

This is the deposition of optometrist Dr. Jack Richman in the civil case Sukoc vs Carlson, filed in Vermont. Carlson arrested Sukoc for DUID. Toxicology testing revealed no drugs. Sukoc sued. Dr. Richman was the police / defense expert in the civil case. Dr. Richman submitted an opinion letter and a CV.

Dr. Richman was for many years the "medical expert" of the International Association of Chiefs of Police's Drug Evaluation and Classification Program's Technical Advisory Panel. The DECP TAP is said to keep police Drug Recognition Expert training up to date in accordance with the world's scientific literature.

Note pdf pages 98-9, depo 71-2

Q. Is there a scientific document identifying and enumerating the standards of the Standardized Field Sobriety Test?

A. There's no standard documents that defines the standards in which these decisions are made.

Note pdf pages 131-2, depo 104-5

Q. Those are the three validation studies that we talked about Florida, Colorado, and San Diego?

A. Yes, sir.

Q. Can you show me where HGN scores predicted driving scores?

A. No.

Q. Walk and Turn scores predicted driving scores or where One Leg Stand predicted scores predicted driving scores?

A. There's no test of driving....

Note pdf pages 130 ff, depo 106 ff

Q. What scientific mathematical formula do scientists use to calculate the probability that when a person has horizontal gaze nystagmus, the person is impaired by a drug?

A. They will use a — I'll tell you exactly. They did a KHI square [chi squared] to determine the sensitivity and specificity. This is a probability. And it's a decision matrix that is a standard method to determine how well something -- one's test will predict the outcome of another. And that's a standard protocol that was used specifically in the San Diego study.

Dr. Richman's answer is wrong. Scientifically, mathematically wrong. The IACP TAP's long time "medical expert" does not understand how the SFST and Drug Influence Evaluation tests change the probability of the condition tested for. (For an explanation of this science, see: Kane, G. *The Methodological Quality of Three Foundational Law Enforcement Drug Influence Evaluation Validation Studies*. Journal of Negative Results in Biomedicine. 2013 Nov 4;12(1):16. § Accuracy of diagnostic tests, pg 2. For more, read the peer-reviewed scientific articles footnoted there. <http://www.jnrbm.com/content/pdf/1477-5751-12-16.pdf>)

EXPERT OPINION REPORT

By Jack E. Richman

Qualifications

I am a Professor Emeritus at the New England College of Optometry and have lectured widely, both in this country and internationally. My primary clinical research interests are in children's vision, vision dysfunction and reading, the effect of nervous system impairment on eye movements, and visual attention dysfunction. I have published approximately sixty articles and book chapters on these subjects.

I am a Fellow of the American Academy of Optometry, a Diplomate in the Section on Pediatric Optometry, Binocular Vision and Perception, a Fellow of the College of Optometrists in Vision Development and am Board Certified in Vision Therapy. I am a member of the American Optometric Association and the Neuro-Optometric Rehabilitation Association. I am a frequent lecturer on pharmacology of the central nervous system and drugs of abuse and their effect on the eyes.

For the past 45 years I have served in numerous clinical and academic positions in Optometry. These include serving as Associate and Full Professor at three colleges of Optometry, Chief of Pediatric Optometry of the Pediatric Optometry and Binocular Vision service at Pennsylvania College of Optometry, The Michigan College of Optometry, and the New England College of Optometry and Eye Institute in Boston, MA. Presently, I am retired from full time practice and teaching at the College. I am active part time in a private group practice in Cape Cod, Massachusetts, specializing in assessment and treatment of visual problems related to brain injuries and learning related

vision problems. Based on my training and experience in binocular vision disorders and eye movements, I became involved in research and teaching in the area of eye movements used in Standardized Field Sobriety Testing (SFST), the Horizontal Gaze Nystagmus (HGN) test, and the use of pupil measurements for detecting drug and fatigue impairment. I completed training in Standardized Field Sobriety testing, and was certified as an instructor. I continued my law enforcement training and was certified as a Drug Recognition Expert and a Drug Recognition Expert instructor. I served as the medical consultant to the International Association of Chiefs of Police Committee's Technical Advisory Panel for over fifteen years. My expertise is often called upon throughout the United States to serve as an expert witness in many criminal cases involving impaired driving due to drugs and alcohol, Standardized Field sobriety testing, and Drug Recognition Expert assessment protocols. I presently serve as police physician for the Hingham Police Department in Massachusetts.

A copy of my curriculum vitae has been previously provided. I have been retained by the Vermont Attorney General's Office to review the case of Fata Sakoc vs. Timothy Carlson. I now render my expert opinions, to a reasonable degree of professional certainty on the procedures and methods utilized. These opinions are based upon review of the materials made available to me. I reserve the right to change or modify this opinion should additional facts or documents or evidence become available to me.

Evidence Reviewed and References Relied Upon

- Opinion and order granting in part and denying in part defendant's motion for summary judgment case 5:11-cv-00290-cr/ document 22/ filed 09/10/12
- Police Incident Reports

- Officer Stephen Dunning; Essex PD,
- Trooper Carlson; Vermont State Police
- Officer Plunkett; S Burlington PD; Drug Recognition Evaluation Narrative Report
- Expert Report –Dr. Christopher Chapman Jan 25, 2013
- Depositions, with exhibits, of:
 - Christopher Chapman, May 24, 2013
 - Officer Stephen P. Dunning May 10, 2013
 - Trooper Matthew J. Plunkett, DRE May 10, 2013
- Video-Recorded Traffic Stop
 - Transcript of Video-Recorded Traffic Stop March 5, 2010
 - Video-Recorded Traffic Stop March 5, 2010

Recent Court Cases Testified as an Expert in DUI

- Butler PA Butler PA March 7, 2008 Commonwealth of Pennsylvania v. Samuel Tiche ; CP-10-CR0000718-2007
- State of Maryland vs. Richard Crampton; Montgomery County MD February 11 2013 Rockville MD Courthouse: Case 121222-C; Feb 2013
- State of Maryland vs Wood, Tayman, Foster, Foote, Hoyle, Enrico, Quaglieri, Kinnison; Calvert County MD District Court, November 2012
- Commonwealth of Massachusetts vs. ANTHONY DEICICCHI case # 2011-0H6-003687 Norfolk Superior Court, Dedham MA. Sept 6 -9 2013
- Commonwealth of Massachusetts vs. Joseph Keiser case Norfolk Superior Court, Dedham MA. June 3, 2011

Facts and Background

- On March 5, 2010, Mrs. Fata Sakoc was driving home after working at a residential care facility in Burlington, Vermont.
- Trooper Carlson observed Mrs. Sakoc's vehicle traveling on Route 15 after 11 PM in in Essex, Vermont with a headlight out. In his attempt to pull her over, he reportedly observed her make a quick

turn from the left lane between two cars in the right lane that he considered unsafe. Trooper Carlson reportedly observed Mrs. Sakoc and considered her to be operating her vehicle in a dangerous manner. He then pulled Mrs. Sakoc's vehicle over to the side of the road in an area clear of vehicles.

- Trooper Carlson observed her responses to be delayed, and he had to repeat several questions to obtain answers. Mrs. Sakoc was unable to produce a valid license or registration however Trooper Carlson did subsequently confirm that Mrs. Sakoc had both a valid license and current registration. Trooper Carlson asked Mrs. Sakoc to exit her vehicle and asked her twice to close the car door, and then he shut it for her. Trooper Carlson performed three field sobriety exercises on Mrs. Sakoc including horizontal gaze nystagmus, walk-and-turn, and one leg stand while Officer Dunning of the Essex Police Department observed. The video did confirm that she was facing oncoming traffic and the activated emergency roof lights from his cruiser.
- During the horizontal gaze nystagmus test, Trooper Carlson observed that Mrs. Sakoc exhibited lack of smooth pursuit and distinct nystagmus at maximum deviation in each eye, for a score of four clues. During the walk-and-turn, Mrs. Sakoc reportedly lost her balance while turning, twice started before being instructed to do so, failed to touch her heels to her toes, and took only eight of the nine requested steps, for a score of four clues.
- The video reveals that Mrs. Sakoc swayed slightly during her turn. The video also reveals that Mrs. Sakoc started the exercise multiple

times before it began; however, the audio is not available to determine whether this was contrary to instructions. It is also not clear from the video whether Mrs. Sakoc touched her heels to her toes. The video appears to depict Mrs. Sakoc taking the requisite nine steps in one direction but not the other.

- Trooper Carlson demonstrated the one-leg stand and instructed Mrs. Sakoc to count up to thirty. In response, she counted in sequence from one to sixteen before Trooper Carlson told her she could put her foot down. The video illustrates that Mrs. Sakoc leaned back and forth while attempting to balance and raised her arms to keep her balance. This was scored as two clues for a total of two clues. Trooper Carlson concluded that Mrs. Sakoc was "moderately impaired." Officer Dunning and Trooper Carlson explained to Mrs. Sakoc that he wanted to administer a preliminary breath test for alcohol. This revealed no alcohol in her system.
- Trooper Carlson directed Mrs. Sakoc to get back into her car and discussed the results with Officer Dunning. At this point, Trooper Carlson decided that Mrs. Sakoc was impaired possibly by drugs and requested that a drug recognition expert (DRE) be dispatched to the scene.
- Officer Plunkett of the South Burlington Police Department, a certified DRE, arrived within approximately 10 minute on the scene. Trooper Carlson described Mrs. Sakoc's performance and his observations as to the reason for his stopping Mrs. Sakoc to Officer Plunkett. This is routine part of the complete DRE evaluation. This included his observations of her operation of the vehicle, then his

observations in the initial personal contact after the stop, and the results of his field sobriety exercises. Based on these observations, Trooper Carlson determined that she was driving under the influence and advised her that he was placing her under arrest for DUI. She was transported to the Williston Barracks where Officer Plunkett would then administer a DRE evaluation in a controlled environment.

- Officer Plunkett completed his evaluation and independently reported comparable signs of impairment in the horizontal gaze nystagmus, walk-and-turn, and one-leg stand tests. Based on all the findings of Trooper Carlson and Officer Plunkett, it was concluded that Mrs. Sakoc was impaired and most likely under the influence of a central nervous system depressant drug. Trooper Carlson transported Mrs. Sakoc to a hospital to obtain a sample of her blood.

Opinions and Comments

What is reportedly in dispute in this case is whether or not Trooper Carlson had probable cause to arrest Mrs. Sakoc, based on all the facts and circumstances and applying his knowledge and training, and if this information was reasonably reliable and acceptable to justify Trooper Carlson's decision that an offense had been committed and the suspect should be arrested.

Based on a systematic review of the evidence provided and reviewed in conjunction with the references listed (**Appendix I**), I will offer my opinion, based on my experience, training, and knowledge to a reasonable degree of professional certainty, on the practices and procedures utilized by Vermont State Police Trooper Timothy Carlson.

#1. It is my opinion to a reasonable degree of professional certainty that the Standardized Field Sobriety Test (SFST) procedures applied by Trooper Carlson were, for the most part, entirely consistent with the national standards approved by the International Chiefs of Police (IACP) and the National Highway Traffic Safety Administration (NHTSA).

A.) In my opinion, the practices and procedures applied by Trooper Carlson were in compliance with generally accepted police practices and procedures for professional police departments to determine if a person is potentially impaired due to alcohol or drugs and should not be operating a motor vehicle.

He performed all three phases of the DUI process, identifying and gathering evidence to determine whether or not a suspect should be arrested for a DUI violation. These phases of the detection process are: Phase One - Vehicle In Motion, followed by Phase Two - Personal Contact, and finally, Phase Three - Pre-arrest Screening including the Horizontal Gaze Nystagmus test, walk-and-turn test, and the one-leg stand test.

#2 It is my opinion to a reasonable degree of professional certainty that Trooper Carlson's information gathered, relative to the three phase process for DUI detection, was generally reliable and valid and supported his probable cause to arrest Mrs. Sakoc for impaired operation of a motor vehicle.

A.) There were several, though slight, departures by Trooper Carlson from the standardized administration of the Pre-arrest Screening protocol of the SFSTs. The most important of these were related to his administration of the HGN test: (1) the emergency strobe lights (wig-wag) on his police cruiser were not turned off facing forward and were in the suspect's line of sight, and (2) the suspect was facing oncoming traffic at night.

B.) According to Christopher Chapman (Deposition Transcript –pp.156-159), the HGN test administered by Trooper Carlson was invalid because, as he explained it, the “Only thing I can say to a reasonable degree of scientific certainty if a person is facing oncoming traffic and wig-wags, more likely than not that will produce a nystagmus and specifically horizontal nystagmus.”

I believe Christopher Chapman is referring to Optokinetic Nystagmus. Optokinetic Nystagmus is an *induced or provoked* event that occurs when an individual is specifically asked to follow a series of moving object with their eyes as these objects are moving across their visual field. Optokinetic Nystagmus is seen as a combination of a refixation and smooth pursuit eye movements when an individual is specifically asked to follow a moving object with their eyes, then moves out of the field of vision at which point their eye moves back to the position it was in when it first saw the object. This is seen principally in the straight-ahead or primary gaze position.

The viewing condition of the emergency strobe lights (wig-wag) on Trooper Carlson’s police cruiser facing forward in the suspects line of sight may possibly create a brief visual attention distraction that possibly could affect only one phase of the HGN test, i.e., lack of smooth pursuit. Nevertheless, this is only one part of the three part HGN test. Such a distraction, based on my training and experience, will not affect the other two parts of the HGN test. For the lights to create an Optokinetic Nystagmus, which interfered with the smooth pursuit part of the HGN test, Mrs. Sakoc would have had to have been specifically directed and told to watch the lights. This did not occur based on the evidence. Furthermore, on a scientific basis, the wig wag lights do not create the type of consistent unidirectional moving visual field required to induce an Optokinetic Nystagmus. In addition, her attention and visual fixation was assessed (for

Resting Nystagmus) initially when she was asked to look at the target when these distracting lights were on. If the lights were creating such an effect to induce Optokinetic Nystagmus, this would have been observed in primary gaze (at rest) before the test was started. There was no primary gaze or resting nystagmus or difficulty holding her eyes steady straight-ahead noted or reported. In my opinion, based on my training, knowledge, and experience, the police cruiser wig-wag lights could not induce what is typically seen as an Optokinetic Nystagmus and would not been a cause for the observed HGN clues.

C.) Regarding Trooper Carlson's supposed inexperience in administering and interpreting the HGN test, I conducted a study in 1994 assessing the competency and accuracy of police academy recruits in the use of the horizontal gaze nystagmus test for detecting alcohol impairment. (The competency and accuracy of police academy recruits in the use of the horizontal gaze nystagmus test for detecting alcohol impairment Authors: Jack E. Richman, O.D., and John Jakobowski, M.S. New England Journal of Optometry 1994 Winter Vol. 47, No. 1). The purpose of this study was to determine the accuracy in the use and interpretation of the HGN test by new police officers following a precise training program in determining probable cause for arresting an impaired driver. This study demonstrates and supports earlier studies as to the effectiveness of the eye movement procedure in differentially identifying impaired and/or intoxicated individuals from those who are not impaired. It further supports the effectiveness of the training program for new police officers and the recruits in their ability to apply the procedure with excellent results.

D.) Officer Plunkett completed his in- depth DRE evaluation at the Williston Barracks on Mrs. Sakoc.

- a. As background, Officer Plunkett is a certified Drug Recognition Expert. The Drug Evaluation and Classification (DEC) Program is a transportation safety program focusing on the detection and apprehension of drug-impaired drivers. The program is managed nationwide and coordinated by the International Association of Chiefs of Police (IACP) with support from the National Highway Traffic Safety Administration (NHTSA) of the U.S. Department of Transportation. This DRE Program trains police officers and other public safety officials as drug recognition experts or drug recognition evaluators (DREs) through an intense 110 hour three-phase training curriculum. There are comprehensive written and practical in the field tests that a DRE must pass to be certified. Once certified, he or she must maintain documentation of evaluations and continuing education on a biannual basis to remain certified. DREs conduct a detailed 12 step process and examination of persons arrested or suspected of drug-impaired driving or similar offenses. Based on the results of the DRE drug evaluation they form an expert opinion as to whether or not the person is impaired, and if so, is the person able to operate a vehicle safely. If the DRE concludes that the person is impaired, the next question becomes: is the impairment due to an injury, illness or other medical complication, or is it drug-related? If the DRE concludes that the impairment is due to drugs, he or she determines which category or combination of categories of drugs is the most likely source of the impairment.
- b. Officer Plunkett essentially obtained the same results as Trooper Carlson in the HGN, Walk-and-Turn, and One-Leg-Stand test in addition to the numerous other indicators of divided attention, lack of

coordination, and impaired central nervous system function at the time of the arrest. He concluded that, based on his 12 step process and evaluation, Mrs. Sakoc was impaired, possibly under the influence of Central Nervous System depressants and unable to safely operate a motor vehicle.

- c. In my opinion, Officer Plunkett's DRE evaluation is a standard scientific method to establish test-retest replication of Trooper Carlson's SFST findings and is a hallmark of good science and methodology. This is essential in providing accurate information in any decision making process. Test-retest reliability is a measure of the consistency and reliability of a test or assessment outcome. Test-retest reliability is measured by administering a test twice at two different points in time. This type of reliability assumes that there will be an insignificant or no change in the function being measured. In most cases, reliability will be higher when little time has passed between tests.

#3 It is my opinion to a reasonable degree of professional certainty that Horizontal Gaze Nystagmus can be used effectively to detect central nervous system impairment due to alcohol as well as drugs.

- A.) There is an issue raised by Christopher Chapman (Deposition Transcript – pp.67-80), where he opines that HGN can essentially only detect alcohol and not other drugs. This opinion is not supported by the scientific literature.
- B.) In my opinion, based on the references in **Appendix I**, eye movements have consistently been reported to be impaired by alcohol, central nervous depressants, inhalants, and dissociative anesthetics and will exhibit the characteristic signs of loss of smooth pursuit, nystagmus at maximum deviation, and onset of nystagmus prior to 45 degrees.

C.) Numerous authoritative textbooks and references that address the presence of impaired pursuit and nystagmus in persons under the influence of central nervous system depressant drugs other than alcohol include:

- a. Carisoprodol, meprobamate, and driving impairment. J Forensic Sci. 2000 May; 45(3): 619-23. Logan BK, Case GA, Gordon AM
- b. Drugs and Human Performance Fact Sheets: Final Report; August 2000-March 2004. A panel of international experts on drug-impaired driving met in Seattle during August 2000 to review developments in the field of drugs and human performance over the last 10 years; These Fact Sheets represent the conclusions of the Panel and include the state of current scientific knowledge in the area of drugs and human performance for the 16 drugs selected for evaluation. They note that CNS Depressants drugs above therapeutic doses, such as carisoprodol, diazepam and Gamma-Hydroxybutyrate (GHB), and Phencyclidine (PCP) will all produce physiological signs of nystagmus.
- c. Drug-Induced Ocular Side Effects Edition: 5th
Frederick T. Fraunfelder ; Frederick W. Fraunfelder
Publisher: Butterworth-Heinemann; 5th edition (December 5, 2000)
- d. Drug Effects on Psychomotor Performance
Randall Baselt (Author)
Publisher: CHEMICAL TOXICOLOGY; 1 edition (November 2000)
- e. The Neurology of Eye Movements
John Leigh and David S. Zee
Publisher: Oxford University Press, USA; 3rd edition

Page 102 states, *"In the clinic, the commonest cause of gaze-evoked nystagmus [nystagmus at maximum deviation] is medication- usually sedatives, tranquilizers [benzodiazepines], and anticonvulsants."*

#5 It is my opinion to a reasonable degree of professional certainty that the Horizontal Gaze Nystagmus test is the most valid and reliable test of the SFST battery. When used in conjunction with the other tests in the SFST battery, these were highly predictive of detecting impaired drivers at levels above 90% accuracy.

