and will be convicting the wrong people." (Id. at 86)

III. Discussion

The issue before the Court is whether the Drug Recognition Protocol and drug recognition expert testimony is admissible in the State of Maryland for prosecution of persons suspected of driving under the influence of drugs or controlled dangerous substances.

The State must prove by a preponderance of the evidence that the DRE program is admissible under *Frye-Reed* by offering testimony and exhibits and persuasive authority from other jurisdictions to show that the protocol is not new or novel and the relevant scientific community agrees that the DEC program's methodology produces accurate results as there is no Maryland appellate decision on this issue.

The defense alleges the protocol is new and novel and the science it is based on is not generally accepted within the scientific community.

The drug recognition protocol, whether analyzed under the *Frye-Reed* standard as a new or novel scientific technique or under Md. R. 5-702 as expert witness testimony based on specialized knowledge, is inadmissible for the following reasons:

1. The *Frye-Reed* Standard

Frye v. United States, 293 F. 1013 (D.C. Cir. 1923) sets forth the admissibility standard governing expert testimony as to novel scientific theories. The Court refused to admit expert testimony regarding the systolic blood pressure deception test offered to prove defendant's truthfulness and held that in order to be admissible the scientific principle or discovery must have "gained general acceptance in the particular field in which it belongs." *Id.* at 1013-14. The Court of Appeals of Maryland adopted the *Frye* standard in *Reed v. State*, 283 Md. 374 (1978) when the Court addressed the admissibility of expert testimony interpreting voiceprint spectrograms that compared the defendant's

voice to telephone calls made by an alleged rapist. *Id.* at 375-76. The Court held the testimony to be inadmissible as the application of novel scientific techniques must be reliable and general acceptance within the relevant scientific community demonstrates that reliability. The Court found that voiceprint spectrograms were not generally accepted within the relevant scientific community and excluded the evidence. *Id.* at 399.

Although no Maryland Court has addressed whether the DRE Protocol is a "scientific" test subject to a Frye-Reed challenge, a number of state courts have held that the *Frye* test is not needed in DRE situations at all since the testimony being offered is not based on new or novel scientific principles. In *State v. Klawitter*, 518 N.W.2d 577 (Minn. 1994), the Minnesota Supreme Court allowed a DRE to testify about his observations and opinion as to whether a suspect was under the influence of drugs. The Court concluded that the DRE protocol was not

subject to the *Frye* test because it "is not itself a scientific technique but rather a list of the things a prudent, trained and experienced officer should consider before formulating or expressing an opinion whether the subject is under the influence of some controlled substance."[3] Likewise, in *Williams v. State*, 710 So.2d 24 (Fla. Dist. Ct. App. 1998), the Florida Court of Appeals held that most of the DRE testimony was not scientific, and thus a *Frye* hearing was unnecessary. The Court said, "Objective observations based on observable signs and conditions are not classified as 'scientific' and thus constitute admissible testimony [without a *Frye* hearing]."[4] Similarly, in *Utah v. Layman*, 953 P. 2d 782 (Utah. App. 1998), the Court permitted a DRE to testify as to his opinion of intoxication under the rationale that it was not scientific evidence, but rather "an expert's personal observations and opinions based on his or her education, training, and experience."

[3] Although the Court held that the DEC Program was not a scientific technique, it did rule that components of the program were scientific in nature and as such subject to a *Frye* challenge.

[4] The *Williams* Court concluded that nystagmus and lack of convergence tests were scientific in nature but were not "new or novel" in Florida and therefore not subject to a *Frye* challenge.

The purpose of the *Frye* test is to ensure that the evidence presented will be reliable. In failing to apply the test, the *Klawitter*, *Williams* and *Layman* courts failed to ensure that the DRE protocol is reliable.

In *State v. Sampson*, 6 P.3d 543 (Or. Ct. App. 2000), the Oregon Court of Appeals first addressed the issue of whether the DRE testimony was scientific evidence and, after concluding that it was, applied a modified *Daubert* test consisting of seven steps and found the testimony to be admissible.

The *Sampson* Court concluded that "the relevant scientific community consists of physicians, toxicologists, and vision experts, each of whose fields have studied the protocol extensively." (Id. at 224)

The Court failed to name any organization within the scientific community that endorses the DRE protocol and rested its conclusion upon the testimony of one of the State's witnesses who stated that "the

protocol is accepted...by those people who understand what the program is are in a position to evaluate it" and ignored the defendant's two witnesses, a medical doctor who specializes in toxicology and a medical doctor who specializes in treating addiction. Both of those witnesses testified that the scientific community had not accepted the protocol. (Id. at 225-228)

All three of Defendants' three experts, Dr. Janofsky, Dr. Adams, and Dr. Gengo, testified that the DRE protocol and matrix are not generally accepted in the fields of medicine including specifically pharmacology, neurology, ophthalmology and psychiatry.

