Statement of Penny Beardslee
Before the United States Sentencing Commission
Public Hearing, March 14, 2012

Thank you for inviting me to appear before the Commission on behalf of the Federal Public and Community Defenders regarding the Commission's request for comment on how to base the penalties for BZP.

As set forth below in greater detail, the Defenders recommend that the Commission act cautiously in specifying the marijuana equivalency for BZP so as to avoid some of the issues that plagued the 100:1 crack-powder ratio and that are currently emerging with respect to the marijuana equivalency for MDMA.[1]

The expert opinions developed over the past few years in various district court cases reveal that there is no unified scientific view as to what substance within § 2D1.1 is substantially similar to BZP. Given the lack of scientific evidence and lack of consensus, we recommend that the Commission utilize a ratio for BZP that is in the range of the ratio for methylphenadite (commonly known as Ritalin) or 1/20 of amphetamine, *i.e.*, 1 gram of BZP is equivalent to 100 grams of marijuana. We do not believe that the Guidelines should draw a distinction between BZP alone and BZP in combination with other substances such as TFMPP and caffeine, because those substances are legal non-controlled substances, and because drug laboratory analysis makes it impossible to accurately measure the potency of these substances.

Here, I review the history of DEA regulation of BZP, a report from the European Union on BZP, and the litigation experience with BZP cases. Attached is a chart summarizing twenty BZP cases throughout the country and a summary of expert opinions rendered in the course of litigation involving the appropriate marijuana equivalency for BZP.

I. DEA History and Publications

In making the determination as to what drug BZP is most closely related to in the controlled substances schedules listed in § 2D1.1, the history of the regulation of BZP is instructive. Despite the fact that BZP was identified as being used in California in the 1990s, the DEA did not take action to control it as a scheduled drug until July 2002 when it gave notice of intent to temporarily place BZP and 1-(3-trifluoromethylphenyl) piperazine (TFMPP) into schedule I of the Controlled Substances Act (CSA). 67 Fed. Reg. 47341 (July 18, 2002). Consistent with that intent, DEA temporarily placed BZP and TFMPP into schedule I in September 2002. 67 Fed. Reg. 59161 (Sept. 20, 2002). A final ruling was issued on March 18, 2004, placing BZP on the schedule I list and removing TFMPP from the list entirely. *See* 69 Fed. Reg.12794 (Mar. 18, 2004); *see also* 21 C.F.R. § 1308.11(f).

The permanent classification of BZP as a schedule I controlled substance was based upon the

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[1] *See United States v. McCarthy*, 2011 WL 1991146 (S.D.N.Y. 2011) (rejecting 500:1 MDMA-to-marijuana ratio set forth in guidelines in favor of 200:1 ratio).

DEA's finding that:

> BZP is a piperazine derivative. This substance has not been evaluated or approved for medical use in the U.S. The available scientific evidence suggests that the pharmacological effects of BZP are substantially similar to amphetamine. . . .
>
> The effects of BZP in amphetamine-trained monkeys strongly suggest that BZP will produce amphetamine-like effects in humans. BZP acts as a stimulant in humans and produces euphoria and cardiovascular changes including increases in the heart rate and systolic blood pressure. BZP is about 20 times more potent than amphetamine in producing these effects. However, in subjects with a history of amphetamine dependence, BZP was found to be about 10 times more potent than amphetamine.

69 Fed. Reg. 12794, 12795 (Mar. 8, 2004).

At the same time, DEA decided not to control TFMPP upon recommendation of the Food and Drug Administration and the National Institute of Drug Abuse. *Id*. It made this decision even though it had information that "BZP, often in combination with TFMPP, is sold as MDMA" or "promoted as an alternative to MDMA." *Id*.

BZP is listed as a Schedule I controlled "stimulant." 21 C.F.R. § 1308.11(f). Amphetamine is listed as a Schedule II controlled "stimulant." 21 C.F.R. § 1308.12(d). MDMA is listed as a Schedule I "hallucinogen." 21 C.F.R. § 1308.11(d). While TFMPP is not a controlled substance, DEA describes it as "hallucinogen-like." 67 Fed. Reg. 47341, 47432 (July 18, 2002).

Another noteworthy DEA publication issued on August 6, 2010, wherein the DEA realized that it had made a "misstatement" regarding the potency of BZP and issued a correction of an "inadvertent error." The error was "with regard to the potency differences between BZP and amphetamine. In each rule, it was erroneously stated that BZP is 10 to 20 times more potent than amphetamine. In actuality, the converse is true (*i.e.*, BZP is 10 to 20 times less potent than amphetamine.)" 75 Fed. Reg. 47503 (Aug. 6, 2010). In the same publication, the DEA went on to state:

> DEA has been advised that in criminal proceedings, for sentencing purposes, courts have sought to ascertain: (1) The controlled substance, for which a sentencing guideline equivalency exists, that is the most closely analogous to BZP (which is d-amphetamine) and (2) the relative potency of BZP to that of the most analogous controlled substance.

75 Fed. Reg. at 47504. DEA experts now take the position that BZP is most similar to amphetamine and that there should be a reduction for its lower potency.

On its website, under the heading of "Illicit Uses," the DEA disavows the notion that a combination of BZP and TFMPP is like MDMA. As DEA explains: "This combination has been promoted as a substitute for MDMA there are no scientific studies that indicate these pills produce MDMA like effects: BZP is often abused in combination with 1-[3-(trifluoro-methylpheny]piperazine(TFMPP), a non-controlled substance. The combination "has been promoted to the youth population as a substitute for MDMA at raves (all night dance parties.). However, there are no scientific studies indicating this combination produces MDMA-like behavioral effects."[2] The conclusion from this publication is that the DEA does not recognize the Baumann[3] or any other study as supporting the conclusion that BZP in combination with TFMPP has the same effect as MDMA on behavior.

While the DEA has indicated amphetamine is the most analogous drug, not MDMA, and BZP is 10-20 times less potent than amphetamine, experts hired in cases across the country have varied in identifying the substance that is most similar to BZP. BZP has been likened to MDMA, amphetamine and methylphenidate (commonly known as Ritalin). Further complicating the matter is the fact that the pills being seized in these case also vary from containing straight BZP, BZP with unmeasured quantities of TFMPP, BZP with less than 5% MDMA and other mixtures. Not to mention that the laboratory analysis reveal varying quantities of BZP in the pills (from 12-13 grams to around 200 grams). This testimony reviews the cases more fully below.

II. European Union Reports, Canadian Connection, and Conclusions

Before discussing the cases, it is useful to review the Council of European Union's 2008 decision directing Member States to take steps to submit BZP to control measures proportionate to the risks of the substance and available criminal penalties. The Council relied upon a Risk Assessment Report prepared by the European Monitoring Centre for Drugs and Drug Addiction (EMCDAA). which is the central source of information on drugs and addiction in Europe.[4] The Council acknowledged that the "Risk Assessment Report on BZP reveals a lack of conclusive scientific evidence on the overall risks of BZP."[5] Despite this fact, their overall conclusion was that there was a need to control BZP given its' stimulant properties, the risks to health and the lack of

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[2] DEA, Office of Diversion Control, http://www.deadiversion.usdoj.gov/drugs_concern/bzp_tmp/bzp_tmp.htm (emphasis added).

[3] Baumann, M. H., Clark, R. D., Budzynski, A. G., Partilla, J. S., Blough, B. E., and Rothman, R. B. *N-Substituted Piperazines Abused by Humans Mimic Molecular Mechanism of 3,4-Methylenedioxymethamphetamine (MDMA, or 'Ecstasy')*, Neuropsychopharmacology (2005) 30, 550-560.

[4] European Monitoring Centre for Drugs and Drug Addiction, Report on the Risk Assessment of BZP in the Framework of the Council Decision on New Psychoactive Substances (2009)), http://www.emcdda.europa.eu/publications/risk-assessments/bzp.

[5] *Id.* at 18.

medical benefits.[6] However, that conclusion included a "precautionary principle" that "the control measures should be appropriate to the relatively low risks of the substance."[7] The report provides background information regarding BZP, as well as an assessment of the risks from its ingestion, that is instructive.

According to the Report, BZP is a derivative of piperazine. BZP was, at one time, investigated as a potential antidepressant drug. That research was halted in the early 1970s when it was found that BZP was a central nervous stimulant with properties similar to amphetamine. In the 1980s, BZP was marketed in Hungary as an antidepressant, but that was later withdrawn.[8] The chemical precursors used to manufacture BZP are piperazine monohydrochloride and benzyl chloride, which are both commercially available in some countries.[9] The process to manufacture BZP is apparently easier than with amphetamine and MDMA, but it does require laboratory facilities.[10]

As for specific health risks, the Report notes that BZP is at least 10 times less potent than amphetamine.[11] The available evidence is insufficient to make a firm conclusion that BZP poses similar abuse and dependence potential as amphetamine. According to the EMCDAA: "Apart from the risks inherent in any substance that causes tachycardia, raised blood pressure, agitation and hyperactivity BZP can lead to other medical problems."[12] The EMCDAA Report then references the Baumann study, which showed BZP and TFMPP in high doses in rats can cause seizures. However, the Report concluded: "No data exists that allow the relationship between dose and adverse effects to be quantified."[13]

The EMCDAA further found that were no emergency room visits associated with the abuse of BZP alone. According to the Report, the typical side effects users reported were relatively minor including vomiting, stomach pains/nausea, headaches, palpitations, poor appetite, insomnia, anxiety,

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[6] *Id*.

[7] *Id*.

[8] *Id.* at 23.

[9] The DEA registers several chemical companies to manufacture and/or import BZP in the United States. 76 Fed. Reg. 35243 (June 16, 2011); 76 Fed. Reg. 23626 (April 27, 2011); 75 Fed. Reg. 44286 (July 28, 2010).

[10] *Id*. at 24.

[11] *Id*. at 30.

[12] *Id*. at 25. Tachycardia refers to an increased heart rate that exceeds the normal resting level.

[13] *Id*.

strange thoughts, mood swings, and tremors.[14] Apparently, New Zealand is the country with the highest use of BZP and surveys of users there reported very low levels of dependence. The EMCDAA noted that there are no scientific studies to support addiction and dependence for BZP.[15] Finally, the EMCDAA , noting the absence of evidence linking BZP use to social harms, found that a "conservative interpretation of this absence of evidence might indicate that BZP leads to very limited social harms."[16] There is no evidence of social consequences linking BZP use to disorderly conduct or violence and there are no reports of violence or money laundering associated with the production and distribution of BZP.[17]

BZP is controlled in most European countries, as well as New Zealand, Australia, and Japan, but it remains legal in some nations including Canada. BZP and TFMPP have been under evaluation by Health Canada since May 2008 to determine whether they pose significant risks to health.[18] I was unable to find any official decision from Canada on the matter. I am unaware of any BZP laboratories being found in the United States; it appears that the pills are making their way into the country from other countries. Counsel is aware of at least ten cases in the Eastern District of Michigan and the bulk of those pills were imported/smuggled in from Canada. I have also heard reports of sources of supply in Europe and Asia.

III. Review of Cases in United States Federal Court

A. General Overview

In preparing for the Commission's hearing, I reviewed well over twenty cases from across the country that have involved BZP. I have attached a chart outlining the actions taken in twenty of those cases. A review of the cases reveals that the defendants are not a clear homogenous group. However, the review does seem to support the European Union determination. None of the cases involved manufacturing. Some defendants were first time offenders who were lured by the temptation to make a little money. The ages of the defendants range from early 20s to 30s. The defendants with drug addiction issues appear to have had addictions to drugs other than BZP, including heroin and marijuana. The cases, with the exception of one wherein the brilliant defendants decided to rob their purchaser, do not appear to involve any violence. A few cases did involve firearms, but the weapons were primarily possessed by the higher level participants. The arrests also do not reveal sophisticated operations. Arrests were made as result of traffic and border

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[14] *Id*. at 25, 47.

[15] *Id*. at 54.

[16] *Id*. at 58.

[17] *Id*.

[18] *See Health Canada Advises Consumers Not to Use Purepilz Unauthorized Products*, http://www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/_2008/2008_108-eng.php.

stops in several cases and the result of investigation and informant tips.

In 2001, the Commission significantly increased the MDMA guidelines based upon the conclusion that MDMA was more harmful than cocaine and in light of what the Commission viewed as the pharmacological and physiological harms of the drug . *See* USSC, *Report to Congress: MDMA Drug Offenses, Explanation of Recent Guideline Amendments*, May 2011 ("MDMA Report"). In determining whether to treat MDMA more or less severely than heroin and cocaine, the Commission looked to the number of cases in the system, the addictive potential of the drugs, emergency room visits and deaths, the level of violence associated with the drugs, the market of the drugs use, the type of drug, and the drugs secondary effects.

Utilizing those factors supports a finding that BZP is less severe than MDMA, amphetamine, heroin and cocaine. There are a relatively small number of BZP cases, although the number is admittedly increasing at a relatively slow pace. The limited science available suggests BZP has a low level of dependency and indicates it is significantly less addictive than heroin, MDMA, amphetamines and cocaine. The studies have shown it is ten to twenty percent less potent than amphetamine and some experts have found it less potent than MDMA. There is no evidence that BZP use or distribution leads to violence or other social consequences. There is no evidence of emergency room visits directly associated with the use of BZP. There is also no evidence of secondary side effects such as HIV or hepatitis. The one and only similarity is that BZP has been marketed like MDMA, as a party pill that provides increased energy. However, it appears MDMA is still more widely used. This analysis supports the position that BZP should be treated at a lower marijuana equivalency than amphetamine and MDMA.

B. Disparities and Lack of Consensus Throughout the System

1. The Parties and Probation Lack Consensus

The courts that have faced the question of what drug is more substantially similar to BZP have done so with varying results. Disparities in the sentencings in these cases are caused by a number of factors, including the fact that this issue is being treated differently at all levels of the federal system. The U.S. Attorneys offices have taken varying positions across the country. Some have insisted BZP should be treated as amphetamine while others advocate that MDMA is the more appropriate analogy. Probation Offices have similarly advanced different positions between amphetamine and MDMA. Counsel is also aware of, at least, one case involving a small amount of pills where the parties stipulated to treat the pills as methylphenidate (Ritalin).

2. Court Decisions Lack Consensus

Of the twenty cases identified in the attached table, two courts treated BZP as methylphenidate (Ritalin), nine treated it as MDMA , and eight treated it as amphetamine. One case remains undecided. Of the nine cases treating BZP as MDMA, four judges granted fairly significant downward variances based upon lower potency and/or the opinion that the MDMA equivalency ratio

is overstated.[19] Of the eight cases treating BZP as amphetamine, five gave some reduction based on the lower potency. The amount of reduction when treated as amphetamine was not consistent; varying from 1/10th to 1/15th to 1/20th and in one instance an 8-level reduction.

Four of the cases have been appealed to their respective Circuit Courts. Two courts have affirmed district court decisions to treat BZP as MDMA. *United States. v. Chowdhury*, 639 F.3d 583 (2nd Cir. 2011) (district court relied on the DEA Forensic Laboratory in New York City findings that BZP combined with a mixture of TFMPP is mostly compared with MDMA without an evidentiary hearing); *United States v. Bennett*, 659 F.3d 711 (8th Cir. 2011) (rejected defendant's claim that court failed to consider objections to MDMA classification and finding no procedural error in court's conclusion). A third opinion is also from the Second Circuit. *United States v. Figueroa*, 647 F.3d 466 (2nd Cir. 2011) (case remanded for a hearing).[20] What is significant about that opinion is that the court noted that *Chowdhury* did "not stand for the proposition that MDMA is the proper substitute for BZP alone." *Figueroa*, 647 F.3d at 469. The court further recognized that two other decisions, the *Beckley* case from Michigan and *United States v. Rose*, 722 F. Supp.2d 743, 748 (M.D. Ala. 2010), stated that "the substance most closely related to BZP in isolation is amphetamine, not MDMA." *Id.* at 70. The *Beckley* case has been briefed and argued and is awaiting decision. A word of caution is in order when examining the appellate court decisions. These decisions should not be interpreted as determining that MDMA is the most appropriate comparison to BZP. The appellate courts are reviewing whether the sentencing court's determinations were procedurally reasonable not whether they were scientifically and legally correct.

3. The Pills Seized Vary and Lack Consistency

Disparities might also be driven by the widely varying make up of the pills being seized that are later identified as BZP. The actual weight of the BZP in these pills has varied from around 12-13 grams to over 200 grams. The seized pills have also been found to contain varying mixtures of substances. The different mixtures found in cases over the past few years have included BZP alone, BZP in combination with MDMA at below 5% levels, and BZP in combination with TFMPP, which

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[19] At this point, reference should be made to the *U.S. v. McCarthy* case. *See United States v. McCarthy*, No. 09 Cr. 1136 (WHP) (S.D.N.Y.) (hereinafter referred to as the "New York hearing"). A district court in New York held a hearing to consider the scientific validity of the MDMA Guideline. Both sides presented two days' worth of testimony from expert witnesses, two from the government and two from the defense. After the hearing, the Court determined that a 1:200 marijuana ratio was more appropriate and sentenced McCarthy to a term of 26 months in prison, which reflects a variance from this even lower conversion ratio. Some of the Courts identified in the table have relied on the *McCarthy* hearing to grant variances.

[20] In remanding, the court noted that the defendant's success on appeal may result in "a Pyrrhic victory" should the district court decide that the pills are more similar to amphetamine because the conversion for amphetamine is a 1:2000 grams of marijuana and a 1:500 grams for MDMA. The federal defender who handled the *Figueroa* case explained that they made a strategic decision to withdraw the request for an evidentiary hearing to avoid the risk of a higher sentence.

the DEA does not quantify because it is not a controlled substance.

It is important to understand the DEA method of examining the pills and preparing of lab reports. The DEA receives these pills in batches that are identified by exhibit numbers. They evaluate 4-8 pills from each of these exhibits and report their findings in a lab report. DEA only reports the weight of the "controlled substances" found in the pills. If the weight of any of the controlled substance is less than 5% of the pill, the DEA will not report the weight of that substance in the actual lab report, although it should appear in the lab worksheets. Typically, the government will only provide the chain of custody sheet and the conclusory lab report as part of discovery. Defense attorneys must request the worksheets to obtain a more complete picture of the analysis of the pills.

Addressing just what each pill contains could require further litigation in the future, given that there are at times varying types of pills found even in a single seizure. One case example from the Eastern District of Michigan involved a very large seizure of 202,892 pills after they were delivered via the waterway between Canada and the U.S.[21] Law enforcement forwarded thirty-two exhibits to the DEA laboratory for testing. Again the DEA tested about four to eight pills from each exhibit. There were different results in twelve out of the thirty-two exhibits. The majority contained BZP with an unmeasured quantity of TFMPP, nine contained BZP and trace amounts of MDMA (less than 5% as the quantity was not reported in the reports), a few were actually ecstasy pills or MDMA, and three exhibits were found to contain no controlled substances.

In calculating the guidelines in pill cases, another question is what is the weight of the substance or pills and does it include the weight of the mixture of other substances. The answer to this question is complicated when it comes to the latest versions of BZP pills, especially in light of the variance in the typical weight of BZP found in these pills and the overall mixtures of the substances in these pills. Some Probation Offices have used the typical dose weights for MDMA and amphetamine. Others have suggested an extrapolation method taking the actual weight identified in the lab report for the four to eight pills analyzed and multiplying it by the total number of pills. These figures do not necessarily correspond with the typical weight of BZP being found in these cases. In fact, the quantity of BZP in the pills seized across the country has varied so widely that a typical dosage weight figure might be impractical and could lead to unwarranted disparities.

4. The Experts Lack Consensus

Another factor leading to disparities is the lack of consensus among the experts. I provide a review of the experts that have been utilized in some of the cases cited in the Table of Cases. I have identified three cases that involved full blown hearings with testimony and have reviewed the transcripts of those hearings. I have also obtained a number of reports prepared by experts for the

[21] This case was not included in the Table of cases because the lead defendant who negotiated the smuggling was released on bond and fled the country and the co-defendant who played a minimal role was allowed a reduced plea.

cases involving testimonial hearings, as well as those submitted with Sentencing Memorandums. A review of expert opinions shows wide disagreement over how to characterize BZP, alone or in combination. *See* Attached Summary of Expert Positions, Transcripts, and Reports.

IV. Conclusion

The guidelines provide for a 1:500 grams of MDMA - to - marijuana equivalency, with a typical dosage weight of 250 milligrams. Amphetamine, on the other hand, has a 1:2000 gram marijuana equivalency, but a 10 milligram typical dosage weight. Methylphenidate has a 1:100 gram marijuana equivalency. It should also be considered that cocaine has a 1:200 gram marijuana equivalency.

A review of the cases, the available literature and studies, and the expert opinions makes clear that there is a lack of clear science and a lack of consensus when it comes to BZP. Given the lack of science and consensus and the relatively low risks of danger associated with BZP, the Commission should proceed cautiously in categorizing BZP. TFMPP should not be factored in the analysis. It is not a controlled substance and the DEA has made clear there are no scientific studies to establish that BZP and TFMPP produce similar effects to MDMA. Experts have found that BZP is less potent than both amphetamine and MDMA. The available information also suggests that BZP should be considered less harmful than cocaine. The Defenders maintain that the Commission should err on the side of lenity and treat BZP in the same ratio category as methylphenidate or at 1:100 grams. This, incidently, is the same ratio produced if treated as amphetamine with a 1/20th reduction (2000/20=100), only it does so in a simpler fashion.