A.) Based on the scientific studies of the relationship between the level of alcohol, another central nervous system depressant, and HGN, they were found to be highly correlated in numerous peer reviewed studies

- Nystagmus testing in intoxicated individuals. Optometry. 2003 Nov; 74(11): 695-710. Citek K, Ball B, Rutledge DA.
- Sobriety tests for low blood alcohol concentrations. Accid Anal Prev. 2002 May; 34(3): 305-11. McKnight AJ, Langston EA, McKnight AS, Lange JE.
- Use of horizontal gaze nystagmus as a part of roadside sobriety testing. Authors Good GW, Augsburger AR. American Journal of Optometry & Physiological Optics. 63(6):467-71, 1986 Jun.
- Gaze nystagmus and blood alcohol. Source Authors Goding GS, Dobie RA. Laryngoscope. 96(7):713-7, 1986 Jul.
- The competency and accuracy of police academy recruits in the use of the horizontal gaze nystagmus test for detecting alcohol impairment Authors: Jack E. Richman, O.D., and John Jakobowski, M.S. New England Journal of Optometry 1994 Winter Vol. 47, No. I

B.) In terms of the HGN being a valid and reliable predictor of impairment and blood alcohol, there were again various consistent and repeatable studies all supporting the correlation of alcohol and HGN. These studies determined that the HGN and the other two SFST test, (Walk-and-turn, One Leg Stand) reliably enabled officers:

- To detect central nervous system impairment due to alcohol as well as drugs;
- To make accurate arrest decisions when the SFSTs are used by trained and experienced officers; and
- To be accurate in discriminating between BACs above and below 0.08 percent

References to the studies relied on for my opinion in this regard is as follows:

- A Colorado Validation Study of the Standardized Field Sobriety Test (SFST) Battery: Final Report Submitted to Colorado Department of Transportation November 1995. This report was funded by the Office of Transportation Safety, Colorado Department of Transportation (utilizing National Highway Traffic Safety Administration funds under Project Number 95-408-17-05)
- A Florida Validation Study of the Standardized Field Sobriety Test (S.F.S.T.) Battery This research project was prepared for the State Safety Office, Department of Transportation, State of Florida in cooperation with the National Highway Traffic Safety Administration, U.S. Department of Transportation and/or Federal Highway (under project number AL-97-05-14-01).
- San Diego Validation Of The Standardized Field Sobriety Test August 1998 Validation Of The Standardized Field Sobriety Test; Battery At

BACs Below 0.10 Percent: Final Report Submitted To: U.S.

Department Of Transportation National Highway Traffic Safety

Administration Grant No. Santa Barbara, CA 93102 DTNH22-95-C-05192.

#6 It is my opinion to a reasonable degree of professional certainty that Nicotine or Caffeine will not cause Horizontal Gaze Nystagmus as displayed in the Standardized Field Sobriety test battery used by law enforcement.

A.) According to Christopher Chapman (Deposition Transcript –pp.165-169),

"Excessive exposure to nicotine and caffeine may cause nystagmus." He claims there are references supporting this statement. Mr. Chapman sites these references in Appendix C in his report of January 25, 2013. In an attempt to confirm this, his references were reviewed, however, there was no scientific information or studies to support his claim.

B.) To be thorough, I searched and reviewed the published scientific literature that I could obtain regarding this subject of caffeine or nicotine inducing nystagmus.

a. Caffeine: I could not find any systematic published study indicating caffeine as a cause of nystagmus.

b. Nicotine: There was evidence in systematic published studies indicating nicotine as a cause of nystagmus. (Appendix I Nicotine and Nystagmus)

1: Deutschländer A, Stephan T, Riedel E, Zingler VC, Hüfner K, Wiesmann M, Pierrot-Deseilligny C, Strupp M, Brandt T. Nicotine-induced nystagmus correlates with midpontine activation. *Neuroimage*. 2008 Jun;41(2):479-82. doi:10.1016/j.neuroimage.2008.03.001.

2: Zingler VC, Denecke K, Jahn K, von Meyer L, Krafczyk S, Krams M, Elfont R, Brandt T, Strupp M, Glasauer S. The effect of nicotine on perceptual, ocular motor, postural, and vegetative functions at rest and in motion. *J Neurol*. 2007Dec; 254(12):1689-97.

- 3: Kim JI, Somers JT, Stahl JS, Bhidayasiri R, Leigh RJ. Vertical nystagmus in normal subjects: effects of head position, nicotine and scopolamine. *J. Vestib. Res.* 2000; 10(6):291-300.
- 4: Pereira CB, Strupp M, Holzleitner T, Brandt T. Smoking and balance: correlation of nicotine-induced nystagmus and postural body sway. *Neuroreport.* 2001 May 8;12(6):1223-6.
- 5: Pereira CB, Strupp M, Eggert T, Straube A, Brandt T. Nicotine-induced nystagmus: three-dimensional analysis and dependence on head position. *Neurology.* 2000 Nov 28; 55(10):1563-6.
- 6: Domino EF, Ni LS, Zhang H. Effects of tobacco smoking on human ocular smooth pursuit. *Clin Pharmacol Ther.* 1997 Mar;61(3):349-59. Erratum in: *Clin Pharmacol Ther* 1997 Jun; 61(6):627.
- 7: Sibony PA, Evinger C, Manning K, Pellegrini JJ. Nicotine and tobacco-induced nystagmus. *Ann Neurol.* 1990 Aug; 28(2):198.
- 8: Sibony PA, Evinger C, Manning KA. Tobacco-induced primary-position upbeat nystagmus. *Ann Neurol.* 1987 Jan; 21(1):53-8.

C.) Upon analysis of these studies of the relationship of nicotine and nystagmus, I offer the following opinion:

Nicotine can induce a nystagmus. Nonetheless, the type of nystagmus due to nicotine would appear and be observed under the following conditions and measurement methodology to occur.

- a. Primary (Straight ahead) and /or in the vertical position as opposed to the horizontal.
- b. It is induced by postural and head position changes.
- c. It is generally measured in total or near total darkness with the instrumentation.
- d. It is measured by electronic methods including high resolution videography and electro-nystagmography. The size of the nystagmus recorded by these methods was quite small (less than 1 degree in several reports) and would not be visible to the naked eye in darkness.
- e. Nicotine most often will cause a vertical and/or rotary nystagmus related to the vestibular system, not a horizontal gaze-evoked type characteristic of HGN.

Therefore, based on my review of these methods described in the studies and the type of appearance that nicotine induced nystagmus would create, it is my opinion that the nystagmus reported as part of the SFST at roadside and later in the DRE evaluation would not be related nor caused by nicotine. The HGN

observed and reported by Trooper Carlson and later confirmed by Officer Plunkett would most likely be caused by another undetermined cause.

#7 It is my opinion to a reasonable degree of professional certainty that, more likely than not, Mrs. Sakoc was impaired by a very short acting compound which was exhibited in the SFST evaluations performed and reported by Trooper Carlson and later confirmed by Officer Plunkett.

Specifically, the impairment signs that were observed and reported in the Horizontal Gaze Nystagmus test results are consistent with those that may well be caused by very short acting central nervous depressants and/or inhalants. In addition, it is my opinion to a reasonable degree of professional certainty, that there is a reasonably good probability that Mrs. Sakoc was impaired by one or more of these compounds which have exceptionally short half-lives. Though these signs of impairment were reportedly observed, there was a significant delay in obtaining the blood sample required for the toxicology analysis. Due to this delay and the likelihood of the presence of a very fast acting central nervous depressants and/or inhalant, the toxicological analysis simply did not meet the threshold for reporting the presence of such compounds on the NMS Lab Report to account for the observed signs of impairment.

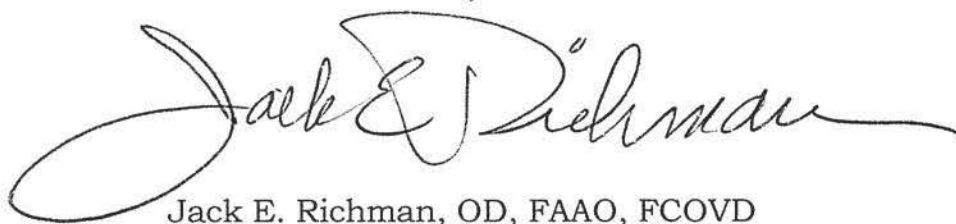
Concluding Opinion

It is my opinion, based on the facts and information available, that Trooper Carlson applied his training, knowledge, and used appropriate procedures when he encountered what appeared to him to be an impaired driver. The procedures he used were all supported by years of field study and scientific research. Trooper Carlson applied all three phases in making his decision to arrest Mrs. Sakoc (operation of the vehicle, personal contact, and psychophysical standardized field sobriety tests). He asked for support, as needed, and appeared

to have deliberated through the information before making his decision to arrest Mrs. Sakoc for impaired operation. I believe that Trooper Carlson had probable cause based on all of the facts and circumstances, the information Trooper Carlson gathered was reasonably reliable and acceptable to warrant his conclusion that he had probable cause that Mrs. Sakoc had committed the offense of driving while impaired. It is my opinion to a reasonable degree of professional certainty that Trooper Carlson, while not perfect in his DUI investigation, had sufficient information, even setting aside the disputed issue of Mrs. Sakoc's unsafe operation, to justify his decision that he had probable cause to believe an offense had been committed and the suspect should be arrested.

All of the opinions I have offered in this report are to a reasonable degree of professional certainty. Those opinions are based on the information listed in the Materials and Documents and References Reviewed section of this report. In forming these opinions I have also relied on the knowledge and experience that I have acquired over 45 years as an optometric physician, professor, researcher, and 26 years as a police physician, SFST and DRE instructor. I have utilized my education, knowledge, and experience to guide me in the formation of these opinions.

Dated: December 6, 2013

A large, stylized handwritten signature in black ink, reading "Jack E. Richman". The signature is fluid and cursive, with a large loop at the beginning and a long, sweeping tail.

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Appendix I

REFERENCES:

BOOKS

1. Drug-Induced Ocular Side Effects Edition: 5th
Frederick T. Fraunfelder ; Frederick W. Fraunfelder
Publisher: Butterworth-Heinemann; 5th edition (December 5, 2000)
Language: English
ISBN-10: 0750672749
2. Drug Effects on Psychomotor Performance
Randall Baselt (Author)
Publisher: CHEMICAL TOXICOLOGY; 1 edition (November 2000)
Language: English
ISBN-10: 0962652342
3. The Neurology of Eye Movements
John Leigh and David S. Zee
Publisher: Oxford University Press, USA; 4 edition (April 13, 2006)
Language: English
ISBN-10: 0195300904
4. Diagnosis and management of ocular motility disorders
by Alec M. Ansons, Helen Davis, Helen Davies, Joyce Diagnosis and Management
of Ocular Motility Disorders Mein Publisher: Blackwell Science Inc; 3rd edition
(January 15, 2001) ISBN: 0632047984 Drug-Induced Ocular Side Effects Edition:
5thFrederick T. Fraunfelder ; Frederick W. Fraunfelder Publisher: Butterworth-
Heinemann; 5th edition (December 5, 2000)

PUBLICATIONS AND ARTICLES

1. American Optometric Association House of Delegates RESOLUTION
1901;Passed June 18th 2011, Salt Lake City, UT; HORIZONTAL GAZE
NYSTAGMUS AS A FIELD SOBRIETY TEST
2. Nystagmus testing in intoxicated individuals. Optometry, 2003 Nov;
74(11): 695-710. Citek K, Ball B, Rutledge DA.
3. Sobriety tests for low blood alcohol concentrations. Accid. Anal Prev.
2002 May; 34(3): 305-11. McKnight AJ, Langston EA, McKnight AS, Lange
JE.
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VOLUME: I EXHIBITS: 1-34 PAGES: 1-144

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF VERMONT
CA NO. 5:11-CV-290

FATA SUKOC,
PLAINTIFF
VS.
TIMOTHY CARLSON,
DEFENDANT

DEPOSITION OF JACK E. RICHMAN, OD, FAAO, FCOVD
December 18, 2013 - 11:00 a.m.
Holiday Inn - 929 Hingham Street
Rockland, Massachusetts
---- Jill Kourafas, CSR No. 149308 ----

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I N D E X

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JACK E. RICHMAN
(Mr. Williams) 6
(Mr. Patane) 139

E X H I B I T S

No.	Description	Page
1	Curriculum Vitae of Dr. Richman	6
2	Expert Opinion Report	6
3	Vermont DPS Cruiser Videotape by Timothy Carlson, Case No. 10A101009 (Retained by Mr. Williams)	6
4	Black Binder entitled "DUI Detection and Standardized Field Sobriety Testing bate-stamped AG0803 - AG092	6
5	Black Binder entitled "Drug Evaluation and Classification Program 2005 (Retained by Mr. Williams)	6
6	Definition of Optometry in the Commonwealth of Massachusetts	7
7	DUI Blood Affidavit	15
8	Hingham Police Department website	21
9	The International Standards of Drug Evaluation and Classification Program	21
10	IACP Drug Evaluation and Classification Technical Advisory Panel (Updated March 15, 2010)	22
11	Validation of the Standardized Field Sobriety Test Battery at BACs Below 0.10	25

(Continued)
E X H I B I T S

No.	Description	Page
12	A Florida Validation Study of the Standardized Field Sobriety Test Battery	25
13	A Colorado Validation Study of the Standardized Field Sobriety Test Battery	25
14	John Hopkins Study	29
15	LAPD Study	29
16	Arizona Study	29
17	An Evaluation of Pupil Size Standards Used by Police Officers for Detecting Drug Impairment	45
18	The Neurology of Eye Movements, Third Edition	45
19	Sobriety Tests for Low Blood Alcohol Concentrations	75
20	Nystagmus Testing in Intoxicated Individuals	75
21	Carisoprodol, Meproamate, and Driving Impairment	76
22	Testing for Benzodiazepine Inebriation-Relationship Between Benzodiazepine Concentration and Simple Clinical Tests for Impairment in a Sample of Drugged Drivers	76
23	GHB and Driving Impairment	76
24	Indexing Cognitive Tests to Alcohol Dosage and Comparison to Standardized Field Sobriety Tests	76

(Continued)
E X H I B I T S

No.	Description	Page
25	The Competency and Accuracy of Police Academy Recruits in the Use of the Horizontal Gaze Nystagmus Test for Detecting Alcohol Impairment	77
26	Effects of Alcohol and Other Psychotropic Drugs on Eye Movements: Relevance to Traffic Safety	77
27	Gaze Nystagmus and Blood Alcohol Page 2 of 3	77
28	Disorders of Eye Movement	77
29	Distribution of GABAA and GABAB Receptors in Mammalian Brain: Potential Targets for Drug Development	77
30	The Methodological Quality of Three Foundational Law Enforcement Drug Influence Evaluation Validation Studies	95
31	The Robustness of the Horizontal Gaze Nystagmus Test	95
32	Horizontal Gaze Nystagmus: A Review of Vision Science and Application Issues	95
33	293 The Standardized Field Sobriety Tests: A Review of Scientific and Legal Issues by Stephen Rubenzer	96
34	Neuro-Ophthalmology, Third Edition by Joel S. Glaser	96

(Original exhibits were retained by the Court Reporter and returned to Mr. Williams along with the original deposition transcript. PDFs of exhibits were linked to electronic transcripts.)

P R O C E E D I N G S

(Following exhibits were marked
predeposition.)

(Curriculum Vitae of Dr. Richman
marked Exhibit No. 1.)

(Expert Opinion Report marked
Exhibit No. 2.)

(Vermont DPS Cruiser Videotape by
Timothy Carlson, Case No. 10A101009
marked Exhibit No. 3.)

(Black Binder entitled "DUI Detection and
Standardized Field Sobriety Testing"
bate-stamped AG0803 - AG092 marked
Exhibit No. 4.)

(Black Binder entitled "Drug Evaluation
and Classification Program 2005 marked
Exhibit No. 5.)

1
2 (Definition of Optometry in the
3 Commonwealth of Massachusetts marked
4 Exhibit No. 6.)

5 - - - -

6 JACK E. RICHMAN, having been called
7 for examination by counsel, having been
8 satisfactorily identified by the production of a
9 driver's license and being first duly sworn by
10 the Notary Public, testified under oath as
11 follows in answer to

12 DIRECT EXAMINATION BY MR. WILLIAMS:

13 Q. Thank you, Doctor, for coming in today.
14 How are you?

15 A. Fine, sir.

16 Q. Vermont, like most states, prohibits
17 people from operating a motor vehicle while under
18 the influence of intoxicating liquor.

19 Can you define for me the legal
20 definition of "under the influence of
21 intoxicating liquor" under Vermont law?

22 A. No.

23 Q. Okay. And is that standard any different
24 than being under the influence of any other drug

1 under Vermont law?

2 A. I do not know Vermont law regarding those
3 particular statutes.

4 Q. So you don't know what -- you have no
5 idea what Vermont prohibits with regard to
6 driving and having drugs in your system?

7 A. Other than as far as alcohol, I know it
8 complies with a no-age standard for alcohol.
9 With drugs, I believe it's any drugs that are
10 impairing.

11 Q. Now, I was going to ask you: You used
12 "impairment" throughout your expert report?

13 A. That's correct.

14 Q. Let me hand you Exhibit 4, which is a DUI
15 Detection and Standardized Field Sobriety Testing
16 Student Manual approved in 2006. There's a
17 definitional section?

18 A. I believe there's a glossary, that's
19 correct.

20 Q. There's a glossary of terms. Is your
21 definition of "impairment" found in that
22 document?

23 A. (Witness reviews document.)

24 I don't believe it's in here. I know

1 there's a definition in the Drug Recognition
2 Evaluation Program, definition of impairment and
3 definition of a drug. That's a much bigger one.
4 But I know there's a clear definition for it
5 here.

6 Q. Your definition for "impairment" does not
7 come out of the student manual?

8 A. Out of this particular manual, no.

9 Q. Let me show you what was marked as
10 Deposition Exhibit No. 5. It's the 2010 Drug
11 Recognition Expert Student Manual?

