

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO**

UNITED STATES OF AMERICA,

Plaintiff,

vs.

No. CR 10-0773 JB

JOHN LEONARD TSOSIE,

Defendant.

MEMORANDUM OPINION AND ORDER

THIS MATTER comes before the Court on: (i) the Plaintiff's Notice of Intent to Introduce Expert Witness Testimony Pursuant to Rules 702, 703 and 705, filed on October 6, 2010 (Doc. 37); and (ii) Defendant's Motion in Limine for Daubert¹ Ruling Regarding the Admissibility and Scope of Ms. Nancy's Drez's Expert Testimony, filed on April 20, 2011 (Doc. 86)("Motion"). The Court held an evidentiary hearing on April 28, 2011. The primary issue is: (i) whether, despite amendments to N.M.S.A. 1978, § 66-8-102C, retrograde extrapolation² remains viable under New Mexico law; and (iii) whether Plaintiff United States of America's retrograde extrapolation is admissible under rule 702 of the Federal Rule of Evidence. The Court agrees with the parties that New Mexico law controls the analysis of "influence of alcohol." The Court concludes, however, that New Mexico law allows use of the retrograde extrapolation. The Court further concludes that

¹ Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993)(holding that the Federal Rules of Evidence assign to trial judge the task of ensuring that an expert's testimony both rests on reliable foundation and is relevant to the issue before the court).

² "Retrograde extrapolation is a method of estimating a person's blood alcohol level at a specified time by using the person's known blood alcohol content at a later time." Wallis v. Carco Carriage Corp., Inc., 124 F.3d 218, at *7 (10th Cir. 1997)(Table).

the United States has met its burden of showing its retrograde extrapolation is reliable. The Court therefore denies the Motion.

FACTUAL BACKGROUND

The charges in this case arise from a fatal crash that occurred sometime before 5:11 a.m. on October 17, 2009. Defendant John Leonard Tsosie was driving one of the vehicles involved in the crash. He told law enforcement and medical personnel who treated him at the hospital that he fell asleep at the wheel, and a test the hospital administered following a blood draw at 6:15 a.m. revealed that Tsosie had a blood alcohol concentration (“BAC”) of .07 mg/mL at that time. Tsosie stated that he had three beers the night before and had stopped drinking at 11:00 p.m. Manuel Johnson was driving the other vehicle, and his wife, Loretta, was the passenger. The crash occurred approximately seven minutes from their home. Neither of the Johnsons survived.

PROCEDURAL BACKGROUND

On March 24, 2010, a Federal grand jury returned a two-count indictment charging Tsosie with two counts of involuntary manslaughter for killing M. and L. Johnson while operating a motor vehicle while under the influence of alcohol, contrary to N.M.S.A. 1978, § 66-8-102, and driving recklessly, contrary to N.M.S.A. 1978, § 66-8-113, in violation of 18 U.S.C. §§ 1112 and 1153. See Indictment, filed March 24, 2010 (Doc. 1).

On October 6, 2010, the United States filed its Notice of Intent to Introduce Expert Witness, notifying Tsosie, in part, that it plans to call Nancy Drez as an expert witness at trial under rule 16 of the Federal Rules of Criminal Procedure, and under rules 702, 703, and 705 of the Federal Rules of Evidence, and that it intends to offer expert testimony in its case-in-chief. See Doc. 37. Dr. Drez is a forensic toxicologist. The United States intends to call Dr. Drez as an expert witness to testify about two opinions. First, she will offer opinion testimony regarding the impairment humans suffer

as their BAC increases, which includes drowsiness and significant impairment of motor skills, reaction time, and other functions critical to safe driving. Tsosie does not challenge this testimony. Second, Dr. Drez will testify regarding the rates at which the human body absorbs and eliminates alcohol. Applying these principles to the evidence in this case through retrograde extrapolation, she will testify that Tsosie's BAC would have fallen within the range of .08 to .09 mg/mL at the time of the crash. Carrying the extrapolation back earlier into the night before the crash, she also will show that Tsosie's BAC would have been in the range of .12 to .17 mg/mL at the latest point he could have been expected to start strictly eliminating alcohol from his system. The United States contends Dr. Drez' testimony will show Tsosie failed to tell the truth when he stated that he drank only three beers the night before he took the wheel. According to the United States' Notice:

3. Nancy G. Drez is the Implied Consent Supervisor, Toxicology Bureau, Scientific Laboratory Division of the New Mexico Office of the Medical Investigator. Her CV is attached as Government's Exhibit 3. As an expert in blood and breath analysis, alcohol impairment, blood alcohol content (BAC)/breath alcohol content (BrAC) extrapolation and other issues related to chemical testing for alcohol, Drez will testify regarding the alcohol content of defendant's blood. A summary of her opinions is attached as Government's Exhibit 3. Drez will explain the nature of impairment at that level of alcohol concentration for an average individual and then for the defendant, given the characteristics known to her about the defendant.
4. Drez will also testify regarding BAC/BrAC extrapolation since the blood samples of the defendant were approximately two hours after the fatal crash with the Johnson vehicle. Based on her training and experience, Drez will opine regarding what range of alcohol levels were likely sustained by the defendant at the time of the collision. Given the facts that will be presented at trial, Drez will present expert testimony that the defendant's BAC/BrAC was between .07 and .13 g/100ml at the time of the collision, depending on the time of the blood draw.
5. The United States anticipates that Drez will testify regarding the effects of alcohol on the human ability to operate motor vehicles, including the impairment of motor skills, vision impairment and drowsiness. In this case, the defendant admitted on more than one occasion that after a night of drinking alcohol, he had fallen asleep at the wheel of his moving SUV. In

addition, Drez can explain principles underlying alcohol absorption, metabolism, and elimination for forensic purposes. The United States anticipates that the expert opinion will include the conclusion that the defendant's BAC/BrAC level was in excess of the legal limit at the time of the fatal crash given the evidence in the case.

Notice at 2-3 (emphasis added). The United States made Dr. Drez available to Tsosie's counsel.

See Notice at 1. The United States attached Dr. Drez' July 1, 2010 expert report to the Notice. See Dr. Drez Report, filed October 6, 2010 (Doc. 37-3). Because Dr. Drez did not know the exact time of the blood draw when she drafted her July 1, 2010 report, she used a range of possible times, between 6:00 a.m. and 8:00 a.m., that gave a range of possible BAC values at the time of the crash, between .07 and .13 mg/mL.

On April 14, 2011, Dr. Drez provided an updated report to United States Attorney Kyle T. Nayback. See Dr. Drez Report at 3 (United States Exs. D-2, D-2(a)). Six days later, on April 20, 2011, Mr. Nayback sent Dr. Drez' updated report by electronic mail to Mr. Winder. The updated report contains information that was not set forth in the July 1, 2010 report. Specifically, Dr. Drez updated her report to reflect that Tsosie's blood sample was taken at 6:15 a.m. and now provides a specific conclusion based upon a 6:15 a.m. blood draw. Having learned the time of the blood draw, Dr. Drez, based on the average rate at which individuals process alcohol, uses retrograde extrapolation to conclude that Tsosie had a BAC between .08 and .09 mg/mL at the time of the accident.

Tsosie moves the Court to order that Dr. Drez not be allowed to submit any expert testimony with regard to his BAC based on the use of retrograde extrapolation. Based upon the substance of the motion, Tsosie correctly presumed Mr. Nayback opposes this motion. Tsosie contends that retrograde extrapolation is not permitted under New Mexico law. Tsosie requests that the Court not allow the United States to elicit from Dr. Drez any expert testimony with regard to his BAC with

the use of retrograde extrapolation.