Attachments

Table of Contents

Cases Involving BZP

	Defendant	District	Charge	How treated BZP	Sentence	Hearing
1	**Beckley**, Arthur (08-CR-20621) On appeal to 6th Circuit	EDMI	Conspiracy to distribute a controlled substance (5,000 pills)	MDMA (ecstasy)	78 mos	Court hired independent forensic toxicologist, Laureen Marinetti. Defense retained Joseph Bono who issued a written report, but did not testify.
2	**Chowdhury**, Nizamuddin (08-CR-00710) Affirmed on appeal, 639 F.3d 583 (2d. Cir. 2011)	NDNY	Possession with intent to distribute BZP (28,000 pills)	MDMA (ecstasy)	96 mos	No experts

3	**Rose**, Franseco (09-CR-134) Published opinion: 722 F.Supp.2d 1286 (M.D. Ala. 2010)	MDAL	Possession with intent to distribute BZP (2 bags of pills - total weight 587,918 grams)	MDMA (ecstasy)	13 mos	No experts. Court relied on European Risk Assessment Study, New Zealand Report for the Ministry of Health, and the England Study. Variance because of reduced potency (gov't argued should be treated as variance not offense level reduction)
4	**Lin**, Xiao Lan (09-CR-504)	EDVA	Conspiracy to dstribute BZP (22,000 pills)	Methylphenidate (Ritalin)	36 mos	Defense submitted report of Joseph Bono
5	**Wang**, Rui Bai (09-CR-504) (co-defendant to Lin)	EDVA	Conspiracy to distribute BZP (22,000 pills)	MDMA (ecstasy).	70 mos	Defense argued for 1/15 amphetamine
6	**Young**, Louis (09-CR-00003)	NDIN	Distribution of BZP (total weight 6.78 grams)	1/15 of Amphetamine.	12 mos and 1 day	No Hearing. No challenge to PSR.

7	**Figueroa**, Bayron (09-CR-00145) 2d Circuit Remanded for hearing, 647 F.3d 466 (2d. Cir. 2011)	NDNY	Possession with intent to distribute MDMA & BZP (23,000 pills)	MDMA (ecstasy). Circuit reversed because BZP pills contained unmeasurable quantities of MDMA, but no TFMPP. Evidence insufficient for court to rely on *Chowdhury* findings.	63 mos	Court declined to hold hearing in light of *Chowdhury*
8	**Bennett**, Brandon (09-CR-00153) Affirmed on appeal, 659 F.3d 711 (8th Cir. 2011)	WDMO	Conspiracy to distribute BZP & Distribution of BZP (6,029 pills) PSR based on 1105 BZP pills	MDMA (ecstasy)	57 mos	No hearing. Defense utilized *Rose* case and reports relied upon there to show BZP less severe than MDMA & to argue for a 3:1 ratio. Court did not vary.
9	**Hall**, Almeda (O9-CR-00325)	EDMO	Possession with intent to distribute BZP	Amphetamine	18 mos	No hearing. PSR set range at 70-84 months - OL 30. Defense argued for a 1:40 gram ratio.

10	**Tran**, Nam Ngoc (10-CR-00799) (co-defendant Dung Quoc Nguyen)	SDCA	Distribution of a Controlled Substance (1,000 pills)	Methylphenidate (Ritalin)	6 months	Hearing held. Government did not meet burden - clear & convincing standard - with their two DEA witnesses. Court relied on defense report from Joseph Bono.
11	**Lynch**, Justin (09-CR-104)	MDFL	Conspiracy to possess with intent to distribute BZP	1/10 Amphetamine (Probation used MDMA)	70 mos (co-D got 57 mos)	No hearing - stipulated
12	**Jann**, Michael (10-CR-0003)	MDFL	Possession with intent to distribute BZP (812.5 grams BZP, 55.7 grams MDMA & 47.6 grams pills w/ MDMA & BZP)	1/10 Amphetamine - (Probation calculations after call to USSC)	70 mos	No hearing. Defense retained Joseph Bono to challenge PSR calculations.
13	**Nixon**, Lewis Aaron III (10-CR-00013)	NDOK	Possession with intent to distribute BZP (6,000 pills)	Amphetamine but parties agreed to 8-level reduction to reflect 1/10th potency.	57 mos	No hearing. Defense relied on expert report to argue BZP should be treated as MDMA with a reduction because BZP is less potent than MDMA.

14	**Qayyem**, Basher (10-CR-19) Published opinion: 2012 WL 92287 (SDNY 1/11/12)	SDNY	Conspiracy to possess with intent to distribute MDMA and BZP (3 pills - MDMA & 1,055 pills BZP)	MDMA (ecstasy) but used a 200:1 ratio	3 years probation	No hearing. Defense objected to PSR. Court relied on *United States v. McCarthy*, 2011 WL 1991146 (S.D.N.Y May 19, 2011) to find that 500:1 ratio for MDMA-to-marijuana in guideline did not reflect then existing research nor is it supported by more recent evidence.
15	**Reid**, Kevin (10-CR-20596)	EDMI	Possession with intent to distribute MDMA, but made clear at plea that defendant was pleading to possession with intent to distribute a controlled substance known as BZP (25,205 pills - BZP & unmeasurable quantity MDMA)	MDMA (ecstasy).	60 mos	Hearing held. Defense called Joseph Bono & relied upon his report. Court granted variance, in part, based upon lower potency of pills & *McCarthy* issue with MDMA ratio.

16	**Major**, Joshua (11-CR-00016)	EDVA	Conspiracy to distribute BZP (1000 pills)	Amphetamine. Probation used 10 mg standard weight for amphetamine pills.	36 mos on BZP count (Co-Ds got 15 and 13 mos)	No hearing.
17	**Robert**, Xavier (09-CR-100)	RI	Conspiracy to distribute BZP (38,592 pills)	Undecided		Hearing Held 10/4/11 - Expert testimony was presented for both sides.
18	**Sok**, Samal (11-CR-00127)	WDWA	Conspiracy to distribute BZP (8,141 pills)	MDMA (based upon the fact that the defendant thought the pills were MDMA)	60 mos (Co-D El-Saadoun received 24 months for lesser role in offense)	No hearing. Defense argued for a variance from 97-121 mos range based on inflated MDMA ratio.
19	**Riggins**, James (09-CR-00146)	WDWA	Importation of BZP with intent to distribute (101,135 pills)	1/20th Amphetamine which translated to a 100:1 ratio	60 mos	No hearing. Government objected to PSR. Court adopted and varied below guidelines based on USPO sentence recommendation.

20	**Curry**, LaFreddrick (08-Cr-56)	NDFL	Distribution of controlled substances both MDMA and BZP (about 120 pills)	BZP - Amphetamine	15 mos (down from 24-30 mos guideline)	No hearing and no challenge to PSR.

EXPERT TESTIMONY[1]

Joseph Bono served as a defense expert in a number of cases (*Beckley*, *Nguyen/Tran*, *Lin*, *Robert*, *and Reid*). He testified in the latter two cases. Joseph Bono is a former forensic scientist and chemist for the Drug Enforcement Administration at the DEA Mid-Atlantic Laboratory in Washington, D.C. He retired in 2007. He was an adjunct instructor in the Forensic and Investigative Sciences Program at Indiana University in Indianapolis. He is also past president of the American Academy of Forensic Sciences (AAFS). The summary and excerpts presented here are taken from the *Robert* transcript and Mr. Bono's written reports.

At the *Robert* hearing, Mr. Bono testified about the chemical structure of BZP, relying upon publications that illustrate the chemical structures and his own experience. (Tr. 153). The conclusion from his review of the diagrams of the chemical structures of these substances, as stated in his reports, is that structurally, BZP and MDMA are not similar. (Tr.155). As to amphetamine, he stated that there were some similarities between BZP and amphetamine but the two drugs were not substantially similar. (Tr.157). Finally, as to methylphenidate his conclusion was that BZP's chemical structure is most closely related to methylphenidate (Ritalin). (Tr.159).

In a report, Mr. Bono elaborated on the last conclusion:

> While showing some structural similarities to amphetamine, BZP is most similar to methylphenidate. This statement is based on the two six membered rings. The methylphenidate structure contains one nitrogen in the non-aromatic ring (a piperidine); and BZP contains two nitrogens in the non-aromatic ring (a piperidine). In both cases the two rings are connected by a carbon. Amphetamine is a phenethylamine containing one aromatic ring and no second ring. These ring structures are important in determining a "chemical structure that is substantially similar."

Joseph Bono, Report of Evaluation 6 (October 5, 2011).

When addressing the effects of controlled substances at the *Robert* hearing, Mr. Bono explained the differences between stimulants, depressants and hallucinogens. (Robert Tr. 159,160). His understanding of the requirements of Part B of Application Note 5 of § 2D1.1 was that in order to determine the comparative effects of two drugs you would have to compare the same type of drug, that is, stimulant to stimulant or hallucinogen to hallucinogen, but you should not compare stimulant to hallucinogen or vice versa. (Tr. 163). Addressing the combination of BZP with TFMPP, Mr. Bono stated he did not consider the combination because TFMPP is a hallucinogen and BZP is a stimulant, but more importantly the DEA has published a document that instructs that there are no scientific studies known that confirm that BZP in combination with TFMPP produces MDMA like effect. (Tr. 170). In determining the type of controlled substance (hallucinogen or stimulant), Mr. Bono relied upon 21 C.F.R. 1308, which categorizes BZP as a stimulant and MDMA as an hallucinogen. (Tr. 161).

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[1] See Attached Transcripts in *Robert, Tran*, and *Beckley* and report of Joseph Bono.

In his written report, Mr. Bono again emphasized the May 10, 2010, DEA publication, which states that "there are no scientific studies indicating this combination [of BZP and TFMPP] produces MDMA-like behavioral effects." Mr. Bono observed that "[t]o pursue an argument which states that there are valid scientific studies indicating a combination of BZP and TFMPP MDMA-like behavioral effects is in direct conflict with a US Department of Justice publication." Report of Evaluation at 7.

According to Mr. Bono:

> the comparison of the effects on the central nervous system between BZP and MDMA is like comparing the actions of person who has ingested a few cups of coffee to those of a person who has ingested the better known drug Lysergic Acid Diethylamide (LSD). According to official characterizations in Part 1308 of the Code of Federal Regulations, there are no substantive comparative similarities between the effects of BZP and MDMA. Conversely, there is a similarity of the effect comparing BZP to stimulants listed in the CFR, though at varying levels.

Id. at 7.

When addressing the strength or weakness of a non-referenced controlled substance to produce a substantially similar effect of a referenced controlled substance, Mr. Bono said he was familiar with two reports published by DEA that referenced BZP and amphetamine. The first report indicated that BZP was 10 to 20 times stronger than amphetamine. *Id*. at 8. However, the DEA issued a second report, acknowledging that the first report was incorrect and correcting the strength determination of BZP to 10 to 20 times less potent than amphetamine. *Id*. Based upon the substantially lesser effect of BZP to amphetamine, Mr. Bono opined that methylphenidate (Ritalin) is the most closely related drug in the Guidelines to BZP. *Id*. at 1.

Mr. Bono noted an inconsistency in the 2007 DEA publication clarifying the potency issue wherein it is reported that the public health risks for BZP are similar to amphetamine. According to Mr. Bono:

> To say that BZP is about 10 to 20 times less potent than amphetamine in producing these effects and is at the same time similar to amphetamine in terms of health risks is similar to saying a person who consumes one cup of coffee will display the same pharmacological effects as the person who consumes 10 to 20 cups of coffee. This is quantitatively illogical. Potency considerations are important in determining what drug is most closely related. To say that amphetamine and BZP are closely related is to completely disregard their disparate potency levels.

Id. at 8-9.

As a result, he opines that the "stimulant effects of BZP are similar to but much weaker than amphetamine, and more closely resemble the effects of methylphenidate." *Id*. at 9.

Dr. Thomas DiBerardino testified for the government in *Nguyen/Tran*. He is a DEA chemist with the Office of Diversion Control in the drug and chemical evaluation section. He noted similarities and

differences between BZP, amphetamine, and methylphenidate. With amphetamine, there is the difference of two carbons and a nitrogen and with methylphenidate there is a difference of two carbons and two oxygens. In other words, amphetamine lacks three atoms while methylphenidate has four additional. (Tr.18). Based on this analysis, he would not call "either of them substantially similar." (Tr. 19). He expressed discomfort with "trying to convince the court that one is more or less than the other." (Tr. 19). He went on to testify:

> As a Ph.D. chemist, I hate to admit this, but this is not real science. This is your opinion looking at these structures. I could point out the similarities and differences, but any respected chemist could have an opinion that differs from mine.

(Tr. 22-23). When the court observed that it sounded like he could not reach a definitive conclusion based on the chemistry, Dr. DiBerardino confirmed that he was not looking at it as scientific conclusion. Instead, he stated:

> I'm comfortable in saying that they have almost equal weight in terms of its structural comparison. But, I think I would lean a little more towards amphetamine because of the difference in only adding those three atoms that prevent the ring from being complete.

(Tr. 26). He noted in cross-examination that he was "not comfortable in that another person just as capable as myself would have a different opinion." (Tr. 35). He also testified that his report discussed the similarities between BZP and amphetamine and BZP and methylphenidate, but made no distinction on which similarity was stronger than the other. (Tr. 35).

Dr. Cassandra Prioleau also was a government witness in *Nguyen & Tran*. She is employed by the DEA as a drug science specialist and pharmacologist. She has a bachelors in chemistry and Ph.D in pharmacology. She testified that BZP, amphetamine and methylphenidate are all stimulants. (Tr.41). She reviews studies to determine pharmacological effects, but found none comparing BZP with methylphenidate. (Tr. 43). She found studies indicating BZP is like amphetamine but 10-20 times less potent. (Tr. 43). She reviewed a defense exhibit taken from DEA Diversion Control publications, which identified the effects of each drug. She acknowledged that the effects of the three drugs were the same in all categories. She also noted that like BZP, methyphenidate is not as potent as amphetamine. (Tr. 47-49, 51).

Dr. Laureen Marinetti was hired by Judge Cook in the *Beckley* case from Michigan. She has a bachelor's degree in forensic science, a masters degree in criminal justice, and a PhD in pharmaceutical sciences. She works for a coroner's office in Ohio. She testified that the BZP chemical structure was most like methamphetamine and that BZP had a stimulant structure similar to amphetamine. (Tr. 15-16). Dr. Marinetti said that studies have found they had the same effect except that amphetamine was ten times more potent. (Tr. 16). There was no literature comparing the effects of BZP to methamphetamine, but there was literature that compared it with amphetamine. (Tr. 17). As for BZP combined with TFMPP, she could not find a similar chemical structure, but believed the two combined produced effects like MDMA. (Tr. 17-18). She relied on available studies (*i.e.*, the Baumann report

which involved rats) (Tr. 19-20). She acknowledged, however, that the Baumann report involved equal amounts of BZP and TFMPP. (Tr. 20, 35, 36).

Dr. Marinetti agreed that you would want to know the breakdown of the two chemicals to determine whether they have the same effect as MDMA. (Tr. 35-37). She also agreed that MDMA was chemically a completely different structure than BZP. (Tr. 31-32). She further said that methylphenidate has a different chemical structure because it contains oxygen and BZP does not. (Tr. 32). In addition, she acknowledged that BZP alone would not take on MDMA effects and said that BZP and methylphenidate have similar behavioral effects. (Tr. 20, 33-40). Dr. Marinetti testified that there was a study of effects in humans comparing methylphenidate and amphetamine, which found them similar, but amphetamine was two times more potent. From that she concluded "methylphenidate is about five times more potent than BZP." (Tr. 20-21).

Kristina Ward was hired by the government in the *Robert* case in Rhode Island. She is a clinical associate professor of pharmacy at the University of Rhode Island, with a doctor of pharmacy degree. She testified that BZP and TFMPP in combination produce effects similar with MDMA (Tr. 58). She relied on materials provided by the government, which included the Bauman study but did not include any DEA publications.

The obvious focus of Dr. Ward was upon substantially similar effects of BZP combined with TFMPP and MDMA. Dr. Ward stated that BZP and methylphenidate have a similar chemical structure. (Tr. 67). She stated that the chemical structure of BZP and MDMA are not substantially similar. (Tr.77,117). She further explained that BZP is a stimulant and increases activity in the central nervous system and the cardiovascular system. It stimulates the release of dopamine and prevents its reuptake. BZP also increases the release of serotonin, yet, the primary effects of BZP is the release of dopamine and norepinephrine. Therefore, she concluded that BZP is a stimulant. (Tr. 107).

Dr. Ward went on to opine that TFMPP is a serotonin releasing agent which contributes to the development of hallucinations. She based this opinion on two studies. One being the Tancer study, which was a study on the subjective measure on patients, and the second study was the Baumann study, which involved a study on rats. (Tr. 59-60, 109). It is important to note that with respect to the Baumann study, the mixture of BZP and TFMPP was of equal strength, a 1:1 ratio. (Tr. 112). Dr. Ward conceded that there was no information available that would indicate the amount of TFMPP contained within the pills in the case. (Tr. 113). Even without that knowledge, she opined that BZP coupled with an unknown quantity of TFMPP has an effect on the central nervous system that is substantially similar to the effect of MDMA. Dr. Ward further opined that, based on her research and review of the materials provided to her by the government, MDMA is a mix of stimulant and hallucinogen. Dr. Ward had no independent study or other opinion from any other scientist in the field of pharmacology who has expressed a similar opinion that MDMA has a mix of hallucinogen and stimulant effect on the central nervous system. (Tr. 128).

When asked to render an opinion whether a lesser or greater quantity of BZP and TFMPP would be needed to produce a substantially similar effect on the central nervous system as MDMA, Dr. Ward responded that dosage equivalencies are very hard to establish. (Tr. 78). She was unable to render an opinion as to Part C of guideline application note 5. (Tr. 79). It is important to note, however, that the

materials she relied upon were those documents provided by the government and her use of the internet with Medline searches to the exclusion of other search engines such as google and the like. Dr. Ward did not request nor was she provided any information from the Drug Enforcement Administration to assist her with information on dosage or drug quantity information to aid her in rendering an opinion as it relates to Part C of Application Note 5 to § 2D1.1.

EXPERT REPORTS[2]

Dr. Nicholas Lappas was retained as a defense expert in *Ross*, which is still pending in E.D. Michigan. He is a forensic toxicologist employed as an associate professor in the Department of Forensic Sciences at George Washington University where he teaches graduate level classes. Prior to that, he was a forensic toxicologist with the Allegheny County Coroner's Office from 1968 to 1973. He has testified as an expert in several courts.

Dr. Lappas opined that BZP is more similar in effects on the central nervous system and potency to methylphenidate than to amphetamine and MDMA. He distinguished MDMA, noting that it is labeled as an "enactogen" or "empathogen" (stimulates ease of developing interpersonal relationships and increases empathy), which is a classification that is not applied to BZP, methylphenidate or amphetamine. Dr. Lappas noted that there are similarities with BZP, methylphenidate and amphetamine. However, the potency of them differs. He found BZP closer in potency to methylphenidate than amphetamine.

Dr. Lappas also noted that the amount of TFMPP was not determined in the case he reviewed. Thus, it was not known whether the tablets contained sufficient TFMPP to produce hallucinations.

Dr. Craig Stevens served as a defense expert in *Nixon*, ND Oklahoma. He is a Professor of Pharmacology at Oklahoma State University. Dr. Stevens opined that the pharmacological effects of BZP are like that of MDMA, noting that they both affect the dopamine and serotonin systems. He noted that there are only a few studies on BZP toxicity in humans and that none had shown direct BZP lethality. He further stated that there are numerous studies of MDMA toxicity in humans and that MDMA has been found to be the direct cause of an average of 10 deaths per year. Dr. Stevens also addressed the potency question, relying primarily on the Baumann study, which involved an *in vitro* study of brain tissue from rats and a *in vivo* study using whole rats. According to Dr. Stevens, in the *in vitro* study, BZP was 1.5 times less potent than MDMA in releasing dopamine and greater than 170 times less potent than MDMA in releasing serotonin from the brain slices. As for the *in vivo* study, BZP was 3 times less potent than MDMA in increasing dopamine levels and BZP was 30 times less potent than MDMA in increasing serotonin levels. Dr. Stevens referenced another laboratory study that indicated BZP was 3 times less potent than MDMA.

Dr. Stevens concluded "from the limited scientific studies comparing the potency of BZP and MDMA" that BZP is less potent than MDMA. After applying the data from the Baumann study, Dr. Stevens found that "a working value at this stage of the scientific knowledge is that BZP is 50 times less potent than MDMA, or that BZP is one-fiftieth (1/50) as potent as MDMA."

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[2] See Attached Reports of Lappas and Stevens.

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

UNITED STATES OF AMERICA,

Plaintiff,

v.

HONORABLE JULIAN ABELE COOK, JR.

No. 08-20621

ARTHUR BECKLEY,

Defendant.
_____/

MOTION HEARING

Wednesday, December 16, 2009

Appearances:

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On behalf of Plaintiff

Mark Magidson
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On behalf of Defendant

- - -

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Proceedings recorded by mechanical stenography.
Transcript produced by computer-aided transcription.

I N D E X

Detroit, Michigan
Wednesday, 12 16, 2009
1:30 p.m.

- - -

THE COURT CLERK: Case number 082-0621. USA versus Arthur Beckley.

MS. STAFFORD: Good afternoon, your Honor. Elizabeth Stafford on behalf of the United States.

MR. MAGIDSON: Good afternoon, your Honor. Mark Magidson on behalf of Arthur Beckley who stands to my right.

THE COURT: All right. Please be seated. Today has been scheduled for a hearing in connection with the request of the defendant, Arthur Beckley, to determine the appropriate guideline status of BZP. Mr. Beckley has been charged by the Grand Jury with conspiring to distribute a controlled substance in violation of Title 21 United States Code Section 846 and 841(a).

The motion that brings the parties to the Court today is filed on the 18th of August of this year. In his request for clarification, Mr. Beckley has asserted that the medication with which he has been charged with distributing is not covered by the sentencing guidelines and for that purpose Mr. Beckley has obtained and retained the services of an expert witness who may opine with

regard to the issues in this case.

On the heels of this filing, the Court entered an order in which it appointed Doctor Laureen Marinetti to assist the Court in resolving the issues. The Court believed then as it does now that it did not have the scientific background with which to make a judgement with regard to this issue.

Procedurally, I will, and in the absence of any objections, will file the reports of the two experts in this case. However, I should point out that I will not consider a portion of the report from Joseph P. Bono, the forensic expert who is retained by the defendant, Arthur Beckley, as it pertains to the content that appears on paragraph three on page nine which Mr. Bono has identified as his application of the United States Sentencing Guidelines.