12 A. Yes.

13 Q. Let me just show you the glossary
14 section. You indicated your definition of
15 impairment is found in there?

16 A. That's one of my definitions.

17 Q. If you could, point out a definition in
18 that document, I would appreciate it.

19 A. Sure. It's under "Drug: Any substance
20 that when taken into the body can impair the
21 ability of a person operating a motor vehicle
22 safely."

23 That's a limited, but focused definition
24 of impairment.

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013

Q. What do you mean by "impairment"? Is that a scientific definition?

A. It's a scientific definition, but it's not linked to specific state laws.

Q. Is that the scientific definition of impairment?

A. Impairment is anything that creates a loss or breakdown in the ability for an individual to function properly. So impairment is a loss or inability to function physiologically, biologically, psychologically behaviorally, that deviates from the normal behavior of an individual.

Q. And where would I find that scientific definition?

A. World Health Organization has one that follows that and they have a very consistent definition, to my knowledge, of what is a -- what is impairment.

Q. But what is the document?

A. They have their own documents.

Q. I understand they have their own documents. I want to be able to find that document.

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013

A. Well, off the top of my head, probably go to Word Health Organization and look under what they consider impairment. I didn't bring that with me, but that's one that I have used numerous times.

Q. It's not mentioned in your -- you don't define "impairment" in your report?

A. I did not, that's correct.

Q. You say the World Health Organization has a standardized definition of impairment?

A. It has a definition of impairment: Loss or inability of a bodily, a physical or functions, or psychological functions.

Q. You're talking about impairment by drug, correct, not impairment, by some physical --

A. It could be anything.

Q. So impairment could be if I --

A. It could be a medical problem.

Q. If I have a medical problem, cerebral palsy, that would fit your definition of impairment?

A. That's correct. There's an impairment. If you had a stroke. If you had some -- anything that will deviate and impair your normal

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013
1 psychological functions. And that's consistent
2 with what we deal with with alcohol and drugs.

3 Q. And that's the definition that you're
4 using it's a medical definition?

5 A. It's a medical definition because
6 impairment legally is different because that will
7 vary from state to state if an individual is
8 impaired.

9 Q. Is it a neurological definition?

10 A. It's a biological definition.

11 Q. Is it a pharmacological definition?

12 A. It can be if a drug induced it.

13 Q. And where would I find the
14 pharmacological definition of impairment? Where
15 would I find that if I went looking in the
16 scientific literature?

17 A. Probably where you'd find it is under the
18 side effects of overdoses or side effects of
19 particular drugs.

20 Anytime you look up any particular drug
21 and you look at its side effects or "it's adverse
22 reactions," you're basically getting a definition
23 of impairment of an individual.

24 Q. Now, you say "side effects of drugs"; if

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013
1 a drug causes me stomach distress, I'm impaired
2 under your definition?

3 A. Not -- if it affects your ability to
4 function effectively, that drug has caused an
5 impairment, but more specifically if a drug
6 created dizziness, disorientation, loss of motor
7 control, loss of ability to think appropriately,
8 affect attention functions. Many drugs will do
9 these and many of the side effects of drugs.

10 These are adverse effects. We often see
11 these kinds of effects everyday on TV, or ads
12 where the ad for a particular drug is shown, and
13 they'll describe all the adverse effects. Those
14 are impairing signs.

15 Q. But you don't give a definition of
16 impairment in your report, and you don't know
17 what Vermont law prohibits a person from driving
18 while taking drugs?

19 MR. PATANE: Objection.

20 Q. Correct?

21 MR. PATANE: You can answer.

22 Q. You don't give a definition, correct?

23 A. No. I didn't see a need to provide a
24 definition.

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013

Q. And you are unaware about Vermont law in driving while taking drugs?

A. Correct, because that's a legal definition.

Q. That's right, it is a legal definition, that's correct.

Now, you're a licensed optometrist, correct?

A. Yes.

Q. And a licensed optometrist may do certain things in the Commonwealth, correct?

A. In the Commonwealth of Massachusetts?

Q. Yes. We are here in the Commonwealth.

A. Yes.

Q. Here is a definition, Exhibit 6. This is Chapter 112, Section 66 of the laws of the Commonwealth regarding the practice of optometry.

Does that look like that to you?

A. Yes. That's the general definition.

Q. Is that -- that's what you are licensed to practice, correct?

A. Yes. Within an addendum. We are licensed under therapeutic laws, too.

Q. Are you licensed to practice medicine in

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013
the Commonwealth of Massachusetts?

A. No. I'm licensed to practice optometry.

(DUI Affidavit-Blood marked Exhibit

No. 7.)

Q. Doctor, I have your CV and some documents
that were copied. I put them altogether in this
exhibit.

You hold yourself out as a police
physician, correct?

A. Yes. That's a position that was given to
me at -- yeah.

Q. Right. But you're not a medical
physician?

A. No, optometric physician.

Q. Is that a -- and I looked and I tried to
find under Massachusetts law exactly what a
police physician is and --

A. There isn't any.

Q. There isn't any. This is just a title
that the Hingham Police gave you?

A. No. There's an entire organization
through the International -- would you like me to
answer?

Q. I'm listening.

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013

A. Through the International Association of Chiefs of Police. The definitions in the organization -- there's a subsection in the IACP, which is called police physician. A police physician is an individual -- and you can look that up -- the IACP is a police physician or any licensed practitioners that serve using their skills and training to assist law enforcement in their duties and participation.

This can include dentists, it can include podiatrists, it includes anesthesiologists and includes optometrists.

I was -- to be a member, you have to be approved and submit to the section to be approved. And I have been a member of the Police Physician Section of the International Association of Chiefs of Police for probably 15, 18 years.

Q. So this is a title created by the International Association of Chiefs of Police?

A. Yes, a police physician.

Q. It's not -- you don't have a license to practice police medicine?

A. No. It's similar to being called a

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013
1 police surgeon in other countries or police
2 chaplain. Chaplains also work for many police
3 departments.

4 Q. And you are not licensed to make medical
5 diagnoses?

6 A. I don't follow.

7 I'm licensed to make medical diagnoses by
8 law. You just show me the definition of my --

9 Q. Are you licensed to practice medicine as
10 defined by the Massachusetts legislature?

11 A. I answered that previously. The answer
12 is no. I'm licensed to practice optometry.

13 Q. You are not licensed to diagnose, treat
14 or use instruments or other devices for another
15 person's physical or mental well-being as defined
16 by the Massachusetts legislature, correct?

17 A. No. I --

18 Q. Okay.

19 A. I'm not clear what your question is.

20 Q. All right. What is your formal training
21 in pharmacology?

22 A. Formal training? I went to pharmacy
23 school and then postgraduate training, and
24 then --

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013

Q. You went to pharmacy school in 1960 to
1964?

A. Correct.

Q. Have you done anything else since 1964
formally in pharmacology?

A. Yeah, I teach it.

Q. You teach it where?

A. I was teaching at the pharmacology
schools.

Q. How about neuropharmacology?

A. I would teach that, too, specifically in
my course work.

Q. What kind of pharmacology do you teach?

A. I'll teach general pharmacology versus
and doctorate of pharmacology. I teach general
pharmacology and that would include the full
range, everything from central nervous system
depressants, antidepressants, drugs that --
antiseizure medications. Mostly the central
nervous system medications.

Q. You used the term "central nervous system
depressants"?

A. Yes, sir.

Q. Is that a clarification of drugs that's

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013
1 recognized by the Physicians Desk Reference?

2 A. No. Physicians Desk Reference is not a
3 reference, sir. It's a compilation put together
4 by the drug companies. In fact, most physicians
5 do not even use it as a reference.

6 Q. Is it a reference at all that can be used
7 by someone interested in the side effects of
8 drugs?

9 A. Frankly, no. It's not a good reference.

10 Q. It's not?

11 Do you know what is in the Physicians
12 Desk Reference?

13 A. Yeah.

14 Q. It's the drug labels of --

15 A. That's correct.

16 Q. -- drugs that have been approved by the
17 FDA.

18 A. I'm aware of that.

19 Q. Isn't it? And the FDA approves these
20 drug labels after doing comprehensive human
21 subject research testing, correct?

22 MR. PATANE: Objection.

23 A. Yes.

24 Q. Right?

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013

A. Is there a question?

Q. Is that correct?

A. Yes.

Q. Right. And this is a compilation of all of the drug labels for drugs that have been approved by the FDA for prescription by a licensed medical personnel, correct?

A. The drug labels that there are in there are the ones from the drug companies. It does not represent a great deal of the literature that the drug companies have excluded.

This is why many physicians, optometrists and others use other references when they have to make a decision on the efficacy of a drug.

If you want to talk about that FDA's drug approval, that's another separate issue.

Q. Okay. That's fine.

Central nervous depressants is not a category of drugs that's recognized in the PDR?

A. It is recognized indirectly, but it's not the way the book is organized.

Q. Give me some examples of central nervous system depressants.

A. The actual drugs? Benzodiazepines would

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013
be one, barbiturates, alcohol.

(Hingham Police Department website
marked Exhibit No. 8.)

Q. Are you employed by the Hingham Police
Department?

A. No, sir.

Q. Excuse me?

A. No, sir.

Q. No. Okay. I thought it was a
requirement to be a drug evaluate -- a drug
recognition expert to be employed by a law
enforcement agency?

A. You need to be a sworn officer and be on
a department. You do not have to be employed by
that department. And, in fact, that regulation
has changed.

Q. When did that regulation change?

A. It had been modified a few years ago,
but, essentially, as long as you are a member of
a department or law enforcement agency, that is
all that is required. You do not need to be a
paid member of that agency.

(The International Standards of Drug
Evaluation and Classification Program

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013
marked Exhibit No. 9.)

(IACP Drug Evaluation and Classification
Technical Advisory Panel (Updated
March 15, 2010) marked Exhibit No. 10.)

Q. Are you still a member of the IACP
Technical Advisory Panel?

A. I was appointed two years ago after I
retired from that as special consult to the
Technical Advisory Panel. I served 16 years on
the panel as the medical consult.

Q. Were you a member of the Technical
Advisory Panel as of December 31, 2012?

A. No.

Q. Let me show you what's been marked as
Exhibit 10. That's a list of members of the
Advisory Panel. I think you are on it?

A. Right. And I gave you the reason why.

Q. And it indicates that you are -- you were
there -- your appointment ended on 12-31-12?

A. No. I resigned earlier than that. This
is an old thing because this said "Updated
March 15, 2010," if you noticed that.

Q. Let me show you, sir, Exhibit 9, Page 9,
indicates -- you will see October 1, 2012,

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013
1 indicates what a drug recognition expert
2 requires.

3 A. Okay.

4 Q. Do you see "employed by"?

5 A. Yes. I am on department. I do not
6 receive reimbursement.

7 Q. When did you first become a drug
8 recognition expert?

9 A. I believe 2005. I'd have to look at my
10 resume when I finished and went through the
11 entire course.

12 Q. Are you still a drug recognition expert?

13 A. Yes, I am.

14 Q. And those credentials have to be renewed
15 every two years by the IACP?

16 A. That's correct.

17 Q. In order to have your credentials
18 renewed, you have to have copies of all your drug
19 evaluations and evaluation logs?

20 A. And they're submitted to the state
21 coordinator.

22 Q. And you do drug evaluations?

23 A. Yes, I do.

24 Q. And do you have copies of those?

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013

A. Not with me.

Q. But do you have copies? You have an actual log of all of the drug evaluations that you have done?

A. That's correct. That's required.

Q. And then you send them in to the IACP?

A. No. I send them in to the state coordinator.

Q. Of?

A. Of the particular state that you are certified in. And then that goes to the office, they sign-off on it that you have met the requirements, and then you continue for another two years.

Q. Okay. You would agree with me that laboratory research indicated that the Standardized Field Sobriety Tests when administered in a standardized manner were a highly accurate and reliable battery of tests for distinguishing blood alcohol concentrations above a .10 as of 2006?

A. 0.10?

Q. Yes, as of 2006.

A. Yes. It depends on what the reference is

JACK E. RICHMAN, OD, FAAO, FCOVD - 12/18/2013
for that.

Q. Here, you take a look at it. I don't
need to hog that document.

A. (Witness complies.)

I'm looking at the highlighted --

Q. Yes.

A. That's just a general statement, correct?

Q. I asked you if you agreed with me.

A. Oh, yes.

Q. May I have it back, please?

A. (Witness complies.)

Q. The validation studies were done in
Colorado, Florida and San Diego, correct?

A. The most recent ones, yes.

(Validation of the Standardized Field
Sobriety Test Battery at BACs Below
0.10 percent marked Exhibit No. 11.)

(A Florida Validation Study of the
Standardized Field Sobriety Test
Battery marked Exhibit No. 12.)

(A Colorado Validation Study of the
Standardized Field Sobriety Test

Battery marked Exhibit No. 13.)

Q. Sir, if you could take a look at Exhibits 11, 12 and 13 and see if you can identify those as the Colorado, Florida and San Diego studies referred to in the 2006 student manual?

A. Yes, that's correct.

Q. You are familiar with those because you've reviewed those as a member of the Technical Assistance Panel?

A. Advisory Panel.

Q. Advisory Panel, I'm sorry.

A. No. These are publications of independent research that's contracted by National Highway Transportation Safety Administration. We don't approve or disprove them.

Q. I didn't ask you if you approve them.

A. I'm familiar with them, yes.

Q. I asked you if you were familiar with them.

A. Oh, yes.

Q. Can you point out for me in these documents whether the researchers referred to impairment in any of those studies?

1 A. Can I point out?

2 Q. Yes.

3 A. I don't believe they -- their purpose,
4 stated purpose, in the hypothesis of the studies
5 was to determine impairment.

6 What they were after was looking at the
7 relationship of a standardized field sobriety and
8 its ability to either predict a correct arrest
9 and the standardization of a protocol.

10 There was not the purpose of these three
11 studies to determine impairment due to a BAC
12 level. Their primary reason for that is there's
13 extensive other literature that shows a
14 relationship of alcohol to impairment. That was
15 not the purpose of these studies.

16 Q. So the answer is "no" then?

17 A. To my knowledge, there's nothing to
18 impairment. Fair enough?

19 Q. Yeah. Thank you.

20 A. Yep.

21 Q. You are familiar with the -- you were on
22 the Technical Advisory Panel in October of 2009?

23 A. Yes.

24 Q. And that panel approved the 2010 version

1 of the Drug Recognition Expert Student Manual,
2 correct?

3 A. The curriculum, yes.

4 Q. The manual?

5 A. Yes.

6 Q. The manual itself.

7 And the manual --

8 A. Let me clarify. They approved the
9 curriculum which the manual is connected to.

10 Q. Okay. That's fair enough.

11 The manual refers to three studies that
12 underlie the idea that a person doing --
13 following the 12 Step procedure can identify
14 someone who is impaired by drugs, correct?

15 A. No.

16 Q. Okay.

17 A. It's taken out of context.

18 Q. It refers to three studies, though,
19 correct, the manual itself?

20 A. It refers to many studies under many
21 parts of the manual.

22 I'm not clear what particular studies and
23 what functions you're asking or referencing.

24 Q. Does it refer to a study done by Bigelow

1 in 1984?

2 A. Regarding?

3 Q. Identifying types of drug intoxication,
4 laboratory evaluation of a subject examination
5 procedure.

6 A. These have to do with the toxicology
7 studies.

8 Q. But does the manual refer to this study?

9 A. It refers to the study.

10 Q. Thank you.

11 MR. WILLIAMS: Could I have this marked,
12 please?

13 (John Hopkins Study marked Exhibit
14 No. 14.)

15
16 (LAPD Study marked Exhibit No. 15.)

17
18 (Arizona Study marked Exhibit No. 16.)

19 Q. Sir, let me show you Exhibit 14, which is
20 the John Hopkins study; 15, which is the LAPD
21 study; and 16, which is the Arizona study
22 referred to in the 2010 version of the Drug
23 Recognition Expert Student Manual and see if you
24 can identify those.

1 A. I've seen -- yes, I've seen -- I haven't
2 seen the Bigelow one in many years because it's
3 30 years old. It's a reference in there. The
4 field evaluation study again is almost 30 years
5 old. These are all the earlier original studies.

6 Yeah, I'm familiar with them and -- yeah,
7 I'm familiar with them. I don't know them in
8 detail.

9 Q. Those three studies are specifically
10 mentioned in the student manual --

11 A. Can you show me where, please?

12 Q. Yes. Absolutely. I don't mean to trick
13 you.

14 A. No, no. I want to see the context.

15 Q. It's under Section 3 Development and
16 Effectiveness of the Drug Evaluation and
17 Classification Process.

18 A. Okay.

19 Q. It would be found on Page 4 through 8.

20 A. Let me see.

21 Q. There you go.

22 A. (Witness reviews documents.)

23 Yes. I'm familiar with that. I see the
24 section. I just didn't see the context here that

1 you wanted to quoted it in.

2 Q. You would agree with me that the 2010
3 manual that your Technical --

4 A. TAP.

5 Q. -- Advisory Panel, we'll call it TAP, is
6 that okay?

7 A. Yes.

8 Q. TAP. The TAP approved indicates: "The
9 scientific evidence that the examinations provide
10 accurate indicators of drug categories began to
11 be accumulated in the early 1980s?"

12 A. Yes.

13 Q. And the manual you just went over lists
14 the three studies that we just referred to as the
15 scientific proof underlying the program?

16 A. There are three studies that they
17 included in the manual. That does not represent
18 the bulk of the literature out there supporting
19 the categorization.

20 Q. That's fair.

21 But they are the three that are referred
22 to in Section 3?

23 A. Yes. At this point, yes.

24 Q. Did the researchers conduct -- did any of

1 them conducted a controlled study starting with
2 people who were drug-free, testing the various
3 vital signs that are referred to in the manual,
4 blood pressure, nystagmus, vertical nystagmus,
5 plus rate, body temperature, muscle tone, that
6 kind've thing?

7 A. Find out what the results were, list the
8 data and then have those people drive on a test
9 track.

10 MR. PATANE: Objection.

11 You can answer.

12 A. No, because that would not be the purpose
13 of the study. There are other studies. The John
14 Hopkins studies looked at individuals under
15 various specific drugs that fell into the
16 categories and looked at how they met the
17 particular categories of the seven drug
18 categories, but those are not the studies you
19 showed me.

20 Q. Did any of the researchers, any of the
21 three researchers then take these people who were
22 drug-free and administer selected doses of
23 various drugs from your drug categories, look at
24 the indicators, collect that data and then see

1 whether the human subject -- research subjects
2 could operate a motor vehicle on a test track?

3 MR. PATANE: Objection.

4 You can answer.

5 A. No. Again, that was not the hypothesis
6 of the study.

7 Q. These studies don't correlate the
8 presence of drugs with the ability to operate a
9 motor vehicle?

10 MR. PATANE: Objection.

11 You can answer.

12 A. These specific studies do not. There are
13 studies not cited that do.

14 Q. So there has been a study like the one I
15 just described, where human research subjects are
16 tested before they are administered a particular
17 type of drug, see how they operate, and then the
18 same individuals are given drugs, tested and sent
19 to the test track to see whether those drugs
20 impaired their ability to operate a motor
21 vehicle?