At the April 28, 2011 Daubert hearing, Tsosie initially stated that he challenged the admissibility of retrograde extrapolation as a matter of law and not Dr. Drez' analysis. See Transcript of Hearing at 6:20-7:3 (taken April 28, 2011) ("THE COURT: So your problem with Ms. Drez's testimony is not that she didn't do these tests right? . . . Your argument is that as a matter of law it's just it's just legally inadmissible in New Mexico State courts? . . . MR. WINDER: That's my reading of the law.");³ id. at 7:9-13 ("THE COURT: . . . [I]f I say, well, from a legal standpoint I think this analysis can come in, you don't have any other problem with Ms. Drez? You're just saying that as a matter of law her entire analysis shouldn't come in. MR. WINDER: That's correct."). The United States pointed Tsosie and the Court to the Supreme Court of New Mexico's opinion in State v. Day, 143 N.M. 359, 176 P.3d 1091 (2008), which not only permits retrograde extrapolation, but states that, in some circumstances, "the party seeking to prove a BAC at an earlier time must use scientific retrograde extrapolation evidence." 143 N.M. at 367, 176 P.3d 1099. In light of this case, Tsosie agreed that retrograde extrapolation is relevant and may be admissible, abandoning his argument that retrograde extrapolation is not permitted under New Mexico law. See Tr. at 113:3-8 ("[The Court:] [T]he original basis for the motion . . . , that [retrograde extrapolation is] irrelevant . . . [,] [y]ou don't raise that issue anymore? MR. WINDER: That's correct. THE COURT: You believe it's legally relevant? MR. WINDER: Yes."). Tsosie further stated that he does not contest that retrograde extrapolation is a valid methodology that is widely accepted in the scientific community. See Tr. at 113:9-13 ("THE COURT: Do you also agree that the retrograde extrapolation is a -- is a test that's widely accepted with in the scientific community and that there's

³ The Court's citations to the transcript are to the Court Reporter's original, unedited version. A final version of the transcript may have slightly different line or page numbers.

-- that it's a valid methodology? MR. WINDER: Yes, Your Honor.”).

Tsosie advanced a new argument at the hearing that Dr. Drez does not have sufficient information to reach her opinion regarding the range within which Tsosie’s BAC fell at the time of the collision. Tsosie argued instead that Dr. Drez’ retrograde extrapolation was flawed. See Tr. at 113:14-17 (“THE COURT: [S]o your objection now is the way that Ms. Drez applied that methodology in this case, correct? MR. WINDER: Yes, Your Honor.”). Based on this new argument, he now asks the Court to exclude Dr. Drez’ retrograde analysis testimony under rule 702. Tsosie also stated that he is “prepared to stipulate that his blood alcohol was .07 when that blood score was drawn at the hospital and at the time of the crash.” Tr. at 122:18-20 (Winder).

Dr. Drez testified about the basis of her report and her retrograde extrapolation. After hearing Dr. Drez’ credentials, and without objection from Tsosie, the Court recognized her as an expert forensic toxicologist permitted to offer opinion testimony related to the extrapolation of blood alcohol content and alcohol impairment. See Tr. at 20:9-16 (Court, Baker, Winder). When a person stops consuming alcohol, his or her body eventually reaches an absorption point, where the body completes absorption of the alcohol he or she has ingested, and enters the elimination phase, where the body is only eliminating alcohol. Dr. Drez testified that the general population typically reaches the elimination phase of processing alcohol within a half-an-hour to an hour after consuming the last drink, with a statistically significant group reaching the elimination phase two hours after stopping, and only rare outliers taking more than two hours to reach the elimination phase. See Tr. at 30:25-31:12 (Baker, Drez); P.M. Ganer & W.D. Bowthorpe, Evaluation of Breath Alcohol Profiles Following a Period of Social Drinking, 33 Can. Soc. Forensic Sci. J. 137, 142 (2000)(United States Ex. D-1(e)) (“On average, 69 minutes elapsed from the end of drinking until the start of the linear decline in BAC, with the longest taking 124 minutes.”); A.W. Jones & L. Andersson, Influence of

Age, Gender, and Blood-Alcohol Concentration on the Disappearance Rate of Alcohol from Blood in Drinking Drivers, 40 J. Forensic Sci. 922, 924 (1995)(United States Ex. D-1(a)).⁴ Once a person completes absorption and enters the elimination phase, there is a linear decline of alcohol from the system at a typical rate of .01 to .02 mg/mL/h. See Tr. at 27:7-19 (Baker, Drez); Ganer & Bowthorpe, supra, at 143; Jones & Andersson, supra, at 922. Dr. Drez testified that heavy drinkers eliminate alcohol more quickly -- as fast as .03 mg/mL/h according to one study. See Tr. at 27:20-28:13 (Baker, Drez)(citing Jones & Andersson, supra, at 922, 924). Ninety-five percent of more than 1000 drinking drivers in the Jones and Andersson study eliminated alcohol at a rate between .09 and .29 mg/mL/h, and only 2.2% eliminated alcohol at a rate slower than .01 mg/mL/h. See Jones & Andersson, supra, at 924. Jones and Andersson suggested that the outliers that eliminated alcohol at a rate slower than .01 mg/mL/h were not truly in the elimination phase, but still in a “slow absorption phase.” Jones & Andersson, supra, at 924. See Tr. at 29:19-30:12 (Baker, Drez). The average person continues to eliminate alcohol at this rate until the person’s BAC reaches .02 or .01 mg/mL, at which time the rate of decline tends to taper off until all the alcohol is eliminated. See Tr. at 43:14-15 (Baker, Drez).

In preparing her opinion on Tsosie’s BAC at the time of the accident, Dr. Drez reviewed the medical records and police reports, including the dispatch report, in this case. See Tr. at 21:1-14 (Baker, Drez). Dr. Drez learned from the incident report that the accident was reported to the police at 5:11 a.m. See Tr. at 24:13-18 (Baker, Drez); Window Rock Incident Report Form, by Officer Jonathan Billie at 1 (United States Ex. D-8). Dr. Drez also spoke with Gayla Bias, the nurse who obtained Tsosie’s blood sample the morning of the accident, and confirmed that the blood sample

⁴ At the hearing, the United States introduced, but did not file, United States Exs. D-1 through D-8.

was taken at 6:15 a.m., as reflected in Tsosie's hospital record. See Tr. at 21:14-25 (Baker, Drez); id. at 10:13-14 ("Mr. Winder: . . . [T]he blood draw was at 6:15 in the morning . . ."); Gayla Bias's Notes at 1 (United States Ex. D-5). Dr. Drez testified that tests on the blood sample revealed a BAC of 84 mg/dL, which, using accepted formula that account for distillation that occurs during processing, is equivalent to a BAC of .07 mg/mL. See Tr. at 22:25-24:2 (Baker, Drez); Lab Report regarding John Leonard Tsosie's BAC at 2 (United States Ex. D-7). She also testified that she learned from the police report that Tsosie told investigators that he stopped drinking at 11:00 p.m. the night before the accident. See Tr. at 22:9-24 (Baker, Drez); Statement by John Leonard Tsosie at 1 (United States Ex. D-4) ("TSOSIE also indicated he consumed three drafts, last at 11 pm . . .").