I do so for three reasons: one, that the purpose of his appearance was to identify matters relating to the various drugs involved; secondly, that it does exceed the level of assignment; and, third, the utilization of the sentencing guidelines is within the discretion of this Court and not the expert witness. And so I will exclude paragraph three, namely, application of the United States Sentencing Guidelines which appears on page nine of Mr. Bono's report.

Procedurally I will give to Mr. Magidson, counsel for the defendant, an opportunity to present the witness or witnesses that will ostensibly support his client's view. Thereafter I will give Ms. Stafford, counsel for the Government, an opportunity to present the witness who has been recommended to the Court by her, but was selected by her as an expert for the Court.

Once the testimony has been completed I will give to either or both parties an opportunity to present a brief closing argument and I will doubtlessly ask each party at the end of the closing arguments, if any, whether either or both of them wish to present any post-hearing briefs on that issue.

So, that's what is outlined. And then after that I will make a judgement probably in writing. Thus I will take it under advisement.

Now, Mr. Magidson, let me give you the floor.

MR. MAGIDSON: Thank you, your Honor. As the Court knows, I did retain Mr. Joseph Bono as an expert in this. I should indicate he is not here. I did notify him when I received notice of this hearing. I forwarded the same to him. Everything is done by e-mails these days apparently. That's the way to go. But I received an e-mail back from him indicating that he is going to reserve and block off December 16th to appear in Detroit

and then he adds, if the Court is willing to pay my fee.

He previously indicated he understood how -- that he is appointed. And I explained there is a certain amount that is allotted and then if he exceeds that, we show the appropriate excess, I would petition to exceed the fees.

But I indicated to him I am not a guarantor of that but I will certainly do my best to get the Court to approve the fee, but, again, I'm not -- I can't guarantee that. But we have gone over that with him before and I thought he was comfortable with that. And then when I contacted him, I guess two days ago to prepare for this hearing just to go over a few things after having gotten the Court's expert's report, he indicated to me that he didn't hear back from me specifically on everything and therefore did not make the reservation. So I do not have him here today.

I would request, I guess, one of two things. The Court has indicated that subject to the deletion of that sentencing guideline paragraph the Court is going to file his report. I would ask that and I am comfortable with that and if that is the case, or alternatively, if the Court deems it that, because of the importance of this issue, that you would like Mr. bono here, I would just ask for a very short adjournment. Of course, it's a holiday.

I don't know how short that will be. But perhaps even as short as next week to get him here to complete the testimony.

THE COURT: It strikes me that Mr. Bono did not appear on another occasion.

MR. MAGIDSON: Well, he wasn't -- on that occasion it wasn't clear that his testimony was going to be, because of the nature of things, it wasn't clear that his testimony was going to be required and so we left it as a possibility that he was going to be available by conference call.

THE COURT: Well, all right. So the floor is yours. Are you ready to sit down or do you want to --

MR. MAGIDSON: I am prepared, at least if the Court, if the Court has accepted his report, will accept his report without his sort of introducing it, I'm prepared just to rely on that and argue from that.

THE COURT: Well, I will, unless there is some objection from the Government's counsel, I will receive it. I will have the content of his report dated August 16th, 2009 in evidence and, of course, I will hear the testimony of the Court appointed expert, Ms. Marinetti.

MR. MAGIDSON: Thank you, your Honor. And in that case, I will sit down. Although I may at some point,

depending on how this goes, my belief is that even -- the reports appear to be different. They are more similar than it appears on the face of things. So, I may address that issue later, your Honor.

MS. STAFFORD: Your Honor, I don't have any objection to the Court accepting the report and considering it as is. I did want to state for the record that my memory is consistent with the Court's, that we had a hearing scheduled for October 5th, and at some point before that hearing I was made aware that Mr. Bono, sorry, Mr. Magidson had been advised to produce Mr. Bono and I understand that Mr. Magidson tried to, that there was some effort to perhaps have him appear by phone, but my recollection is that the Court indicated its desire for him to be present at the October 5th hearing. He wasn't at the October 5th hearing. So this is the second time that the Court has invited him to testify in support of his report.

THE COURT: Well, at this point there is no issue about a continuation of the matter. So, we will proceed in Mr. Bono's absence and I will put aside the issue of whether his nonappearance is a deliberate one or not. But that's not an issue.

Ms. Stafford, at my request I asked the parties to submit any name or names of persons who in their

respective or collective judgment could serve as an expert and you then responded with Ms. Marinetti's name. I forwarded that name to your opposing counsel and asked for any, if he expressed any objections and I received none. So on that basis I appointed Doctor Laureen Marinetti to serve as the expert witness in this matter. I will call her now and then you -- I will give you the opportunity to examine her as if she were called by you.

MS. STAFFORD: Yes, your Honor.

THE COURT: All right. Ms. Marinetti, would you come forward to the lecturn.

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LAUREEN MARINETTI,

being first duly sworn by the Court to tell the truth, was examined and testified upon their oath as follows:

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DIRECT EXAMINATION

BY MS. STAFFORD:

Q. Good afternoon, Doctor Marinetti.

A. Good afternoon.

Q. Doctor Marinetti, what is your occupation?

A. I am currently employed by the Montgomery County Coroner's Office Crime Laboratory in Dayton, Ohio. I am their chief forensic toxicologist.

Q. How long have you held that position?

A. I have been there for almost seven years.

Q. And what education and training have you had that qualifies you to act as a forensic toxicologist?

A. I started my training here in the State of Michigan. I went to Michigan State University. I got a Bachelors of Science degree in their forensic science program and a Master of Science degree in their Criminal Justice Program under Doctor Jay Siegel.

After that point I went to the Michigan State Police where I worked for 11 years. I took a deferred retirement from the Michigan State Police. I then went back to school here at Wayne State University here in Detroit, got my degree in Pharmaceutical Sciences with a concentration in Physiology. At that point I was also working with the Wayne County Medical Examiner's Office here in Detroit where I had a toxicology fellowship. After I finished my degree in 2003 I then got hired by the Montgomery County Coroner's Office and that's where I have been ever since.

THE COURT: Excuse me. What degrees have you attained thus far?

THE WITNESS: Bachelor's, Master's and a Ph.D.

THE COURT: And the Ph.D. was from Wayne

State?

THE WITNESS: Yes, your Honor.

THE COURT: And the Master's from Michigan State?

THE WITNESS: Yes, your Honor.

THE COURT: And the Bachelor's?

THE WITNESS: From Michigan State.

THE COURT: Thank you.

BY MS. STAFFORD:

Q. Has that training and education given you the experience to render opinions regarding the effects of substances on the central nervous system of the human body?

A. Yes, it has.

Q. Have you written any articles with respect to the toxicological effects of substances on the human body?

A. Yes, I have.

Q. Can you describe some of them?

A. I have written for the Journal of Analytical Toxicology. I also have written for the Legal Issues Journal that is published by Lawyers And Titles Publishing Company. Two drug monographs.

Q. Two what?

THE COURT: Excuse me, just a moment.

BY MS. STAFFORD:

Q. Doctor Marinetti, have you previously testified in court as a toxicologist?

A. Yes. I've testified extensively in the States of Michigan, Ohio, also in Missouri and in Florida.

Q. Can you be more specific about the substance of your testimony?

A. My testimony has been in the area of interpretation of behavior, behavioral effects from various drugs of abuse and also prescription drugs.

Q. What is a forensic toxicologist?

A. Forensic toxicology is the study of toxicology as it applies to the law and legal system. Toxicology is an area where it's basically the study of poisons. Any substance can be a poison depending on how much of that substance you ingest.

Q. What is the difference between a forensic toxicologist and a forensic chemist?

A. Forensic chemists spend their time doing analysis of drugs. What I like to say is toxicologists will look at drugs and analyze drugs after a person consumes them and a chemist will look at that same drug before it's taken in its dosage form in a pill or powder, for example.

Q. Does forensic chemistry involve the effects that substances have on the central nervous system?

A. It would depend on the job duties that are assigned to an individual forensic chemist. In my laboratory it does not, but that doesn't mean that in other laboratories that it might.

Q. In your opinion, who is more qualified to render an opinion regarding the effects that a substance has on the human body? A forensic toxicologist or a forensic chemist?

A. Again, that is going to depend on the individual's training. In order to render an opinion on the effects of drugs, one has to have a background in pharmacology where you are studying the effects of drugs on animals and humans which is what my degree consisted of that I got from Wayne State.

Q. Let's say an individual has a Bachelor's Degree in chemistry and a Master's Degree in political science. Does that sound like the resume of someone who has an expertise in forensic toxicology to you?

A. No.

Q. I want to turn to the purpose of the instant hearing. Did you prepare a report on December 5th of this year pertaining to this matter?

A. Yes, I did.

Q. And prior to preparing that report did you receive a series of questions?

A. Yes, I did.
Q. Who did you receive those questions from?
A. The questions were received from Judge Cook.
Q. How did you receive them?
A. I received them via fax.
Q. And prior to your preparation of the December 5th report, did you have any discussion with me or anyone from the prosecution pertaining to the substance of your report?
A. No.
Q. Have we ever discussed the government's position regarding the most analogous drugs to BZP?
A. No.
Q. Or the most analogous drugs to BZP in combination with TFMPP?
A. No.
Q. Have you had any substantive discussions of your report after you prepared it?
A. No.
Q. How have you and I communicated?
A. Our communication has been exclusively via e-mail.
Q. And how would you describe the substance of our communication?
A. You first contacted me regarding asking me if I would agree to be a witness and then when I said that I

would then you gave me a very brief description of what you wanted me to do, and that Judge Cook's court would be contacting me with further details.

Q. When you say I gave you a description of what I wanted you to do, what do you mean?

A. Basically, that you -- that it was an expert witness assignment in my area of expertise after I had stated to you what that was and forwarded my CV, and that you would, that I would hear from Judge Cook as far as more details as far as what actually was required of me.

Q. And when you said that I gave a brief description of what I wanted you to do, did I at any time indicate the substance of the findings that I wished for?

A. No.

Q. In response to Judge Cook's questions do you have an opinion regarding whether BZP has a chemical structure that is substantially similar to any controlled substance which is referenced in the sentencing guidelines?

A. Yes, I do.

Q. What is your opinion?

A. After reviewing the substances that were in the guidelines I believe that the drug methamphetamine has the most similar chemical structure to BZP.

Q. Okay. What is the basis of that opinion?

A. The basis of that opinion is if you visually look at

the structure and also consider the atoms that are common to both molecules, both molecules have carbon, hydrogen and nitrogen as the only atoms that they contain. If you look at the empirical formula, the two compounds only differ by one hydrogen, one nitrogen, and one carbon.

Q. Do you have an opinion regarding whether BZP has a stimulant effect on the central nervous sytem that is substantially similar to any controlled substance which is referenced in the sentencing guidelines?

A. Yes. I do.

Q. What is your opinion?

A. My opinion is that it has a stimulant structure, activity, sorry, similar to the compound amphetamine.

Q. What is the basis of your opinion?

A. The basis of my opinion is that amphetamine is a very well studied stimulant. There are articles in the literature where amphetamine has been studied in humans and the effects of the amphetamine have been directly compared to BZP. And it was found that the effects are essentially the same except that amphetamine is about ten times stronger than BZP.

Q. So your opinion is based upon the scientific literature?

A. Yes.

Q. Are those references attached to your reports were

the references you referred to?

A. Yes, they are.

Q. Did those scientific references have analysis that you were able to decipher?

A. Yes. I encounter methamphetamine and amphetamine in my work as doing interpretations for the coroner crime lab as well so I'm familiar with the drugs. But for this particular case I wanted a reference that directly compared amphetamine with BZP. Also I was looking for references that directly compared methamphetamine with BZP but I did not find those. I found methamphetamine compared to amphetamine but not directly to BZP.

Q. In your opinion, what id the most closely related controlled substance to BZP that is referenced in the sentencing guidelines?

A. Based on the behavioral effects it would be amphetamine.

Q. Turning to BZP when combined with TFMPP, do you have an opinion regarding whether BZP combined with TFMPP has a chemical structure that is substantially similar to any controlled substance which is referenced in the sentencing guidelines?

A. No. I could not find a controlled substance that had a chemical structure similar to the combination of BZP and TFMPP.

Q. Did that surprise you? Was that unusual?

A. No.

Q. And can you explain what you mean? Are there other controlled substances that are chemically different than any other drug that is listed in the guidelines?

A. It didn't surprise me because TFMPP is kind of an unusual structure based on the fact that it has fewer molecules in it. And there is not a lot of drugs that have those in that. So the fact that there was not a similar structure compound to that doesn't surprise me.

Q. Do you have an opinion regarding whether BZP when combined with TFMPP has a stimulant effect on the central nervous system that is substantially similar to any controlled substance which is referenced in the sentencing guidelines?

A. The combination of BZP and TFMPP produces a stimulant and hallucinogenic effect as opposed to just a stimulant effect when BZP is administered alone.

Q. And I am glad that you clarified that. So let me just say, is there any substance that is referenced that is substantially similar, that has a substantially similar effect on the central nervous system as BZP when combined with TFMPP?

A. Yes. That would be MDMA.

Q. What is the basis of your opinion?

A. The basis of my opinion would be anecdotal reports that I have had in case work that I have done. Also unpublished literature that compared, directly compared a combination of BZP and TFMPP effects to MDMA effects in humans.

Q. And when you say published literature, is it scientific literature?

A. Yes.

Q. And it provided scientific analysis?

A. Yes, I have those citations in my report as well.

Q. You said in your work you've seen this personally or you have had personal work related experiences that led you to believe that they were similar?

A. Yes. We occasionally see MDMA in our driving under the influence cases at the crime lab.

Q. And based upon your personal experience why do you believe that the effects of the central nervous system are similar to those that are rendered with BZP and TFMPP?

A. Based on the discussions I have had with the officers that were on the scene that observed behavior of the individuals.

Q. And in your opinion, would a greater or lesser amount of BZP combined with TFMPP be necessary in order to produce those similar effects on the central nervous system?

A. I did consult the literature again for the answer to that, that question. And I did find a study that compared an equal amount of BZP and TFMPP mixed together producing effects similar to MDMA.

Q. In your opinion, what is the most closely related controlled substance to BZP combined with TFMPP that is referenced in the sentencing guidelines?

A. That would be MDMA.

Q. Are you familiar with the substance known as methylphenidate?

A. Yes, I am.

Q. Does that have a little more commonly known name?

A. Yes. Ritalin.

Q. In your opinion is BZP substantially similar to methylphenidate?

A. I believe in behavior, behaviors that it produces, yes, it is.

Q. And is it -- do you believe that the ratio is similar, the ratio of BZP and methylphenidate would be about the same to produce the same effects?

A. No. I did, in doing my literature review, find an article that directly compared amphetamine and methylphenidate and it showed that amphetamine was about two times more potent than methylphenidate. So if you take that into account and look at the other article that

compared amphetamine to directly BZP to find that BZP was ten times weaker than amphetamine, then if you take it a step further you can come to the conclusion that methylphenidate is about five times more potent than BZP.

Q. What about BZP in combination with TFMPP? Do you think that combination is substantially similar to methylphenidate?

A. No.

Q. Why do you say that?

A. Methylphenidate is a stimulant and produces the stimulant effects. The combination of TFMPP and BZP produce a stimulant and hallucinogenic effect at the same time.

Q. Is the chemical structure of BZP similar to methylphenidate?

A. No, not in my opinion. BZP, as I stated earlier, is made up of carbon, hydrogen and nitrogen. Methylphenidate, on the other hand, is made up of carbon, hydrogen, nitrogen and oxygen.

Q. Based on your training and experience I think that you touched upon this, but I just want to get into it a little more. Do you believe that you are qualified to testify about drug use within the youth culture?

A. Excuse me? Within?

Q. The youth culture. Such as raves and date rape

drugs, things of that nature?

A. Yes.

MR. MAGIDSON: I guess I would object. I don't know what the qualifications here are and I don't know what the relevance of this line of questioning is.

MS. STAFFORD: Your Honor --

MR. MAGIDSON: Let me go to clarify the objection. She testified that she has degrees, a Master's degree, Ph.D., and Bachelor's. I don't know that these degrees are in youth culture or raves or things of that nature.

THE COURT: The question asked the witness whether she believes she is qualified and she indicated yes. But then I think we can proceed there to determine on what basis she reaches that conclusion. I will overrule the objection.

MS. STAFFORD: Thank you, your Honor.

BY MS. STAFFORD:

Q. What training and experience have you had pertaining to drug use by youth?

A. When I was finishing my Ph.D. at Wayne State, the drug that I did research on exclusively was a drug called GHB or gamma hydroxy butyrate. That drug was being used in the youth culture and in raves at the time along with drugs like MDMA and methamphetamine and catamine. I did

teach when I was at Wayne State in the area of those drugs. I also am co-chairman of the Drug Facilitated Sexual Assault Committee which an international committee with the American Academy of Forensic Sciences and the Society Of Forensic Toxicologists and we study and collect data on the various drugs that are used to assault someone. So I have been doing that for the past ten years.

Q. Have any of your publications pertained to drugs used by youth in youth culture? Have any of your publications pertained to the type of drugs used by youth within the youth culture?

A. Yes. The GHB, my dissertation for my Ph.D. is published over at Wayne State University and also I published a couple of other articles concerning the GHB. I published a monograph, also two other book chapters concerning the effects and the behavior produced by that drug, also in the Journal of Analytical Toxicology there are some publications as well.

Q. Did you participate in a round table in 2001 pertaining to rave drugs?

A. Yes, I did.

Q. And what were the rave drugs that round table pertained to?

A. It was, as I stated earlier, the MDMA, the catamine,

the GHB, and methamphetamine.

Q. Do you have, based upon your training and experience with regard to drugs, youth and raves and within the youth culture, do you have an opinion regarding the use of BZP when combined with TFMPP by youth?

A. Yes. That combination was instituted in order to find a legal alternative to MDMA, if you will.

Q. Thank you.

THE COURT: Any further questions?

MS. STAFFORD: No, not from me.

THE COURT: Mr. Magidson?

MR. MAGIDSON: Thank you, your Honor.

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CROSS-EXAMINATION

BY MR. MAGIDSON:

Q. Good afternoon, Dr. Marinetti.

A. Yes.

Q. My name is Mark Magidson. We briefly introduced ourselves earlier. I'm just going to try to ask you a few questions this afternoon. If you don't understand me just ask me to repeat it. Fair enough?

A. Okay.

Q. We are in some area that is foreign to me so I am going to try to make it at least clear to myself. The charge -- do you know the charge here?

A. No, I don't.
Q. Okay. It's -- the charge is conspiracy to deliver a controlled substance known as BZP?
A. Okay.
Q. And are you familiar with the controlled substances? Do you understand that term?
A. Yes, I do.
Q. Okay. Do you know if TFMPP is a controlled substance?
A. No, it's not.
Q. It's not. Okay. Now, as I understand it, BZP is an amphetamine?
A. Yes, it is in the amphetamine family.
Q. So by that it's a stimulant that has that effect?
A. Yes.
Q. Everyday things that we are familiar with -- caffeine is a stimulant. Would you agree with that?
A. Yes, it is.
Q. So, and I'm not comparing caffeine to BZP but they are in the same family. Would you agree with that?
A. Yes, they are.
Q. Now, and you mentioned methamphetamine as a similar type of amphetamine, is that correct?
A. Yes.
Q. Much more powerful?

A. More potent than BZP, yes.

Q. The chemical structure, that is what we are talking about here. There is a family of chemicals known as, I guess, amphetamines and there is different types. We have talked about BZP, methamphetamines, caffeine, I would imagine. They all have similar types of structure?

A. Caffeine, no. Caffeine is in a structure family called zamdines (ph). It has a different structure.

Q. That's what happens when I get over my head. We talked about that other one that, methylphenidate.

A. Methylphenidate?

Q. Methylphenidate, that is a type amphetamine, is that correct?

A. Yes. It's in that same family.

Q. Same family?

A. Yes.

Q. And would you -- would it be correct, there is a drug known as Ritalin. Is that what that drug -- compound consists of? Ritalin? If you know?

A. Yes, methylphenidate is in Ritalin.

Q. Ritalin is prescribed, well, for a variety of reasons, one of which tries to control hyperactive kids, if you know?

A. Yes.

Q. All right. Now, MDMA is not a -- it's not an

amphetamine?

A. It's in that class roughly. It does have some stimulant properties but it also has hallucinogenic properties.

Q. It's classified, if I am not mistaken, at least in the sentencing guidelines, as a hallucinogen, do you agree?

A. Yes.

Q. It's a different classification, correct?

A. In the guidelines, yes, it is.

Q. At least the sentencing guidelines make that distinction between --

MS. STAFFORD: Objection, your Honor, to questioning the witness regarding the sentencing guidelines as opposed to the scientific --

THE COURT: Let me hear -- withhold your response. Present the question and I will make a judgement. Hold up. Listen to the question but don't answer it.

BY MR. MAGIDSON:

Q. Based on your knowledge of the sentencing guidelines there is a difference in category between a hallucinogenic and a stimulant?

MS. STAFFORD: Your Honor, I object to questioning the witness regarding the substance of the

sentencing guidelines.

THE COURT: What is the relationship?

MR. MAGIDSON: I think that's what we are trying to show, that there are two different effects. One of the things under the guidelines, your Honor, when there is not a -- when there is not a drug that is in the guidelines then the guidelines say you have to look to chemical structure and what are the effects of a most similar drug.

And so here we are trying to show that BZP is not like MDMA or commonly known as Ecstasy. One is a hallucinogen. The other is a stimulant.

THE COURT: Well, your question is, I think, goes beyond the scope of this inquiry. I will sustain the objection.

BY MR. MAGIDSON:

Q. Well, you would agree with me, nevertheless, that the MDMA is primarily a hallucinogen? Would you agree with that?

A. It's actually both, a stimulant and a hallucinogen.

Q. Is TFMPP is one of those categories in the guidelines?

MS. STAFFORD: Same objection, your Honor.

MR. MAGIDSON: Well, your Honor, she is qualified to answer that question.

THE COURT: Let us, so we may have -- let me ask you to exclude the guidelines. Otherwise the question is appropriate. I will sustain the objection.