22 MR. PATANE: Objection.

23 You can answer.

24 Q. Is there any research like that?

1 A. Not to my knowledge and recollection. I
2 can't think of any, off the top of my head, other
3 than there were numerous studies that have been
4 collected on the effects of psychotropic drugs
5 and the type of drugs we are talking about on
6 what are called psychomotor skills and driving.
7 That's a separate whole volume of literature
8 that's been collected.

9 Q. But nothing --

10 A. That's not cited here.

11 Q. No tests, like the one I just described
12 that you are aware of?

13 Using this data, using your indicators,
14 I'm not talking about psychotropic drugs and --

15 A. Using specifically our indicators?

16 Q. Your indicators.

17 A. Yes. And relating it --

18 Q. And a person given a therapeutic dose of
19 morphine, for example?

20 A. No.

21 Q. Or smokes a joint or is given a Quaalude?

22 A. Other than the Heishman and John Hopkins
23 studies that I mentioned to you.

24 Q. But there is no such research out there

1 that I could look up and see what the results
2 are?

3 MR. PATANE: Objection.

4 A. I said the Heishman studies. They looked
5 at a separate set of various categories to see
6 the impairment using the DRE protocols.

7 Q. But did they actually have people go out
8 on the test track and drive?

9 A. No, because that's not a valid measure.

10 Q. I'm just asking.

11 A. Yes.

12 Q. Now, you indicate in your report that you
13 specialize in the assessment and treatment of
14 visual problems related to brain injuries and
15 learning related vision problems, is that right?

16 A. Yes, sir.

17 Q. Do you diagnose the brain injuries?

18 A. No.

19 Q. They are diagnosed by a qualified MD and
20 you treat the eye disease, is that it?

21 A. I treat the impairments and the
22 conditions that are related to whatever the
23 acquired brain injury is.

24 Q. Do you diagnose the medical causes of

1 HGN?

2 A. Do I -- I'm sorry? The question?

3 Q. Do you diagnosis the medical causes of
4 horizontal gaze nystagmus or HGN?

5 A. I can, yes.

6 Q. Do you?

7 A. In clinical practice, I have, yes.

8 Q. That's within your purview, the medical
9 causes?

10 A. Yes.

11 Q. What about drug causes of HGN?

12 A. Yes.

13 Q. You diagnose that?

14 A. Yes. And I refer it back to their
15 attending doctor, too.

16 Q. You diagnose mental or physical
17 impairment caused by drugs?

18 A. No.

19 Q. How about do you diagnose mental or
20 physical impairment, period?

21 A. No. It's not my license.

22 Q. Neuroophthalmologist is a specialty in
23 the practice of medicine?

24 A. Yes.

1 Q. And they are qualified to diagnose optic
2 neuritis?

3 A. Yes, and so I am.

4 Q. Optic neuropathy?

5 A. Yes, and so am I.

6 Q. Brain tumors or stroke affecting vision?

7 A. Yes, and so I am.

8 Q. Unexplained vision loss?

9 A. Yes, and so am I.

10 Q. Headaches?

11 A. Yes, and so am I.

12 Q. You diagnosed that; aren't those medical
13 diagnoses?

14 A. Many of the diseases that optometrists do
15 are medical diagnoses. They are within our
16 purview on our license.

17 Q. You said that your research interests
18 include the effect of nervous system impairment
19 and eye movements?

20 A. Yes.

21 Q. Have you done any peer reviewed
22 scientific research using human research subjects
23 to research the effects of nervous system
24 impairment on eye movements? Have you ever done

1 such a study?

2 A. That was published?

3 The only one I did had to do with
4 alcohol, that was in 1994.

5 Q. Not drugs?

6 A. Alcohol is a drug, sir.

7 Q. But not other types of drugs other than
8 alcohol?

9 A. No.

10 Q. Opiates, benzos, that kind of thing?

11 A. No. It's very difficult to get approval
12 to do research in that manner.

13 Q. Could you do --

14 A. Actually, may I correct myself?

15 Q. Yes.

16 A. I did a paper that was presented at the
17 American Academy of Optometry showing the effects
18 on pupillary function, but you are saying eye
19 movements, correct?

20 Q. Yes.

21 A. Okay. Never mind.

22 Q. That's a little different, I think, if I
23 understand it correctly.

24 A. Yes.

1 Q. Here is your CV, sir. Can you identify
2 those articles that deal with the effect of
3 nervous system impairment on eye movements from
4 your list of published articles?

5 A. Yes, I can. Item 48, Sight Unseen:
6 Vision Care of Acquired Brain Injury was one.

7 Q. Could you highlight that for me? Just
8 put a highlight next to the number.

9 A. That we talked about eye movements and
10 identification.

11 Item 40, The Competency and Accuracy of
12 Police Academy Recruits in the Use of Horizontal
13 Gaze Nystagmus for Detecting Alcohol Impairment.

14 You want specifically drugs. That's the
15 primary ones that I dealt with.

16 Let me see if there's another one here.

17 Is that correct, counselor, basically
18 drugs and eye movements was your question?

19 Q. The effective nervous system impairment
20 on eye movements.

21 A. Okay. Well, here's one, Item 53, Tinted
22 Lenses in the Treatment of Visual Stress in a
23 Patient with Traumatic Brain Injury.

24 And then 44, is a general one, which is

1 The Influence of Visual Attention and
2 Automaticity on the Diagnosis and Treatment of
3 Clinical Oculomotor, Accommodative, and Vergence
4 Dysfunctions.

5 I get into issues there on problems that
6 can influence oculomotor. I think that's
7 consistent with what you're asking.

8 Q. No. 40, The Competency and Accuracy of
9 Police Academy Recruits in the Use of Horizontal
10 Gaze Nystagmus Test for Detecting Alcohol
11 Impairment, would those persons with nervous
12 system impairment, did you discover the lack of
13 smooth pursuit?

14 A. I don't understand the question.

15 Q. We're talking about the nervous system
16 impairment.

17 A. Well, the alcohol-induced nervous system
18 impairment.

19 Q. Did you discover the lack of smooth
20 pursuit?

21 A. Yes.

22 Q. And nystagmus before 45 degrees?

23 A. We tested that, yes.

24 Q. Did you discover it?

1 A. I don't understand the question.

2 Q. Did you discover nystagmus before 45
3 degrees in the persons that you tested?

4 A. That wasn't the study. The study was
5 the --

6 Q. That's fine.

7 The Influence of Visual Attention and
8 Automaticity on the Diagnosis and Treatment of
9 Clinical Oculomotor, the same questions, would
10 those people with nervous system impairment, did
11 you discover lack of smooth pursuit?

12 A. That subject is addressed in the paper.

13 Q. Did you or didn't you?

14 A. Did I personally?

15 Q. Yes.

16 A. No. That's not what that study -- that's
17 not what that paper was.

18 Q. Nystagmus before 45 degrees in that
19 study?

20 A. It's not relevant to my study.

21 Q. So you didn't. The answer would be "no"?
22 I'm asking yes or no.

23 A. I don't understand your questions.

24 Q. Sight Unseen: Vision Care for the

1 Acquired Brain Injury, which of those people
2 would nervous system impairment did you discover
3 lack of smooth pursuit?

4 A. That's not the question you asked me to
5 outline this, so I think we're off on the wrong
6 track.

7 Q. I'm just --

8 A. I'm answering you, counselor. That's not
9 what you're asking. You're asking did I do an
10 individual study measuring those three things
11 you're asking in brain damaged patients or
12 impaired people. Is that the question you want
13 me to answer?

14 Q. Is the answer yes or no?

15 A. To what?

16 Q. I asked you -- you pointed to this
17 article as one of those articles --

18 A. You asked me the articles that had to do
19 with eye movements that are potentially related
20 to impaired individuals. Not did I do them
21 personally and did I see nystagmus prior to 45,
22 you changed the criterion in which you're asking
23 me about the qualification of the articles.

24 If that's the case, then those are not

1 the correct articles.

2 Q. Let me just finish my questions.

3 A. Sure.

4 Q. Tinted Lenses in the Treatment of Visual
5 Stress of a Patient with Traumatic Brain Injury.

6 A. Yes.

7 Q. Which of those people with nervous system
8 impairment did you discover a lack of smooth
9 pursuit?

10 A. That's not the question you asked me
11 prior.

12 Q. I'm just asking: Did you find anybody
13 with that condition?

14 A. In the case study we did. We had
15 significant eye movement dysfunctions. They were
16 quantified, but they were relative to eye
17 movements not specifically lack of smooth
18 pursuit.

19 Q. So the answer would be "no"?

20 A. That's correct.

21 Q. How about nystagmus before 45 degrees?

22 A. I think I've answered you. If you change
23 the criteria, then those articles do not answer,
24 are not ones relevant to your specific question

1 now.

2 Q. The answer is "no"?

3 A. To all of them, correct.

4 Q. That's fine.

5 In your research, have you ever measured,
6 that is, quantified HGN, lack of smooth pursuit,
7 nystagmus at maximum deviation, and measured,
8 that is, quantified alcohol impairment and lined
9 up those two results and discovered that if you
10 know the HGN score then you can accurately
11 predict impairment score?

12 A. I have no clue what you're talking about.
13 There are five different questions in there. You
14 want to take one at a time?

15 Q. I'll read it again.

16 A. Yes.

17 Q. In your research, have you ever measured,
18 that is to say, quantified HGN, defined as lack
19 of smooth pursuit nystagmus at maximum deviation,
20 45 degrees, and measured, that is, quantified
21 alcohol impairment, have you ever done that?

22 A. No, not in my research. In my clinical
23 experience, yes.

24 Q. Have you published the results of your

1 clinical experience?

2 A. No. Most doctors don't.

3 Q. All right. Are you familiar with the
4 methodological quality QUADAS?

5 A. I've heard of it. I'm not clear what
6 specific one. You want to define it, I'll be
7 glad to --

8 Q. Well, starred, are you familiar with
9 those?

10 A. I don't know what they are off the top of
11 my head.

12 (An Evaluation of Pupil Size Standards
13 Used by Police Officers for Detecting
14 Drug Impairment marked Exhibit No. 17.)

15
16 (The Neurology of Eye Movements,
17 Third Edition marked Exhibit No. 18.)

18 (Short recess taken.)

19 Q. Sir, on Page 13 of your report, you quote
20 "The Neurology of Eye Movements," a textbook
21 written by John Leigh and David Zee.

22 A. Yes. As a reference?

23 Q. Yes.

24 A. Yes.

1 Q. This is a copy of it. I'll give you the
2 book itself that's right there. And you quote
3 "In the clinic, the commonest cause of gaze
4 evoked nystagmus [nystagmus at maximum
5 deviation]" --

6 MR. PATANE: Is there a page or a line?

7 MR. WILLIAMS: Page 102.

8 MR. PATANE: What line?

9 Q. -- "is medication - usually sedatives,
10 tranquilizers [benzodiazepines] and
11 anticonvulsants"?

12 A. What is the question?

13 Q. Where would I find that? You cite
14 in your --

15 A. I cite the book.

16 Q. You cite the exact page?

17 A. Do I cite the page? It's a different
18 version of the book. This is the third edition.
19 Did I do third edition. Hang on, it's under gaze
20 nystagmus. Let me find it for you.

21 Q. You have Page 102 noted. I'm just asking
22 a question.

23 A. I know it's in the book. I may have
24 misquoted the page. Let me find it if I might.

1 Can I do that, counsel?

2 Q. I just wanted to ask you if that quote is
3 found on that page?

4 A. The quote is I do not see it on this page
5 because it was a different version. I may have
6 had Volume 2, Edition 2. If I can, I will show
7 you in the book where it is.

8 Q. It's okay. I'll take the book back.
9 It's okay.

10 A. It's a valid statement, though.

11 Q. Let me show you Exhibit 17, An Evaluation
12 of Pupil Size Standards Used by Police Officers
13 for Detecting Drug Impairment. I think that was
14 one of the articles you referred to?

15 A. Yes.

16 Q. That is written by -- it has you listed
17 as the primary author.

18 A. Yes.

19 Q. What was the normal range for pupil size
20 in people without drugs using the DRE methods?

21 MR. PATANE: Objection.

22 You can answer.

23 A. It depends on the lighting conditions.

24 I'm not sure what your question is.

1 Q. Well, hasn't the DRE been using for 32
2 years a normal range for pupil size 3 to 6.5
3 millimeters under any condition?

4 A. Yes.

5 Q. Right. And what you discovered was that
6 the correct range depended on light conditions,
7 correct?

8 A. Yes.

9 Q. And it could be as low as 1.5 and as high
10 as 9 millimeters, correct?

11 A. No. It depends on the light condition.

12 Q. Right. Depending on the light condition,
13 pupil size could be as low as 1.5 and as high as
14 9 millimeters?

15 A. Not normally.

16 Q. Well, the normal range depends on light
17 conditions?

18 A. Correct.

19 Q. And under some lighting conditions, the
20 normal range could be as low as 1.5, right?

21 A. Okay.

22 Q. And under different lighting conditions,
23 it could be as high as 9 millimeters?

24 A. 8 and a half.

1 Q. Now, you discovered with that article
2 that the methods being used by the DRE was
3 somewhat incorrect?

4 A. No. That's not what I stated in the
5 conclusion here.

6 Q. I know you didn't state it, but you found
7 that the pupil size was fundamentally flawed?

8 A. No. That's your conclusion.

9 Q. And when you measured pupil size, you
10 realized that the original standard was wrong?

11 A. No.

12 Q. You just told me that the DRE's had been
13 using as a standard 3 to 6.5 millimeters under
14 any condition.

15 A. That's correct. That was the earlier
16 ones.

17 Q. Right. Now, did you go back to TAP and
18 say, "Look, I found this really fundamental flaw
19 in our protocol, we really need to do something"?

20 A. I didn't say that there was a flaw. I
21 said we needed to refine the characteristics of
22 what we had been doing. We did not change the
23 protocols. We changed in the way we interpreted
24 those protocols.

1 We were always testing under three
2 conditions or four conditions at the time of
3 direct light, near total darkness and room's
4 light.

5 All this study did was to define it with
6 specific characteristics. It did not say that
7 the others were flawed. That is your
8 terminology.

9 Q. Did your discover lead TAP to question
10 and investigate the pupil size standard they used
11 for every drug?

12 A. No.

13 Q. In fact, none of those have ever been
14 measured scientifically?

15 A. What have not been?

16 Q. Pupil size standard for every drug.

17 A. You mean drug category or every drug that
18 is used with patients?

19 Q. Every drug.

20 A. No, that would be impossible.

21 Q. Did anyone go back and review the method
22 that TAP had used to get the original standard
23 and figure out how that method gave TAP the wrong
24 answer?

1 MR. PATANE: Objection.

2 You can answer.

3 A. TAP was never given a wrong answer, no,
4 that's not correct.

5 Q. TAP didn't go back and correct the method
6 so that that wouldn't happen again in the future,
7 correct?

8 MR. PATANE: Objection.

9 You can answer.

10 A. No. We did correct it as we do with many
11 things. That is the primary purpose of the
12 Technical Advisory Panel is to constantly review
13 protocols and to upgrade them and modify them
14 based on current literature and studies that are
15 done. That was true with many of the other tests
16 that are done within the DRE protocol.

17 Q. Sir, if you could take a look at Exhibit
18 16, which is the Arizona validation study that
19 was done in 1994. Take a look at Table 9, which
20 is on Page 49. It's the measurement of pulse
21 rate and blood pressure?

22 A. Yes.

23 Q. Would you agree with me that the blood
24 pressure rates for the human research subjects in

1 that study were virtually scientifically not
2 different for all of your various drug
3 categories?

4 MR. PATANE: Objection.

5 A. No, that's not a correct statement,
6 counselor.

7 Q. So the average systolic blood pressure
8 for barbiturate users was 124 diastolic was 85?

9 MR. PATANE: Objection. He's not looking
10 at the document any more for the record, so
11 there's no way he can follow what you are saying.

12 Q. Is that correct?

13 A. Your question is?

14 Q. The average is 124, the standard
15 deviation is 11?

16 A. That's correct.

17 Q. And diastolic is 85 with a standard
18 deviation of 9?

19 A. Okay.

20 Q. And then for benzodiazepine, the average
21 blood pressure is 123 and 83?

22 A. Okay.

23 Q. There's no scientifically significant
24 difference in those two?

1 A. Looking at the standard deviations, there
2 could be, but there's likelihood they're not. So
3 I'm not sure what the question is.

4 Is there any difference in the systolic
5 and diastolic for a barbiturate and a
6 benzodiazepine from what I'm seeing here? No.
7 But there's one flaw in that, you only had seven
8 subjects for barbiturates and only 12 for
9 benzodiazepines. It's an extremely small
10 population.

11 Q. What about cocaine, it's 126 and 77, the
12 averages?

13 A. Okay.

14 Q. There's no really scientific difference
15 between those two?

16 A. Between 126, 77?

17 Q. And 123 and 124?

18 A. Oh, yes, I believe there is. If I run a
19 T test between these two, 83 and 77, with that
20 standard deviation, I'll probably find a
21 significant difference between them.

22 Q. So 83, it went as high as 100 and as low
23 as...?

24 A. Right. And these -- the problem is you

1 have wide standard deviations in a population of
2 18.

3 What they don't report in this literature
4 is the means of these individuals, they don't
5 look at the ranges of these individuals, they are
6 only reporting a mean.

7 When you only report a mean and a
8 standard deviation, you're masking many times the
9 effects. Statistically, without doing a
10 statistical analysis and having additional -- you
11 can't make a judgment on that.

12 Q. Right. But TAP approved of a drug matrix
13 that indicated that certain drug categories being
14 used would have an effect on blood pressure?

15 A. Okay. If you're asking --

16 Q. I'm asking you is that true?

17 A. What is the question, that they approved
18 the matrix?

19 Q. TAP approved a drug matrix which is found
20 in that student manual indicating that if a
21 person uses a particular type of drug in a drug
22 category that blood pressure would be high, low
23 or normal?

24 A. That's incorrect. You want me to explain

1 the why?

2 Q. Does the drug matrix do that?

3 A. No, it does not.

4 Q. Okay.

5 A. If you want me to answer, I will, but my
6 answer to you is no.

7 Q. Now, this is the research that is
8 referred to in that manual we looked at earlier,
9 correct?

10 A. Yes, sir. That's three citations out of
11 many that were chosen to be put in there.

12 Q. Can you name me a study, a human research
13 study, that led to the publication of a peer
14 reviewed article indicating that people taking
15 CNS depressants would have reduced blood pressure
16 from the normal?

17 A. In the Heishman study, the John Hopkins
18 studies, there's two series of them, there's more
19 data there specifically.