Dr. Drez applied the retrograde extrapolation principles to the facts of this case. Tsosie stated that he stopped drinking at 11:00 p.m. the night before the crash. The crash occurred sometime before the crash was reported to the police at 5:11 a.m. Tsosie's blood was drawn at the hospital at 6:15 a.m., and the results from that blood test show Tsosie had a BAC of .07 mg/mL at 6:15 a.m. See 42:3-23 (Baker, Drez). Based on Tsosie's statement that he stopped drinking at 11:00 p.m., Dr. Drez assumed that, even if Tsosie were an outlier, he would have starting strictly eliminating by 1:15 a.m. -- two hours and fifteen minutes later. See Tr. at 43:24-45:8 (Baker, Drez). At the low end of the range of strict elimination rates of .01 mg/mL/h -- the circumstances most favorable to Tsosie -- he would have eliminated at least .01 mg/mL in the more than one hour period between the accident and his blood draw, placing his BAC at .08 mg/mL or above at the time of the accident. See Tr. at 42:3-23 (Baker, Drez). At an elimination rate of .02 mg/mL/h, Tsosie would have eliminated more than .02 mg/mL, producing a BAC level of at least .09 mg/mL at the time of the accident. See Tr. at 42:3-23 (Baker, Drez). Dr. Drez extrapolated further back to conclude that Tsosie had a BAC of .12 to .17 mg/mL at 1:15 a.m., which is inconsistent with Tsosie's statement

that he drank only three beers. See Tr. at 43:24-45:8 (Baker, Drez). Dr. Drez stated that, if Tsosie consumed three beers almost instantaneously, the highest BAC she would expect him to achieve is .06 to .08 mg/mL, and Tsosie would have completely eliminated the alcohol from his system by 6:15 a.m. See Tr. at 45:1-46:5 (Baker, Drez).

On cross examination, Dr. Drez stated that there are no curves in her graph, because her “graph only is looking at the elimination phase.” Tr. at 60:2-3 (Winder, Drez). She also stated that, before she learned from interviewing nurse Bias and reviewing Bias’ notes that Tsosie’s blood sample was taken at 6:15 a.m., she initially reported that his BAC may have been as low as .07 mg/mL at the time of the accident -- to allow his blood sample to be taken sometime between 6:00 a.m. and 8:00 a.m. See Tr. at 53:24-59:10 (Winder, Drez). Dr. Drez testified that she did not know when Tsosie last ate, so she used an absorption period of more than two hours to give Tsosie the benefit of the doubt. See Tr. at 61:19-64:6, 87:7-89:11 (“[Winder:] You don't know what he ate, do you? [Dr. Drez:] I accounted for that by giving the benefit of the doubt and making it two hours.”). She further testified that she is unfamiliar with Tsosie’s drinking patterns, beyond his statement that he drank three beers the night of the accident and stopped drinking at 11:00 p.m., which is why she used a range to allow for a faster elimination rate if Tsosie is a heavy drinker and a slower rate if he is a light drinker. See Tr. at 74:7-75:17, 87:7-88:8 (Baker, Drez)(“I address that by giving a range, which encompasses the different drinking patterns of individuals.”). Dr. Drez also stated that studies offer conflicting conclusions whether Native Americans eliminate alcohol faster, slower, or at the same rate as other races, but that using a range of elimination rates also accounts for this uncertainty, because none of the studies indicated that Native Americans eliminate alcohol slower than .01 mg/mL/h. See Tr. at 75:18-76:22 (Winder, Drez); id. at 111:1-13 (Baker, Drez). Dr. Drez testified that she is unfamiliar with Bias’ credentials or the procedure that she used to collect Tsosie’s blood

sample. See Tr. at 71:2-11 (Winder, Drez).

On May 4, 2011, the United States filed its Response to Defendant's Motion in Limine for Daubert Ruling Regarding the Admissibility and Scope of Nancy Drez's Expert Testimony. See Doc 93. The United States opposes Tsosie's Motion, arguing that, because Dr. Drez's opinions are grounded on a conservative application of established scientific principles to the facts of this case, there is no basis for challenging her testimony under rule 702. The United States asserts that none of the additional pieces of data that Tsosie contends she needed to know would have any impact on the analysis she followed to reach her opinion that Tsosie's BAC was over the statutory limit for per-se-driving-while-intoxicated ("DWI") in New Mexico at the time of the crash and that Tsosie's new challenge to Dr. Drez's analysis therefore fails as a matter of law. The United States therefore asks that the Court deny the Tsosie's Motion.

**LAW REGARDING THE COURT'S ROLE UNDER DAUBERT V.
MERRELL DOW PHARMACEUTICALS, INC.**

Since the Supreme Court decided Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), trial courts have had the responsibility to make certain that proffered experts will assist the jury in understanding the evidence and in determining the factual issues it must decide. The Court must not only decide whether the expert is qualified to testify, but whether the opinion testimony is the product of a reliable methodology. Daubert requires a court to scrutinize the proffered expert's reasoning to determine if that reasoning is sound.

1. Rule 702.

Rule 702 of the Federal Rules of Evidence governs the admissibility of expert testimony:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient

facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed. R. Evid. 702. Rule 702 thus requires the trial court to “determine whether the expert is proposing to testify to (1) scientific, technical, or other specialized knowledge that (2) will assist the trier of fact to understand or determine a fact in issue.” United States v. Muldrow, 19 F.3d 1332, 1337 (10th Cir. 1994). The Federal Rule of Evidence uses a liberal definition of “expert.” Fed. R. Evid. 702 advisory committee's note (“[W]ithin the scope of this rule are not only experts in the strictest sense of the word, e.g. physicians, physicists, and architects, but also the large group sometimes called ‘skilled’ witnesses, such as bankers or landowners testifying to land values.”). An expert is “required to possess such skill, experience or knowledge in that particular field as to make it appear that his opinion would rest on substantial foundation and would tend to aid the trier of fact in his search for truth.” LifeWise Master Funding v. Telebank, 374 F.3d 917, 928 (10th Cir. 2004). The proponent of expert testimony has the burden of establishing that the pertinent admissibility requirements are met by a preponderance of the evidence. See Morales v. E.D. Etnyre & Co., 382 F. Supp. 2d 1252, 1266 (D.N.M. 2005)(Browning, J.)(citing Bourjaily v. United States, 483 U.S. 171, 175 (1987)). Once the trial court has determined that expert testimony would be helpful to the trier of fact, a witness “may qualify as an expert by knowledge, skill, experience, training, or education and . . . the expert . . . should not be required to satisfy an overly narrow test of his own qualifications.” Gardner v. Gen. Motors Corp., 507 F.2d 525, 528 (10th Cir. 1974)(internal quotation marks omitted). The Court should, under the Federal Rules of Evidence, liberally admit expert testimony, see United States v. Gomez, 67 F.3d 1515, 1526 (10th Cir. 1995)(describing rule 702 as a “liberal standard”), and the trial court has broad discretion in deciding whether to admit or exclude expert testimony, see Werth v. Makita Elec. Works, Ltd., 950 F.2d 643,

647 (10th Cir. 1991)(noting the trial court's decision will not be overturned “unless it is manifestly erroneous or an abuse of discretion”).