BY MR. MAGIDSON:

Q. Now, you would agree with me that BZP is much less potent than these other methamphetamines or drugs of that nature, is that correct?

A. Yes, it is less potent.

Q. And, in fact, it's between one tenth or one twentieth as potent as amphetamines?

A. The literature I reviewed stated it was one tenth as potent.

Q. Are you familiar with the Office of Diversion And Control published by the US Department of Drug Enforcement Administration?

A. No, I am not.

Q. I want to show you, if I can, this publication and see if you have seen that or seen anything like that?

A. I have seen a similar publication but not this particular -- on this particular drug.

Q. And are you familiar with these publications from the drug administration?

A. I know they exist and I have seen them on other drugs but not this one.

Q. Okay. Would you agree with me at least in that

publication it indicates where I highlighted there that the BZP is considered to be ten to twenty times less potent than amphetamine?

A. That's what this says, yes. I don't know what it's based on, but --

Q. Okay. By the way, do you know anybody named Joe Bono?

A. I have heard of him. I believe he attended the American Academy meetings.

Q. When you say American Academy, of what?

A. Forensic science. Sorry.

Q. Okay. That's all you know of him?

A. Yes.

Q. Now, in order for BZP to gain additional, let's say, potency, it has to be mixed with or combined with this other chemical, is that correct?

A. No.

Q. Well, you mentioned a chemical of TFMPP, correct?

A. Yes.

Q. So, you indicated that when BZP is mixed with that particular compound it takes on similar characteristics of MDMA, is that correct?

A. Yes.

Q. But standing alone, BZP is -- does not take on the characteristics of MDMA. Would you agree with that?

A. Yes.

Q. Standing alone, BZP takes on the characteristics of amphetamine?

A. Yes.

Q. And an amphetamine, which is at least standing alone, is at least ten and at least one ledger says one to twenty times less potent --

A. Ten times less for sure.

Q. Well, ten times less for sure. But you concede one article says ten to twenty, the one I showed you?

A. As I stated earlier, I am not sure what reference they base that on.

Q. Okay. Now, would you agree with me, you indicated that the chemical structure, and you have a chemistry background, is that correct?

A. Yes, I do.

Q. And the chemical structure of BZP is similar to amphetamine, correct?

A. Yes.

Q. And MDMA has a completely different chemical structure?

A. Yes, it does.

Q. I show you page five of Mr. Bono's report. And he sets out various chemical structures here. If you may take a moment to analyze that. Would you agree or

disagree with what is written here?

A. I would disagree in the fact that he states that the most closely resembled structure to BZP is methylphenidate. I believe it's methamphetamine.

Q. And why is that?

A. As I stated earlier, they are made up of the same atoms and they only differ by one carbon, one hydrogen and one nitrogen. Methylphenidate contains oxygen atoms and benzylpiperazne and amphetamine and methamphetamine do not contain any oxygen atoms.

Q. But clearly, we can at least agree that the chemical structure between BZP and MDMA is -- there is no relation there?

A. They are not similar, no.

Q. And we would agree that, so as least we are clear on this, that the chemical structure between BZP and MDMA, that doesn't exist. What you do say is that structurally they are both amphetamines or stimulants and that it's your opinion that BZP is more closely associated structurally with methamphetamine?

A. Yes. And methamphetamine is not included on that sheet.

Q. I understand. But you would agree with me that in terms of the potency, BZP is far less potent in terms of the effects than methamphetamine?

A. Yes. As I stated earlier, ten times less potent.
Q. Okay. And maybe some articles say -- well, let me ask you this. In terms the methamphetamine and amphetamine, are those two different things?
A. Yes and no. Methamphetamine, when you ingest methamphetamine your body breaks it down and you get amphetamine. It's actually metabolite of methamphetamine.
Q. We heard talk about people doing methamphetamine, injecting it and so forth. But you're saying that amphetamine and methamphetamine are basically the same thing?
A. They are not exactly the same thing, but they end up producing the same effects. They do have some different effects but they are very similar.
Q. Okay. And so, but nevertheless, that the effects of BZP are about, in your opinion, ten times less than amphetamine?
A. Yes.
Q. And BZP standing alone, would you agree with me, is similar to methylphenidate in terms effects on the body?
A. Yes. Again, it is similar but less potent.
Q. And so what we have here is a situation is that the only way that we can get, in this scenario, the only way we can get BZP to the Ecstasy is by, at least under this -- under your analysis here -- is by the inclusion of

the TFMPP?

A. Yes.

Q. So this -- these are compounds, is that correct? All of these drugs?

A. Yes, they are made up of more than one atom so they are compounds, yes.

Q. So is there a name of a drug or is there a name of something to your knowledge when you have BZP mixed with TM -- I'm sorry -- TFMPP. Is there a separate drug -- a lot of times you mix A and B and come up with a C. Here if I mix BZP with TFMPP, whether it's in the literature or on the street, is there another drug that that is known by?

A. It's a mixture of two drugs basically.

Q. Okay. But does it produce another drug? In other words, can you then say that these two things, BZP and TFMPP that produce another drug, like another one of these amphetamines or something like that?

A. No, it doesn't. It's a mixture of two compounds. It doesn't go together and make one compound, no.

Q. Okay. The atoms and the neutrons or protons don't intertwine?

A. No. It's a mixture of two drugs.

MR. MAGIDSON: Judge, I don't think I have any other questions. Wait a second.

MS. STAFFORD: Your Honor, I object. Mr. Hurley is here on another matter and I object. Mr. Hurley is here representing a different client in a different case and I object to him participating in the Evidentiary Hearing.

MR. MAGIDSON: Judge --

THE COURT: I will overrule the objection.

BY MR. MAGIDSON:

Q. Now, does BZP and TFMPP have to be mixed in equal amounts?

A. From the literature that I have read, yes. That is what I saw was equal amounts is what was studied.

Q. What happens if they are not in equal amounts. Do you know?

A. I don't know.

Q. So taking TFMPP alone, does that cause any type of effects on the body?

A. Yes, it does.

Q. Is that a stimulant?

A. It's more of a hallucinogenic effect.

Q. Have you looked at any, in this case, have you looked at any of the reports, the breakdown the chemical reports in terms of the mixture, as to the amount of BZP and the TFMPP?

A. Are you referring to the reports from the DEA?

Q. Yes.

A. Yes, I did look at that report.

Q. All of the reports, was there a breakdown?

A. On the reports I looked at, no. You mean between the two compounds?

Q. Yes.

A. No.

Q. So we don't know from these reports whether there were equal amounts or unequal amounts?

A. Not from the reports I reviewed, no.

Q. In this case?

A. Yes.

Q. Would you agree with me that in terms of determining the overall effect, what effects it has on a person, that would be important?

A. Are you referring to -- sorry. I'm not sure what you're referring to.

Q. You testified that the literature you have seen you have to have equal amounts of BZP and TFMPP to produce the hallucinogenic effects of Ecstasy, right?

A. Yes, that was what they did in the study.

Q. Right. So, wouldn't it then, wouldn't you need to know in this particular case what the breakdown was? What if there is, we'll, let's say there is a hundred parts of a pill, and let's say, hypothetically, ninety parts were

BZP and only ten parts were the other compound. So, you would want to know that to know whether or not it's going to produce the same effects that Ecstasy has, wouldn't that be right?

A. Yes.

Q. That is the only way you can really determine that. You have to have a breakdown of both?

A. Yes.

Q. And from the reports that you saw in this case, they didn't break it down that way, isn't that right?

A. It wasn't in the reports I saw. It was not broken down.

THE COURT: Anything further?

MR. MAGIDSON: I believe that's it, your Honor.

THE COURT: All right. Ms. Stafford?

MS. STAFFORD: Just quickly, your Honor.

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REDIRECT EXAMINATION

BY MS. STAFFORD:

Q. Doctor Marinetti, when it comes to street drugs, illegal drugs that are sold on the street, is there any standard for determining how much of the drugs should be in the pill, let's say pills. Is there any standard for how much MDMA should be in an MDMA pill?

A. No.

Q. It it unusual or usual to find that there are differing amounts of drugs in pills that are sold on the street?

A. No. That is not unusual.

Q. Is it common?

A. Yes.

MS. STAFFORD: Thank you.

THE COURT: Anything further?

MR. MAGIDSON: Nothing further, your Honor.

THE COURT: Do counsel acknowledge that the drugs that were recovered by the Government on Mr. Beckley's person contained BZP and TFMPP?

MS. STAFFORD: Your Honor, Mr. Bono reviewed the full report, the full file from the DEA Laboratory and agreed that the substance that was found that Mr. Beckley attempted to take delivery of contained both BZP and TFMPP.

THE COURT: Do you agree?

MR. MAGIDSON: I agree that the laboratory showed both compounds but there was no breakdown as to how much was in each, the quantities.

THE COURT: I understand. But do you agree that it does contain the two?

MR. MAGIDSON: Yes.

THE COURT: All right. Mr. Magidson, in my evaluation of Mr. Bono's report, it seems that he did not include that combination in his analysis.

MR. MAGIDSON: And, quite frankly, I didn't ask him to do that. And I can get into that either now as part of my argument or at the close of the testimony, whenever the Court feels.

THE COURT: Well --

MR. MAGIDSON: There was a reason in my view and it goes back to the charge in the Indictment.

THE COURT: Well, let's hold off on that for a moment.

MR. MAGIDSON: Okay.

THE COURT: Doctor Marinetti, let me just, I have in my hand a letter ostensibly from you dated December 5, 2009. Did you forward a letter to me with that date?

THE WITNESS: Yes.

THE COURT: Which contains your responses to my questions?

THE WITNESS: Yes, I did, your Honor.

THE COURT: All right. Thank you. You are excused. You may step down.

THE WITNESS: Thank you, your Honor.

THE COURT: Please watch your step. I will

file these reports, the experts', in the record and will identify them as Court Exhibits One and Two. Doctor Marinetti exhibit will be listed as Government's Exhibit Two and the Joseph Bono report will be listed as Court Exhibit Number One.

Now, I will give to the parties an opportunity to submit closing arguments if you desire. Ms. Stafford?

MS. STAFFORD: Thank you, your Honor. Your Honor, as an initial matter, Mr. Magidson alluded to a disagreement that the parties have, and that's regarding whether the Court should consider BZP alone or BZP as it was found which was in combination with TFMPP.

The Government contends that the Court should consider the BZP as it was intended to be distributed, not as it is fictionally or hypothetically, but as it actually was intended to be purchased by the conspiracy that included Mr. Beckley, and then sold.

The fact is that what Mr. Beckley thought he was getting involved in was conspiracy to distribute MDMA. That is what all of the defendants who have pled guilty told the Court, that they -- that the two women, Ms. Cooper, and I am forgetting the other -- Ms. Johnson and Mr. Thomas all said that they --

THE COURT: Shantell Johnson.

MS. STAFFORD: Johnson, yes, your Honor.

They all believed they were entering into conspiracy to purchase and distribute Ecstasy. And the drug that they picked up had in it BZP in combination with TFMPP. TFMPP is not a controlled substance. However, the Court should consider the pill, the substance that was sold just the way that the Court would consider crack cocaine.

Crack cocaine is distinguished from cocaine powder because of the addition of baking soda. Baking soda is not a controlled substance. And, your Honor, there is -- one moment, please, your Honor. I will cite two Opinions that describe the distinction between cocaine and cocaine base. The first is the Sixth Circuit Opinion of the United States versus Higgins. That is 557 F3d 381. And on page 393, the Court describes the baking soda method of making crack cocaine.

Another Opinion is United States versus Hollis, 490 F3d 1149. And that is a Ninth Circuit case from 2007. On page 1156 the court describes how crack cocaine is manufactured. Chemically in terms of the controlled substance, the cocaine and contain base are the same. The difference is the way that the crack cocaine has been mixed and cooked with baking soda.

And I think that the judgment made by the statutes and the sentencing guidelines requires the Court to look at the drug as it's found, as it's used and its effects on

the users.

Mr. Magidson made a point of pointing out that the lab report does not say the ratio between the BZP and the TFMPP and whether or not those are equivalent.

Your Honor, I hope that that is something that we aren't required to do in order for the Court to determine sentencing guidelines because as Doctor Marinetti said, there is no standard for determining whether an MDMA pill, for example, is of a sufficient potency to cause the effects that the user anticipates.

So if a pill is found and it has a weak amount of MDMA, it is still an MDMA pill, just like one that is relatively potent. If you look at heroin, heroin can be cut to different degrees with noncontrolled substances, but 200 grams of weak heroin is 200 grams of heroin. The fact is that these pills contained BZP and TFMPP.

And what the Court has to determine is by a preponderance of the evidence what sentencing guidelines should apply. And based upon both the chemicals that were found in the pills and the intended use of the pills, that they were intended to be distributed as Ecstasy pills, the Court should find by a preponderance of evidence that they were equivalent to MDMA.

One thing that Mr. Bono raised in his opinion was that his opinion, which I believe was outside his

expertise, was that the BZP and MDMA do not have a similar chemical structure. Doctor Marinetti confirmed that, and especially in combination of BZP and TFMPP there is no drug that is listed in the guidelines that has a structure that is similar to those combinations of drugs.

However, your Honor, these are not drug analogues, and when it comes to drug analogues, the statute and the opinions interpreting the statute require the similarity between the chemical structure of the drug that is considered a controlled substance and the analogue.

We are not talking about analogues here. We are talking about closely related controlled substances. The fact is that the BZP has already been identified as a controlled substance by statute. So even if there is no substance within the guidelines that has similar chemical structure, the Court still has to determine what guidelines apply.

Under note 5 of 2D1.1 of the sentencing guidelines the Court is instructed to consider to the extent practical whether or not there is a chemical -- there is a controlled substance with a chemical structure that is similar, substantially similar to the drug at issue, whether or not there is a controlled substance with a similar effect on the central nervous system and the ratio that is necessary, whether you need a lesser or greater

amount to produce that effect on the central nervous system. But the Court is only supposed to consider it to the extent practicable.

So the fact that BZP combined with TFMPP does not have a chemical structure similar to MDMA should not be considered dispositive. The Court should consider all of the evidence including the effect on the central nervous system as well use in real life on the streets, the fact that these kids are buying the drug and using it in raves and they are using it either purposefully to get an effect similar to MDMA or they are unwittingly using it not knowing that what they purchased is not actually MDMA.

The literature that we attached to our response demonstrates that BZP in combination with TFMPP is actually sold as Ecstasy. It's marketed as Ecstasy. It has the same stamps on it, the same sort of cartoon-like figures and it comes in the colorful colors. These are to appeal to the young people who are going to the rave parties and want the high that they get from MDMA.

Your Honor, it was Mr. Beckley's intention to participate in a conspiracy to buy and distribute Ecstasy. And, in this case, the Ecstasy might have a different chemical than he expected, but the fact is what they did purchase is a chemical that is considered to be Ecstasy.

And I ask the Court not to apply the type of

fiction that Mr. Magidson is asking the Court to apply, to pretend that the TFMPP does not exist, to pretend that this is just a question of chemical structure. This is a question of what drug is most similar to BZP in combination with TFMPP.

The BZP as it was found, not in isolation, as it was actually found. Your Honor, and if the Court considers that and how the fact that it will have the same effects on the children who are using this drug, we ask the Court to find that the MDMA guidelines should be applied.

THE COURT: Thank you. Mr. Magidson? Mr. Magidson, were you present when the other defendants in this case, namely, Shantell Johnson and Albany Cooper testified in this court and when they entered pleas of guilt?

MR. MAGIDSON: No, I was not, your Honor. I saw through the -- I saw that they pled but I was not here for the pleas.

THE COURT: Are you aware that they individually indicated during the hearings that they believed that the pills that were given to them by your client were Ecstasy pills?

MR. MAGIDSON: I will accept that representation, Judge.

THE COURT: All right. Assuming for the purpose of this discussion that that is correct, what effect, if any, should I give to their representations.

MR. MAGIDSON: I don't believe any, Judge. And I will say it -- and I don't mean to be cavalier about that -- I mean, if they thought that what they were delivering was, or taking, was some dread plague pills, some toxic thing and it turn turned out to be a placebo, a sugar pill in the end, are we going to prosecute then for this other pill?

So, for instance, if they -- let's look at this case. Let's assume then that they thought when they were delivering the Ecstasy or methamphetamines or any one of these types of things and it turns out to be a sugar pill, turns out it be a placebo, an aspirin, are we then going to charge, well, you intended to deliver heroin, you intended to deliver this and it turns out to be Kool Aid, are we still going to -- I think not.

I think the Government, and they originally charged in their first Indictment, they did charge Ecstasy delivery and then they had to amend the charge because as much as the Government wants to say it's the same thing he intended it, they were in court where reality does matter. And so the fact is that the drug that was being, that was allegedly being delivered here, the one that was

ultimately analyzed by the DEA, was not Ecstasy, but this other compound, BZP.

So, that is where we are. The charge, the First Superseding Indictment says delivery of a controlled substance, BZP, not in combination with other compounds. Not anything else. Just that drug. And so that is my number one argument. In terms of the notice to my client, what is he to defend? What is he here -- the issue is BZP, not in combination with other compounds, not in combination of what he thought he was delivering or what other people thought he was delivering, but what do we have? That's the reality.

THE COURT: Did the laboratory -- did the laboratory's results indicate that the pills that were found on your client, Mr. Beckley, contained a combination of BZP and TFMPP?

MR. MAGIDSON: The laboratory reports did say they found amounts of that other compound, TFMPP. They did say that. And it was very enlightening by what Doctor Marinetti indicated because I directly didn't know. You are taught in law school not to ask a question you don't know the answer to. But I did that because I didn't know what the combination would be. She said that the studies that she has reviewed, they have to be equal, equal amounts of BZP and this TFMPP to produce the same effects

as Ecstasy.

So Ms. Stafford is being a little disingenuous by saying it's just like cutting heroin or just like cutting cocaine. You know, you have pure heroin and you put a little baking soda in it. You are still prosecuted as heroin because it's heroin. This is not the case here. This is -- it's almost all or nothing. If you have, if you don't have that equal ratio, then it doesn't produce the effects. At least studies, there is no expert opinion on that. The studies, the only studies that we know and the only evidence here from the expert is on that point, is that you have to have it in at least equal amounts.

And the DEA lab reports, and it turns out initially we were given one sheet, but there is a stack, I found out much to my chagrin, a ton of this stuff that I had to go through and Mr. Bono went through to analyze all of this. I mean, it was two or three inches thick of analysis. But it didn't break it down into the ratio. And without the ratio we have no idea that it even produces those effects.

So I think the Government then is asking us to take these leaps of faith, your Honor, to say, first of all, they are saying the charge is BZP. Then they say it's also, you got to put it in with this other, include the TFMPP. But that is not the charge. But even assuming

that, we will go along with that, then you have to assume, well, it's equal parts. How do we know it's equal parts? It's there. They found some detectable amounts. I think that was the language. Detectable amounts of TFMPP. But it doesn't say in equal ratios. It doesn't say fifty fifty percent, twenty thirty, or twenty eighty. It didn't say it. And there is nothing there. There is no evidence.

So there has to be evidence on this record to support any findings, even on a lower preponderance.

So let's look at our guidelines or let's look at what we are dealing with here, and because I don't want to get too far afield. I mean, Ms. Stafford talks about the children and talks about this. But I think we need to talk about what the guidelines say? How do we approach this? And it tells us. It tells us very plainly. The guidelines provide that in the event that a charged illegal drug is not included in the tables, then you've got to look to the most closely related controlled substance. That is in comment five.

And then it goes on to say, one of the considerations that the guidelines requires is whether the drug that's in question has a chemical structure, that is the guideline's words, chemical structure that is similar to the controlled substance in the guidelines.

So, BZP, so what the Government is saying is this. The most analogous drug according to them is Ecstasy. But what is the chemical structure? And we don't make this up. This is what the guidelines mandate. She said you shouldn't look at this chemical structure. That's not what is controlling. What are the effects? But I am not the one that wrote that. That's in the guidelines. You have to look at the chemical structure. And both experts, both experts agree that the chemical structure, there is no similarities between the chemical structure of BZP and MDMA. There's no similarities. They are not structurally similar.

BZP is structurally similar to amphetamine or methamphetamine or that family of drugs. MDMA is a hallucinogen. It's a different -- and that's actually classified or categorized differently in the guidelines. And that's there. So they are not similar in that effect.

So the most closely related, in terms of closely relatedness, you have to look at amphetamine. That's the chemical structure. That is what the guidelines mandate.

So then you look to the other factor. And, again, I am looking at citing 2D1.1 comment, note 5B, is whether the controlled substance not referenced in this guideline has a stimulant, depressant or hallucinogenic effect on the central nervous system that is substantially similar

to those effects of the controlled substance referenced in this guideline. And that is where we are talking about. The BZP is a stimulant. Ecstasy is a hallucinogen.

Now, the final factor which the Court is to consider is whether a lesser or greater quantity of the controlled substance not referenced in this guideline is needed to produce a substantially similar effect on the central nervous system as a controlled substance reference in this guideline.

Now, according to what -- and this is why or where the two experts agree. The BZP is most closely aligned, chemically structured, to amphetamine. But it's ten and then at least one report, Doctor Bono says ten to twenty and he cited the DEA report which was appended to his opinion, it's either ten to twenty times less potent than amphetamine.

And Doctor Marinetti agreed that standing alone, BZP, in terms of potency, is similar to this other drug that is cited to by Doctor Bono, methylphenidate, also known as Ritalin. And so what we have then is a chemical structure of amphetamine, standing alone BZP is most closely related to what Doctor Bono stated which is Ritalin and then looking at the guidelines it's a lot less.

It's only then when you add the compound, this

other compound, TFMPP, and forgive me if I am getting these letters, but the Court knows what I am talking about, it's only when you add that that it boosts, it's like a booster to the BZP that gets it to the area of Ecstasy.

THE COURT: Isn't that what was contained in the pills that were obtained from your clients?

MR. MAGIDSON: According to the lab reports there was detectable amounts of that chemical in there but we don't know how much. That is one of the keys to this.