20 Q. John Hopkins study, that's Bigelow?

21 A. No. Heishman, Stephen Heishman.

22 Q. Stephen Heishman.

23 A. There's two separate studies that were
24 done later that are used later on for the

1 validation. I'm sorry I don't have them in front
2 of me, but Bigelow is not one of the validation
3 studies.

4 Q. Stephen Heishman, and what was the other
5 one?

6 A. They're called the John Hopkins studies.

7 Q. And what is the -- what was the title of
8 that one?

9 A. They dealt with very specific drugs.
10 They dealt with -- they picked very specific
11 stimulants, they tried cannabis, they had central
12 nervous system depressants, and they looked at
13 the toxicology and looked for the validity of
14 making the judgments.

15 There are other articles I can give you
16 on the validation of the judgment based on
17 toxicology, several studies that came out of
18 Canada most recently.

19 In fact, in the past several years they
20 made an analysis of all the studies, and they had
21 different ones.

22 Q. Who is author of that one?

23 A. It begins with a B. Off the top of my
24 head --

1 Q. Is it listed in your appendix?

2 A. No. Because it was not necessary.

3 Q. The Ritchman? Richman?

4 A. No. That's me.

5 Q. What was it -- what is the name of the
6 other study, that you referred to as the John
7 Hopkins?

8 A. John Hopkins.

9 Q. Who was the principal author of that?

10 A. Heishman.

11 Q. I apologize, Doctor.

12 A. But there's even better ones that have
13 come out since.

14 Q. Has anyone -- you've mentioned specific
15 drugs. I'm asking you a specific question.

16 A. Which is?

17 Q. Has anyone published a peer review
18 scientific article indicating that persons taking
19 drugs in your drug category, CNS depressants,
20 will have reduced blood pressure, not specific
21 drugs, but CNS depressants?

22 A. Yes. There's numerous articles
23 specifically on CNS depressants. When we get
24 into that literature, if we go into pub med, we

1 can pull up many references that CNS depressants
2 has a side effect. I may be able to find that
3 for you specifically in the PDR, but individual
4 drugs, we look at their adverse effects, many of
5 them will lower blood pressure.

6 Q. Many of them will. But your matrix
7 that's included in the DRE manual indicates it
8 will be down?

9 A. I just said that. But I said the matrix
10 is not -- that's not the purpose of the matrix.
11 The matrix is a guide.

12 Q. It's not a scientific -- this is not
13 based on specific scientific research, it's just
14 a guide?

15 MR. PATANE: Objection.

16 A. It is based on research, but the purpose
17 of it is a generalization that, as an overall
18 group, central nervous system depressants, will
19 have a high probability of reducing and lowering
20 blood pressure.

21 With great simple ease, I could give you
22 those articles, but that was not what we did with
23 the matrix.

24 Q. The matrix is -- in fact, the only

1 organization that recognizes this drug matrix is
2 the TAP and its parent organization, correct?

3 A. The matrix or DRE program?

4 Q. No, the matrix itself.

5 The only organization, scientific or
6 otherwise, the only organization that recognizes
7 this is your TAP and the International
8 Association of Chiefs of Police, correct?

9 MR. PATANE: Objection.

10 You can answer.

11 A. I don't know how to answer that
12 unfortunately because it doesn't recognize it as
13 a scientific document.

14 Q. Okay, thank you.

15 Other than you, is there any other member
16 of TAP, when you were serving on it, is there any
17 other member of TAP that's a scientist?

18 A. Yes. There's toxicologists.

19 Q. There's a toxicologist?

20 A. And there were subcommittees not listed
21 who would serve in specific areas. There was a
22 subscientific committee that individuals could be
23 drawn on, and third, while I served on it, there
24 was a physician out of Maryland State Police that

1 was also on the committee for a number of years,
2 and there presently is still one. He happens to
3 be an emergency room physician and he's a
4 physician for Maryland State Police.

5 Q. What is his name?

6 A. Donald Alves, A-L-V-E-S. That's the
7 present one. The other one was Phil Phillips.

8 Q. Now, when you were serving on the TAP,
9 you were the medical expert on the drug
10 recognition expert test?

11 A. I was not the only one. I was the
12 primary one, but I had a subcommittee of people
13 not listed that we would call upon as other
14 members of the committee could draw on as well.

15 Q. Well, in your report you indicate that
16 you were the medical expert?

17 A. That's correct. I was the primary person
18 because there's only one appointment at the time.

19 Q. And you are familiar with DIE test
20 standards?

21 A. DIE test standards?

22 Q. The drug recognition test standards.

23 A. DRE?

24 Q. DRE, yes.

1 A. Yes.

2 Q. And their development?

3 A. Yes.

4 Q. Their scientific principles?

5 A. Yes.

6 Q. Scientific basis?

7 A. Yes.

8 Q. And the scientific literature about this?

9 A. Yes.

10 Q. Did you define standards --

11 MR. PATANE: Objection.

12 Q. -- for the drug recognition test?

13 A. Personally? No, I did not.

14 Q. Did TAP?

15 A. The TAP committee makes the decision.

16 Q. I understand they make a decision. But
17 did TAP define standards for the test, scientific
18 standards for the test?

19 A. For the Drug Recognition Expert Program?

20 Q. Yes.

21 A. They would define standards that would be
22 taught in the curriculum.

23 Q. Right. But did you define, you, the
24 members of the committee, specifically the

1 members of the committee that approved the 2010
2 manual, define scientific standards for the test?

3 A. To my knowledge, yes.

4 Q. And where would I find the scientific
5 standards in there?

6 A. They are not in there.

7 Q. Okay. Where would I find them?

8 A. They would be part of the curriculum
9 committee. They would be part of my personal
10 papers, be part of other members' papers.

11 That is a curriculum manual, that is not
12 the scientific standards.

13 Q. Tell me what the scientific standards are
14 then?

15 A. I'm not sure which ones you want.

16 Q. For the test. Tell me what the
17 scientific standards are for the test.

18 A. For the test?

19 MR. PATANE: Objection.

20 You can answer.

21 A. Scientific standards would be based on
22 all the literature available on any particular
23 function, and any studies that may be out there
24 relative to determining whether someone was

1 impaired or not impaired or how they deviated
2 from normal or average.

3 Q. But what are they?

4 A. What are they?

5 Q. Yes.

6 A. They are published articles.

7 Q. No, but -- you said that you defined --
8 you did define standards for the test and I'm
9 asking you what are they?

10 A. I just answered you.

11 Q. No. I'm asking you. If I ask you for
12 the standard for the test to determine a
13 particular eye disease, you can tell me what it
14 is?

15 A. No, I can't.

16 Q. Yes, you can?

17 A. I don't understand what your -- maybe I'm
18 confused by your question.

19 What is the standard that you are after?

20 Q. The scientific standards underlying the
21 12-part test.

22 A. I believe you've asked and I've answered
23 you that there's a large body of literature on
24 each one of the tests.

1 Q. No. I'm asking you what the standards
2 you have developed at TAP for this test?

3 A. The standards we developed?

4 Q. That you define and use.

5 A. We look at and I just --

6 Q. I know what you look at.

7 A. No, I answered --

8 Q. You won't answer my question.

9 A. I did answer your question.

10 Q. You won't tell me what they are. What
11 are they?

12 A. I did. I said the standard is we look at
13 what is the normal function for that particular
14 test, and then we look at that deviation from
15 that.

16 For example, if we look at pupil size, if
17 we look at a pulse rate, we define it based on
18 all the available literature of what is a normal
19 non-impaired individual. We set that as the
20 basis of what is normal and then we look for
21 deviations from that.

22 Q. What is the normal pupil size for someone
23 using a therapeutic dose of morphine?

24 A. That's not a normal non-impaired person.

1 Q. No, it's the normal -- what --

2 A. That's an impaired person.

3 Q. What is the pupil size for someone using
4 a therapeutic dose of morphine?

5 A. That is not a normal person.

6 Q. I'm not asking about normal. I'm asking
7 what's the pupil size.

8 A. The pupil size can be anywhere from two
9 millimeters to five millimeters. And it all
10 depends on the dosage, the time. We don't define
11 it on that basis.

12 Q. What is the pupil size of someone using a
13 therapeutic dose of buprenorphine?

14 A. Same answer.

15 Q. What?

16 A. That it is not normal non-impaired
17 person.

18 Q. I'm not asking about you a normal
19 non-impaired person.

20 A. You asked me what the standards are. We
21 use our standards.

22 Q. You have to have a standard to determine
23 whether a pupil size is high, normal or low?

24 A. That's correct. And we simply say that

1 it is deviated from the normal non-impaired. We
2 do not base it on morphine, we do not base it on
3 buprenorphine or Patanol. We base it on the fact
4 that person is deviated from the normal
5 non-impaired person in that category. That is
6 all that the DRE is required to do. They are
7 making an opinion that this person's pupils
8 appeared to be outside the average range for a
9 normal non-impaired person.

10 So I don't follow your question. That's
11 how we make our standards.

12 Q. Someone high on morphine will have normal
13 pupil size?

14 A. Someone who is on -- been treated with
15 morphine on a therapeutic dose and has been
16 taking it on a regular basis, their pupils over a
17 period of time can start to fall into the low
18 average for normal individuals.

19 Q. You didn't answer my question.

20 A. I think I did.

21 Q. I said somebody who is high on --

22 A. High? What is high, sir?

23 Q. Isn't that the problem?

24 A. Yes. And "high" means that they have

1 abused the drug. Is that a better term?

2 Q. Someone taking more than the therapeutic
3 dose of morphine --

4 A. Okay.

5 Q. -- and is impaired by that drug --

6 A. That's correct.

7 Q. -- will have normal pupil size?

8 A. No, they will not. That's not what you
9 asked me. This question I agree with you.

10 Q. And someone who is using heroin on a
11 regular basis, but is going through withdrawal,
12 will have what size pupil?

13 A. They can have larger pupils.

14 Q. But they can still be under the influence
15 of the narcotic drug?

16 A. That's correct.

17 Q. Even when going through the withdrawal?

18 A. They are under the influence of being on
19 the whole body trying to readjust, so they are
20 now impaired, but not due to the drug. They are
21 impaired due to the imbalance in the nervous
22 system.

23 This is good. You are learning to be a
24 DRE, counselor.

1 Q. Now, you can't define for me what the
2 standards are for your DRE test?

3 MR. PATANE: Objection.

4 Q. Were your deliberations for TAP
5 published?

6 A. Yes. They're all minutes that were
7 recorded and I believe they are available to
8 Washington, D.C.

9 Q. And are they peer reviewed?

10 A. The minutes?

11 Q. Yes.

12 A. Not to my knowledge.

13 Q. Your work at TAP, is it peer reviewed?

14 A. It's not -- not to my knowledge. It's an
15 advisory committee.

16 Q. Well, that approves this drug recognition
17 manual, right?

18 A. Okay.

19 Q. Right?

20 A. I don't believe the FDA is peer reviewed
21 and they approve many things.

22 Q. Is any of your work published in peer
23 review journals?

24 A. My personal work?

1 Q. No, the work of the TAP.

2 A. The work of the TAP? No, it's reversed.

3 The TAP uses peer-reviewed information.

4 Q. So the answer is "no"?

5 A. Yes.

6 Q. And you all work for the International
7 Association of Chiefs of Police which is a police
8 agency?

9 A. No. We don't all work for them. We work
10 for many different agencies.

11 Q. But you -- within your work as the member
12 of TAP?

13 A. Yes.

14 Q. On Page 7 of your report you indicate
15 that it's your opinion to a degree of
16 professional certainty. What does that mean,
17 "professional certainty?

18 A. Based on my 45 years of experience, my
19 training, my education. I'm making an opinion.

20 Q. Right. But that's not a medical opinion?

21 A. It is a medical opinion because I am
22 licensed as an optometric physician in two
23 states.

24 Q. You didn't say to a reasonable degree of

1 medical certainty?

2 A. No. I'm not sure which one, I cited the
3 different ones. It may not require me to say to
4 a medical certainty.

5 Q. And you didn't say it was to a degree of
6 scientific certainty?

7 A. I said to my professional.

8 Q. I understand. I'm just asking you
9 questions.

10 A. Yep.

11 Q. You didn't say scientific certainty,
12 correct?

13 A. It's implied.

14 Q. You didn't say it was a physiological
15 certainty?

16 A. It's implied.

17 Q. Is that yes or no?

18 A. Yes.

19 Q. So did you say that it was to a
20 reasonable degree of physiological certainty?

21 A. It's to a degree of professional,
22 medical, biological certainty based on my opinion
23 and my professional experience.

24 Q. "...that the Standardized Field Sobriety

1 Test procedures applied by Trooper Carlson were,
2 for the most part, entirely consistent with the
3 national standards approved by the International
4 Chiefs of Police and the National Highway Safety
5 Administration, correct?

6 A. (Pause.)

7 Q. Is that what your opinion is?

8 A. Is that what it says here?

9 MR. PATANE: Well, for the record, the
10 witness is not looking at the document so it's
11 hard for him to confirm the exact language.

12 A. By the International Chiefs of Police and
13 National Highway Traffic Safety Administration,
14 yes.

15 Q. Are there any scientific documents that
16 identify and enumerate the standards of the
17 Standardized Field Sobriety Test?

18 MR. PATANE: Objection. That's been
19 asked and answered about a hundred times, but you
20 can answer.

21 A. Could you repeat the question?

22 Q. Is there a scientific document
23 identifying and enumerating the standards of the
24 Standardized Field Sobriety Test?

1 A. There's no standard documents that
2 defines the standards in which these decisions
3 are made.

4 Q. Okay. Could you turn to Page 11?

5 A. Yes.

6 Q. No. 3. "It is my opinion to a reasonable
7 degree of professional certainty that Horizontal
8 Gaze Nystagmus can be used effectively to detect
9 central nervous system impairment due to alcohol
10 as well as drugs?

11 A. Yes.

12 Q. Did I read that correctly?

13 A. Yes.

14 Q. Sometimes I don't.

15 And then B, to refine that: "In my
16 opinion, based on the references in Appendix I,
17 eye movements have consistently been reported to
18 be impaired by alcohol, central nervous
19 depressants, inhalants and dissociative
20 anesthetics and will exhibit the characteristic
21 signs of loss of smooth pursuit, nystagmus at
22 maximum deviation, and onset of nystagmus prior
23 to 45 degrees."

24 A. Yes.

1 Q. Let me hand you one of the books that you
2 referred to, The Neurology of Eye Movements.

3 A. Yes.

4 Q. I have a few questions.

5 Can you show me in that book where
6 alcohol impairs eye movements?

7 A. Correct. Page 430.

8 MR. PATANE: Which edition is that?

9 THE WITNESS: Third edition.

10 Q. What does it say?

11 A. It says "Most commonly gaze of both
12 nystagmus as a side effect of medications,
13 including sedatives and anticonvulsants or is due
14 to intoxications with drugs especially alcohol.
15 It's on Page 430.

16 Q. How about inhalants?

17 A. An inhalant is a drug.

18 Q. Specifically inhalants as used in your
19 drug matrix.

20 A. The category of inhalants is of an
21 extremely wide group of drugs, but this refers to
22 drugs as a general category.

23 Q. Right. But I'm asking you whether that
24 book indicates that inhalants specifically impair

1 eye movements?

2 A. Inhalants? I would have to look up each
3 individual type of category in here. And if
4 you'll give me a moment, I will potentially find
5 one for you.

6 I don't believe they break these down by
7 drugs per se. Let me see if I can find it. This
8 book is geared more toward the neurology.

9 I don't believe I can find one
10 immediately in here.

11 I've answered your first question, but
12 you say specifically an inhalant?

13 Q. Correct.

14 A. I don't know how they have this setup.
15 Let me see. If not there was another reference I
16 gave you in here, Frauenfelder that's listed
17 here. A drug introduced ocular side effects.

18 No, I can't immediately put my finger on
19 one here as I did for what you asked before,
20 okay?

21 Q. Dissociative anesthetics?

22 A. Yes.

23 Q. Where is it that it showed it was
24 impaired in that book?

1 A. Dissociatives? You didn't ask me that.
2 You asked me inhalants.

3 Q. I know. I'm asking you a different
4 question.

5 A. In here, I said they only have certain
6 drugs in here. Mostly, antidepressants -- I'm
7 sorry. Mostly I can occasionally find a specific
8 drug, but very rarely.

9 Let me see if I can find dissociative
10 anesthetics, which I doubt because most of those
11 are illegal. Let me see I can find it.

12 Not in this book.

13 Q. Fast-acting CNS depressants --

14 A. Yes.

15 Q. -- would I find it in that book?

16 A. No. You will find depressants, but not a
17 specific category of fast acting. That's a
18 pharmacological book. This is not a
19 pharmacological book.

20 (Sobriety Tests for Low Blood Alcohol
21 Concentrations marked Exhibit No. 19.)

22
23 (Nystagmus Testing in Intoxicated
24 Individuals marked Exhibit No. 20.)

(Carisoprodol, Meprobamate, and
Driving Impairment marked Exhibit
No. 21.)

(Testing for Benzodiazepine
Inebriation-Relationship Between
Benzodiazepine Concentration and
Simple Clinical Tests for Impairment
in a Sample of Drugged Drivers marked
Exhibit No. 22.)

(GHB and Driving Impairment marked
Exhibit No. 23.)

(Indexing Cognitive Tests to Alcohol
Dosage and Comparison to Standardized
Field Sobriety Tests marked Exhibit
No. 24.)

(The Competency and Accuracy
of Police Academy Recruits in the
Use of the Horizontal Gaze Nystagmus
Test for Detecting Alcohol Impairment

1 marked Exhibit No. 25.)
2 (Effects of Alcohol and Other
3 Psychotropic Drugs on Eye Movements:
4 Relevance to Traffic Safety marked
5 Exhibit No. 26.)

6
7 (Gaze Nystagmus and Blood Alcohol
8 Page 2 of 3 marked Exhibit No. 27.)

9
10 (Disorders of Eye Movement marked
11 Exhibit No. 28.)

12
13 (Distribution of GABAA and GABAB
14 Receptors in Mammalian Brain:
15 Potential Targets for Drug
16 Development marked Exhibit No. 29.)

17
18 Q. Sir, let me show you Exhibit 19, it's the
19 McKnight article --

20 A. Yes.

21 Q. -- on sobriety tests for low alcohol
22 concentrations?

23 A. Yes.

24 Q. Does that article have any information in

1 this indicating that Horizontal Gaze Nystagmus
2 can be used effectively to detect central nervous
3 impairment due to alcohol?

4 A. Does it have anything specific?

5 (Pause.)

6 Yes. It has evidence of low blood
7 alcohol levels and that HGN will be present even
8 in low blood alcohol levels.

9 Q. Correct. But low blood alcohol levels
10 don't necessarily mean impairment.

11 Does that article stand for the
12 proposition that HGN can be used effectively to
13 detect central nervous system impairment?