2. The Daubert Standard.

In its role of gatekeeper, a court must assess the reasoning and methodology underlying an expert’s opinion, and determine whether it is both scientifically valid and relevant to the facts of the case, *i.e.*, whether it is helpful to the trier of fact. *See Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. at 594-95; *Witherspoon v. Navajo Ref. Co., LP*, No. CIV 03-1160 BB/LAM, 2005 WL 5988649 at *2 (D.N.M. July 18, 2005)(Black, J.)(citing *Dodge v. Cotter Corp.*, 328 F.3d 1212, 1221 (10th Cir. 2003)). The Supreme Court articulated a non-exclusive list of factors that weigh into a district court’s first-step reliability determination, including: (i) whether the method has been tested; (ii) whether the method has been published and subject to peer review; (iii) the error rate; (iv) the existence of standards and whether the witness applied them in the present case; and (v) whether the witness’ method is generally accepted as reliable in the relevant medical and scientific community. *See Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 594-95. The court is also to consider whether the witness’ conclusion represents an “unfounded extrapolation” from the data; whether the witness has adequately accounted for alternative explanations for the effect at issue; whether the opinion was reached for the purposes of litigation or as the result of independent studies; or whether it unduly relies on anecdotal evidence. *See Witherspoon v. Navajo Ref. Co., LP*, 2005 WL 5988649 at *3 (citing *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997)). The United States Court of Appeals for the Tenth Circuit stated the applicable standard in *Norris v. Baxter Healthcare Corp.*:

Rule 702 requires the district court to “ensure that any and all scientific testimony or evidence is not only relevant, but reliable.” [*Bitler v. A.O. Smith Corp.*, 391 F.3d 1114, 1120 (10th Cir. 2004)] (quoting *Daubert*, 509 U.S. at 589 . . .). This obligation involves a two-part inquiry. *Id.* “[A] district court must [first] determine if the expert's proffered testimony . . . has ‘a reliable basis in the knowledge and

experience of his [or her] discipline.’ ” Id. (quoting Daubert, 509 U.S. at 592 . . .). In making this determination, the district court must decide “whether the reasoning or methodology underlying the testimony is scientifically valid. . . .” Id. (quoting Daubert, 509 U.S. at 592-93 . . .). Second, the district court must further inquire into whether proposed testimony is sufficiently “relevant to the task at hand.” Daubert, 509 U.S. at 597

397 F.3d at 883-84 (footnote omitted). “The second inquiry is related to the first. Under the relevance prong of the Daubert analysis, the court must ensure that the proposed expert testimony logically advances a material aspect of the case. . . . The evidence must have a valid scientific connection to the disputed facts in the case.” Norris v. Baxter Healthcare Corp., 397 F.3d at 884 n.2 (citing Daubert v. Merrell Dow Pharm., Inc., 43 F.3d 1311, 1315 (9th Cir. 1995)(on remand from the Supreme Court), and Daubert v. Merrell Dow Pharm., Inc., 509 U.S. at 591)). If the expert’s proffered testimony fails on the first prong, the court does not reach the second prong. See Norris v. Baxter Healthcare Corp., 397 F.3d at 884.

In conducting its review under Daubert v. Merrell Dow Pharmaceuticals, Inc., the court must focus generally on “principles and methodologies, and not on the conclusions generated.” Armeanu v. Bridgestone/Firestone N. Am., Tire, LLC, No. CIV 05-0619 JB/DJS, 2006 WL 4060665 at *11 (D.N.M.)(Browning, J.)(citing Daubert v. Merrell Dow Pharm., Inc., 509 U.S. at 595). “Despite this focus on methodology, ‘an expert’s conclusions are not immune from scrutiny . . . and the court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.” Armeanu v. Bridgestone/Firestone N. Am., Tire, LLC, 2006 WL 4060665 at * 11 (internal quotation marks and bracket omitted). The proponent of the expert’s opinion testimony bears the burden of establishing that the expert is qualified, that the methodology he or she uses to support his or her opinions is reliable, and that his or her opinion fits the facts of the case and thus will be helpful to the jury. See Norris v. Baxter Healthcare Corp., 397 F.3d at 881. As the Tenth

Circuit noted in Hollander v. Sandoz Pharmaceuticals Corp., 289 F.3d 1193 (10th Cir. 2002):

Because the district court has discretion to consider a variety of factors in assessing reliability under Daubert, and because, in light of that discretion, there is not an extensive body of appellate case law defining the criteria for assessing scientific reliability, we are limited to determining whether the district court's application of the Daubert manifests a clear error of judgment or exceeds the bounds of permissible choice in the circumstances. . . . Thus, when coupled with this deferential standard of review, Daubert's effort to safeguard the reliability of science in the courtroom may produce a counter-intuitive effect: different courts relying on the essentially the same science may reach different results.

289 F.3d at 1206. As the United States Court of Appeals for the Ninth Circuit noted in Claar v. Burlington Northern Railroad Co., 29 F.3d 499 (9th Cir. 1994):

Coming to a firm conclusion first and then doing research to support it is the antithesis of this method. Certainly, scientists may form initial tentative hypotheses. However, scientists whose conviction about the ultimate conclusion of their research is so firm that they are willing to aver under oath that it is correct prior to performing the necessary validating tests could properly be viewed by the district court as lacking the objectivity that is the hallmark of the scientific method.

29 F.3d at 502-503.

Once reliability is established, however, it is still within the district court's discretion to determine whether expert testimony will be helpful to the trier of fact. In making that determination, the court should consider, among other factors, the testimony's relevance, the jurors' common knowledge and experience, and whether the expert's testimony may usurp the jury's primary role as the evaluator of evidence.

Ram v. N.M. Dep't of Env't, No. CIV 05-1083 JB/WPL, 2006 WL 4079623 at * 10 (citing United States v. Rodriguez-Felix, 450 F.3d 1117, 1123 (10th Cir. 2006)).

A defendant is entitled, under some circumstances, to request a written summary of expert testimony the United States intends to use in its case-in-chief. Rule 16 of the Federal Rules of Criminal Procedure provides:

Expert witnesses. -- At the defendant's request, the government must give to the defendant a written summary of any testimony that the government intends to use under Rules 702, 703, or 705 of the Federal Rules of Evidence during its case-in-chief at trial. If the government requests discovery under subdivision

(b)(1)(C)(ii) and the defendant complies, the government must, at the defendant's request, give to the defendant a written summary of testimony that the government intends to use under Rules 702, 703, or 705 of the Federal Rules of Evidence as evidence at trial on the issue of the defendant's mental condition. The summary provided under this subparagraph must describe the witness's opinions, the bases and reasons for those opinions, and the witness's qualifications.

Fed. R. Crim. P. 16(a)(1)(G). Rule 16 similarly provides that a defendant must produce a summary of expert testimony under some circumstances:

Expert witnesses. -- The defendant must, at the government's request, give to the government a written summary of any testimony that the defendant intends to use under Rules 702, 703, or 705 of the Federal Rules of Evidence as evidence at trial, if--

(i) the defendant requests disclosure under subdivision (a)(1)(G) and the government complies; or

(ii) the defendant has given notice under Rule 12.2(b) of an intent to present expert testimony on the defendant's mental condition.

This summary must describe the witness's opinions, the bases and reasons for those opinions, and the witness's qualifications.

Fed. R. Crim. P. 16(b)(1)(C).

An untested hypothesis does not provide a scientific basis to support an expert opinion. See Norris v. Baxter Healthcare Corp., 397 F.3d at 887 (“[A]t best, silicone-associated connective tissue disease is an untested hypothesis. At worst, the link has been tested and found to be untenable. Therefore, there is no scientific basis for any expert testimony as to its specific presence in Plaintiff.”); In re Breast Implant Litig., 11 F. Supp. 2d at 1228 (“An untested hypothesis cannot be a scientifically reliable basis for an opinion on causation.”). A court is not required “to admit opinion evidence that is connected to existing data only by the ipse dixit of the expert. The court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.” Gen. Elec. Co. v. Joiner, 522 U.S. 136, 146 (1997). See Hollander v. Sandoz Pharm.