In *Oregon v. Aman*, 194 Or. App. 463 (2004), the Court noted that while it previously ruled the 12-step DRE protocol is "valid scientific evidence" it had cautioned that "without the corroborating evidence of the urinalysis called for in the twelfth step, the DRE protocol cannot be considered complete." Id. at 247. The Court ruled that "an incompletely

administered DRE protocol is not, itself, admissible as scientific evidence." Id. at 249.

This ruling clarifies the *Sampson* opinion in that the Court reveals that its previous admission of the DRE opinion was entirely based on the assumption that the introduction of sufficient toxicological confirmation would accompany any testimony regarding the officer's observations.

In *State v. Baity*, 991 P.2d 1151 (Wash. 2000), the Supreme Court of Washington analyzed the DRE evaluation under the Frye test holding that the DRE evaluation taken as a whole presented an issue of novel scientific evidence and met the general acceptance standard. The Court found that the evidence does have a scientific aspect which "tends to cast a scientific aura about the DRE's testimony requiring its assessment under *Frye*." The Court defined the relevant scientific community as the National Highway Traffic Safety Administration (NHTSA), the International Association of Chiefs of Police (IACP),

the American Bar Association, and the American Optometric Association had generally accepted the DRE evaluation. (Id. at 126) The Court held that the DRE evidence was admissible scientific evidence and properly qualified DREs may testify as experts.

However, the Court erred in defining the relevant scientific community. NHTSA and the IACP are long-time proponents of the DRE program and have a vested interest in its acceptance and use. "General scientific recognition may not be established without the testimony of disinterested and experts whose livelihood is not intimately connected with the program." *People v. Barbara*, 225 N.W. 171, 180 (Mich. 1977). Although the members of the American Optometric Association are eye specialists and would understand certain steps in the evaluation, they are not physicians.

In *Schultz v. State*, 106 Md. App. 145 (1995), the Horizontal Gaze Nystagmus ("HGN") test was scrutinized under *Frye/Reed* although this test

which is given as an indicator of alcohol abuse had been admitted many times in DWI cases. The Court in deciding it would apply *Frye/Reed* to the test noted that "[i]n determining whether a scientific technique is 'new'…long-standing use by police officers seems less significant a factor than repeated use, study, testing, and confirmation by scientists or trained technicians" and made a finding that HGN passed *Frye/Reed* for determining the presence of alcohol. *Id.* 162. In *Blackwell v. State*, 408 Md. 677 (2009), the Court held that HGN is a scientific test accepted in Maryland for determining alcohol use. However, police officers cannot use HGN to provide a specific blood alcohol content. *See, Wilson v. State*, 124 Md. App. 543 (1999).

The DRE protocol includes field sobriety tests such as HGN, One-Leg Stand, and Walk and Turn, but no Maryland court has permitted those tests to be used for proving drug impairment. The DRE protocol uses scientific procedures and techniques and uses that

data to determine the cause of the physiological symptoms observed. These procedures and techniques include, *inter alia*: blood pressure, pupil reactivity to light, pupil dilation and constriction, horizontal and vertical nystagmus, pulse rate, body temperature, and muscle tone.

Dr. Adams testified that in the Shinar Study (Defense Exhibit 4) DREs found HGN in categories where a drug could not even cause HGN and in his expert opinion that demonstrates that you "need a properly performed test and you need to understand nystagmus and ask these other eleven questions[5] to be able to determine where that nystagmus came from." (Tr. 9/29/10 at 57-58)

Dr. Janofsky testified that vital signs are not something the medical community uses to show drug impairment and he knows of no one in the medical field that does use vital signs as an indicator. (9/27/10 at 51) He further testified that "it would be

[5] See eleven questions the examiner must consider before diagnosing nystagmus at p. 15 of this Memorandum Opinion and Order.

malpractice for a physician to rely on clinical data alone…you cannot make a diagnosis of impairment or intoxication based on clinical data alone—you must have confirmatory testing." (Tr. 9/23/10 at 227)

The National Academies of Science in 2009 published its findings on various aspects of forensic science in *Strengthening Forensic Science in the United States: A Path Forward,* National Research Council of the National Academies, 2009 (hereafter "NAS Report"). The NAS report found that "there is a notable dearth of peer-reviewed, published studies establishing the scientific basis and validity of many forensic methods. (Id. at 8) The NAS report contained the following recommendation:

> The degree of science in a forensic science method may have an important bearing on the reliability of forensic evidence in criminal cases. There are two very important questions that should underlie the law's admission of and reliance upon forensic evidence in criminal trials: (1) the extent to which a particular forensic discipline is founded on a reliable scientific methodology that gives it the capacity to accurately analyze evidence and

> report findings, and (2) the extent to which practitioners in a particular forensic discipline rely on human interpretation that could be tainted by error, the threat of bias, or the absence of sound operational procedures and robust performance standards. These questions are significant. **The goal of law enforcement actions is to identify those who have committed crimes and to prevent the criminal justice system from erroneously convicting the innocent. So it matters a great deal whether an expert is sufficiently reliable to merit a fact finder's reliance on the truth that it purports to support.**

Id. at 87 (Emphasis supplied).