14 A. It does not state impairment.

15 Q. How about CNS depressants?

16 MR. PATANE: Objection.

17 Q. Impairment by CNS depressants?

18 A. That's not the purpose of this article.

19 Q. Inhalants?

20 A. No.

21 Q. And dissociative anesthetics?

22 A. No.

23 Q. Sir, let me show you the sci-tech
24 article, Nystagmus Testing in Intoxicated

1 Individuals.

2 A. Yes.

3 Q. Does it indicate HGN can identify
4 impairment by alcohol?

5 A. Yes.

6 Q. Could you point that language to me?

7 A. The language basically is nystagmus is
8 present in intoxicated individuals. That is
9 impairment. Nystagmus itself, its presence is
10 impairment. Nystagmus itself of the types that
11 are measured in HGN are signs of central nervous
12 system impairment. It's a standard within
13 medical knowledge.

14 Q. Can you just read that to me?

15 A. It's not here.

16 Q. Okay.

17 A. It's an understood.

18 Q. What about CNS depressants?

19 A. This deals primarily with alcohol.

20 Q. The answer is "no"?

21 A. No.

22 Q. And inhalants?

23 A. No.

24 Q. And dissociative anesthetics?

1 A. No. This article does not refer to that.
2 It's article that deals specifically with
3 alcohol.

4 Q. Exhibit 21. The Logan article on
5 Carisoprodol, Meprobamate, and Driving
6 Impairment. Same question.

7 A. Yes.

8 Q. Is there anything in that article that
9 you can point to specifically that horizontal
10 gaze nystagmus can be used to detect central
11 nervous system impairment due to alcohol?

12 A. Carisoprodol is extensively metabolized
13 to Meprobamate, which is a central nervous system
14 depressant with sedative hypnotic properties, so
15 it defines what it's doing in its pharmacological
16 effect. It has enough dosages.

17 Let me find it right here.

18 Q. We're talking about HGN?

19 A. You said about CNS depressants.

20 Q. I said is there anything in that article
21 indicating that HGN can be used to effectively
22 detect central nervous system impairment due to
23 alcohol?

24 A. In this -- that's not the question you

1 asked me prior. So if that's the new question,
2 the answer is no. This is an article not about
3 alcohol. It's about central nervous system
4 impairment depressant and driving, and it has
5 very specific references to the effects on
6 driving and the impairment.

7 Q. How about HGH can be used effectively to
8 detect central nervous system impairment due to
9 CNS depressants?

10 MR. PATANE: Objection.

11 Q. Does it have anything about HGN being
12 used to effectively detect central nervous system
13 impairment due to the depressants?

14 A. Yes. Under the "Conclusions," CNS
15 depressants. "As with other more common CNS
16 depressants, divided attention, coordination,"
17 HGN will be part of a coordination so it would be
18 walk and turn and one-leg stand. Judgment and
19 decision making other skills essential to safe
20 driving can all be affected by the meprobamate
21 which is a central nervous system depressant.

22 Q. Is that based on their own original
23 research or is that footnoted?

24 A. No, that's in their conclusions.

1 Q. Is that their own research?

2 A. I don't know how they drew that
3 conclusion. You would have to ask them.

4 Q. How about --

5 A. I can cite their other references, if you
6 wish. They have 27 references that deal with
7 that question.

8 Q. How about inhalants, does that article
9 stand for the proposition of central nervous
10 system impairment?

11 A. No. Because it was not a study on
12 inhalants.

13 Q. And dissociative aesthetics?

14 A. No.

15 Q. That's fair enough. That is Exhibit No.
16 22. That's the Bramnes article on "Testing for
17 Benzodiazepine Inebriation," is that right?

18 A. Uh-huh.

19 Q. You have to say yes or no.

20 A. Yes.

21 Q. Is there anything in that article, based
22 on their original research indicating that HGN
23 can be used effectively to detect central nervous
24 system impairment due to alcohol?

1 A. Due to alcohol?

2 Q. Yes.

3 A. In their research?

4 Q. Correct.

5 A. No, because they're not talking about
6 alcohol in this one. They're talking about
7 benzodiazepines.

8 Q. Is there any original research in that
9 article indicating that HGN can be used
10 effectively to detect impairment due to a CNS
11 depressant?

12 A. Yes.

13 Q. Where would I find it?

14 A. In the title. Benzodiazepine is a
15 central nervous system depressant.

16 Q. I'm asking a specific question.

17 A. That's my answer.

18 Q. HGN can be used effectively to detect
19 central nervous system impairment due to a
20 central nervous system depressant?

21 A. On horizontal gaze nystagmus?

22 Q. Yes.

23 A. Benzodiazepine is a central nervous
24 system depressant and it will -- I have to see

1 how they define something here.

2 MR. PATANE: Take your time.

3 A. Yes. They specifically used a protocol
4 that they called CTI25, and under that protocol,
5 under vestibular function -- this is on
6 Page 595 -- they specifically report that one of
7 their protocol was horizontal gaze nystagmus and
8 that they noted percentage of impaired
9 individuals. So the test was used as part of
10 their protocol.

11 And then in their conclusions, they find
12 that the benzodiazepine, in fact, specifically
13 diazepam was -- so they definitely have
14 horizontal gaze nystagmus. They do -- this group
15 with elevated benzodiazepine concentrations were
16 included as a reference.

17 And basically the conclusions in the very
18 first -- under their abstract, it says
19 "Conclusions: Many of the simple clinical
20 tests" -- which they define -- "includes the
21 horizontal gaze nystagmus" -- it states -- "are
22 included in the Standardized Field Sobriety Test
23 and are a value in revealing benzodiazepine
24 impairment under the "Conclusions."

1 Q. You are aware that Ms. Sukoc gave a
2 sample of her blood for testing?

3 A. Yes.

4 Q. And that sample was sent to NMS Labs?

5 A. Yes.

6 Q. You have seen the report?

7 A. Yes, I did in my original things.

8 Q. Her blood was tested for the presence of
9 benzodiazepine?

10 A. Yes.

11 Q. And it was negative?

12 A. According to their report.

13 Q. Does that paper talk about inhalants --

14 A. No.

15 Q. -- and effect of HGN and impairment?

16 A. No.

17 Q. And dissociative anesthetics?

18 A. No.

19 Q. That talks about a specific drug
20 Diazepam --

21 A. Which is a --

22 Q. -- with a HGN present?

23 A. Yes.

24 Q. And Ms. Sukoc was tested for Diazepam and

1 it was negative?

2 A. Based on that -- on those tests, but
3 those tests have questionable validity.

4 Q. I'm sure they do.

5 GHB and Driving Impairment is the next
6 article.

7 A. That's Gamma hydroxybutyrate.

8 Q. Yes, the so-called the date rape drug,
9 right?

10 A. Yes.

11 Q. Isn't that what is referred to as in the
12 community?

13 A. Yes.

14 Q. So there would be no reference in that to
15 alcohol?

16 A. No.

17 Q. Inhalants?

18 A. No.

19 Q. Or dissociative anesthetics?

20 A. GHB is often considered under the
21 category of dissociative anesthetics.

22 Q. It wouldn't come under CNS depressants?

23 A. It could fall into both categories.

24 Numerous specific drugs can fall anywhere from

two to four categories.

Q. In the drug matrix that the TAP produced, correct?

A. That's correct.

Q. Not in any other scientific identification?

A. Of course if does in others. It depends on dosage level. If I can give an example? I guess not.

Q. Ms. Sukoc was tested for GHB by National Medical, NMS Labs?

A. GHB, yes.

Q. She was tested for GHB from her blood sample, correct?

A. Yes.

Q. And that was negative?

A. Correct. Blood sample was inadequate.

Q. Blood sample was inadequate, where did you see that?

A. It's stated on there. It has two milliliters. That's an extremely low sampling. That would have an effect on the potential judgment and the analysis by the lab in my experience.

1 Q. Do you test blood for drugs?

2 A. No, but I deal with toxicologists.

3 Q. You've never tested any blood for drugs?

4 A. No. But I read many reports.

5 Q. And NMS Labs does that for a living?

6 A. Yes. And they even stated on the bottom
7 that the size of the sample was two milliliters.

8 Q. If the sample size was too small to get
9 an adequate and reliable test result, they would
10 have so stated?

11 A. They may have. Not to my knowledge, but
12 they may have contacted the person who submitted
13 it, which would've been the drug recognition
14 expert or their agency.

15 Q. You read Officer Plunkett's deposition?

16 A. That was early on, yes.

17 Q. Do you have any evidence that NMS Labs
18 ever contacted the Vermont State Police?

19 A. Do I personally?

20 Q. Or Officer Plunkett, yes.

21 A. Perhaps Officer Plunkett does.

22 Q. No, but do you have any information that
23 NMS Labs ever contacted any of the police
24 officers involved this stop indicating that the

1 blood sample was inadequate?

2 A. It was limited and it had potential
3 problems with it. I believe Officer Plunkett was
4 notified.

5 Q. Of that fact?

6 A. I believe so.

7 Q. Where would I find that?

8 A. I don't know. There may have been -- it
9 may have been omitted, but my initial response --

10 Q. Have you talked to Officer Plunkett?

11 A. No, I have not.

12 Q. You read his deposition and his report?

13 A. Yes.

14 Q. Is there any information in either of
15 those documents?

16 A. No. Because he's going on his
17 evaluation, not the toxicology. I'm responding
18 based on my professional experience that I saw
19 that sample was very small. So it may be
20 undiscovered information at this point, but it
21 was part of forming my opinion.

22 Q. Discovered information?

23 A. I formed an opinion based on what I read
24 regarding -- and I stated that in my statement

1 here. Correct? My concerns with the lab and how
2 they may have -- may not have detected the
3 various drugs that are there.

4 Q. If you could show me where you put in
5 your report that there's an inadequate sample of
6 blood, I --

7 A. No. I didn't say that I put that in my
8 report. I questioned the lab conclusions of the
9 absence of a particular drug in there.

10 Q. That's fair enough.

11 A. I'll show you exactly -- well, if that's
12 fair enough, then fine.

13 Q. Indexing Cognitive Tests to Alcohol
14 Dosage in Comparison to Field Sobriety Testing,
15 this is 24. That's Exhibit 24. That doesn't
16 address CNS depressants, correct?

17 A. That's not the purpose of the article.

18 Q. Inhalants?

19 A. No.

20 Q. Or dissociative anesthetics?

21 A. No.

22 Q. Your own article, Exhibit 25, Competency
23 and Accuracy of Police Academy Recruits?

24 A. That deals with horizontal gaze nystagmus

1 and alcohol primarily.

2 Q. It doesn't deal with CNS depressants,
3 inhalants or dissociative anesthetics?

4 A. It did not include a central nervous
5 system impairment unless I clearly qualify
6 alcohol as a depressant, which a standard in
7 pharmacology.

8 Q. Stapled to Exhibit 26 deals with alcohol,
9 correct?

10 A. Yes.

11 Q. But not CNS depressants?

12 A. This?

13 Q. Yes.

14 A. Sure, it does. It says specifically
15 barbiturates, benzodiazepine, and opioids.

16 Q. Where does it refer to horizontal gaze
17 nystagmus?

18 A. Only in their introduction where they say
19 that "Driving consists primarily of a tracking
20 task. These tasks require precise oculomotor
21 control, drug effects on eye movements could have
22 an important impact on traffic safety."

23 This is not a specific scientific
24 research. This is more of a review article.

1 Q. So no original research in that one,
2 that's just a review?

3 A. And it's citing many, many other
4 references which I think are pertinent.

5 Q. This is Goding?

6 A. George Goding.

7 Q. George Goding, G-O-D-I-N-G. It's hidden
8 behind a pay wall, so I couldn't print it all
9 out. But apparently this deals with horizontal
10 gaze nystagmus and blood alcohol?

11 A. Yes, I know the article.

12 Q. It doesn't deal with CNS depressants,
13 inhalants or dissociative anesthetics, correct?

14 A. No. I still go to my definition, CNS
15 depressants include alcohol.

16 Q. Excluding alcohol, I'm talking about all
17 the other CNS depressants, it does not address
18 that, correct?

19 A. Right.

20 Q. Okay. This is Exhibit 28, Wilkinson,
21 this is The Influence of Drugs and Alcohol in
22 Human Eye Movement?

23 A. What is the date on that?

24 Q. This is 1976.

1 A. That's a really -- yeah. Let me see
2 something.

3 And the question is?

4 Q. Any original research in that article
5 indicating that HGN can be used to effectively
6 detect central nervous system impairment due to
7 alcohol?

8 A. Yes. This is written by Dr. Wilkinson
9 and he cites his own research which was done in
10 '74. It's in a bibliography. Wilkinson I M S,
11 Kime, K-I-M-E and Purnell, P-U-R-N-E-L-L,
12 published in Brain 1974, where he specifically
13 states that alcohol dosage -- severe impairment
14 on smooth pursuit movement, and he gives two
15 other references of published data specifically
16 relating to other central nervous system
17 depressants. He at least confronts for alcohol
18 in his own study.

19 Q. How about CNS depressants?

20 A. He sites three other people.

21 Q. Any original research?

22 A. Not that he put in his bibliography.

23 Q. How about inhalants?

24 A. No.

1 Q. How about dissociative anesthetics?

2 A. Nope.

3 Q. This is A.B. Young, Distribution of GABAA
4 and GABAB Receptors in the Mammalian Brain?

5 A. Yes.

6 Q. Any original research in that article
7 indicating that horizontal gaze nystagmus can be
8 used to determine central nervous system
9 impairment in humans due to alcohol?

10 A. No. This study was done on dead people.

11 Q. Across the board it doesn't address the
12 issue?

13 A. No. Because they couldn't test the eye
14 movements on dead people.

15 Q. These are the three validation studies
16 for the standardized field sobriety testing?

17 A. Yes.

18 Q. Now, we're specifically talking about
19 impairment, not blood alcohol concentration.

20 Is there anything in that document
21 indicating that HGN can be effectively used to
22 detect central nervous system impairment as
23 opposed to alcohol concentration?

24 MR. PATANE: Objection.

1 A. No.

2 Q. The same questions for CNS depressants,
3 inhalants and dissociative anesthetics?

4 A. No. That's not the purpose of those
5 studies.

6 Q. How about the Florida study?

7 A. Same thing. San Diego correlates HGN
8 specifically to blood alcohol levels.

9 Q. But not impairment?

10 A. They didn't use the word "impairment."
11 The assumption is that HGN is impairment.

12 (The Methodological Quality of Three
13 Foundational Law Enforcement Drug
14 Influence Evaluation Validation Studies
15 marked Exhibit No. 30.)

16
17 (The Robustness of the Horizontal
18 Gaze Nystagmus Test marked Exhibit
19 No. 31.)

20
21 (Horizontal Gaze Nystagmus: A review
22 of Vision Science and Application Issues
23 marked Exhibit No. 32.

24

(293 The Standardized Field Sobriety
Tests: A Review of Scientific and Legal
Issues by Stephen Rubenzer marked
Exhibit No. 33.)

(Neuro-Ophthalmology, Third Edition by
Joel S. Glaser marked Exhibit No. 34.)

Q. Sir, let me show you Defendant's Exhibit
32. It's an article. The lead author is Steven
Rubenzer, R-U-B-E-N-Z-E-R, Horizontal Gaze
Nystagmus: A Review of Vision Science and
Application Issues.

Are you familiar with that article?

A. Yes.

Q. And you are familiar with his conclusion
that HGN is limited by large variability in
underlying normative behavior for methods in
testing environments that are often poorly
controlled and from lack of vigorous foundation
in laboratory settings?

A. That's one statement from the article. I
can cite others. I could be glad to.

Q. That's the conclusion?

1 A. I don't agree with it. That's a
2 conclusion that's not based on his article.
3 That's only taken out the context.

4 Q. You didn't site this article in your --

5 A. No, I had no reason to. It's a review
6 of -- it's a selected review of articles that are
7 biased.

8 Q. Rubenzer is Exhibit 33, Standardized
9 Field Sobriety Tests: A Review of Scientific and
10 Legal Issues, are you familiar with that article?

11 A. Partially, yes.

12 Q. And that's in law and human behavior?

13 A. Yes.

14 Q. In this article: "It is concluded that
15 the research that supports their use is limited,
16 important confounding variables have not been
17 thoroughly studied, reliability is mediocre, and
18 that their developers and prosecution-oriented
19 publications have oversold the tests."

20 Are you familiar with that conclusion?

21 A. I am familiar with parts of it.

22 May I look at it?

23 Q. Oh, yeah, absolutely. It's in there?

24 A. Yes. This is a review that he did.

1 There's no original research. It's a META
2 analysis, and he also concludes that SFSTs do
3 show substantial correlations with BAC, subject
4 -- HGN has repeatedly demonstrated higher
5 correlations with BAC. So he does cite some of
6 these. And when you get into more, then it gets
7 into opinion and editorializing rather than
8 scientific paper.

9 So, overall, this is -- as he says, it's
10 a review, it's an editorial. It's based on his
11 personal opinion. It's not a scientific paper,
12 in my opinion.

13 Q. Are you familiar with Marcelline Burns
14 "The Robustness of the Horizontal Gaze Nystagmus
15 Test," a study that was done for the NHTSA?

16 A. Yes.

17 Q. They tested subjects using a videotape,
18 correct, in this one?

19 A. No, they did live subjects as well.

20 Q. But they actually videotaped the eye
21 movements in this one?

22 A. Yes.

23 Q. And you are aware that at the two-second
24 speed, lack of smooth pursuit was reported for

1 both eyes for all of the participants in this
2 study, including those with alcohol
3 concentrations of below 08?

4 A. What was the conclusion again?

5 Q. The conclusion is -- it's a statement.
6 At the two second speed, LSP, or lack of smooth
7 pursuit was reported for both eyes for all
8 participants in this study?

9 MR. PATANE: Objection. For the record
10 the witness is not looking at the document.

11 Q. I'm asking --

12 MR. PATANE: Counsel is reading from it.

13 A. That's a conclusion and I believe the
14 statement is correct as it's stated.

15 Q. Here. It's on Page 15 and in the gray.

16 A. So they basically said it was not
17 expected at low BACs.

18 Let's just go back as there's something
19 else I just want to check here. Let me just
20 check something here.

21 Okay, the question -- if you may repeat
22 your question relative to what you have
23 highlighted?

24 Q. The only -- I was just asking if she

1 reported at the two second speed lack of smooth
2 pursuit was reported for both eyes for all
3 participants, that's what she reported based on
4 her data?

5 A. Yes. As the standard protocol, yes.

6 Q. Table 15 indicates that officers were
7 given many of the human research participants
8 scores of four or six when their blood alcohol
9 concentration ranged between 02 and 079?

10 A. When the speed was changed?

11 Q. No. You can look at the table, if you
12 want. It's Table 15.

13 A. But there's a summary table that took
14 place.

15 Q. Right. You can see those are the actual
16 scores?

17 A. Right, okay, but then there's a summary
18 table of her conclusions.

19 Q. No, I understand that. But you would
20 agree with me that that table sets out the data?

21 A. It sets out the data.

22 Q. You can see HGN was given from
23 different --

24 A. But this table deals not with speed, this

1 table deals with stimulus distance, not speed.