Corp., 289 F.3d 1193, 1209 (10th Cir. 2002)(noting a lack of similarity between animal studies and human studies, including dose and route administration); Tyler v. Sterling Drug, Inc., 19 F.Supp.2d 1239, 1244 (N.D. Okla. 1998)(“Test results on animals not necessarily reliable evidence of the same reaction in humans.”). Courts have excluded experts’ opinions when the experts depart from their own established standards. See Truck Ins. Exch. v. Magnetek, Inc., 360 F.3d at 1213 (“The district court noted that [the expert]’s opinion did not meet the standards of fire investigation [the expert] himself professed he adhered to.”); Magdaleno v. Burlington N. R.R. Co., 5 F. Supp. 2d 899, 905 (D. Colo. 1998)(“In sum, [the expert]’s methodology is not consistent with the methodologies described by the authors and experts whom [the expert] identifies as key authorities in his field.”).

NEW MEXICO’S LAW REGARDING “INFLUENCE OF ALCOHOL”

The New Mexico Legislature amended the state DWI statute in 2007 to provide that a defendant is guilty of per se DWI if he has a BAC of .08 mg/mL within three hours of driving a vehicle.

It is unlawful for a person to drive a vehicle in this state if the person has an alcohol concentration of eight one hundredths or more in the person’s blood or breath within three hours of driving the vehicle and the alcohol concentration results from alcohol consumed before or while driving the vehicle.

NMSA 1978, § 66-8-102(C)(1). Before this amendment, the prosecution had to tie a defendant’s BAC directly to the time of driving. The change in the law makes it easier for prosecutors to convict drunk drivers despite the delay between the time a defendant stops driving, and the time his or her BAC is tested. See State v. Day, 143 N.M. 359, 364-65, 176 P.3d 1096-97 (2008).

The Amendment’s provision of a three-hour window within which a test showing a BAC at or above .08 mg/mL is sufficient to secure a per se DWI conviction makes it unnecessary for the prosecution to offer opinion testimony based on retrograde extrapolation in some cases. The

Supreme Court of New Mexico, however, addressed retrograde extrapolation's continued role in cases like Tsosie's, explaining that the prosecution "can use scientific retrograde extrapolation evidence to prove that a BAC test taken within three hours but below 0.08 mg/mL shows that the defendant had an actual BAC of 0.08 or higher within three hours." State v. Day, 143 N.M. at 367, 176 P.3d at 1099.

ANALYSIS

Tsosie originally moved the Court to bar Dr. Drez' testimony about his BAC based on her use of retrograde extrapolation, because he contended that retrograde extrapolation is inadmissible as a matter of New Mexico law. At the hearing, he abandoned this argument in light of the Supreme Court of New Mexico's opinion in State v. Day. See 143 N.M. at 367, 176 P.3d at 1099 ("[T]he State can use scientific retrograde extrapolation evidence to prove that a BAC test taken after three hours and below 0.08 shows that the defendant had an actual BAC of 0.08 or higher within three hours of driving."). Tsosie now argues that Dr. Drez' opinion must be excluded, because sufficient facts do not support the opinion. In particular, Tsosie suggested that Dr. Drez cannot offer an opinion based on retrograde extrapolation, because she does not know what he ate while he was drinking the night before the crash, exactly how much he drank, or over what time period he drank it. Beyond that, Tsosie seemed concerned that Dr. Drez was not present when his blood was drawn and tested, and that she therefore cannot personally testify to the protocols the hospital followed in performing these tasks.

Tsosie's argument goes to the reliability requirements rule 702 imposes. See Fed. R. Evid. 702 (requiring that expert opinions be "supported by sufficient facts or data"). The issue before the Court is therefore whether the United States has established by a preponderance of the evidence that Dr. Drez' opinion regarding the range of Tsosie's BAC at the time of the crash takes into account

the facts that would impact her conclusion. See Morales v. E.D. Etnyre & Co., 382 F. Supp. 2d at 1266 (applying preponderance of the evidence standard to determine the admissibility of expert testimony). “Expert testimony is liberally admissible under the Federal Rules of Evidence.” United States v. Hernandez-Mejia, No. CR 05-0469 JB, 2007 WL 2219411, at *7 (D.N.M. Apr. 30, 2007)(Browning, J.)(citing United States v. Gomez, 67 F.3d at 1526). A qualified expert “may testify . . . in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.” Fed. R. Evid. 702. The Court concludes that Dr. Drez’ retrograde extrapolation is admissible and will deny Tsosie’s Motion. To the extent Tsosie challenges her retrograde extrapolation based on her lack of first-hand knowledge of procedure used to collect his blood sample, his challenge fails, because experts are not required to have first hand knowledge, because “expert witnesses do not need to have personal knowledge of the underlying facts; they may testify to opinions based on facts perceived by or made known to the expert at or before the hearing.” Jack B. Weinstein & Margaret A. Berger, Weinstein's Federal Evidence § 702[02], at 702-08 (2010).

I. DR. DREZ’ ANALYSIS IS ADMISSIBLE UNDER RULE 702.

The heart of Tsosie’s argument is that Dr. Drez was required to know certain information under State v. Day, namely, the time period over which Tsosie consumed alcohol, and when and what he last ate, and that without knowing this information, her retrograde extrapolation is inadmissible. In State v. Day, the Supreme Court of New Mexico stated that it could “foresee at least two situations in which scientific retrograde extrapolation evidence would be necessary for the State to meet its burden.” 143 N.M. at 367, 176 P.3d at 1099. The first is where a blood test after the three-hour statutory window has passed. See State v. Day, 143 N.M. at 367, 176 P.3d at 1099.

The Supreme Court of New Mexico stated:

In the second situation, the State can use scientific retrograde extrapolation evidence to prove that a BAC test taken within three hours but below 0.08 shows that the defendant had an actual BAC of 0.08 or higher within three hours. For example, a test taken two hours and forty-five minutes after driving might show a BAC of 0.07. If the defendant was in the elimination phase for some or all of the time before the test, then his or her BAC would have been higher before the test. Of course, aggravated DWI within the three-hour period will also be an issue.

In either of these situations, the party seeking to prove a BAC at an earlier time must use scientific retrograde extrapolation evidence. A BAC test is a quantitative measurement of a physical property. See [State v. Baldwin, 130 N.M. 705, 30 P.3d 394 (2001)]. To extrapolate from the BAC at the time of testing to the BAC at an earlier time, one must know the rate at which the BAC changes over time. See [State v. Christmas, 131 N.M. 591, 40 P.3d 1035 (2002)]. This rate is not constant, but varies over time, describing a curve rather than a straight line. See id. Determining the shape of the curve is a science. See Jim Frasier, Annotation, Admissibility and Sufficiency of Extrapolation Evidence in DUI Prosecutions, 119 A.L.R.5th 379 (2004). The exact shape of the curve depends on a number of factors, including inter alia the type of alcohol consumed, the time period over which the alcohol was consumed, the time of the last drink, and when and what the defendant last ate. See Christmas, 2002–NMCA–020, ¶ 26, 131 N.M. 591, 40 P.3d 1035. These factors can be quantified, although sometimes the supporting evidence may not be readily available. However, the burden of finding such evidence is appropriate for the State to bear when attempting to convict a person suspected of any crime, and should the State choose to pursue a per se DWI conviction, it must take the type of investigatory work required to prove a defendant's guilt beyond a reasonable doubt.

State v. Day, 143 N.M. at 367, 176 P.3d at 1099 (emphasis added).

Tsosie appears to argue that State v. Day controls whether Dr. Drez' retrograde extrapolation is admissible and that Dr. Drez' retrograde extrapolation fails under the burden State v. Day establishes for admissibility. Tsosie's argument fails on both prongs. First, while state law controls the applicable substantive law,⁵ the Federal Rules of Evidence control the admissibility of evidence.