And, Judge, I cannot stress this anymore, I keep coming back to the Indictment. The Indictment only talks about BZP. It doesn't talk about a combination or mixture of other drugs. So we are looking, we have to look at what is the charged offense. And then we have to look at what is contained in the guideline listings.

But let's assume for the sake of this discussion the Court says, well, Magidson, you are being too technical. You know, they found this stuff in there. How does the Court know, because based on what Doctor Marinetti said, how does the Court know we are even at that level of Ecstasy because there is nothing in those DEA reports, the lab reports, to say, well, we found equal parts to get to that level of where we are approaching Ecstasy levels. We don't know. It's a crap shoot. It's

a flip of the coin. And we can't make decisions on a flip of a coin.

We can't make decisions based on, well, it was in there. It's close enough. It must have been. We don't know. The Doctor couldn't tell us. There is nothing -- I can bring -- I didn't bring them with us -- I can bring the three inches of lab reports that Ms. Stafford got me after I requested it. I had Doctor Bono go through every one of those just to see, because he and I had that discussion, that very discussion, just to see whether or not it rises to that level or what impact it has. And he said, well, I am disclosing to the Court that he didn't find it either. He didn't find, because she, Doctor Marinetti did not have, I don't think she had benefits of the hundreds and hundreds of pages. He went through everything and didn't find a breakdown of the ratio. So how do you make that decision other than --

THE COURT: Does it make a difference?

MR. MAGIDSON: I think it does make a difference because the doctor said unless you have a fifty fifty ratio you don't get the level to Ecstasy. Let's say, for instance, hypothetically, say there is a hundred parts and you have -- let's say the lab reports said twenty parts of the TFMPP, there is only twenty parts, and eighty parts BZP, then it's BZP. It's not -- it doesn't

rise to that level. You would have to have almost fifty fifty.

THE COURT: On what basis do you make that argument?

MR. MAGIDSON: Based on what the doctor said. She said the studies have shown, what the studies have shown that have studied what is the impact of this other compound on BZP. It's only when you have fifty fifty, equal ratios, that it produces the effects of Ecstasy and we don't have that information here. It's not before the Court.

THE COURT: All right. So in your opinion, then, unless that ratio exists, that this Court should disregard the combination?

MR. MAGIDSON: Well, I have two opinions, Judge. One is I think that the Court should disregard it all together because the charge in the offense is BZP, not in combination with -- because Ms. Stafford indicates, she made a reference to cocaine, base cocaine, powder. The statutes, the guidelines make that distinction. So if Congress or the guideline commission wanted to make that distinction, they could have made that distinction to add this compound. I mean, it's apparently been out there for years. So it's not unknown.

So, she is saying that, well, it's just assumed

that it has that effect. But my client is charged with just BZP, not in combination with anything else. And so I am saying that, number one, we shouldn't even consider that other compound. Number two, if the Court does consider the other compound, then we are going to have to know what the ratio is because according to the testimony and according to the literature, what the testimony is based on, the studies have shown that only when it's fifty fifty or equal ratio does it then have the effects of the Ecstasy.

THE COURT: All right. Anything further?

MR. MAGIDSON: I think I have exhausted myself, Judge. Thank you for your time.

MS. STAFFORD: Your Honor, may I respond?

THE COURT: Yes.

MS. STAFFORD: Your Honor, first of all, Mr. Magidson has mixed apples and oranges. If we were talking about a counterfeit drug here, if these were sugar pills as opposed to a controlled substance, then that would be a counterfeit drug and that would not be chargeable. This is chargeable. It's not a question of whether or not he can be charged. When you get to the guidelines, yes, what is charged in the Indictment is important, but you can also look at things that are not in the Indictment such as relevant conduct, for example, your

Honor.

So, if we had evidence that Mr. Beckley was involved in other drug dealing within the time period charged in the conspiracy, even if we didn't charge it, the Court would consider that. That would be something that the Probation Department would put in the report and the Court would consider that because the guidelines are not strictly tied to what is in the Indictment.

Mr. Magidson pointed out the fact that if he said that the combination has been out for a long time of BZP and TFMPP and that if that combination was intended to be included, then it would be in the guidelines.

Well, your Honor, we are here because BZP alone isn't referenced in the guidelines. That is why we are here. So the fact that the Sentencing Commission has not yet included the combination of BZP or TFMPP should not be dispositive. BZP isn't even in there but we know that's a controlled substance and that the Court has to arrive at a guideline taking into consideration all of the factors under the guidelines.

Your Honor, I don't believe I am being disingenuous to point out the fact that heroin, MDMA, cocaine, all of these drugs come in differing potencies. That is a matter of fact. Doctor Marinetti testified that it is common for drugs to have different levels of

potency.

And, in fact, the laboratory report does not say they were, quote unquote, detectable amounts of TFMPP. They say the pill also contained TFMPP. That they contained BZP, that they contained TFMPP and that they contained caffeine.

Your Honor, I don't really understand Mr. Magidson's analysis that we would have to have the exact ratio in order to determine what the guidelines are. That would seem to be a fact, even if you don't include TFMPP, if you take his argument to a logical conclusion then we just won't be able to determine the guidelines at all because at some point we have to determine, even if we accept Mr. Bono's argument that it's most analogous to Ritalin, the fact is that then do we have to find out the percentage of BZP in the drug that will make it similar to Ritalin?

The Court has to make a preponderance of evidence determination. And there may be some unknowns. But given all of the evidence, the purpose of the conspiracy, the fact that the drugs that were purchased and were tended to do be distributed included both the BZP and the TFMPP, that they thought that those were Ecstasy, that Ecstasy is marketed, I'm sorry, that BZP combined with TFMPP is marketed as Ecstasy and often sold interchangeably with

MDMA, the Government asks for the Court to find that the MDMA is most similar.

Your Honor, if the Court would like, we would certainly be willing to file a Memorandum further addressing these issues. And in any case the Court at some point noted that there aren't any published opinions about BZP. And so when the Court decided to appoint an expert, our office thought that this was a great opportunity for us to come to determination -- we are getting other BZP cases. And so when the Court does render an opinion we ask for it to be published so that we can have some guidance in the future.

THE COURT: Do you wish to submit a post-hearing Memorandum or brief?

MS. STAFFORD: Your Honor, if the Court believes that that will further assist in making the determination, we would be happy to do so. I will leave that to the decision of the Court.

THE COURT: All right. Fine. Thank you. Mr. Magidson, anything further?

MR. MAGIDSON: Well, nothing further, Judge, I'm just -- I just want to indicate that what ultimately has to happen here is that the quantity here is converted to, in terms of determining the guidelines you have to have, go to the marijuana equivalency tables and do all of

this.

And the issue of the potency or things -- that is not considered by the guidelines. What I was trying to point out, Judge, is that, and I am relying on the expert testimony, is that this is not -- unless you have the exact amount, the equivalency, what the ratio is, it doesn't get to Ecstasy.

THE COURT: Do you have any case law that supports that argument?

MR. MAGIDSON: No. Just from what -- from what the Doctor Marinetti said what the literature said.

THE COURT: Is there any statute that you know of that says that the failure of the Government to provide evidence of the ratio to which you have made reference renders that portion of the Indictment defective?

MR. MAGIDSON: Not the Indictment. What they are saying is that the behavioral effects in combination of BZP. Because BZP standing alone doesn't come close to Ecstasy. It only can approach that if it's then mixed with this other chemical. But it can only -- the studies, according to the doctor and according to the testimony, the only way that that approaches that, the behaviorial effects, is on an equal ratio. That is what the studies have shown according to the doctor.

So it's not -- it's not a case where we are challenging the Indictment based on -- we are not saying like where somebody cuts heroin and we know that it's still heroin no matter what it is. What we are saying is, what are the behavioral effects of BZP to produce the effects of Ecstasy? That is what the key is. And it has to be shown at least from what the doctor said and from what she says the literature says, at least in equal ratio. And so if you don't have it, you don't have it, and there has to be evidence.

THE COURT: All right. Thank you.

MR. MAGIDSON: Thank you, Judge. But, no, to answer your question, no, I don't have other case law.

THE COURT: All right. Two procedural matters. One, I will proffer the exhibits of Joseph P. Bono dated August 16th, 2009 and the report of Doctor Laureen Marinetti dated December 5, 2009, into evidence as Court Exhibits One and Two respectively.

I will follow through with my request for the parties to submit a post-hearing Memorandum which will assist the Court in making its decision in this matter.

This, to my knowledge, is a case of first impression, although I may be incorrect. It's just simply that I have not run across any cases like this. At any rate, I will direct the parties to submit their

post-hearing brief not later than noon on Wednesday, January 20, 2010 at noon at 12:00 in the afternoon. Thereafter I will render my decision which will outline my decision.

All right. Ms. Stafford, anything further from the Government?

MS. STAFFORD: No, your Honor.

MR. MAGIDSON: Nothing further, your Honor.

THE COURT: All right. With that, I wish all you a happy holiday.

MS. STAFFORD: Same to you, your Honor.

MR. MAGIDSON: Thanks, Judge.

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C E R T I F I C A T I O N

I, Lawrence R. Przybysz, official court reporter for the United States District Court, Eastern District of Michigan, Southern Division, appointed pursuant to the provisions of Title 28, United States Code, Section 753, do hereby certify that the foregoing is a correct transcript of the proceedings in the above-entitled cause on the date hereinbefore set forth.

I do further certify that the foregoing transcript has been prepared by me or under my direction.

s/Lawrence R. Przybysz 12-18-09
Official Court Reporter

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF RHODE ISLAND

* * * * * * * * * * * * * * *	*	CRIMINAL ACTION
UNITED STATES OF AMERICA	*	09-100
	*	
VS.	*	OCTOBER 4, 2011
	*	
DENNIS LIRIANO and	*	
XAVIER ROBERT	*	PROVIDENCE, RI
* * * * * * * * * * * * * * *	*	

HEARD BEFORE THE HONORABLE WILLIAM E. SMITH

DISTRICT JUDGE

(Evidentiary Sentencing Hearing)

APPEARANCES:

FOR THE GOVERNMENT:	WILLIAM J. FERLAND, ESQ. U.S. Attorney's Office 50 Kennedy Plaza Providence, RI 02903
FOR THE DEFENDANT Dennis Liriano:	WILLIAM T. MURPHY, ESQ. William T. Murphy Law Offices One Turks Head Place Suite 312 Providence, RI 02903
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Court Reporter:	Anne M. Clayton, RPR One Exchange Terrace Providence, RI 02903

Proceeding reported and produced by computer-aided stenography

I N D E X

4 OCTOBER 2011 -- 9:30 A.M.

THE COURT: Good morning. We're here in the matter of United States versus Liriano and United States versus Robert. We're scheduled this morning for a sentencing hearing and for an evidentiary hearing with respect to the issue of the drug in question, BZP.

I understand you had some issues you wanted to be heard on before the Defendants were brought in, and I also have some things I want to say to you in terms of how I expect to do this sentencing now that I've read a lot of these materials. But I'll let you go first.

MR. MURPHY: I'll defer to Mr. Smith, your Honor. I might have a comment at the end.

MR. SMITH: Judge, I see that the Government has its expert witness at counsel table. We would like to do the same for assistance during the direct examination so that I may use his expertise for my cross. That being said, that would mean three people at the table. There are two Defendants. I don't know exactly how the Court wants to situate the Defendants. Perhaps the jury box or some other facility. But other than that, if we're all at the same table, it's going to be absolutely impossible to take notes and prepare.

MR. MURPHY: I echo those concerns. I have a

suggestion, perhaps. This occurred to me as we were driving in and I entered the courtroom. If it were conceivable and Judge McConnell were not using his courtroom --

THE COURT: Right. That's the first thing that I thought of. We'll just switch courtrooms. That's the easiest solution. Let's find out if that courtroom is available. Find that out right now. Even if I can do a swap with Judge McConnell, that's easy enough. There's plenty of room, as you know, from prior trials, there's more than enough room.

Okay. While Nisshy is checking that, I want to address procedurally how I think we should go forward in this. This is kind of a unique sentencing situation. It seems to me that the best way for us to proceed is to do the evidentiary hearing with respect to the chemical structure issue and how that relates to the guideline calculations. That's the most important driving factor in terms of the guideline calculations at the outset.

I don't want to make any kind of a rushed decision with respect to that, and it's a common issue to both Defendants.

So I'd like to move forward with the Defendants joined with respect to this question and then I'm going

to take the matter under advisement, make a decision with respect to the chemical analog and then reconvene the sentencing at a future date at which time I will deal with the Defendants separately because they each have unique issues that need to be considered individually. And that, I think, is essentially the basis for your motion to sever the sentencings or to bifurcate the sentencings.

MR. SMITH: It is.

MR. MURPHY: And I would join on that on behalf of Mr. Liriano, your Honor.

THE COURT: So I think what we should do, as I said, is move forward in a joint fashion, get through this chemical structure issue, and then separate the Defendants at a future date and deal with all the other issues and your arguments with respect to the appropriate sentence.

So the bottom line is for people that are here who are family members and so forth, I'm not going to sentence these two Defendants today. I'm going to hear evidence with respect to this issue of the chemical analog of the drug in question, and then take the matter under advisement. And I can tell you that the sentencing probably will be sometime in November, and I would suggest mid- to late November. All right. So

that's where we stand.

Anybody want to say anything about that?

MR. MURPHY: Your Honor, before we actually begin the evidentiary portion of the hearing, I would like to put on the record with the Court's permission the legal objections that I have to this process, which I outlined in the response to my presentence report and in the supplemental memo that I filed.

THE COURT: All right. Let's do that when we have the Defendants in the courtroom because I don't want to go any further without the Defendants here.

(Pause.)

THE COURT: So we're all set. We'll reconvene shortly with the Defendants in Courtroom 3.

(Recess.)

THE COURT: Are we ready to proceed?

MR. MURPHY: Yes, your Honor.

THE COURT: How do you wish to go forward?

MR. FERLAND: Your Honor, as the Court is aware, we're at the sentencing phase and preliminarily what we need to do is determine which of the guidelines apply under the Federal Sentencing Guidelines.

As the Court is aware, the Probation Office has determined that MDMA or Ecstasy is the most closely equivalent drug. So the Government is, as your Honor

has, supported that position that MDMA is the most closely analogous drug. I'd like to present some testimony for the Court's consideration in making the ultimate determination as to whether or not MDMA is appropriate and what sentencing guideline applies.

THE COURT: So it might make sense to at least do some of the preliminary steps with respect to the sentencing and get on the record what the advisory guideline calculations are. So why don't I take those steps, and then we'll move forward from there.

MR. FERLAND: That makes sense, your Honor.

MR. MURPHY: Your Honor, may I put on the record the objection that you suggested that I put on the record when you took the bench.

THE COURT: Okay. Go ahead.

MR. MURPHY: Should I do it from here or the podium?

THE COURT: From the podium, please.

MR. MURPHY: I will be brief, your Honor, since I summarized these in the response to the presentence report and in a supplemental memo.

THE COURT: These are your objections to the presentence report?

MR. MURPHY: Yes, your Honor.

THE COURT: Let me put that on the record,

first, and then let you put your objections on the record. Let's do that.

If I could get both counsel to just confirm you've reviewed the presentence reports with your respective clients and you've been able to answer all of their questions regarding the reports? Mr. Murphy on behalf of Liriano?

MR. MURPHY: I have done that, your Honor.

THE COURT: Mr. Smith?

MR. SMITH: I have, your Honor.

THE COURT: All right. Now, I'm going to set forth on the record the advisory guideline calculations and then we'll move on to the objection issues, in particular the chemical structure question.

So with respect to Mr. Liriano, the advisory guideline calculations are described in paragraph 14. The base offense level, which uses the analog of MDMA, is 34. And the Defendant's criminal history summarized in paragraph 26 yields four criminal history points, therefore, he's in criminal history category 3, and as such his advisory guideline range is 188 months to 235 months.

With respect to Mr. Robert, the base offense level is also a 34. There's a two-point downward adjustment under the safety valve. That yields an

adjusted offense level of 32. There's a three-point downward adjustment for acceptance of responsibility for a total offense level of 29. The Defendant has no criminal history points so he's in criminal history category 1. And as a 29, category 1, his advisory guideline range is 87 months to 108 months.

Now, I know there are various objections and issues with respect to all these calculations but now, Mr. Murphy, I'll hear what you want to put on the record at this point.

MR. MURPHY: Thank you, your Honor.

May it please the Court, the Defendant's position is that, with respect to the hearing that is about to go forward, he has a right to the burden of proof to be upon the Government to be proved beyond a reasonable doubt that this issue of exactly what the analog is, that's my word, should have been determined by the jury; that double jeopardy precludes the Court at this time from making a determination in the absence of the jurisdiction to make that determination. The default here is that the guidelines should calculate this as if we were dealing with a single .7 kilograms of marijuana.

Additionally, there's an issue that I see percolating through decisions. It isn't quite ripe

yet. It's inchoate, that the process here is unconstitutionally vague. There's a dissenting opinion by Justice Scalia in **Sykes versus the United States** decided last June that relates to the armed career criminal guidelines, but I think it's applicable here.

When the process is such that you have to have a hearing, an evidentiary hearing to determine what the appropriate guideline range is, and we are obligated by Kimbrough and Gall and the cases of that genre to start with the guideline analysis, that it's constitutionally vague. Nobody really knows what the exposure is for dealing with any particular drug.

Finally, it seems to me that the whole process where the determination of the guideline at an evidentiary hearing has to be done before the Court based upon initial determinations by a commission is an unconstitutional delegation of power from the Congress, or stated differently it's a violation of the separation of powers, either Congress should identify the drug, state specifically what the guidelines should be and should not leave that to the Court. That's the position of the Defendant, your Honor.

THE COURT: Okay. Thank you.

Mr. Smith, do you want to say anything with respect to these matters?

MR. SMITH: I don't quite stand in the same shoes because there was a plea agreement entered, but I would like to object under the vagueness argument but I think I can reserve that to a point after the testimony, because I think some facts will come out at that particular time that would assist me in addressing the Court concerning the vagueness aspect.

THE COURT: Okay. Thank you.

Mr. Ferland, unless you want to put any preliminary comments on the record, I'm ready to hear from your witness.

MR. FERLAND: Thank you, your Honor. I have no desire to put anything on the record.

THE COURT: Okay.

MR. FERLAND: Call Kristina Ward, please, your Honor.

MR. MURPHY: Your Honor, may I just state for the record that the Defendant Liriano joins in the presentation that will be offered by Mr. Smith. I'm going to try to avoid any questions so the record is not prolonged.

THE COURT: All right.

MR. MURPHY: May we have a stipulation that any objections he makes I join in and vice-versa?

THE COURT: Yes, you may.

MR. MURPHY: Thank you.

KRISTINA WARD, first having been duly sworn, testified as follows:

THE WITNESS: My name is Kristina Ward, W-A-R-D.

THE COURT: Good morning, Dr. Ward.

And you may proceed, Mr. Ferland.

MR. FERLAND: Thank you, your Honor.

DIRECT EXAMINATION BY MR. FERLAND

Q. Ma'am, could you tell the Court, what is your occupation?

A. I'm a clinical associate professor of pharmacy practice at the University of Rhode Island.

Q. And what is that subject matter that you teach?

A. I'm responsible for instructing the students on the subject of drug information, primarily. Drug information is basically making sure that pharmacists are prepared to, when posed with a question, to be able to find the appropriate answer, locate the information, evaluate the information critically, and form an appropriate and correct, accurate response.

I also am responsible for delivering the obstetrics and gynecology portion of the pharmacotherapeutic class, which is basically how we use drugs in women that are pregnant or lactating.

Q. And how long have you been there as a clinical

professor at URI?
A. It will be eight years in July.
Q. What is the practice of pharmacy? What does that entail?
A. The practice of pharmacy is basically preparing and dispensing drugs, and also providing pharmaceutical care for patients.
Q. What would that entail, pharmaceutical care?
A. Pharmaceutical care is basically making sure that based on certain patient characteristics that you choose the most appropriate therapy and make recommendations for monitoring of that patient's therapy.
Q. And the therapy, of course, would be medicinal, the use of drugs, is that fair to say?
A. Most commonly, but pharmacists also are involved with making suggestions about dietary therapies as well as exercise and such.
Q. All right. Now, what I'd like you to do is tell the Court a little bit about the education that you received that has led up to your current position as a clinical associate professor.
A. Yes. I did a bachelor of science degree in Pharmacy at the University of Rhode Island. That's a five-year degree. And then I went on to complete my

doctor of pharmacy degree, and then I did two years of post-doctoral training.

Q. And tell us a little bit of what is entailed in obtaining the bachelor of science degree in Pharmacy there at the University.

A. Certainly. The first two years are devoted to general education requirements, as well as your basic sciences. And then the last three years were devoted to pharmacy-specific courses in pharmacology, which is how drugs act on the body; pharmacokinetics, which is how the body acts on the drugs; and pharmacotherapeutics, which is basically the clinical use of drugs in patients and, of course, some medicinal chemistry as well.

Q. And after you had completed that program, that five-year program, you indicated you went on to a doctorate program?

A. Yes. I completed my doctor of pharmacy degree at the University of Pittsburgh School of Pharmacy.

Q. And that's a two-year program. And what does that entail?

A. The doctor of pharmacy degree is heavily weighted toward the clinical use of drugs in patients. The first year is purely didactic where you are spending a large amount of time going over therapeutics or the

clinical use of drugs in patients.

The second year is an entire year of practicum in different practice settings so you get on real-life exposure to handling different patient situations.

Q. After you obtained your doctorate degree, did you go on to any residency programs?

A. I did. I completed a pharmacy practice residency at the University of Florida Health Science Center in Jacksonville, Florida.

Q. And what did that entail, that residency program?

A. The pharmacy practice residency is a one-year program that is intense training as part of a multi-disciplinary healthcare team where you take care of patients in various settings. For example, I practice in a trauma setting and medical critical care, neonatal intensive care, oncology, internal medicine and pediatrics.

Q. And after you completed that residency, did you yet again engage in a second residency program?

A. I did. I did a specialty residency in Drug Information Practice.

Q. What is Drug Information Practice?

A. Drug Information Practice is basically where you specialize in answering difficult or complex questions about patient care. They're posed by a variety of

healthcare providers including physicians, nurses, other pharmacists, as well as involved some therapeutic policy management where, for example, in a hospital setting the drug information specialist is responsible for setting the agenda of the formulary decisions committee, the pharmacy and therapeutics committee, as well as developing the policies and guidelines for how drugs should used in a hospital.