2 Q. I know, and it deals with scoring.

3 A. Okay. So, I'm not clear what the
4 question is. The first one was about speed.
5 This one is a different question?

6 Q. Yes. You can see that the scores range
7 between four and 6=six for many of the scorers
8 when the alcohol concentration was below a 08?

9 A. Okay.

10 Q. Would you agree with me?

11 A. From what this data shows.

12 Q. You are aware of that data?

13 A. I'm aware of the data. There's nothing
14 wrong with that conclusion in seeing that. That
15 occurs -- that was the purpose of the study, it
16 was show the robustness.

17 And also, I must make something very
18 clear as it goes to the speed. It says in the
19 protocols, approximately two seconds, it does not
20 say two seconds.

21 Q. Now, Joel Glaser published a textbook in
22 Neuro-Ophthalmology, are you familiar with this
23 textbook?

24 A. I'm familiar with Joel Glaser.

1 Q. This is a Lippincott textbook, I'm told
2 cost \$1,000?

3 MR. PATANE: Can you just say what
4 edition it is and what year it was published?

5 MR. WILLIAMS: Third rd edition, 1999.

6 A. That's a newer one.

7 Q. Page 390, Dr. Glaser indicates:
8 "Unfortunately, the fact that alcohol can produce
9 horizontal gaze-evoked nystagmus has led to a
10 roadside sobriety test conducted by
11 law-enforcement officers. Nystagmus as an
12 indicator of alcohol intoxication is fraught with
13 extraordinary pitfalls: many normal individuals
14 have physiologic end-point nystagmus; small
15 dosages of tranquilizers that won't interfere
16 with driving ability can produce nystagmus;
17 nystagmus may be congenital or consequent to
18 structural neurological disease; and often a
19 sophisticated neuro-ophthalmologist or
20 oculographer is required to determine whether
21 nystagmus is pathologic. It seems unreasonable
22 that such judgments should be the domain of
23 cursorily trained law officers no matter how
24 intelligent, perceptive, and well meaning they

1 might be."

2 A. Okay. And the question is?

3 Q. Are you familiar with his conclusion?

4 A. That's an opinion, not a conclusion based
5 on any evidence that he put in that book.

6 Q. So are you familiar with his opinion?

7 A. Sure.

8 Q. You didn't mention it in you're appendix?

9 A. I don't put opinions and editorials.
10 That would be like putting Rush Limbaugh's
11 opinions.

12 Q. Exhibit 30 is an article written by a
13 Dr. Greg Kane, The Methodological Quality of
14 Three Foundational Law Enforcement Drug
15 Evaluation Validation Studies.

16 Are you familiar with this article?

17 A. Yes.

18 Q. It was published about, I don't know,
19 within the last six weeks.

20 A. Yes. Well, no, that's the more current
21 one. Let me see that if I might. That's the
22 newer one that he just did, yes.

23 Q. Are you read that?

24 A. Not this newest one. This came out in

1 Journal of Negative Results, yes, 2013.

2 And the question is?

3 Q. You are not familiar with that article?

4 A. No, not specifically. I was told about
5 it. But I'm also familiar with most of his other
6 articles. And, again, these are -- if I might,
7 these are not individual studies. These are
8 reviews and opinions. They are editorials.

9 Q. That's a peer-reviewed scientific
10 article, isn't it?

11 A. So are many times reviews, okay, as long
12 as they put the right things and they cite them,
13 then they can state whatever they wish in a
14 review, but a review is not an independent study.

15 Q. Those are the three validation studies
16 that we talked about Florida, Colorado, and San
17 Diego?

18 A. Yes, sir.

19 Q. Can you show me where HGN scores
20 predicted driving scores?

21 A. No.

22 Q. Walk and Turn scores predicted driving
23 scores or where One Leg Stand predicted scores
24 predicted driving scores?

1 A. There's no test of driving. There was
2 studies correlating this to correct arrests
3 relative to be supported by BACs. Therefore,
4 there are information in here that shows high
5 accurately of HGN Walk and Turn and One Leg Stand
6 specifically in San Diego as it relates to BAC
7 levels and to correct arrests. If a correct
8 arrest would have been based on three parts of a
9 Standardized Field Sobriety Test, which includes
10 observation of operation of the driving, so...

11 Q. What scientific formula was used to
12 indicate the accuracy of the test?

13 MR. PATANE: Objection.

14 A. Of which test? The alcohol to the HGN?

15 Q. Of the three tests. You said that they
16 were accurate?

17 A. They do what's called a KHI square and
18 they determine the sensitivity and specificity
19 level of the relationship of the presence of
20 horizontal gaze nystagmus and the blood alcohol
21 level. And I can cite you specifically, if I
22 might, in the San Diego study where they had it
23 to be a very high correlation, I believe at .88
24 to the BAC levels.

1 Q. What scientific mathematical formula do
2 scientists use to calculate the probability that
3 when a person has horizontal gaze nystagmus, the
4 person is impaired by a drug?

5 A. They will use a -- I'll tell you exactly.
6 They did a KHI square to determine the
7 sensitivity and specificity. This is a
8 probability. And it's a decision matrix that is
9 a standard method to determine how well
10 something -- one's test will predict the outcome
11 of another. And that's a standard protocol that
12 was used specifically in the San Diego study.

13 Q. The San Diego didn't address the issue of
14 whether a person is impaired by a drug?

15 A. Well, I consider alcohol a drug.

16 Q. Other than alcohol?

17 A. No. It dealt with alcohol.

18 Q. What scientific mathematical formula do
19 scientists use to calculate the probability that
20 when a person has HGN, the person is impaired by
21 a drug?

22 A. The same answer. Is they use
23 sensitivity, KHI square analysis and they will
24 calculate the sensitivity and specificity, very

1 specific formulas that will give you the
2 probability.

3 Q. And can you point me to an article that
4 says that?

5 A. That's in statistics, basic statistics.

6 Q. I know it's based in statistics, but can
7 you point to me an article, a scientific
8 peer-reviewed article that stands for that
9 proposition?

10 A. The proposition -- it's a technique,
11 that's a procedure that is used to assess
12 analysis of data. That's what you're asking is
13 statistic --

14 Q. I'm asking you who used it and where was
15 it published.

16 A. Right here in the article that you just
17 gave me.

18 Q. No, they don't deal with drugs other than
19 alcohol.

20 A. Oh, okay, the Heishman study, and if you
21 want to deal specifically with drugs, off the top
22 of my head, the John Hopkins studies, they did
23 similar things to look at the probabilities.

24 Q. Have you ever applied that mathematical

1 formula to the Standardized Field Sobriety Test?

2 A. Yes, I did.

3 Q. And where would I find that?

4 A. In my own article, In the Competency and
5 Accuracy of Recruits and Use of HGN, I did the
6 same thing. I think it's in the pile here
7 somewhere. I don't know which one it is.

8 Q. What scientific formula do you use to
9 convert the degree of correlation of HGN to the
10 probability that a person's driving is impaired?

11 A. I don't. It's not necessary. I can
12 create BAC level to driving impairment. There
13 are many, many articles that have clearly
14 established the blood alcohol levels to driving
15 impairment.

16 Q. We're talking about drugs now.

17 A. And drugs as well. I gave you a
18 reference in psychomotoring in my deposition.
19 That's another series.

20 You also gave me other articles here that
21 dealt with many of the drugs: Meprobamate,
22 Valium, GHB.

23 Standard correlations are done, and
24 probability studies and basic statistics are

1 supplied.

2 Q. You told me that your scientific opinions
3 in this case depend on the published scientific
4 literature relating to the standardized field
5 sobriety testing and the drug recognition expert
6 testing, correct?

7 A. Yeah. Is that what I said in my
8 deposition?

9 Q. Yeah.

10 A. If I said that, then if that is accurate,
11 then I did.

12 Q. You form your opinions based on real
13 peer-review literature published in actual
14 scientific journals?

15 A. I base my opinion on the scientific
16 literature that is available, that includes peer
17 reviewed journals, that includes scientific
18 reports that are published by Federal agencies,
19 such as National Highway Transportation Safety
20 Administration, as well as the National
21 Institutes of Health.

22 Q. But they are not peer-reviewed. Those
23 are government publications?

24 A. They are peer-reviewed internally by a

1 qualified panel.

2 Q. They are not sent out to scientists?

3 A. They are internally.

4 Q. Internally by members of your board, but
5 not to scientists outside --

6 A. They are. I know the process, counselor.
7 The way it will work is they have -- they are
8 required in their protocols to have visitation
9 teams, when they are doing research at their
10 sites, whenever there's a Federal grant that they
11 are complying with the protocols, when the
12 information comes back and their final
13 conclusions, they are required -- these are
14 reviewed by a separate panel of scientists who
15 are part of NHTSA before that goes out.

16 Q. Part of the NHTSA. Now, who was on the
17 scientific panel that reviewed the San Diego
18 report?

19 A. I'm not familiar with the people from
20 NHTSA that do that.

21 Q. Does it indicate in here --

22 A. No. But it indicates there was a grant.
23 And the grant, before it's done and the many
24 final report goes out, it's reviewed by numerous

1 people. You saw Dr. Richard Compton and he has
2 his entire staff of statisticians and researchers
3 that have to review it for accuracy and
4 conclusions.

5 In fact, GSA requires that eventually
6 within a two-year period, most articles need to
7 be also published.

8 But I know personally first person that
9 these are looked at. It's not just automatically
10 just sent out.

11 Q. On Page 14 of your report, you indicate:
12 "In terms of HGN being a valid and reliable
13 predictor of impairment in blood alcohol, there
14 were again various consistent and repeatable
15 studies all supporting the correlation of alcohol
16 and HGN. These studies determined that the HGN
17 and the other two Standardized Field Sobriety
18 Tests, (the Walk-and-Turn, One Leg Stand)
19 reliably enabled officers: To detect central
20 nervous system impairment due to alcohol as well
21 as drugs."

22 Leaving aside the issue of alcohol, can
23 you point to me the peer-reviewed scientific
24 research that indicated that the Standardized

1 Field Sobriety Tests reliably enabled officers to
2 detect central nervous system impairment due to
3 drugs?

4 A. Other than the field sobriety test, is
5 that your question?

6 Q. I'm asking you if you can tell me the
7 peer-reviewed scientific articles that support
8 that conclusion.

9 A. Which conclusion?

10 Q. These studies -- these studies determined
11 that the HGN and the other two field sobriety
12 tests reliably enabled officers to detect central
13 nervous system impairment due to drugs?

14 A. Yes, I gave you the four. I said John
15 Hopkins was an example of the studies.

16 Q. Anything else?

17 A. Not off the top of my head.

18 Q. So this John Hopkins study, and when
19 did -- who authored this John Hopkins study?

20 A. I said earlier it was Heishman and
21 others. I can produce a much greater
22 bibliography. It was not what I had been
23 anticipated that I would need to do. My opinion
24 is based upon review of a great deal of

1 literature and not to a produce an extensive
2 bibliography.

3 Q. Reference to the studies relied on from
4 my opinion in this regard is as follows:

5 A. Those are the primary ones.

6 Q. And you list three in your report. This
7 is your report?

8 A. That's correct.

9 Q. It's the Colorado study?

10 A. Those were the primary ones.

11 Q. The Colorado study, is that correct?

12 A. Yes.

13 Q. The Florida study?

14 A. Yes.

15 Q. And San Diego study?

16 A. Yes.

17 Q. None of which even tested the reliability
18 of the field sobriety test to detect central
19 nervous system impairment, correct?

20 A. No. They detected central nervous system
21 impairment.

22 Q. Due to drugs other than alcohol?

23 A. No. Alcohol.

24 Q. And let me ask you again: Where does it

1 say in those studies "impaired" as posed to
2 accurately predicting blood alcohol levels?

3 A. The word "impairment" is not used.

4 Q. Thank you.

5 A. The presence of nystagmus is a direct
6 indicator of impairment, in my opinion.

7 Q. Opinion 7 of yours that in your opinion
8 to a reasonable degree of professional certainty
9 that more likely than not Ms. Sukoc was impaired
10 by a very short acting compound which was
11 exhibited in the Standardized Field Sobriety Test
12 evaluations performed and reported by Trooper
13 Carlson and Officer Plunkett," that's your
14 opinion, correct?

15 A. That's a probability, yes.

16 Q. Is it -- what very short acting compound
17 are you talking about?

18 A. Ativan could be one. There's another --

19 Q. What's the name of it?

20 A. Just a moment. There are several very
21 short acting benzodiazepines -- and right now,
22 I'm drawing a blank. Is that okay? I did not
23 specify.

24 Q. You had an opportunity to put all of this

1 in your expert opinion report when you weren't
2 sitting here for three and a half hours, I
3 understand that.

4 A. What I did was identified a class. There
5 are a class of very short acting central nervous
6 system depressants that have duration of times
7 that will last from one to three hours and they
8 are half-life of leaving the system can be
9 anywhere from two to our hours.

10 Q. What are there?

11 A. I can look it up in the PDR.

12 Q. You have a theory. I would just like to
13 confirm your theory.

14 THE WITNESS: Do we have internet access
15 here?

16 MR. PATANE: We have a PDR.

17 Q. There you go. Have a look at it.

18 A. (Witness complies.)

19 It only lists the most common ones out
20 there. That's why I can't use this book. I can
21 provide a list if you want.

22 Q. So sitting here today after you have had
23 an opportunity to review all of the evidence and
24 prepare an expert report in this case, you can't

1 name a single very short acting compound which
2 was exhibited in the Standardized Field Sobriety
3 Test performed by the two officers?

4 A. One -- let me look at Ativan because I
5 didn't limit it to short acting. I said it could
6 be other drugs as well.

7 Q. You said very short acting compound?

8 A. Compound.

9 Q. That's what I said.

10 A. I did not say specifically a
11 tranquilizer. It can be any compound or a
12 substance. Let me see if I can find it here.
13 I'm sorry. I could do it if I looked it up on --

14 Q. Did you look it up when you wrote your
15 report?

16 A. I have notes on it on home, yes.

17 Q. Will you provide those notes to me?

18 A. I will.

19 MR. PATANE: Objection. We'll take it
20 under advisement, but you don't get to see the
21 doctor's file. He can provide a list, if he
22 wants, of the ones that he was referring to.

23 Q. Doctor, there's a disagreement about
24 whether you have to provide your entire file to

1 me. Will you agree today not to destroy anything
2 in your file?

3 A. Yes.

4 Q. So if a court orders it produced in the
5 future, nothing will be taken from it?

6 A. That's correct.

7 Q. Since you don't know and cannot name the
8 compound you're talking about, you can't tell me
9 whether any peer-reviewed scientific research has
10 confirmed that the Standardized Field Sobriety
11 Test evaluations performed by the two officers
12 would indicate impairment of this unknown drug,
13 correct?

14 MR. PATANE: Objection.

15 A. No, I can't say that. Because there are
16 studies on various central nervous system
17 depressants that will affect the signs that they
18 saw on the field sobriety test.

19 Q. Name one.

20 A. That's what I'm attempting to do, sir.

21 Q. Name a -- if we don't know the name of
22 the drug, we can't name peer-reviewed scientific
23 research that would back up your opinion that the
24 field sobriety test would approve impairment,

1 correct?

2 A. No. You gave me articles that dealt
3 specifically with benzodiazepines as it relates
4 to creating signs and symptoms, GHB. Now
5 benzodiazepines are that category I'm talking
6 about.

7 Q. We are talking about the field sobriety
8 test.

9 A. That's correct. HGN is part of that.

10 Q. But not the Walk-and-Turn and One Leg
11 Stand?

12 A. Yes.

13 Q. Well, you will get me those articles,
14 won't you?

15 A. How many articles are we talking about
16 and in what categories? If I can make a note of
17 exactly what you want --

18 Q. I want an article that substantiates this
19 Opinion No. 7.

20 A. Fine. Right it down.

21 MR. PATANE: It will be in the
22 transcript.

23 Q. Since you told me you don't know what the
24 Vermont -- what Vermont law prohibits with

1 regards to drugs and driving, it's impossible for
2 you to tell me whether the officer had probable
3 cause to believe that a crime was committed?

4 MR. PATANE: Objection.

5 A. No, I don't agree.

6 Q. So you can reach that conclusion without
7 even knowing what the law prohibits?

8 MR. PATANE: Objection.

9 A. I know that the purpose of Standardized
10 Field Sobriety Tests nationwide are to detect an
11 operator who is potentially impaired.

12 Q. You say "Trooper Carlson asked Ms. Sukoc
13 to exit her vehicle and asked her to twice to
14 close the car door and then he shut it for her,"
15 do you see that on Page 4?

16 A. Yes, I believe I was reading from his
17 record.

18 Q. This is Exhibit 7. This is Trooper
19 Carlson's report. Could you read the highlighted
20 portion of that for the record?

21 A. "When she stepped from her vehicle, I
22 asked her to shut the door. I had to repeat
23 myself twice before she did so."

24 Q. Who shut the door?

1 A. I guess he did -- she did.

2 Q. Did you review the videotape?

3 A. Yes, I did.

4 Q. And you saw the Walk-and-Turn test?

5 A. Yes.

6 Q. What is the correct number -- what are
7 officers taught regarding the Walk-and-Turn test.
8 Specifically the number of steps a person takes?

9 A. Nine.

10 Q. Did you count the number of steps that
11 Ms. Sukoc took?

12 A. Going one direction, yes. I think I did
13 both directions, yes.

14 Q. She took nine steps in each direction?

15 A. I don't recall exactly. I believe I
16 watched it. I watched more of his directions to
17 her. I watched her balance. I watched the
18 errors that she took. I believe there were nine,
19 but I would have to look at again.

20 Q. Nine each way?

21 A. Yeah, I'm not sure.

22 Q. Do you want to take a look with me?

23 A. No. I mean, that was my recollection.
24 If you want to look at it, I will be glad to.

1 Q. If she took nine steps each way, she took
2 the correct number of steps?

3 A. Yes.

4 Q. But Trooper Carlson reports that she took
5 the incorrect number of steps?

6 A. Well, that could be additional steps that
7 he may have seen.

8 Q. Well, is there something on the videotape
9 that he saw that we wouldn't have?

10 A. I don't recall.

11 Q. Now, in your report you indicate that you
12 could not confirm that the instructions that
13 Trooper Carlson gave to her?

14 A. No, I couldn't.

15 Q. You couldn't confirm that she started
16 before instructed and you couldn't confirm she
17 did not touch heel to toe?

18 A. Because I couldn't see that clearly.

19 Q. The only clue that you picked up on the
20 Walk-and-Turn was that she may have lost balance?

21 A. That was more obvious. Seeing the number
22 of steps is much more difficult because they
23 could be small.

24 Q. But one out of that is not -- you can't

1 call it, right?

2 A. No.

3 Q. The HGN was done, it was inconsistent
4 with his training because he had her looking into
5 traffic and the wig-wags were on, correct?