⁵ Tsosie is charged with involuntary manslaughter under 18 U.S.C. § 1112, which "is the unlawful killing of a human being without malice . . . [i]n the commission of an unlawful act not amounting to a felony, or in the commission in an unlawful manner, or without due caution and circumspection, of a lawful act which might produce death." 18 U.S.C. § 1112(a). The unlawful

Fed. R. Evid. 101 (“These rules govern proceedings in the courts of the United States . . . to the extent and with the exceptions stated in rule 1101.”); Fed. R. Evid. 1101 (“These rules apply generally . . . to criminal cases and proceedings . . .”); United States v. Sain, 795 F.2d 888, 890-91 (10th Cir. 1986)(holding that “federal courts are not required to follow specific provisions of state law which go beyond establishing the elements of an offense and the range of punishment”). Dr. Drez’ retrograde extrapolation satisfies rule 702, because it accounts for the known and unknown facts of this case, giving Tsosie the benefit of the doubt when facts are unknown. Dr. Drez used assumptions that favored Tsosie to account for the unknown variables of when he last ate and his drinking patterns.

Dr. Drez’ use of reasonable assumptions is permissible under rule 702. In Wallis v. Carco Carriage Corp., Inc., 124 F.3d 218 (10th Cir. 1997)(Table), the Tenth Circuit rejected the defendant’s argument that the district court should not have permitted the plaintiff’s expert to present retrograde extrapolation, because the plaintiff’s expert did not know certain information, which the defendant asserted made the analysis speculative. In Wallis v. Carco Carriage Corp., Inc., the parties cross appealed a jury verdict for the plaintiff, who alleged that the defendant car rental company negligently entrusted a vehicle to an intoxicated driver. The defendant argued in relevant part “that the district court abused its discretion in permitting the plaintiffs to offer retrograde extrapolation evidence to determine Nash’s blood alcohol content at the time of the rental transaction.” 124 F.3d 218, at *1. The defendant contended that the plaintiff’s expert did not know how much alcohol Nash consumed between the time the rental company rented the car to him and

act or acts the United States alleges Tsosie committed is operating a motor vehicle while under the influence of alcohol, contrary to N.M.S.A. 1978, § 66-8-102, and driving recklessly, contrary to N.M.S.A. 1978, § 66-8-113. New Mexico law controls with respect to whether Tsosie violated N.M.S.A. 1978, §§ 66-8-102 and 66-8-113.

an ensuing accident less than an hour later, rendering the expert's retrograde extrapolation speculative. The Tenth Circuit rejected the defendant's argument, because the expert accounted for the unknown variables in his analysis:

At trial, the plaintiffs' expert, Dr. Kurt Dubrowski, testified about the effects of alcohol and the rate of metabolism in individuals with a physical condition similar to that of Nash. Assuming that Nash's BAC was 0.36% at the time of the accident, Dr. Dubrowski estimated what Nash's BAC would have been during the rental transaction. He emphasized that his calculations varied based on Nash's alcohol consumption after the rental transaction, as well as Nash's drinking habits, stress levels, fatigue, and other factors.

....

Carco argues that the district court erred in admitting the testimony of Dr. Kurt Dubrowski regarding retrograde extrapolation evidence. Retrograde extrapolation is a method of estimating a person's blood alcohol level at a specified time by using the person's known blood alcohol content at a later time. Carco asserts that because the amount of alcohol that Nash consumed after the rental transaction was unknown, retrograde extrapolation is unreliable and speculative. We review the district court's admission of the retrograde extrapolation evidence in this case for an abuse of discretion. United States v. Wilson, 107 F.3d 774, 782 (10th Cir. 1997).

At trial, Dr. Dubrowski prepared a chart that calculated what Nash's blood alcohol content would have been depending on how much he drank in the 35 to 45 minute interval between the rental transaction and the accident. For example, if Nash had not consumed any alcohol during that interval, he would have had a BAC of 0.39% at the time of the transaction. Similarly, if Nash had consumed twelve ounces of 90-proof whiskey, his BAC would have been 0.15% at the time of the rental transaction. In addition to emphasizing that his calculations varied based on Nash's alcohol consumption after the rental transaction, Dr. Dubrowski informed the jury that his findings depended on Nash's drinking habits, stress levels, fatigue, and other factors.

We hold that the district court did not abuse its discretion in admitting Dr. Dubrowski's retrograde extrapolation testimony. Dr. Dubrowski did not give a definitive estimate of Nash's BAC at the time of the rental transaction. Instead, the expert testified that his determination of Nash's BAC at the time of the rental transaction depended on Nash's consumption of alcohol during the 35 to 45 minute time interval between the transaction and the accident. Carco's objections to the speculative nature of such testimony go to the weight, and not the admissibility, of the evidence.

Carco's reliance on United States v. DuBois, 645 F.2d 642 (8th Cir. 1981) is misplaced. In DuBois, the Eighth Circuit addressed the admissibility of retrograde extrapolation evidence in a drunk driving case. Id. at 643. The evidence indicated that the defendant drank one beer before getting into his car. Id. As he was driving, the defendant struck and killed a pedestrian. Id. Instead of remaining at the scene of the accident, the defendant proceeded to a nearby town and purchased a six-pack or twelve-pack of beer. Id. The defendants' children observed the defendant drink two to four cans of beer after the accident. Id. Another witness testified that the defendant drank one can of beer. Id. A breathalyzer test administered less than three hours after the accident revealed that the defendant had a BAC of 0.22%. Id.

At trial, a forensic chemist attempted to estimate the defendant's BAC at the time of the accident. Id. The chemist assumed that the defendant had "an average" of three beers after the accident. Id. Based on a "burn off" rate of 0.15 percent per hour, the chemist estimated that the defendant's BAC was 0.22% at the time of the accident. Id.

On appeal, the Eighth Circuit concluded that the evidence was insufficient to prove beyond a reasonable doubt that the defendant was driving while intoxicated. The court reasoned:

While there may be instances where an expert's estimate could account for intervening consumption and could thus serve as sufficient evidence of intoxication at the earlier time, this is not such a case. When there has been intervening consumption an accurate estimate requires knowledge of three variables: the blood alcohol level at the later time, the time elapsed since the accident, and the amount consumed in the interim. In this case, the expert did not know the amount consumed in the interim. Possibilities ranged anywhere from three to twelve beers. As a result, Ms. Pearson's conclusion that the defendant had a .22 or even a .1 per cent blood alcohol at the time of the accident is simply conjecture, and it is well established that "a jury is not justified in convicting a defendant on the basis of mere suspicion, speculation or conjecture."

Id. at 644-45 (citations omitted).

We agree with the DuBois court's observation that there may be inherent difficulties in making a retrograde extrapolation calculation when there is an intervening consumption of alcohol. Nevertheless, DuBois is distinguishable from the present case on several grounds. First, DuBois involved a sufficiency of the evidence issue, while the present case involves the admissibility of evidence. Second, DuBois was a criminal case, not a negligence action. Third, the expert in DuBois calculated the defendant's BAC based on an "average" intervening consumption of three beers. In contrast, Dr. Dubrowski estimated Nash's BAC at the

time of the rental transaction depending on Nash's alcohol consumption between the transaction and the accident. Finally, in DuBois, the evidence indicated that the defendant had consumed alcohol during a three-hour period between the accident and the defendant's arrest. In this case, the record indicates that the interval between the rental transaction and the accident was only thirty-five to forty-five minutes. Accordingly, we hold that the district court did not err in admitting retrograde extrapolation evidence to estimate Nash's level of intoxication at the time of the rental transaction.