Q. And just sort of in layperson's terms, the drug information specialty, obviously you need to be familiar with all the various characteristics of the substances that you're talking about with these physicians, is that fair to say?

A. Correct. It's difficult to make an informed decision about an answer to a question if you don't have a clinical background on which to base that evaluation of the information upon.

Q. Now, you've told us about your position as a clinical professor there at URI. Do you hold any other positions at the University?

A. I'm the Director of Drug Information Services.

Q. And what does the Drug Information Services component or unit there at the University do? What are they responsible for?

A. The Drug Information Service was developed by

myself when I started at the college. And basically, we answer or provide answers to complex medical questions posed from healthcare providers throughout Rhode Island. I oversee the day-to-day functioning of the service. I usually have at any given time two doctor of pharmacy students that are rotating with me in their practicum, as well as a pharmacy practice resident from the VA.

Q. Doctor, in your profession, have you had occasion to publish any scholarly articles in any scholarly journals?

A. I have. I've published most recently an article regarding severe adverse skin reactions to non-steroidal anti-inflammatory drugs like Motrin. That was in the American Journal of Health System Pharmacy. I also published an article about diabetic neuropathy, which is a type of neuropathic pain that was in U.S. Pharmacists. I was a co-author on a study looking at the effects of two antibiotics on abnormal blood sugars. That was published in Pharmacotherapy, which is the leading pharmacy journal. As well as I was co-author on a national position paper or opinion paper on the future of drug information and that was also published in Pharmacotherapy.

I was also a co-author on a study regarding the

depiction of illness on TV medical dramas published in the Journal of Health Communication. I have published in American Family Physicians on a drug called Olmesartan, which is used for high blood pressure as well as on hyperphosphatemia and phosphate binding drugs also in American Journal of Health System Pharmacy.

Q. Do you hold any professional licenses?

A. I'm a licensed pharmacist in Rhode Island, Pennsylvania and Florida.

Q. Have you been invited to make any presentations to any professional organizations in your field?

A. I have.

Q. Can you tell us about that.

A. I most recently presented to a pharmacy group up in Maine regarding unlikely drugs of abuse. I've also published on how to critically evaluate drug advertisements. I presented at a national meeting on providing drug information to the lay public via a televised news segment. That was the American Society of Health System Pharmacists.

Q. I'll just stop you there for a moment because I want to go back to -- you indicated that you presented on unlikely drugs of abuse. What did that entail? What was that presentation about?

A. That presentation was to pharmacists about drugs that we typically don't associate with people misusing or abusing. You know, typically, we think of drugs that are controlled substances or that have mind-altering properties as being drugs that are abused, but this was really trying to go forward and look at drugs that are currently being used that don't necessarily have that controlled substance tag that people are misusing.

Q. Such as?

A. Such as bupropion, which is an antidepressant. People are using that for weight loss, which is not an approved indication. Such as Seroquel or quetiapine, which is an antidepressant, which gained favor in the prison population starting in California. It's kind of made its way across the country.

I also looked at a drug called Suboxone, which people that have substance abuse problems, heroin or other opioids, and that has a deterrent mechanism included in it so I also included that because it should be less abused but, in fact, we're seeing that it is still abused.

Q. Okay. We've just used that term "drug of abuse." What would be the characteristics that you as a pharmacist would be looking for to determine if a

substance was, in fact, a drug of abuse?

MR. SMITH: I object to the form of the question. I don't know how this is relevant to her qualifications.

THE COURT: All right. It's background. I'm going to overrule the objection.

A. Could you please repeat the question.

Q. Certainly. What criteria or characteristics would you be looking for as a pharmacist to determine whether or not a substance was, quote, a drug of abuse?

A. Drug of abuse is a very general term but, in general, we look at the presence of a mind-altering component like sedation or a euphoric effect. But just because no one person is abusing a drug for its mind-altering abilities, other people may be abusing drugs for other reasons like weight loss, or athletes may be abusing drugs to enhance their performance.

Q. Okay. Now, are you board certified in any area of pharmacy?

A. I'm a board certified pharmacotherapy specialist.

Q. What does that consist of, to be board certified in that field?

A. I had to take a really, really hard test.

MR. SMITH: I object. Move to strike.

THE COURT: Overruled.

A. Basically, in order to sit for board certification exam, you have to have practiced pharmacy for I believe at least three years, have an advanced degree such as a PharmD degree, or you can sit for it immediately after completing a pharmacy practice residency. Less than three percent of pharmacists in the United States have board certification.

Q. What is pharmacotherapy?

A. Pharmacotherapy is really a general term that discusses using drugs therapeutically or to get an effect in patients.

MR. FERLAND: Your Honor, if I could, I'd like to have Dr. Ward's CV marked for identification for purposes of this hearing, Government's 1.

THE COURT: That's fine. Is there any objection to introducing the CV as an exhibit?

MR. SMITH: Not really.

THE COURT: All right. Then let's take it as a full exhibit, Exhibit 1.

MR. FERLAND: Thank you, your Honor.

(Government Exhibit 1 admitted in full.)

Q. Now, Doctor, did there come a time this year that you were contacted by the Government to assist in this case?

A. Yes.

Q. And do you recall specifically what it was you were asked to do?

A. Yes. I was asked to look at the details of this case and provide an assessment of whether or how I looked at the effect of benzylpiperazine and trifluoromethylphenylpiperazine with regards to sentencing guidelines.

Q. Okay. And were you provided with any materials relative to that review?

A. I was. I was provided with the sentencing guidelines. I was also provided with details of the case, as well as the defense's expert testimony and some initial background articles for reference.

Q. Okay. Now, as it relates to your review of the case and formulating an opinion concerning the most closely analogous drug, did you formulate a report relative to your findings?

A. I did.

MR. FERLAND: If I could, your Honor, I'd like to mark the report as 2, please.

MR. SMITH: For identification, no objection.

MR. MURPHY: For identification, your Honor.

THE COURT: We'll mark it for identification as Government Exhibit 2.

(Government Exhibit 2 marked for ID.)

MR. SMITH: Your Honor, may I see the report? I believe I have a copy. I just want to make sure. That's all.

THE COURT: It's the same report?

MR. SMITH: Exactly.

THE COURT: I think we'll just make sure Mr. Ferland can confirm on the record that the report you're identifying as Exhibit 2 is, in fact, the same report you've sent to counsel and to me?

MR. FERLAND: It is.

THE COURT: Thank you.

MR. MURPHY: Thank you.

Q. Now, you had indicated that you had been provided with a pertinent portion of the sentencing guidelines; is that correct?

A. Yes.

Q. And did you have an opportunity to familiarize yourself with those provisions of the guidelines?

A. I did.

MR. FERLAND: Your Honor, if I could, I know the Court could simply take judicial notice but just for purposes of economy so we're referring to the same particular area, may I have that provision of the guideline marked for identification?

THE COURT: Sure.

MR. FERLAND: Thank you.

MR. SMITH: Judge, I have no objection full if he desires.

MR. FERLAND: Thank you.

THE COURT: All right. We'll make this Exhibit 3 in full and just put on the record what it is that you've just handed up.

(Government Exhibit 3 admitted in full.)

MR. FERLAND: Certainly, your Honor. This is guideline Section 2D1.1, and these are the application notes. And specifically, we'll be focusing in on Application Note 5.

THE COURT: All right. Go ahead.

MR. FERLAND: May I approach the witness, please, your Honor?

THE COURT: Yes.

Q. Showing you this document, ma'am, which has now been marked as Government's Exhibit 3 for purposes of this hearing, what do you recognize that to be?

A. I recognize this to be the sentencing guidelines that I was provided with, Section 2D1.1.

Q. And specifically, ma'am, as it relates to your analysis and the opinion that you've come to in this case, what provisions of the sentencing guideline did you focus on?

A. I focused on Application Note 5, specifically Section B.

Q. Okay. Now, as it relates to the guidelines that are before you, ma'am, I know that you indicated you focused on B, but I'd like to talk about Section A there for a moment if I could relevant to chemical structure.

What does it mean when it talks about or what is a chemical structure?

A. A chemical structure, basically, you could look at it as kind of like the frame of a house, except in a chemical structure the framework are the chemical elements. And just like a house, a drug needs much more than just the chemical structure before it's a finished product.

Q. Like what?

MR. SMITH: I object. It's beyond the scope of the question. It was only chemical structure. He asked what was chemical structure. Now she's going to explain something else.

THE COURT: Okay. Reform your question.

MR. FERLAND: I will, your Honor. Thank you.

Q. Now, you've indicated what constitutes the chemical structure. Does the chemical structure standing alone of a substance determine its effect on

the human body?
A. No.
Q. What other aspects of the chemical affects its impact on the human body?
A. You have to look at the delivery system of the drug, of the chemical. There are certain release mechanisms that are involved that prolong or extend the release of drugs or enhance absorption. You also have to look at how the subject or the patient responds to a therapy, how their body handles the drug, which differs especially in this day where we know genetic sequencing and genes play a role. There are some drugs in patients that have specific gene characteristics that they may not respond to because of their genome.
Q. So there are a variety of factors then?
A. There are.
Q. Now, what are the characteristics of a substance, ma'am, that deal with, as in provision B, whether the controlled substance not referenced in the guideline has a stimulant, depressant or hallucinogenic effect on the central nervous system? Let's go through those terms in the provision if we could for a moment.
First off, what is the central nervous system?
A. The central nervous system is composed of the brain and the spinal cord.

Q. And as it relates to the central nervous system, what are the neurons within the central nervous system?
A. Neurons are nerve cells.
Q. And what's the role that the nerve cells play in the central nervous system?
A. The neurons conduct nerve impulses.
Q. And give us an example of what a nerve impulse is.
A. A nerve impulse, basically, if you get -- have a pinprick, that travels up through your periphery into your central nervous system as a stimulation for pain, and a nerve impulse would be generated from cell to cell that conveys that feeling of pain.
Q. And how do those cells convey that information to one another through the central nervous system?
A. They use substances called neurotransmitters.
Q. And what are neurotransmitters?
A. Neurotransmitters are basically substances that conduct a nerve impulse.
Q. And how do they do that?
A. Neurotransmitters are created or synthesized in the nerve terminal and they're stored in the presynaptic vesicle as part of that neuron. They're stored there waiting for a nerve signal to come along and stimulate their release into the synapse, which is the junction between two neurons.

Q. So they're created naturally?
A. They are created by the body, yes.
Q. Could you tell the Court, what are the various neurotransmitters that are key in the central nervous system?
A. You have dopamine, norepinephrine, serotonin and acetylcholine. There are others, but those are the primary effectors in the central nervous system.
Q. Okay. So you indicated that there will be a trigger that causes this neurotransmitter to be released; is that correct?
A. Yes.
Q. And that allows the communication?
A. Correct.
Q. What happens with that neurotransmitter after it has reached the receptor of the other cell?
A. Well, when it reaches or is received by the receptor on this the post-synaptic neuron, it can either cause excitation, which is stimulation, or it can cause inhibition.
Q. What is inhibition?
A. Inhibition just means that it prevents an action or it's not excitatory. The opposite of excitatory, which would be depressant, I guess I would say.
Q. So the neurotransmitter is released. It reaches

that receptor. It does either of those two things, it excites the nerve or it inhibits the nerve?

A. Correct.

Q. What happens to that substance, that neurotransmitter at that point once it's accomplished it's goal, so to speak?

A. It can either be metabolized in the synapse by the most common enzyme. It's called monoamine oxidase, or it can be taken back into the presynaptic neuron and stored again awaiting another nerve impulse.

Q. And what is that called, when it's taken back up and replaced in the vesicle?

A. That is called reuptake.

Q. Now, the reuptake process, if the reuptake process is somehow impeded, does that impact upon the amount of neurotransmitter that is still stimulating the cells?

A. It does. If you prevent reuptake from occurring, that increases the amount of neurotransmitter present in the synapse.

Q. What is the impact of having that increased level of the neurotransmitter?

A. Depends on which one but you would see an exaggerated or prolonged response to that neurotransmitter.

Q. Now, are you familiar with a classification of

drugs known as amphetamines?
A. I am.
Q. Okay. What are amphetamines?
A. Generally, amphetamines are considered stimulant-type drugs in the central nervous system.
Q. And what about the drug causes it to be classified as a stimulant? What does it do to the body?
A. Physiologically or --
Q. Well, let's start with physiologically.
A. Amphetamines cause an increase in heart rate, an increase in your blood pressure; they can cause palpitations, racing thoughts, in general a more alert and stimulated effect.
Q. And how about neurologically?
A. Neurologically, you see increased release or stimulation of release of dopamine, as well as norepinephrine and serotonin.
Q. And it causes a release. Does it in any way impede the reuptake of these neurotransmitters?
A. Yes. Amphetamines also, in addition to stimulating the release of the neurotransmitters, also prevent reuptake.
Q. And does that play a role in the amount of these neurotransmitters that are in the brain and acting upon the brain?

A. It does.
Q. What are amphetamine derivatives?
A. Amphetamine derivatives are drugs that have a chemical structure somewhat similar to amphetamine itself.
Q. And do these amphetamine derivatives, do they have a similar physiological effect on the body?
A. Yes, they do.
Q. And what about neurologically?
A. Neurologically, they all have -- when you start getting into derivatives, you do have changes in the pharmacologic profile of the drug; however, they all do stimulate release and inhibit reuptake of neurotransmitters, just to different degrees.
Q. I want to talk about some of the neurotransmitters that you've made reference to. You described a neurotransmitter that you called dopamine; is that correct?
A. Yes.
Q. Now, can you tell the Court what role does dopamine play in the central nervous system?
A. Right. Dopamine regulates brain processes that control movement so you see decreased levels of dopamine in patients that have Parkinson's disease. It also affects emotional response, as well as attention

and pleasure and reward.
Q. Pleasure and reward. What do you mean by "reward"?
A. You get a good feeling for doing something so when you're rewarded you want to keep doing it because you get a positive feeling.
Q. And so dopamine will give you that positive feeling?
A. The release of dopamine from whatever means would give you that feeling.
Q. Are there any drugs that you're familiar with that cause an increase in the release of dopamine?
A. Yes.
Q. And can you tell the Court what types of drugs that you're familiar with would release the dopamine.
A. Amphetamine derivatives, primarily.
MR. MURPHY: Sorry. I didn't hear the second word.
THE WITNESS: I said amphetamine derivatives, primarily.
Q. What other characteristics about drugs, including the amphetamines, would affect the amount of the dopamine present that is stimulating the body and producing these effects that you told us about?
A. If reuptake of dopamine were inhibited, that would

increase the amount of dopamine present, and the amphetamines and its derivatives do indeed prevent reuptake of dopamine as well as stimulant release of dopamine.

Q. Okay. You mentioned norepinephrine?

A. Yes.

Q. What is norepinephrine?

A. Norepinephrine is another neurotransmitter. It's basically responsible for your sleep/wake cycle, the maintenance of arousal or the state of being awake, as well as the development of long-term memory and -- long-term memory and also movement.

So if you have increased levels of norepinephrine, you can experience what we call echophasia, which is a general feeling of motor restlessness or the inability to sit still.

Q. And how does norepinephrine play in operation in the central nervous system? How does it factor into the operation of the central nervous system?

A. Well, it affects all of those processes that I just described.

Q. Including the sleep and wake arousal and all of that.

A. Right. Exactly.

Q. Okay.

A. Behavorial space as well, I'm sorry. Depression and anxiety.

Q. So norepinephrine also plays a role in whether you feel depressed or not?

A. Um-hum. (Affirmative.) We have drugs that have used that as a target for treating depression.

Q. Now, you mentioned a neurotransmitter, serotonin?

A. Yes.

Q. Now, does serotonin play a role in the central nervous system?

A. It does.

Q. What sorts of aspects of the central nervous system does serotonin play a role in?

A. Serotonin has a lot of effects but you can see effects on mood so we see a lot of antidepressants that are used that affect serotonin. It's appetite stimulation, temperature regulation of the body, sleep processes, sexual behavior and attention, as well, and control of anger and aggression.

So when you have lower levels of serotonin, it becomes more difficult for you to control your response to anger.

Q. When you have what?

A. When you have low serotonin, it's more difficult to control your response to anger.

Q. Now, you mentioned the fact that there are certain antidepressants that are out there that cause a release of serotonin?

A. Yes.

Q. Are there other drugs that cause a release of serotonin?

A. Well, the antidepressants actually do not cause the release of serotonin. They block the reuptake of serotonin. So these are drugs like Prozac and Paxil. They're called selective serotonin reuptake inhibitors.

Q. Okay. So they don't trigger it to be released.

A. No.

Q. It just prevents it from being absorbed.

A. Exactly.

Q. And does that increase the serotonin level within the central nervous system?

A. Yes. By inhibiting reuptake, the amount of serotonin present is increased.

Q. Now, as it relates to your being retained in this case, did you become familiar with a drug called benzylpiperazine?

A. I did.

Q. I'll refer to it, if you don't mind, as BZP. And what can you tell us as it relates to categorization benzylpiperazine would fall into?

A. Benzylpiperazine is a stimulant that's in Federal Schedule Class I, which means it has no medically accepted use.

Q. And it's a stimulant. And you've talked a little bit about what constitutes a stimulant, but just kind of flesh that out for us a little bit, if you would.

A. Again, a stimulant is going to affect the pleasure and reward center in the brain by the effect on dopamine. It's also systemically going to affect your heart. It's going to increase your heart rate. It's going to increase your blood pressure and your cardiac output, how much blood the heart actually pumps out. It may give you jitters a little bit because you're feeling stimulated in general.

Q. And does BZP affect in any way the production of dopamine?

A. BZP actually doesn't affect the production, but it stimulates the release of dopamine from presynaptic neurons.

Q. Okay. So that's my inartfully-drawn question. So it does have an effect on the release of the dopamine?

A. Yes, it does.

Q. And how so? How does it affect the release of the dopamine?

A. It basically -- it stimulates the release. I

can't --
Q. Okay. So I'll use the word "trigger." Is it fair to say that it triggers the release?
A. Sure. In my mind, when I'm talking pharmacologically, "stimulate" does mean trigger, yes.
Q. Okay. And as it relates to the BZP, do you know whether or not it has any effect on the reuptake of that dopamine that is being released?
A. Yes. BZP does affect reuptake. It prevents reuptake of dopamine.
Q. Now, what, in addition to the dopamine, what effect, if any, does the BZP have on the neurotransmitter known as serotonin?
A. BZP will increase the release of serotonin, and it will also prevent its reuptake.
Q. So both of those neurotransmitters will be affected by BZP, is that fair to say?
A. Yes.
Q. What is the predominant effect on the central nervous system of BZP?
A. BZP's predominant effect is on dopamine.
Q. Are there any documented effects of BZP on the body or the central nervous system?
A. Yes. BZP, like other stimulants and amphetamines, has all the cardiac effects I've discussed before. It

will increase the heart rate. It will increase blood pressure. You can also see chest pain, palpitations, some sweating associated with it. Primarily, those are the ones I'm thinking of.

Q. Let me ask you, ma'am, as it relates to these stimulants that you've talked about, are you familiar with the term "euphoria"?

A. Yes.

Q. And can you describe for us what is euphoria as it relates to pharmacology?

A. Euphoria is a descriptor. Basically, it's the description of an extremely happy state or extreme pleasure. And you can see euphoria through natural behaviors such as when you have a sexual orgasm.

You can also bring it about by athletic performance. You've all heard of runner's high. After you've run for long distances, you kind of get that feeling of high when you complete it, and that's from the body releasing its own type of morphine. It's called an endorphin. But then you can also see it from certain disease states. So you can get euphoria as part of a disease state like bipolar disorder, hyperthyroidism and then, as well, drugs.

Q. I want to focus, if I can, on the drugs. Do you know whether or not BZP has any impact on this feeling

of euphoria?

A. I would say absolutely. People take BZP --

MR. SMITH: I object because the question doesn't ask for anything to a reasonable degree of scientific certainty, and I would say absolutely I think is inappropriate. I move to strike.

THE COURT: All right. I'll sustain the objection. Strike the answer.

You can reformulate the question if you want to elicit an opinion.

MR. FERLAND: Certainly, your Honor. Thank you, your Honor.

Q. Ma'am, as it relates to BZP, do you have an opinion to a reasonable degree of scientific certainty as to whether or not it has an effect on that feeling of euphoria?

A. Yes.

MR. MURPHY: Objection.

THE COURT: Grounds?

MR. MURPHY: I just want to state a general objection to the witness's qualifications. We're getting to expert testimony here and I don't think she's qualified.

THE COURT: Overruled. You may state your opinion.

A. Yes. Euphoria is experienced with benzylpiperazine.

Q. And what is that opinion based upon? What about it causes you to make that conclusion, that is to say BZP?

A. Based on its effects on dopamine, which is the -- you know, dopamine release affects the pleasure and reward center. That is the feeling of high. That is the euphoric state.

Q. And are you familiar with any other drugs that affect this euphoric state? You've mentioned in passing the fact that there are some. Can you give us an idea of what other drugs come into play with the euphoric state?

MR. MURPHY: Your Honor, may I just have a continuing objection to each of these opinion questions based on competency.

THE COURT: Your objection is noted and overruled. You can cover any issues you have on cross-examination.

Go ahead.

A. Yes. Opioid-like drugs, so the morphine and morphine derivatives can cause euphoria, as well as alcohol and cannabis.

Q. Okay. Now, as it relates to your being retained

in this case to create your report and consult with the Government, did you become familiar with a drug trifluoromethylpiperazine?

A. Yes. Trifluoromethylphenylpiperazine. Yes.

Q. I apologize. I mispronounced it. I'm going to call it TFMPP, if you don't mind.

Is that an abbreviation that's accepted in the community for the drug?

A. Yes.

Q. Now, does TFMPP have any effect on the central nervous system?

MR. SMITH: I object. May I be heard?

THE COURT: Yes.