6 A. I believe that was correct.

7 Q. The Field Sobriety Testing Student Manual
8 indicates that: "It is necessary to emphasize
9 that this validation applies only when the tests
10 are administered in the prescribed standardized
11 manner, and if that any one of the Standardized
12 Field Sobriety Test elements is changed, the
13 validity is compromised."

14 Did I read that correctly?

15 A. Yes. That's out of the manual, that's
16 correct. It does not mean that the information
17 cannot be used. This goes to the robustness of
18 all the data that's collected.

19 Q. Did you have a chance to review Officer
20 Plunkett's DRE evaluations?

21 A. Yes.

22 Q. And you would agree with me that in each
23 case, and there are six of them, reported by
24 Officer Plunkett, when either he was not told

1 that a particular drug was being used, or there
2 was no evidence that a particular drug was being
3 used, and he predicted that the drug would be
4 found in the person's blood, he was wrong?

5 MR. PATANE: Objection.

6 A. No, that's not correct.

7 Q. Okay.

8 A. He's drawing a category based on the
9 signs and symptoms. It does not have to be
10 supported completely by toxicology, and that's
11 part of the DRE standards.

12 Q. I thought it was 90 percent accurate in
13 telling which drugs were being used?

14 A. That's not correct. It depends on the
15 category. And there's large categories in that
16 we have seven different categories of drugs.

17 Q. So in Casey Sears, for example, he
18 predicted, based on his evaluation of Casey Sears
19 that --

20 A. Who is Casey Sears?

21 Q. It was one of his --

22 MR. PATANE: For the record, the witness
23 is not looking at the log. Counsel is looking at
24 the documents.

1 A. Is that his log? I don't know what he's
2 looking at.

3 Q. You said that you went over these?

4 A. You asked me if I went over his report.

5 Q. In Casey Sears' situation, Officer
6 Plunkett predicted, based on his drug expert
7 evaluation, a drug recognition evaluation, that
8 he was under the influence of a narcotic drug and
9 cannabis, and when the toxicology results came
10 back, there were no narcotics?

11 A. Okay.

12 Q. Dillon Wetzel, Officer Plunkett predicted
13 that Mr. Wetzel was under the influence
14 inhalants, depressants and cannabis and no
15 cannabis was found in his toxicology results?

16 A. And the reason for this is very specific,
17 in the training that they have, in the manual,
18 you have, they are taught that there can be
19 overlapping effects, various drug categories can
20 give very similar signs. So many times what they
21 have is what is considered polydrug use and an
22 officer is trained to predict or make an opinion
23 that I believe they are under polydrug use and it
24 may not be all the drugs that are there because

1 that is not the purpose of the DRE evaluation.

2 The purpose of the DRE evaluation is to make the
3 decision that there is a -- they're impaired due
4 to a drug and potentially which categories.

5 So if they don't have it in all three
6 categories, and have it in one, that's still a
7 fact that was supported by toxicology. So those
8 are accurate.

9 Q. In David Fornier's case, Officer
10 Plunkett, based on his drug recognition
11 evaluation, predicted or opined that Mr. Fornier
12 was under the influence of cannabis, depressants
13 and alcohol.

14 A. And the question?

15 Q. The toxicology results were CNS
16 depressant, cannabis and narcotic, he missed out
17 on the narcotics and he missed out on the
18 alcohol.

19 A. He didn't miss on the alcohol. You have
20 to look at the report in which he did, there may
21 have been a PBT or a breath test that indicated
22 alcohol. Alcohol is checked for in the very
23 beginning. So he had two out of three categories
24 in that specific one, which is a very good

1 outcome on a polydrug use.

2 Q. In Dustin Spencer's case he predicted
3 cannabis and there was no drugs found in
4 Mr. Spencer's blood. That's a single drug.

5 A. Okay. And that was his call. He found
6 him impaired. And there's a very clear reason
7 why Cannabis will not be found in many blood
8 samples. And the reason is twofold: One is the
9 time in which the blood is taken. If the blood
10 is taken several hours later, and the way
11 Cannabis works, the blood level and threshold for
12 testing may be too low that detected in blood
13 even though the psychoactive components are quite
14 present and the individual be impaired, and
15 there's a great deal of research to support that
16 presently.

17 So that because it was not blood does not
18 necessarily mean that the individual was not
19 under the influence of Cannabis.

20 Q. In Ryan Maxwell's case, he predicted CNS
21 stimulant in narcotic and the toxicology report
22 came back to marijuana?

23 A. And the reason for this they can mimic
24 and overlap. He felt that the individual was

1 impaired. He did not get the correct categories.
2 We do not go -- on the DRE evaluations are not
3 necessarily based totally on the support of the
4 toxicology for a specific drug. Many drugs will
5 not be tested or there's threshold drugs that
6 are -- the threshold and the drug by the time it
7 is taken is below the threshold that NMS Labs
8 will have done. And that's not an uncommon
9 problem that we're seeing. Cannabis is a very
10 characteristic one when blood is drawn.

11 Q. In Mrs. Sukoc's case, Detective Plunkett
12 predicted that she was under the influence of a
13 depressant drug and no drugs were found, correct?

14 A. Based on toxicology. In my opinion, I
15 feel that she clearly supported that she was
16 impaired because we had repeatability of Trooper
17 Carlson and Officer Plunkett's evaluation which
18 is a basic very strong test for reliability that
19 she was impaired.

20 Q. When you say "impaired," impaired means
21 they got worse, they had a baseline and they were
22 impaired from that baseline, correct?

23 A. They were -- showed signs of impairment
24 that could clearly affect operating a motor

1 vehicle, and that impairment are deviations of a
2 loss or inability of various functions as
3 evidenced by the field sobriety tests, the
4 horizontal gaze nystagmus test, plus all the
5 factors that are done and taken in the DRE
6 evaluation.

7 Q. How does one make the call? What is the
8 scientific standard for making that call?

9 A. The scientific standard?

10 Q. Yes, for making the call. I mean, you're
11 saying that a person is under the influence of a
12 particular drug or any drug at all, what is the
13 scientific standard, sir?

14 A. The standard is if they exhibit a whole
15 pattern of signs. The standard is that we have
16 over the years collected the information, and
17 what we find is that based on over 100 indicators
18 that an individual shows during this evaluation,
19 the officer is making an opinion the person is
20 impaired. It's not their job to make a
21 diagnosis. It's not their job to make a
22 definitive decision of which drug it was. They
23 can only speculate on a category and that it's
24 not due a medical condition because they are

1 attempting to rule this out.

2 Q. How can a nonphysician rule out a medical
3 condition?

4 A. Because they do it by signs and symptoms
5 and seeing the individual. They are not ruling
6 out a medical condition. In fact, approximately
7 one out of ten DRE evaluations wind up as a
8 medical problem, which is a public safety value
9 that they wind up saving the individual by
10 sending them to a hospital or protecting them
11 from any further testing that was required
12 because what they are looking for is an
13 impairment and the job to get them off the road
14 that particular evening.

15 Q. If there are no standards, how can
16 anything be validated scientifically?

17 A. Because they have been. We validated the
18 FSFTs and every part of the protocols that we
19 used to test that we use, including the one leg
20 stand, finger to nose, modified Romberg, we know
21 that these people that in those tests, they have
22 deviated from what a normal non-impaired
23 individual is going to do. And we have put that
24 into a format that helps an officer to say,

1 "Look, there's a great probability that this
2 person is impaired due to some substance or some
3 drug. We don't know what that is. That's not
4 our job to do."

5 The job of a police officer is to make an
6 opinion that someone is impaired. It's not a
7 medical diagnosis. And I would tenure to not get
8 into the issue of accuracy of medical diagnosis
9 versus the accuracy of DREs. DRE's accuracy in
10 making a judgment of drugs is much more accurate
11 than medical diagnosis and that's well
12 documented.

13 Q. In your opinion was Ms. Sukoc
14 disoriented?

15 A. I was not there to see that.

16 Q. You heard her on the film?

17 A. Mildly. But I heard the slurred speech a
18 bit.

19 Q. She's got a thick foreign accent. You
20 think her speech was slurred?

21 A. Are we debating my opinion?

22 Q. Do you really think that?

23 A. I don't know her. I can only make an
24 opinion on the limited information that I have.

1 Q. Right. And my question to you is: Do
2 you really believe that Fata Sukoc's speech that
3 night was slurred?

4 A. From what I heard, I could not determine
5 whether it was an accent or slurred.

6 Q. Did she exhibit drunk-like behavior?

7 A. Yes.

8 Q. Drowsiness?

9 A. Possibly, yes.

10 Q. Drooping eyes?

11 A. I couldn't see her eyes.

12 Q. Fumbling?

13 A. I could not see her fumbling.

14 I have to go on the reports of two
15 different officers, and specifically the drug
16 evaluation report that looked at very specific
17 measures and I found them reliable.

18 Q. According to your drug matrix that you at
19 TAP developed --

20 A. Let me clarify. I didn't develop it and
21 TAP didn't develop it. Please.

22 Q. Who put the matrix together?

23 A. That was developed over time from --

24 Q. By who?

1 A. LAPD.

2 Q. Who else?

3 A. And then people in the beginning there
4 were physicians involved, psychologists,
5 neurologists. This came from LAPD in its
6 original inception.

7 Q. And it was two Los Angeles police
8 officers that started this?

9 A. They started it.

10 Q. It was accepted in the field in LA
11 without any scientific testing, correct?

12 A. That's not true.

13 Q. And it was accepted by NHTSA before the
14 scientific tests that we talked about, the
15 validation studies?

16 A. Well, they did the validation studies.

17 Q. After NHTSA accepted this in 1982?

18 A. That's correct. However --

19 Q. The first validation study was 1984?

20 A. However -- okay.

21 Q. And you at TAP adopted this DRE
22 symptomatology matrix for the use of drug
23 recognition experts? It's in your book.

24 A. Excuse me. If you look at it carefully

1 there's modified exceptions. We constantly keep
2 checking on whether those signs keep changing
3 because every year there's new drugs that fall
4 into multiple categories, multiple categories
5 which make it even more difficult. There are new
6 drugs out there that will fall into three
7 categories. So when an officer tries to make
8 that and the drug comes back as a different
9 category. If you look under depressants, it will
10 say specifically an exception that
11 antidepressants can have stimulant
12 characteristics. So these are constant things
13 that we keep modifying.

14 Q. And the officers in the field are
15 supposed to know this?

16 A. Yes. They are given updates on a regular
17 basis. They are required for recertification and
18 by their state coordinator to be provided these
19 things. And we have a high level of control on
20 this. And we do decertify DREs every year who do
21 not comply with this.

22 Q. In your opinion was Ms. Sukoc on
23 Quaaludes?

24 A. No, I cannot make that judgment.

1 Q. Alcohol?

2 A. I have no idea.

3 Q. Well, you saw the triple zeros on the
4 Alco-Sensor?

5 A. That's fine. She was not using alcohol.

6 Q. Psychedelic Quaaludes, in your opinion,
7 was she using those?

8 A. I don't know.

9 Q. Anesthetic gases?

10 A. It's quite possible she might've.

11 Q. Where would a person get an anesthetic
12 gas?

13 A. Where she worked.

14 Q. At the nursing home?

15 A. You can go to Walmart and Home Goods --
16 I'm sorry, Home Depot and buy anesthetic gases.

17 Q. Such as what?

18 A. I can buy whippets, they are used for
19 making whipped cream, nitrous oxide.

20 Q. Nitrous oxide does not cause HGN?

21 A. Oh, yes, it does, sir. Absolutely, it
22 does.

23 Q. What study are you relying on in that
24 one?

1 A. How about 40 years of experience with it,
2 plus studies of nitrous oxide as an inhalant will
3 create --

4 Q. You think she was doing whippets on her
5 way home from work?

6 A. I have no idea what she was doing.

7 Q. You have to have a theory. Where did she
8 get the whippet?

9 A. I don't know.

10 Q. What was a whippet in the car?

11 A. No.

12 Q. Did you see any evidence that there was
13 any kind --

14 A. No, I only see evidence that she was
15 impaired.

16 Q. May I finish my question?

17 A. Sure. You don't let me.

18 Q. In the car, did the officer see any
19 evidence of drug use?

20 A. Not reported.

21 Q. Did they get a drug dog?

22 A. No, not reported.

23 Q. There was a conversation about getting
24 one, wasn't there?

1 A. Yes.

2 Q. You heard it?

3 A. Yes.

4 Q. They decided that it wasn't necessary?

5 A. Yes.

6 Q. Were any drugs found in Mrs. Sukoc's
7 purse?

8 A. No.

9 Q. In her jacket?

10 A. Nope.

11 Q. In her pocket?

12 A. Nope.

13 Q. In her glove compartment?

14 A. Nope.

15 Q. In her trunk?

16 A. No.

17 Q. Did she use drug-related slang when she
18 talked to the police officers?

19 A. No.

20 Q. Did she admit to the use of the drugs?

21 A. No. Now may I speak?

22 Q. I'm here to ask the questions. You can
23 give your speeches to a different audience.

24 If she was using CNS depressants, her

1 reaction to light would have been what?

2 A. Whatever is reported. I believe the DRE
3 reported her reaction to light.

4 Q. And what did he report?

5 A. I don't have that report in front of me
6 at this moment.

7 Q. Do you know what her pupil size was?

8 A. I believe her pupil sizes were in the
9 average range.

10 Q. What about vertical gaze nystagmus?

11 A. I don't recall without looking at his
12 report.

13 Q. And according to the drug matrix that's
14 included in your book, vertical gaze nystagmus
15 would have been present in a high dose?

16 A. A high dose of?

17 Q. For that particular individual?

18 A. Yes, for that particular individual. The
19 drug matrix is a guideline for police officers.
20 It's not an absolute. It's similar to a cheat
21 sheet to help them guide and help make a
22 decision.

23 Q. This is a cheat sheet?

24 A. To a large --

1 Q. That's what you just referred to this as?

2 A. That's correct, sir. It's a way as part
3 of the training of the entire program that they
4 refer to. They do not make their decision on the
5 matrix alone. There's only a certain number of
6 categories and clues on here. When they are
7 doing the full evaluation and when you look at
8 the face sheet, there's 100, over 100 indicators
9 in the history, in the divided attention tasks
10 that are not on the matrix.

11 When the DRE makes their final conclusion
12 of impairment and what category, they are not
13 just relying on the matrix, they are looking at
14 all the clues and the totality of the clues.

15 Q. So it's a subjective, not an objective
16 decision?

17 A. That's true of the entire field. Here as
18 an opinion and, in fact, it's the entire field of
19 psychiatry. There are no biomedical tests for
20 psychiatry. It's all behavior. And that's again
21 if we're talking about that kind've of thing.

22 MR. WILLIAMS: Any questions, Mark?

23 MR. PATANE: Maybe one or two.

24 CROSS EXAMINATION BY MR. PATANE:

1 Q. Doctor, on a number of occasions you
2 weren't allowed to finish your answers. Is there
3 anything you would like to clarify or describe
4 about your prior testimony that you didn't have a
5 chance to?

6 A. I need to -- if I can understand the way
7 field sobriety is done and the purpose of it and
8 the DRE evaluation and its purpose. It's to form
9 an opinion based on what is observed of whether
10 is someone is impaired. These tests have been
11 validated to give clues that someone is
12 potentially impaired and should not be operating
13 a vehicle.

14 At that point, they would be potentially
15 arrested and go through an entire process to find
16 out whether or not there is a reason to suspect
17 that they are still under a drug and what
18 potential category.

19 In my own personal experience in looking
20 at a great deal of the data from these
21 evaluations, many individuals are clearly
22 impaired and also there's a percentage of
23 individuals that have impairment, medical
24 impairment that is not due to a drug and an

1 appropriate actions are taken by the police to
2 help that individual. I think that there's a
3 robustness to these things and this is not a
4 medical diagnosis. This is not a medical model
5 that should be applied in this case for the DRE
6 protocol.

7 And the last thing, I'm not here to
8 defend the Drug Recognition Expert Program in its
9 validity in scientific. I am reporting what I
10 saw in a particular case, what was done by a
11 specific trooper in making a decision about an
12 arrest and the follow-up by a drug recognition
13 expert and what that opinion was, that the
14 individual was impaired.

15 So, with that, I have nothing else to
16 say.

17 Q. The fact that you weren't able to see a
18 number of steps or other things on the videotape
19 when you viewed it, does that mean that other
20 people who also viewed it were not able to see
21 things that you could not -- didn't see?

22 A. No. I may have missed certain pieces,
23 but I looked at the totality of what I saw, and
24 the totality of all the information that was

1 gathered by Trooper Carlson, the sequence of what
2 he did, also the follow-up by Officer Plunkett
3 and his evaluation. And in my opinion, they were
4 consistent that they clearly found an individual
5 that was impaired. And that there's questions as
6 to what was the cause of that impairment. I'm
7 still not sure what it was, but I believe their
8 decisions were based on their training and they
9 were accurate decisions.

10 Q. What importance, if any, do you put on
11 the fact that Trooper Carlson and Trooper Dunning
12 who were by there at scene and observed
13 Mrs. Sukoc and then yourself and Sergeant Roy who
14 viewed the videotape and reviewed the reports
15 afterwards that all four of you agree that
16 Trooper Carlson had probable cause to arrest
17 Mrs. Sukoc that evening for suspicion of
18 impairment?

19 A. I clearly, as I stated earlier, feel that
20 there was a proper sequence, in fact, more
21 evidence that is often provided in many cases of
22 arrests for probable cause or driving under the
23 influence be it alcohol or drugs, and in this
24 case, we had two additional observers, one, a

1 drug recognition expert that not only repeated
2 more extensive tests, but validated the
3 observations of the sobriety test, specifically
4 horizontal gaze nystagmus, Walk and Turn, One Leg
5 Stand, that supported the probable cause for the
6 arrest.

7 MR. PATANE: That's it.

8 MR. WILLIAMS: Thank you, Doctor.

9 (Whereupon, the deposition was
10 concluded at ^ p.m.)
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ATTACH TO DEPOSITION OF: JACK E. RICHMAN, OD,
FAAO, FCOVD

CASE: FATA SUKOC v. TIMOTHY CARLSON

DATE: December 18, 2013

ERRATA SHEET

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I have read the foregoing transcript of my
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JACK E. RICHMAN, OD, FAAO, FCOVD

CERTIFICATE

Commonwealth of Massachusetts
Norfolk, scientific standards.

I, Jill M. Kourafas, a Notary Public in
and for the Commonwealth of Massachusetts, do
hereby certify:

That JACK E. RICHMAN, OD, FAAO, FCOVD,
the witness whose deposition is hereinbefore set
forth, was duly sworn by me and that such
deposition is a true record of the testimony given
by the said witness.

IN WITNESS WHEREOF, I have hereunto set
my hand this 5th day of January 2014.

Jill Kourafas
Notary Public
Certified Shorthand Reporter
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My Commission expires:
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