124 F.3d 218, at *2, *7-8 (emphasis added). The upshot of the Tenth Circuit's opinion is that the Tenth Circuit does not provide a list of mandatory factors that experts must consider for their opinions to be admissible; rather, an expert's retrograde extrapolation analysis is admissible if it accounts for the available data and address unknown variables.

Like the expert in Wallis v. Carco Carriage Corp., Inc., Dr. Drez' retrograde extrapolation accounts for the unknown data. At the April 28, 2011 Daubert hearing, Dr. Drez testified about the basis of her report and her retrograde extrapolation. She testified, supported with studies and publications, that, when a person stops consuming alcohol, his or her body eventually reach an absorption point -- where the body completes absorption of the alcohol he or she has ingested -- and enters the elimination phase, where the body is strictly eliminating alcohol. Dr. Drez testified that the general population reaches the elimination phase of processing alcohol within a half-an-hour to an hour after consuming their last drink, with a statistically significant group reaching the elimination phase two hours after stopping, and only rare outliers taking more than two hours to reach the elimination phase. See Tr. at 30:25-31:12 (Baker, Drez); Ganer & Bowthorpe, supra, at 142 ("On average, 69 minutes elapsed from the end of drinking until the start of the linear decline in BAC, with the longest taking 124 minutes."); Jones & Andersson, supra, at 924. Once a person completes absorption and enters the elimination phase, there is a linear decline of alcohol from the system at a typical rate of .01 to .02 mg/mL/h. See Tr. at 27:7-19 (Baker, Drez); Ganer &

Bowthorpe, supra, at 143; Jones & Andersson, supra, at 922. Dr. Drez testified that heavy drinkers eliminate alcohol more quickly, as fast as, according to one study, .03 mg/mL/h. See Tr. at 27:20-28:13 (Baker, Drez)(citing Jones & Andersson, supra, at 922, 924). Ninety-five percent of more than 1000 drinking drivers in the Jones and Andersson study eliminated alcohol at a rate between .09 and .29 mg/mL/h, and only 2.2% eliminated alcohol at a rate slower than .01 mg/mL/h. Jones & Andersson, supra, at 924. Jones and Andersson suggested that the outliers that eliminated alcohol at a rate slower than .01 mg/mL/h were not truly in the elimination phase, but still in a “slow absorption phase.” Jones & Andersson, supra, at 924. See Tr. at 29:19-30:12 (Baker, Drez). The average person continues to eliminate alcohol at this rate until the person’s BAC reaches .02 or .01 mg/mL, at which time the rate of decline tends to taper off until all the alcohol is eliminated. See Tr. at 43:14-15 (Baker, Drez).

Dr. Drez applied the retrograde extrapolation principles to the facts of this case. Tsosie stated that he stopped drinking at 11:00 p.m. the night before the crash. The crash occurred sometime before the crash was reported to the police at 5:11 a.m. Tsosie’s blood was drawn at the hospital at 6:15 a.m., and the results from that blood test show Tsosie had a BAC of .07 mg/mL at 6:15 a.m. See 42:3-23 (Baker, Drez). Based on Tsosie’s statement that he stopped drinking at 11:00 p.m., Dr. Drez assumed that, even if Tsosie were an outlier, he would have started strictly eliminating by 1:15 a.m. -- two hours and fifteen minutes after he stopped drinking. See Tr. at 43:24-45:8 (Baker, Drez). This allowance also accounts for the lack of data on Tsosie’s last meal. See Tr. at 61:19-64:6, 87:7-89:11 (“[Winder:] You don’t know what he ate, do you? [Dr. Drez:] I accounted for that by giving the benefit of the doubt and making it two hours.”). Because she is unfamiliar with Tsosie’s drinking patterns, she used a range to allow for a faster elimination rate if Tsosie is a heavy drinker and a slower rate if he is a light drinker. See Tr. at 74:7-75:17, 87:7-88:8 (Baker,

Drez)(“I address that by giving a range, which encompasses the different drinking patterns of individuals.”). At the low end of the range of strict elimination rates of .01 mg/mL/h -- the circumstances most favorable to Tsosie -- he would have eliminated at least .01 mg/mL in the more than one hour period between the accident and his blood draw, placing his BAC at .08 mg/mL or above at the time of the accident. See 42:3-23 (Baker, Drez). At an elimination rate of .02 mg/mL/h, Tsosie would have eliminated more than .02 mg/mL, producing a BAC level of at least .09 mg/mL at the time of the accident. See 42:3-23 (Baker, Drez). Dr. Drez extrapolated further back to conclude that Tsosie had a BAC of .12 to .17 mg/mL at 1:15 a.m., which is inconsistent with Tsosie’s statement that he drank only three beers. See Tr. at 43:24-45:8 (Baker, Drez). Thus, Dr. Drez’ retrograde extrapolation accounts for the unknown variables of Tsosie’s last meal and drinking habits.

Dr. Drez thus relies on two fundamental assumptions: that Tsosie was in the elimination phase and that Tsosie eliminates alcohol at a rate that is within the range that a typical person eliminates alcohol. First, Dr. Drez assumed that Tsosie was in the elimination phase and not in the absorption phase when the accident occurred. Dr. Drez based this assumption on Tsosie’s statement that he stopped drinking at 11:00 p.m. According to studies Dr. Drez cited, most people enter the elimination phase within one hour of finishing their last drink. Dr. Drez allowed that Tsosie could be an outlier who did not reach absorption until two hours and fifteen minutes after he finished drinking, but that her analysis with regard to his BAC at the time of the collision would not change even if he did not reach absorption until six hours after he stopped drinking. Because of this allowance, how much and how quickly Tsosie consumed alcohol -- which could affect when he reached absorption -- would not reasonably alter Dr. Drez’ conclusions.

Dr. Drez’ second assumption was that Tsosie is not an outlier in his elimination rate. The

general population eliminates alcohol at a rate between .01 and .03 mg/mL/h, with the mean clustered more between .015 and .02 mg/mL/h. See Jones & Andersson, supra, at 922; Jones & Andersson, supra, at 924. Like the expert in Wallis v. Carco Carriage Corp., Inc., Dr. Drez prepared a chart that reflected that range of Tsosie's possible BAC based on elimination rates between .01 and .02 mg/mL/h. Dr. Drez stated that studies offer conflicting conclusions whether Native Americans eliminate alcohol faster, slower, or at the same rate as other races, but that using a range of elimination rates also accounts for this uncertainty, because none of the studies indicated that Native Americans eliminate alcohol slower than .01 mg/mL/h. See Tr. at 75:18-76:22 (Winder, Drez); id. at 111:1-13 (Baker, Drez). The Court concludes that Dr. Drez' assumptions are reasonable, that her retrograde extrapolation "is based upon sufficient facts or data" and "is the product of reliable principles and methods," and that Dr. Drez "has applied the principles and methods reliably to the facts of the case." Fed. R. Evid. 702. Her retrograde extrapolation is scientifically valid and relevant to the facts of the case. See Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. at 594-95; Dodge v. Cotter Corp., 328 F.3d at 1221. Like the defendant's argument in Wallis v. Carco Carriage Corp., Inc., Tsosie's "objections to the speculative nature of such testimony go to the weight, and not the admissibility, of the evidence." 124 F.3d 218, at *8. The Court will therefore deny Tsosie's Motion.

II. DR. DREZ' RETROGRADE EXTRAPOLATION IS CONSISTENT WITH THE REQUIREMENTS IN THE SUPREME COURT OF NEW MEXICO'S CASE LAW.