MR. SMITH: TFMPP is not a controlled substance, so I don't know what that has to do with determining what controlled substance BZP is.

THE COURT: Mr. Ferland?

MR. FERLAND: Yes. The Court cannot ignore the fact that TFMPP was found mixed with the BZP, and it is the Government's position that it is by design that the TFMPP is with the BZP because it mimics the effects on the body of that of MDMA.

The fact that it is or is not a controlled substance is completely and totally irrelevant. What we need to focus upon is what is the stimulant or

hallucinogenic effect of the substance in question on the body. And so whether --

THE COURT: I understand. And frankly, I agree with the Government. The issue here is this drug, the drug of conviction, which is the chemical compound that were in those little pills. And that's part of what was in those pills, right?

MR. SMITH: I understand that, Judge, but may I continue for a moment?

THE COURT: Sure.

MR. SMITH: I'm looking at the same Application Notes that is I believe Exhibit 2, either 2 or 3. I'm referring to Application Note 10 and 10B where the guidelines talk about combining differing controlled substances except cocaine base.

My suggestion to the Court is that no matter what this witness's opinion is with respect to the TFMPP, it does not comport to the suggestions in the guidelines that they must both be controlled substances in order to arrive at what I assume is going to be substantially similar to MDMA. I don't think you can use a non-controlled substance for that purpose.

THE COURT: Well, if something is mixed in with the controlled substance, whether it's another controlled substance or an uncontrolled substance that

acts as an accelerator or in some other manner affects the delivery of the controlled substance, I think it's at least arguably relevant to my consideration of how the controlled substance itself -- what the effect of the controlled substance is. And in that regard, I think the testimony is appropriate.

Now, I can hear from you later, either in argument or in briefing, about whether and to what extent any opinions expressed about the effect of the non-controlled substance maybe should be considered, but I'm going to hear the testimony and let you argue about what degree I should consider it.

MR. SMITH: That's fine. I just wanted to bring this to the attention of the Court.

THE COURT: All right. Thank you.

MR. MURPHY: Your Honor, please, I join in Mr. Smith's objection, but I have a slightly different position here.

THE COURT: Okay.

MR. MURPHY: Mr. Smith's client pled guilty. I presume there was a plea colloquy. And my recollection of the trial, resulting in Mr. Liriano's conviction, is that there was a stipulation that the DEA chemist from New York, I think her name is Ms. Bleivik, had testified she would have testified that the substance

in issue was BZP, end of it. There was nothing before the jury about TM --

THE COURT: I recall something about BZP and caffeine, but maybe I'm misremembering.

MR. FERLAND: Your Honor, caffeine is present in it. And as a matter of fact, again, I don't want to misspeak, but my recollection and the stipulation will speak for itself, but my recollection was that it did, in fact, reference TFMPP.

MR. MURPHY: We stand by the record. But if my memory is correct, I think any examination of this witness respecting TFMPP is improper. It introduces something into her consideration that was not considered by the jury.

THE COURT: Okay. Thank you. The objections are overruled. I'm going to allow you to continue your examination.

MR. FERLAND: Thank you, your Honor.

Q. So, ma'am, my question is does TFMPP have any effect on the central nervous system?

A. TFMPP is considered a serotonin-releasing agent.

Q. So in addition to BZP releasing serotonin, TFMPP also causes serotonin to be released?

A. Yes.

Q. Does it have any other effect on the levels of

serotonin that are present in the central nervous system?

A. Yes. It also inhibits the reuptake of serotonin.

Q. Does the TFMPP affect the dopamine release at all?

A. There's a slight effect on dopamine. The primary effect, however, is on serotonin.

Q. How about as it relates to the reuptake of the dopamine. Does the TFMPP impact the reuptake at all of the dopamine?

A. Again, yes, but it's a comparatively smaller effect than on the serotonin.

Q. Now, the serotonin release and the impediment of the reuptake process, is it similar to any other drugs that you are familiar with?

A. Yes. I mean, the amphetamines also, in general, cause release and an inhibition of serotonin reuptake.

Q. Were there any studies that you're familiar with that were conducted relative to TFMPP on humans, the effect on humans?

A. Yes.

Q. And what is the nature of the study involving TFMPP as it relates to humans?

A. Right. So because, you know, in order to measure exact levels --

MR. SMITH: Judge, may I object because we don't

know what the study is she's referring to.

THE COURT: Well, I assume she's going to get to that.

So why don't you take it one question at a time, direct her to the study and then go from there.

Q. Yes. Could you tell us, what is the study that you're familiar with relative to TFMPP?

A. This is a study that looked at subjective measures of TFMPP on patients that were using or took it.

Q. What do you mean by "subjective measures"?

A. The investigators used a validated scale survey instruments. In order to measure exact levels in the brain, the patient would have to be dead, right? So we can't measure exact levels of TFMPP in the brain at current time. So we measure subjective scales that have been validated and used. The first one that they used was called the Profile of Mood States or the POMS scale. And they also used the Addiction Research Center Inventory or the ARCI.

Q. And what are the responses or adjectives that these subjects in the study might use to characterize or describe the drug?

A. They used adjectives like enhanced pleasure. They liked the drug. They also found in the scales things that you would expect to see with increased levels of

serotonin, so their report on the tension and anxiety scale of the POMS survey was increased as was the bewilderment or confusion scale in POMS, and they had decreased results or reports in the fatigue or inertia portion of that scale. That's consistent with serotonin.

Q. Now, I want to talk, if I could, for a moment about the combination of BZP and TFMPP. Does the combination of BZP and TFMPP have any additive effects on the serotonin levels?

MR. SMITH: Objection.

THE COURT: So I'll sustain the objection. Take her through the question of whether she's reached an opinion and then level of scientific certainty and so forth.

MR. FERLAND: Certainly.

Q. So, ma'am, as it relates to being retained in this case, have you had an opportunity to familiarize yourself with literature and studies and based upon your own studies and clinical experience relative to whether or not the combination of BZP and TFMPP have any additive effects on the serotonin levels?

A. I have.

Q. And what are you basing this opinion on, primarily?

A. There is a study that was completed using the pleasure and reward center of the brain in rats so that's the nucleus accumbens. And it measured quantities of dopamine and serotonin present in the nucleus accumbens.

Q. So have you been able to formulate an opinion to a reasonable degree of scientific certainty as to whether or not the combination of BZP and TFMPP have an effect on serotonin levels?

MR. SMITH: Objection.

MR. MURPHY: Objection. I have a separate one from the general competency objection, and that is it would be helpful if the witness would reference the study if it's a footnote in her report.

THE COURT: I think it is footnoted in her report.

MR. MURPHY: I'm just trying to identify which of the 22 footnotes, which --

THE COURT: Well, let's take this one step at a time. Maybe you could have her give the exact title of the study and whether that's the only study that she relies on, or I think your question implied that there was more than one study, but I'd like to get that teased out, please.

MR. FERLAND: Yes.

Q. The study that you're making reference to, ma'am, can you refer us to specifically what study that is?

A. I don't have the title of the study memorized, but it is in my report, and I would be more than happy to --

THE COURT: Counsel can refresh your recollection, if you wish. Go ahead.

MR. FERLAND: Thank you. I'll approach the witness, and show you what has been marked as Exhibit 2.

A. The study that I'm referring to is the study by Baumann and colleagues published in a journal called Neuropsychopharmacology. And the title of that study is "N-Substituted Piperazine Abused by Humans Mimic the Molecular Mechanism of 3, 4-methylenedioxymethamphetamine" --

THE COURT: Take that a little slower for the court reporter, please.

THE WITNESS: Certainly.

A. The author was Baumann and colleagues, and it was in a journal called Neuropsychopharmacology, and the title was "N Substituted Piperazine Abuse by Humans Mimic the Molecular Mechanism of 3, 4-Methylenedioxymethamphetamine," which is MDMA or Ecstasy.

Q. Are there any other studies or readings that you have consulted and reviewed that lead you to your conclusion?

A. This is the primary article that I used to reach my conclusion. However, there is other -- there are other articles to support that TFMPP and BZP have a potential for misuse and that it is self-administered by mice, so mice will preferentially choose these agents over food or sex to get the feeling that they get from these agents. That was from an article or a study by Fantegrossi from a journal, Drug, Alcohol and Dependence. And that title was "Reinforcing and Discriminative Stimulus Effects of 1-Benzylpiperazine and Trifluoromethylphenylpiperazine in Rhesus Monkeys." That was actually in monkeys, not, excuse me, in mice.

MR. MURPHY: Your Honor, could I just ask just for simplicity purposes if the witness would identify which footnote that --

THE COURT: Yes, that's a good idea. What footnote?

THE WITNESS: Footnote 14.

THE COURT: Fourteen?

THE WITNESS: Yes.

MR. MURPHY: Thank you very much.

THE COURT: Thank you.

THE WITNESS: And the previous one that was referenced was Number 9.

THE COURT: Nine.

Q. Based on those articles, your extensive studies, do you have an opinion to a reasonable degree of scientific certainty as to whether or not the combination of BZP and TFMPP in combination have an impact upon serotonin levels in the central nervous system?

MR. SMITH: Objection.

MR. MURPHY: Objection.

THE COURT: All right. I'm going to overrule the objection and let you address it in cross-examination.

You may answer.

A. Yes.

Q. And what is that opinion?

MR. SMITH: Objection.

MR. MURPHY: Same.

THE COURT: All right. I'll note you have a continuing objection to this opinion.

Go ahead.

A. Yes. They have an additive effect on serotonin so that the sum -- when you administer them together, the total effect is the sum of the individual effects.

Q. And as it relates to the other neurotransmitter that you told us about, dopamine, does the combination of those two substances have an effect, in your opinion to a reasonable degree of scientific certainty, on the levels of serotonin in the central nervous system?

MR. SMITH: Objection. Asked and answered.

MR. FERLAND: I'm sorry. I misspoke.

Q. Dopamine.

THE COURT: So your question refers to dopamine, then?

MR. FERLAND: Yes, your Honor. I apologize if I misspoke.

A. Yes.

Q. And what is that opinion?

A. The effect on dopamine is potentiated so you would expect that you would see an additive effect when you administer two agents on dopamine. In fact, you see a much greater effect on dopamine when you administer the combination.

Q. When you say "potentiated," what does that mean?

A. Potentiated just means that the sum of the effects of the individual agents does not equal the effect of the agents given together. It's much greater.

Q. And are these combined effects similar to any other drugs that you are familiar with?

MR. SMITH: Objection, form of the question.

THE COURT: Sustained.

Q. Are you familiar with any other drugs that have the same type of effect on both the dopamine and serotonin levels in the central nervous system?

MR. SMITH: Yes or no, please.

A. Yes.

THE COURT: Is there an objection?

MR. SMITH: No, your Honor, I just wanted to be sure that the answer was only yes or no.

THE COURT: Right. Okay.

Q. And what substance are you familiar with that creates that same effect?

MR. SMITH: Object.

THE COURT: I'll sustain that. You may ask her how she's familiar first and then we'll go from there.

Q. In your studies of Pharmacy and the effects of certain drugs, including stimulants on the central nervous system, and as it relates to your being retained in this case, have you become familiar with another drug that produces a similar effect on both serotonin and dopamine levels in the central nervous system?

A. Yes.

Q. And what drug is it that you have become familiar

with that causes the same or similar effect?

MR. SMITH: I object.

THE COURT: Is this a foundation objection or a relevance objection or what?

MR. SMITH: It's an objection to the form of the question. I'm assuming we're trying to get to MDMA eventually, but there hasn't been enough information from what I can tell with respect to the responses of this witness to actually get there.

So I don't think there has been, A, enough foundation; and B, the form of the question.

THE COURT: Can you respond to that?

MR. FERLAND: I can. There has been more than enough sufficient foundation to talk about the role of neurotransmitters in the central nervous system.

THE COURT: I think the objection goes to -- I'm assuming the answer to this question is MDMA. Maybe I'm wrong about that. You can give me an offer of proof that that --

MR. FERLAND: My offer of proof, your Honor, is exactly that. The witness would testify that methylenedioxymethamphetamine mimics -- that's my word. It's similar to the --

THE COURT: Let me ask you this question. I take it that you can ask some follow-up questions that

would shore up the opinion that the witness is going to render with respect to that? In other words, describe how and why the effect is similar?

MR. FERLAND: Yes, your Honor.

THE COURT: All right. Then I'm going to overrule the objection and take it essentially de bene and hear the answers to those questions.

MR. FERLAND: Thank you, your Honor. What I'll do, your Honor, is I'm going to respond by laying some additional foundation as it relates to MDMA.

THE COURT: All right.

Q. You mentioned to us very, very early in your testimony as it relates to why you were retained a substance known as MDMA, correct?

A. Yes.

Q. And are you familiar with MDMA or Ecstasy?

A. Yes.

Q. Have you read and studied about the effects on MDMA on the human body?

A. Yes.

Q. Have you focused your attention upon the effects of MDMA on the central nervous system?

A. Yes.

Q. Have you become familiar with how MDMA affects or impacts the various neurotransmitters that you've told

the Court about this morning?
A. Yes.
Q. Can you tell us whether or not MDMA has an effect on the release and/or levels of serotonin in the human central nervous system?
A. Yes. MDMA increases the release of serotonin and inhibits the reuptake of serotonin.
Q. Does the MDMA have any effect on the neurotransmitter known as dopamine?
A. Yes. Again, there's an increased release of dopamine and an inhibition of its reuptake.
Q. And does it have an effect on any other of the neurotransmitters that you've told us about today?
A. Yes. You would also see a similar effect on norepinephrine.
Q. Norepinephrine.
A. Um-hum. (Affirmative.)
Q. When you say "similar effect," let's be specific. What exactly would we see as it relates to its effect on norepinephrine?
A. You would see an increased release of norepinephrine and inhibition of reuptake of norepinephrine.
Q. So all three of those neurotransmitters that we've discussed would be impacted by MDMA; is that correct?

A. Yes.
Q. Now, what are the physiological effects on the ingestion of MDMA?
A. Physiologically, you will see, again, cardiac effects, increased blood pressure, increased heart rate. You'll also see effects on temperature regulation, which comes from the serotonin component or action of the drug where you can have problems with temperature regulation, increased body temperature.

You'll also see feelings of enhanced self-confidence. That would again come from the dopamine action of the drug. You can see increased sexuality, again, from the serotonin components of the drug. And a desire to socialize.

Q. Now, as it relates to the BZP in combination with the TFMPP, the effects that you just discussed in the MDMA, does the BZP/TFMPP combination have any similar effects to the MDMA?

MR. SMITH: I object to the form of the question.

THE COURT: Why don't you try the question again.

Q. You've told us about the effects on the central nervous system of the combination of BZP and TFMPP, correct?

A. Yes.
Q. And you've just discussed for us the central nervous system effects of MDMA, including the effect on the various neurotransmitters, correct?
A. Yes.
Q. Are there any similarities between those two drugs and their effect on the neurotransmitters in the central nervous system?
A. Similarity between MDMA and --
Q. BZP/TFMPP combination?
A. Yes.
Q. Can you tell the Court what are those similarities?
A. Again, you would expect to see the cardiac effects that you see with most of the amphetamine stimulants, the increased heart rate, palpitations, increased blood pressure, flushing from that reaction, chest pain from the increased work of the heart, and you would also see the more characteristic components where you have increased levels of self-confidence, a desire to socialize, essentially.
Q. Okay. Now, have there been any subjective studies similar to the studies that you told us about earlier as it relates to the effect of MDMA on humans?
A. There have been.

Q. Are you familiar with any of those studies?
A. I am.
Q. Can you tell us what specific study you're focusing your attention upon as it relates to the effect of MDMA on humans?
A. Yes. This a study by Tancer that was published in 2003 in the journal Drug and Alcohol Dependence.

MR. MURPHY: Can we have the identification of the footnote, your Honor.

THE WITNESS: It's actually not referenced in the guidance that -- or, excuse me, in the documents that I provided.

MR. MURPHY: May I inquire if we have a copy of that in the courtroom?

THE WITNESS: I have a copy in a file folder.

MR. MURPHY: I would object to any testimony based upon that article.

THE COURT: Well, he's inquiring of the basis of her knowledge. If that's the basis of her knowledge, you know, she has a lot of knowledge that's not in the courtroom.

MR. MURPHY: That's true. That's true. But I can see where this is going to the extent that that's going to be part of the foundation of an opinion that is not referenced here, what we received.

THE COURT: So I'm going to overrule the objection based on it not being here, but you may -- but let's get clear on what the question was and what this study is. All right?

MR. FERLAND: Certainly, your Honor.

THE COURT: Back that up for me, please.

MR. FERLAND: Thank you, your Honor. I will.

Q. You just referenced a study that you're familiar with by Tancer; is that correct?

A. Yes.

Q. Tell the Court a little bit about exactly the methodology that was employed in that study.

A. Again, this is a study that used the POMS scale, which was the Profile of Mood States, as well as the ARCI and a visual analog scale that asks the subjects involved to respond to certain adjectives or descriptors. This is very similar in methodology to the study that I presented on TFMPP, which was a study that was referenced in my document. I don't think we actually brought that one up.

Q. Okay. And as it relates to the adjectives that were used by the subjects, what adjectives were used to describe the MDMA effects?

A. Right. Drug-liking, high, stimulated, self-confident.

Q. And those were similar to the effects that you described earlier as it related to the BZP drug, correct?

MR. SMITH: I object. He's leading.

THE COURT: All right. Sustained. Don't lead.

Q. What other study was that similar to that we've heard about today?

A. That's similar to the studies of TFMPP effect on the Profile of Mood States as well as the ARCI, Addiction Resource Center Inventory.

Q. Doctor, are you familiar with a drug called methylphenidate?

A. Yes, I am.

Q. And is methylphenidate sometimes referred to as MP?

A. I abbreviated it as MP in my written documents.

MR. MURPHY: Your Honor, I'm two questions late, but I'd move to strike all the testimony that the witness just gave regarding this Tancer study I believe she identified as one that was not produced.

THE COURT: All right. I'm going to overrule that objection and to the extent that -- I think you can deal with it on cross-examination effectively based on the testimony, but if for some reason you feel you can't, we can deal with that if and when we get there.

All right. Go ahead.

Q. You indicated that you are familiar with methylphenidate?

A. I am.

Q. And what class does methylphenidate in the drug world fall into?

A. Methylphenidate is a Class II controlled substance, Schedule II.

Q. It's a Class II schedule substance? What is -- chemically, what is methylphenidate?

A. Chemically, methylphenidate is considered a stimulant.

Q. Does methylphenidate interact with the neurotransmitter dopamine in any way?

A. It does.

Q. How does it affect, if at all, the neurotransmitter dopamine?

A. Methylphenidate prevents the reuptake of dopamine into presynaptic neurons.

Q. Does methylphenidate trigger, my word, trigger the release of the neurotransmitter dopamine?

A. No, it does not.

Q. So you indicated it is an uptake inhibitor, though, correct?

A. Yes.

Q. Does it, that is to say methylphenidate, inhibit the reuptake of any other neurotransmitters?

A. It has negligible effects on serotonin; it does work on norepinephrine.

Q. What is the comparative difference in the effect of methylphenidate on neurotransmitters with that of BZP and TFMPP?

MR. SMITH: Object to the form of the question.

THE COURT: I'm going to have you reask that question. I'll sustain the objection. Try it again.

MR. FERLAND: Yes.

Q. Are there differences, Doctor, as it relates to BZP/TFMPP and methylphenidate on their affect on neurotransmitters?

A. There is.

Q. And can you detail for us the differences between those two substances?

A. Yes. As you may recall, benzylpiperazine, trifluoromethylphenylpiperazine stimulate release of dopamine, serotonin as well as inhibit their reuptake. Methylphenidate, on the other hand, is purely a reuptake inhibitor. It does not stimulate the release of either norepinephrine or dopamine; however, it does inhibit their reuptake.

Q. Now, based on your review of the literature, your

education and your training as a pharmacist, can you state to a reasonable degree of scientific certainty what drug BZP/TFMPP is most closely analogous to?

MR. SMITH: I object.

MR. MURPHY: And I join in the objection as in every one but this one in particular.

MR. SMITH: May I be heard?

THE COURT: Yes.

MR. SMITH: As I read Application Note 5 of Chapter 2D1.1, the second paragraph: In the case of a controlled substance that is not specifically referenced in this guideline, determine the base offense level using the marijuana equivalency of the most closely-related controlled substance referenced in this guideline. In determining the most closely-related controlled substance, the court shall, to the extent practical, consider the following: A, the chemical -- I'll abbreviate -- the chemical structure; B, whether the controlled substance not referenced in this guideline has a stimulant, depressant or hallucinogenic effect on the central nervous system that is substantially similar to the stimulant, depressant or hallucinogenic effect on the central nervous system of a controlled substance referenced in the guideline; and C, whether a lesser or

greater quantity of controlled substance not referenced in this guideline is needed to produce a substantially similar effect on the central nervous system as a controlled substance referenced in this guideline.

My take on the question is she's going to get to the proof of the pudding and say BZP and TFMPP to a reasonable degree of pharmacological certainty is the same as, closely-related to MDMA, but these other questions have not been asked and I don't believe that she should be qualified to respond that way until Subsection A and Subsection C are addressed.

THE COURT: Well, I think that Mr. Ferland has taken the approach, and we're veering into argument here, but he's taken the approach of focusing on Subsection B.

MR. SMITH: Correct.

THE COURT: And that may or may not be adequate or appropriate but that's argument.

MR. SMITH: I understand that, your Honor.

THE COURT: But I don't think that should prohibit the witness from rendering an opinion on that which she is competent to render an opinion.

MR. SMITH: Agreed. But the form of the question doesn't address the language in Subsection B and, therefore, I object.

THE COURT: I understand your point there, and I think that's a valid point.

So I mean there's a lot of layers to all of this. Many of these layers are argument and we'll deal with them, including what we just heard from Mr. Smith and my response to that with respect to Subsections A and C. You're focusing on Subsection B. Another layer to this is the term "controlled substance," and I think we have agreed that at least maybe your question should be directed to both the controlled substance, which is solely BZP, as well as the controlled substance plus the non-controlled substance, the TFMPP, and elicit an opinion from the witness as to both because she has testified that there's a -- I'll call my own term -- exponential relationship in terms of the additive or the addition of these two things. But in doing so, I think you need to tailor your question closely to the actual language of Subsection B.