Dr. Janofsky testified that peer reviewed and published literature must be performed before a technique like the DRE would be accepted among the medical and scientific communities. He testified that the Heishman Study 1, Heishman Study 2, the Shinar Study and the Schectman Study represent the extent of the peer reviewed and published literature that exists on the subject of the DRE protocol. He testified that these studies did contain the necessary information for specificity and sensitivity ratios and were conducted in a double-blind fashion. He further

testified that the Heishman, Shinar and Schectman studies conclusively show that the DRE, when tested and looked at appropriately, is not an accurate predictor of the presence of drugs and the four studies conclusively show that a police officer's predictions are either no better than chance or may be slightly better than chance or worse than chance. (Tr. 9/23/10 at 212) Dr. Janofsky noted he could find no scientific literature which correlates nystagmus, pupil size, reaction to light, lack of convergence, pulse rate, blood pressure, or body temperature (all separate components of the DRE) with driving impairment while intoxicated on drugs. (Dr. Janofsky Report, p. 7)

Dr. Citek acknowledged that confirmation is a form of tunnel vision when someone seeks out evidence to confirm their hypothesis and that in the non-peer reviewed studies the officers were told the drug a person took and as a result "it is likely that

they will reach the result in terms of what they are actually impaired by." (Tr. 9/20/10 at 165-66)

Under the *Frye-Reed* standard the drug recognition protocol is a new and novel technique because it purports to create a protocol for police officers to render a medical diagnosis. When the relevant scientific community is properly defined to include disinterested medical professionals it is clear that the drug recognition protocol is not generally accepted as reliable.

2. Md. R. 5-702

Expert testimony discussing novel scientific theories must meet the *Frye/Reed* standard in addition to the Md. R. 5-702 requirements to be admissible. Expert testimony addressing non-novel scientific evidence, however, must only meet the requirements of Md. R. 5-702. *United States v. Horn*, 185 F. Supp. 2d 530, 547-48 (D. Md. 2002)(Under Maryland evidence law, the *Frye/Reed* test applies only to introduction of

[novel] scientific evidence, and Rule 5-702 alone covers all other types of expert opinion testimony.)

Md. R. 5-702 provides:

> Expert testimony may be admitted in form of an opinion or otherwise if the court determines that the testimony will assist the trier of fact to understand the evidence or to determine a fact in issue. In making that determination, the court shall determine (1) whether the witness is qualified as an expert by knowledge, skill, experience, training, or education, (2) the appropriateness of the expert testimony on the particular subject, and (3) whether a sufficient factual basis exists to support the expert testimony.[6]

Applying Md. R. 5-702 to the proposed DRE testimony, the Court finds that a drug recognition expert is not sufficiently qualified to render an opinion, that the testimony is not relevant, and the probative value of the evidence is substantially outweighed by its prejudicial effect.

[6] In *Daubert v Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), held that the *Frye* standard had been superseded by Federal Rule of Evidence 702. *See also Kumho Tire Company, Ltd .v.. Carmichael*, 526 U.S. 137 (1999). However, when the Maryland Rules of Evidence were drafted, the Committee specifically stated that Maryland Rule 5-702, although patterned on the Federal Rule, was not intended to overrule *Reed v. State*, 283 Md. 374 and the *Frye-Reed* standard is followed in Maryland to determine the admissibility of scientific evidence.

IV. Conclusion

Based upon the Court's review of ten days of expert testimony, arguments of counsel, case law, exhibits, and the written closings of counsel, the Court makes the following:

Findings of Fact

The DRE Protocol fails to produce an accurate and reliable determination of whether a suspect is impaired by drugs and by what specific drug he is impaired.

The DRE training police officers receive does not enable DREs to accurately observe the signs and symptoms of drug impairment, therefore, police officers are not able to reach accurate and reliable conclusions regarding what drug may be causing impairment.

Conclusions of Law

The State failed to prove by a preponderance of the evidence that the drug evaluation and classification program is not new or novel and is generally accepted within the scientific community and, therefore, it is subject to analysis under *Frye v. United States* and *Reed v. State*.

The drug evaluation and classification program does not survive a *Frye/Reed* challenge because it is not generally accepted as valid and reliable in the relevant scientific community which includes pharmacologists, neurologists, opthamologists, toxicologists, behavioral research psychologists, forensic specialists and medical doctors.

For the reasons set forth above, the Court hereby grants Defendants' Motion To Exclude The Drug Recognition Expert Protocol and Drug Recognition Expert Opinion.

Order

It is, by the Circuit Court for Carroll County, this 5th day of March, 2012,

ORDERED, that Defendants' Motion To Exclude The Drug Recognition Expert Protocol and Drug Recognition Expert Opinion be, and it hereby is, granted.

Judge Michael M. Galloway

JUDGE MICHAEL M. GALLOWAY

ENTERED MAR - 5 2012