In additional to being admissible under rule 702, Dr. Drez' retrograde extrapolation is consistent with the Supreme Court of New Mexico's case law. In State v. Day, the Supreme Court of New Mexico stated:

The exact shape of the [BAC elimination] curve depends on a number of factors, including inter alia the type of alcohol consumed, the time period over which the

alcohol was consumed, the time of the last drink, and when and what the defendant last ate. See Christmas, 2002–NMCA–020, ¶ 26, 131 N.M. 591, 40 P.3d 1035. These factors can be quantified, although sometimes the supporting evidence may not be readily available. However, the burden of finding such evidence is appropriate for the State to bear when attempting to convict a person suspected of any crime, and should the State choose to pursue a per se DWI conviction, it must take the type of investigatory work required to prove a defendant's guilt beyond a reasonable doubt.

State v. Day, 143 N.M. at 367, 176 P.3d at 1099. If the Court were to accept Tsosie's argument that State v. Day establishes a requirement that retrograde extrapolation quantify all the factors the Supreme Court of New Mexico set forth in a non-exhaustive list, Dr. Drez' analysis meets that burden. She uses ranges and conservative assumptions to allow for extremes that favor Tsosie to account for unknown facts, which in effect quantifies the factors most favorably towards Tsosie. She did not know when or what he last ate, so she used a absorption point of two hours and fifteen minutes, although the average person reaches an absorption point in thirty minutes to an hour. Because of the absorption point Dr. Drez' retrograde extrapolation uses, her analysis would not change -- regardless of what and when Tsosie last ate -- whether he ate nothing or a steak dinner. See Tr. at 103:14-104:7. Similarly, Dr. Drez used a range of elimination rates to account for Tsosie uncertain drinking patterns.

The Supreme Court of New Mexico has approved experts using similar assumptions. In State v. Hughey, 142 N.M. 83, 163 P.3d 470 (2007), the Supreme Court of New Mexico reversed the judgment of the Court of Appeals of New Mexico excluding the prosecution's expert witness' retrograde extrapolation. In discussing the prosecution expert's testimony, the Supreme Court of New Mexico noted that he relied on two assumptions that could not be proved based on available evidence: (i) that the defendant had been drinking over a period of time; and (ii) that the defendant drank no alcohol after the accident but before her BAC was tested. The expert stated that he could

not testify to the defendant's individual rate of absorption, but he indicated that, "in most cases, alcohol is absorbed anywhere between fifteen minutes to an hour after it has been drunk." 142 N.M. at 85, 163 P.3d at 472. He further testified that "the generally accepted time to reach peak alcohol level is fifteen minutes to an hour after the alcohol is ingested." 142 N.M. at 85, 163 P.3d at 472. The Supreme Court of New Mexico's opinion in State v. Hughey establishes that an expert's reliance on reasonable assumptions does not render the expert's testimony inadmissible:

In response, the State presented testimony by Curtis Caylor, who was qualified as an expert in the field of toxicology. Caylor testified that in order to determine Defendant's BAC at 11:30 p.m. through the process of retrograde extrapolation, several assumptions would have to be made. The two major assumptions were that Defendant had been drinking over a period of time, and that she had no alcohol to drink after the accident. While Caylor could not testify as to Defendant's rate of alcohol absorption, he stated that in most cases, alcohol is absorbed anywhere between fifteen minutes to an hour after it has been drunk. Caylor advanced that the generally accepted time to reach peak alcohol level is fifteen minutes to an hour after the alcohol is ingested. Additionally, Caylor testified that if Defendant suffered from shock due to the accident, the effect if any, would be to slow down her rate of alcohol absorption slightly, not stop it. Caylor also disagreed with Dr. Reyes as to the effect of food in the stomach; he testified that the presence of food in the stomach would slow, not stop, the absorption of alcohol.

....

The State's expert testified that the generally accepted time to reach peak alcohol level is fifteen minutes to an hour after the alcohol is absorbed. Working from the assumption that Defendant stopped drinking at 8:30 p.m., as she told police, a reasonable inference arguably might be drawn that Defendant had reached her peak alcohol level by the time the accident occurred and that her BAC at the time of the accident was higher than .10. While we do not presume to make an assessment as to whether this constitutes sufficient evidence to support a conviction for per se DUI, we believe that the testimony of the State's expert raises a question of fact that should be resolved by a jury rather than by the trial court prior to trial. See State v. Mares, 92 N.M. 687, 689, 594 P.2d 347, 349 (Court. App.1979) (stating "that maintenance of the jury as the fact-finding body in felony cases is of great importance and is to be jealously guarded"). Additionally, the conflicting testimony of the State's and Defendant's experts regarding the effect of shock on the rate of alcohol absorption constitutes a factual dispute that cannot be resolved prior to trial. See State v. Duran, 2005-NMSC-034, ¶ 19, 138 N.M. 414, 120 P.3d 836 (stating that resolution of factual conflicts "is particularly a matter within the province of the trier of fact")

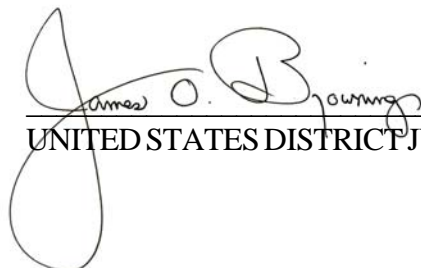
(quoting State v. Werner, 117 N.M. 315, 317, 871 P.2d 971, 973 (1994)). The issues raised in Defendant's Motion in Limine and by the testimony of the two conflicting experts are issues that should not have been resolved prior to trial by the trial judge. Instead, the State should have had the opportunity to present its case to a jury.

142 N.M. at 85, 87-88, 163 P.3d at 472, 474-75 (emphasis added). The Supreme Court of New Mexico's opinion in State v. Hughey demonstrates that the New Mexico law permits experts to make reasonable assumptions in performing retrograde extrapolation and that such assumptions do not render retrograde extrapolation inadmissible.

At the hearing, Tsosie also argued that Dr. Drez' chart was flawed, because it assumes that elimination is a linear function, and the Supreme Court of New Mexico stated in State v. Day that "the rate at which the BAC changes over time . . . is not constant, but varies over time, describing a curve rather than a straight line." 143 N.M. at 367, 176 P.3d at 1099 (citations omitted). A linear curve would mean that the rate of elimination is constant. Dr. Drez explained that her "graph only is looking at the elimination phase," during which the change in BAC approximates a linear function. Tr. at 60:2-3 (Winder, Drez); Ganer & Bowthorpe, supra, at 142 ("On average, 69 minutes elapsed from the end of drinking until the start of the linear decline in BAC, with the longest taking 124 minutes." (emphasis added)). While the rate of elimination is fairly constant from the absorption point -- roughly two or less hours after a person stops consuming alcohol -- to the point when a person's BAC reaches .02 or .01 mg/mL, the variability in the elimination rate before the absorption point and after a person's BAC reaches .02 or .01 mg/mL describes a curve. The Court thus finds no conflict between the Supreme Court of New Mexico's caselaw and Dr. Drez' retrograde extrapolation.

IT IS ORDERED that the Defendant's Motion in Limine for Daubert Ruling Regarding the Admissibility and Scope of Ms. Nancy's [sic]/Drez's Expert Testimony is granted in part and denied

in part. The Court grants Defendant John Leonard Tsosie's Motion in Limine for a Daubert ruling. The Court denies Tsosie's request that the Court not allow Plaintiff United States of America to present expert testimony with regard to his BAC with the use of retrograde extrapolation.



UNITED STATES DISTRICT JUDGE

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