So with that guidance, why don't you try it again.

MR. FERLAND: I will, your Honor, but I do think it's necessary for me to respond. And I know this is not the appropriate time for argument, but I do want the Court to consider what the Second Circuit has told us on this exact issue in the **United States versus**

Chowdhury. That's C-H-O-W-D-H-U-R-Y, which is found at 639 Fed 3d at 583.

The Court there recognizes the fact that it's entirely possible when you're trying to determine which drug is most closely analogous that one or more of the criteria set forth in the Application Note will not be satisfied.

THE COURT: Right. I'm familiar with the Chowdhury case. I understand what the Second Circuit has said.

MR. FERLAND: I understand that, your Honor, and I will focus on that.

THE COURT: Okay.

Q. So, Doctor, as it relates to the chemical structure of BZP, you have familiarized yourself with that, is that fair to say?

A. Yes.

Q. Is the chemical structure of BZP and methylphenidate similar?

A. Yes.

Q. Is that the -- the similarity in structure, is that the final determiner as to whether those drugs have similar hallucinogenic or stimulant effects on the human body?

MR. SMITH: Objection. Not relevant.

MR. FERLAND: It's highly relevant. It goes to the crux of the matter before the Court.

MR. SMITH: Judge, it's not relevant as to Subsection A of Application Note 5.

THE COURT: Well, I'm not sure I heard the question clearly. I'll ask the reporter to read it back.

(Pending question read by the reporter.)

THE COURT: Read the question before that, please.

(Testimony read by the reporter.)

MR. SMITH: May I say one additional thing, your Honor?

THE COURT: I thought you were going to ask her questions about Subsection B, and you asked her a question about A.

MR. FERLAND: Your Honor, it relates to B, and here's why. I'm anticipating the defense position here. And the defense position here is that the most closely analogous drug is the methylphenidate. And as I understand it, the primary reason why defense comes to that conclusion is because of the chemical structure. And I believe that what that does is essentially ignores Section B, which relates to the hallucinogenic stimulant effects of the drug on the

central nervous system.

THE COURT: But the witness, while she may be qualified to do so, she has not testified today about the chemical structure of BZP and MP or BZP plus TFMPP. You started with some questions, very general questions about chemical structure, and then you went into the effect on the central nervous system. You didn't ask her to -- maybe you want to do that, I don't know, but she hasn't talked about that.

So now you're asking her some opinion questions that directly refer to and rely upon the chemical structure of the compounds, and I think that's what -- I don't know if that's exactly what the objection is about but that's the problem I'm having with it.

MR. FERLAND: I understand. I will rephrase the question for the witness, your Honor, but as I understand the testimony thus far is that she has familiarized herself with the chemical structure of BZP and has been able to compare BZP with methylphenidate and has come to the conclusion that they are structurally similar. That's my understanding of the testimony thus far.

So with that being said, A is certainly satisfied as it relates to the defense position as to what are the similarities between the drug that they

wish the Court to consider versus the drug that the Government wishes you to consider.

THE COURT: Mr. Smith.

MR. SMITH: The defense position is -- the way I got the answer was besides chemical structure that's not all that's required, is there. And it's almost like a question, I want you to comment on the law. That's your job, not hers. He can ask another question as to B or C but for this witness to say, Oh, no, that's not also what's required, you need to do B, you need to do C. That's the way I understood the question to be posed, and I don't think that's proper for this witness because she's certainly not qualified, but you certainly are.

THE COURT: Yeah. Right.

MR. FERLAND: Your Honor, I understand what Mr. Smith is getting at. I'm not -- let me rephrase the question because the question draws on the science, not any kind of a legal opinion on the part of the --

THE COURT: Let me try to tell you what -- if you want to ask her a question about the chemical structure of the compounds and she is qualified to do so, which I think based on testimony thus far she probably is, I think you need to put more foundation about the actual chemical structure.

I mean, I've been reading reports and doing my own research and I've got lots of little diagrams that I haven't looked at since high school chemistry, and, now, she hasn't talked about any of those structural diagrams. I know the defense expert has much of that in his report.

If you want to ask her about the structural similarity of the compounds, I think you've got to go through that foundation. And then if you want to ask her sort of the ultimate opinion questions with respect to the effect on the central nervous system, which I think you've largely covered already, of the compounds, then that is fine, too. And then to the extent you want to ask her a question of how the chemical structure relates to the effect on the central nervous system and if there are other aspects to that, then I think that would be appropriate, but I don't think you've yet set the foundation for the questions on Subsection A.

MR. FERLAND: Very well.

Q. Earlier in your testimony, ma'am, you indicated that you were provided with certain documents relative to your analysis of the substances in question in this case; is that correct?

A. Yes.

Q. And you've told us about the sentencing guidelines?

A. Yes.

Q. Were you provided with any information as it relates to a defense report?

A. I was.

Q. Did you familiarize yourself with the defense report?

A. I did.

Q. Were there any diagrams of the chemical structure of the substances in question that we have been talking about contained in the defense report?

A. Yes.

THE COURT: Maybe you can use the ELMO for this.

MR. FERLAND: Thank you, your Honor.

Q. You should be able to see on your monitor there in front of you, ma'am.

Have you found in your study of chemistry and in your field of pharmacy diagrams, whether they are helpful in understanding the chemical structure of a particular substance?

A. Yes.

Q. I'd like to show you a diagram --

MR. FERLAND: By the way, your Honor, could I have this marked as identification --

MR. SMITH: No objection full. Is that Mr. Bono's report?

MR. FERLAND: I have no problem having it admitted as an exhibit.

MR. SMITH: Fine.

THE COURT: All right. Then Dr. Bono's report will be Government Exhibit 4?

MR. FERLAND: I believe so, your Honor, yes.

(Government Exhibit 4 admitted in full.)

Q. So ma'am, what I'll show you now has been marked as Government's 4, and I'll direct your attention specifically in this exhibit --

MR. FERLAND: Actually, one thing that I do want to bring to the Court's attention, I've just realized that I've marked up in the margins this report, but I'll provide a clean one for the record.

THE COURT: Counsel may have a clean one that you can use. Do you?

MR. SMITH: I can't access it right away, Judge. I have no problem with this, and we can substitute it later.

MR. MURPHY: I might have one, your Honor.

THE COURT: Okay. Go ahead, Mr. Ferland. Use what you have.

MR. FERLAND: Actually, your Honor, I do have --

I do have a clean one, your Honor. Thank you.

THE COURT: All right.

Q. And as it relates to that report, ma'am, I'd like to direct your attention to page four of the report. Are you able to see what is depicted here on page four?

A. Mostly. If you could slide it down just a tad.

Q. My monitor is not working, so let me see if I can back it up a little bit.

THE COURT: You're going the wrong way.

MR. FERLAND: Wrong way?

THE WITNESS: There we go.

MR. FERLAND: Now I can see it.

Q. What is it that we're looking at here as depicted on page four of Government's Exhibit Number 4?

A. You're looking at chemical structures of several compounds, including benzylpiperazine, amphetamine and MDMA.

Q. And at the top of the three diagrams there, is that the diagram for benzylpiperazine?

A. Yes.

Q. And at the bottom of the page, ma'am, there are two diagrams adjacent to one another. What do you recognize those diagrams to depict?

A. The one depicts benzylpiperazine, and the other one depicts MDMA.

Q. And as it relates to the chemical structure of those two substances, benzylpiperazine and MDMA, are those chemical structures similar to one another?

A. To some degree.

Q. What are the similarities between those two substances?

A. Well, you can clearly see that there is a benzene ring, which is the ring with the lines on the inside, that is connected to a carbon with benzylpiperazine and then to a nitrogen. You will also see with MDMA that it's not exactly the same here.

Q. It is not exactly the same here. Now, as it relates to 3, 4-methylenedioxyphenethyl on page five of this exhibit, do you see what has been diagramed out as 3, 4-methylenedioxyphenethyl?

A. Phenethyl, yes.

Q. Phenethyl. Okay. And how does that compound or that chemical factor into this comparative analysis?

MR. SMITH: Objection to the form of the question.

THE COURT: I'll sustain that. Try again.

Q. When we look at this diagram -- and what I want to do is before I go further, I just want to jump back to page four.

When I look at this diagram, the differences

between the benzylpiperazine and the MDMA, okay, what is it exactly that this diagram shows us? In other words, what is being illustrated here in the diagram?

A. The chemical structures of different substances.

Q. Okay. And in what aspect is it -- in other words, what is it showing the viewer as it relates to these chemicals? I'm asking the question inartfully.

A. Sorry. I'm not clear.

Q. In other words, what does this diagram help us to understand about the nature of these two substances?

A. I'm not sure how to answer that.

Q. Why do we use diagrams when it comes to chemical composition?

A. You can identify classes of medications that have similar components.

Q. Okay. And what would be the types of components that you're looking for in determining the similarities?

A. You're looking at the presence of different chemical groups. In this case, I mentioned the benzene ring, to see if they're substantially similar or not.

Q. Okay. And in this instance, as it relates to the benzylpiperazine and the MDMA, you've already offered the opinion that they have some similarities; is that correct?

A. Some.
Q. Some. But you would certainly not call these, characterize these as similar -- as it relates to these --
THE COURT: Mr. Ferland, I don't want to tell you how to ask your question, but the guideline uses the term "substantially similar." So at the end of the day, that's what I'm looking at is whether something is substantially similar. So perhaps it would be good to focus the witness on that.
Q. I've asked you whether or not there are similarities between the MDMA and benzylpiperazine; correct?
A. Yes.
Q. And you indicated that there are some similarities; is that right?
A. Yes.
Q. Are they substantially similar?
A. No.
MR. SMITH: Objection. Asked and answered. Some degree.
THE COURT: No. He asked her if they were substantially similar and she said, no, they are not. Would you like to withdraw your objection?
MR. SMITH: I certainly would.

THE COURT: All right.

MR. FERLAND: Thank you.

Q. And so now, as it relates to Section C, the dosage equivalencies, what are the factors that -- as a pharmacist, what are the factors that come into play in determining what effects certain dosage units will have on an individual?

A. Dosage equivalency is very hard to establish, in my opinion, even with prescription drugs that we've done many, many studies on. You have to look at the exact effects of each individual agent. And even within classes of commonly used drugs like drugs for high cholesterol and antipsychotic drugs, differences in the chemical structure may impose or impart differing, slightly differing effects in the body. And therefore, when you're trying to come up with an exact equivalent, it's very difficult.

Q. Okay. Now, as it relates to the criteria three in the sentencing guidelines, you've been able to review that; is that correct?

A. Yes.

Q. And were you able to formulate an opinion --

MR. SMITH: Criteria three? Excuse me, your Honor. That would be Application Note 5C?

THE COURT: I think he's talking about 5C, yes.

MR. FERLAND: 5C.

Q. Have you familiarized yourself with that?

A. Yes.

Q. Were you able to formulate an opinion to a reasonable degree of scientific certainty as to what comparative amounts of drugs would be necessary to achieve the same effect?

A. No.

Q. And why is that?

A. Because they -- while all amphetamines affect dopamine and serotonin and norepinephrine, they affect them at different levels based on which agent is being used, and so it's really hard to go across the line and say, well, 5 milligrams of this one is equal to 15 of this one but 50 of MDMA. It's very difficult to do that.

Q. Okay. And so you are unable to do it?

A. Unable.

Q. Okay. Now, one question that I have for you relates to BZP standing alone.

A. Okay.

Q. You've told us about the effects on the central nervous system of BZP standing alone, is that fair to say?

A. Yes.

Q. Now, as it relates to the substance methylphenidate, MP, let me call it MP because I'm probably mispronouncing it.

A. No. You're pronouncing it perfectly.

Q. The MP compared with the BZP standing alone, is BZP standing alone substantially similar in its effects to the methylphenidate, the MP?

A. Methylphenidate does not have effects on serotonin; BZP does. Methylphenidate does not cause the release of dopamine; BZP does. I would consider those substantial differences.

MR. MURPHY: Sorry. I didn't hear -- I heard "substantially" but the word after that?

THE WITNESS: I would not consider those -- or I would consider those substantial differences.

Q. Because of its failure to trigger the release of these substances?

MR. SMITH: Objection to that statement.

THE COURT: Sustained.

Q. Why again would you say that they're substantially different?

MR. SMITH: Asked and answered.

THE COURT: The record is clear.

MR. FERLAND: Thank you.

Q. As it relates to -- strike that. I'm going to --

MR. FERLAND: Could I have just a moment, please, your Honor?

THE COURT: Yes.

(Pause.)

Q. You've indicated that you have familiarized yourself with the clinical effects of the combination of BZP and TFMPP; is that correct?

A. Yes.

Q. And clinically, what drug produces substantially similar effects?

A. MDMA.

MR. FERLAND: Your Honor, at this point in time, I'd like to admit the witness's report as a full exhibit.

MR. SMITH: Objection.

THE COURT: All right. Grounds?

MR. SMITH: The witness's statement certainly, if we ever get to that, can be admitted but to memorialize her opinion by means of the report, I would object to that. I realize there's no jury. I understand that. But I don't think that the Rules permit the report to go in, just the witness's testimony. The report is her report but, as far as I'm concerned, the best evidence is the opinion of the witness.

THE COURT: That's the usual procedure.

MR. FERLAND: Your Honor, if I could.

THE COURT: Sure.

MR. FERLAND: I'm going to ask a couple more questions, and then I'll renew my motion. If it's subject to cross-examination, that's fine as well, but I just wanted to get that preparatory move out of the way.

THE COURT: Well, at some point, we'll have to confront the question, but ask your questions and then we'll deal with it.

MR. FERLAND: Very well.

Q. So as it relates to your ultimate opinion as to which drug BZP/TFMPP is most substantially similar to, you've indicated that you've considered the Application Note 5, Subsection A as it relates to the structure of the drug, correct?

A. Yes.

Q. And as it relates to Subsection -- strike that -- Application Note 5, paragraph C, you've indicated that you've considered that but are unable to render an opinion as it relates to the equivalent dosage that would be required; is that correct?

A. Yes.

Q. The primary focus as it relates to your opinion,

the basis for your opinion is on paragraph B of Application Note 5; is that correct?

A. Yes.

Q. And have you been able to formulate an opinion to a reasonable degree of scientific certainty --

A. Yes.

Q. -- as to whether the controlled substance, that is to say BZP/TFMPP has a stimulant, depressant or hallucinogenic effect on the central nervous system that is substantially similar to the stimulant, depressant or hallucinogenic effect of MDMA?

A. Yes.

Q. And what is that opinion?

MR. MURPHY: Objection.

THE COURT: Overruled.

A. Restate the question, please.

MR. FERLAND: I knew you were going to make me do that.

THE COURT: The reporter can read it back.

MR. FERLAND: Thank you.

(Pending question read by the reporter.)

A. Yes.

Q. And what is that opinion?

A. The effect of BZP and TFMPP is substantially similar to MDMA.

MR. FERLAND: I have no further questions. I again renew my motion to move the report in as full.

MR. SMITH: Objection.

THE COURT: All right. So let's talk about that for a moment. I've read the witness's report. I think it's helpful, frankly, on a variety of points that are maybe refinements, so to speak, of some of her testimony here today, and I think it would be useful to have it in the record. I'm wondering if there's anything specific that you can point to that you think is either inappropriate in light of her testimony or goes, you know, far beyond what her testimony is that you could not effectively cross-examine on.

I mean, we're not dealing here with a jury trial. I have admitted your expert's report. I understand it was the Government's motion to admit that. It's unusual, but there we have it. I think it would be, as I said, useful.

MR. SMITH: I understand that. But as an advocate, I'm dealing with what I heard her say, the witness. And now I cannot think exactly what else may be damaging in that report that will not help my client, but my knee-jerk reaction is I deal with what I heard, not with what I didn't hear and something else that may come in to give the Government the benefit of

an argument at a later date. I think that's doing a disservice to my client. The fact that the Government said we'll put Mr. Bono's report in, well, fine. If that's what you want, you can have that. But as an advocate, I want to deal with exactly what I've heard from this witness and nothing more, and that's my objection.

MR. FERLAND: Your Honor, respectfully, that's not a legal basis. The question is whether or not he's going to have an opportunity to confront and cross-examine the witness including the witness's report, and that certainly will be the case. This is not a Mendez situation where the report is being admitted without benefit of the person who has prepared the report as some sort of a confrontation issue.

The report speaks for itself. The witness is available to be cross-examined on the contents of the report. Counsel has had the report for at least four weeks, I would say. So it is, I'm sure, intimately familiar with it.

MR. SMITH: Judge, I still don't think it is the custom and practice when an expert witness testifies that the report comes in.

THE COURT: Well, it's a little bit unusual to have expert testimony at the sentencing stage, and

we're dealing here with a highly complex subject matter. I think it's within my discretion to admit the report. I think having both reports in the record is, frankly, helpful to me in making my determination. I think the ultimate opinion of the witness is what she has stated from the stand, and I think Mr. Ferland is correct that you have had the report for a considerable amount of time, been able to prepare your cross-examination as to the report and now you've heard her testimony, and I think I'll give you more time to prepare your cross-examination over an extended lunch break.

So I just don't see any prejudice to the Defendants for admitting the report. And given that it can be helpful to me in getting my head around some of the finer points of what we're dealing with here, I'm going to admit it.

(Government Exhibit 2 admitted in full.)

THE COURT: Mr. Murphy?

MR. MURPHY: Your Honor, I take it that this is the only witness that the Government is proffering on this issue?

MR. FERLAND: Correct.

MR. MURPHY: Thank you. That being the case, at the conclusion of the testimony, I intended to make a

motion akin to a motion for a directed verdict or motion for a judgment of acquittal and the basis would be that the witness, to the extent she has testified with respect to the directives of Application Note 5A, B and C; 5A she's corroborated that the similarity of BZP to Ritalin; B, she has given numerous opinions; but C, she said she cannot give an opinion on. And I think it's the Government's burden to proffer testimony on A, B and C to establish its case that the BZP is most similar, substantially similar to MDMA.

Now, I would ordinarily reserve -- make that motion at the end of all the testimony, but I'm fearful about what the admission of the report as a full exhibit would have upon the Court's ruling on that motion.

So for that additional reason, I object to the admission of Dr. Ward's report as an exhibit.

THE COURT: All right. Well, I stand by my ruling for the reasons I've stated. And I think the way -- well, counsel come up to side bar.

(Side bar conference off the record.)

THE COURT: All right. So what we're going to do is we're going to take an extended lunch break at this time so that counsel can have a little more time to prepare cross-examination of the witness, but I'm

confident that we're going to be able to get through all of the testimony, your cross-examination and the defense expert's testimony today.

So we'll reconvene at 1:30, and I'm going to assume we are back in this courtroom at that time unless you hear otherwise. Okay?

All right. Thank you very much.

(Lunch recess.)

THE COURT: Welcome back, everyone. Are we ready to proceed with the cross-examination of Dr. Ward.

MR. SMITH: Yes, your Honor.

THE COURT: All right. Would you please retake the stand.

Good afternoon, again, Dr. Ward.

You may proceed, Mr. Smith.

MR. SMITH: Thank you, your Honor.

CROSS-EXAMINATION BY MR. SMITH

Q. Ms. Ward, I think you said when we first started that you were engaged by the Department of Justice; is that correct?

A. That's correct.

Q. And how did that occur?

A. I was contacted by Mr. Ferland to see if I was interested in helping him with this case.

Q. Okay. Did Mr. Ferland discuss how he got your name?
A. No. Not that I can recall.
Q. I'm sorry?
A. Not that I can recall.
Q. Okay. Do you in some way advertise or have a website that would suggest that you render these services?
A. No.
Q. Had you ever rendered services like this before?
A. I have not testified in Federal Court regarding this.
Q. My question is have you ever rendered services like this before?
A. Yes, I have consulted on other civil cases.
Q. Civil cases?
A. Yes.
Q. How many times?
A. I think two other times.
THE COURT: Would you put that microphone just a little closer to you.
THE WITNESS: Yes. I can move up.
THE COURT: Thank you.
Q. Okay. Was there a letter of engagement from the Department of Justice?

A. There was a contracted agreement, yes.
Q. Do you have that with you?
A. I do not.
Q. Did you bring anything with you?
A. My computer is downstairs with the officials downstairs.
Q. Did you bring a file with you?
A. I do have a file folder.
Q. Where is that?
A. That is at the desk.
Q. And what's in the file folder?
A. A bunch of studies, my notes in terms of my notes on the study, the document that I had provided that was admitted into evidence.
Q. Your report?
A. My report, yes.
Q. Okay. Did you meet with Mr. Ferland?
A. No. I did before. Yes, we met before, but I did not meet with him at the time that he contacted me for my services.
Q. Okay. But after you were contacted -- by the way, do you remember specifically what it was you were asked to do?
A. Yes. I was asked to review the details of the case regarding benzylpiperazine and

trifluoromethylphenylpiperazine with respect to Federal Sentencing Guidelines.

Q. Okay. Was MDMA mentioned at that time?

A. He mentioned to me that the Government -- it was their position that they were trying to see if there were similarities between benzylpiperazine and TFMPP and MDMA.

Q. So the answer to my question is yes, MDMA was mentioned at that time?

A. Correct.

Q. Okay. So you knew that the Government's position at the initial point of engagement was they were trying to make a correlation between BZP, TFMPP and MDMA?

A. Yes.

Q. Okay. Was there any other drug mentioned by the Government other than MDMA?

A. No.

Q. Okay. After the initial contact, were you contacted again by the Government?

A. Only with regard to scheduling or providing my report and the scheduling of this hearing.

Q. Well, did you receive any documentation from the Government?

A. I did.

Q. When?

A. It was -- I'm trying to think when in relationship it was to the original contact. I would say it was within a couple of weeks.

Q. Okay. And what did you receive?

A. I received the expert opinion from the defense. I received the Federal Sentencing Guidelines that we had been talking about. I received some initial articles about BZP and TFMPP and --

Q. Who gave you those articles about BZP and TFMPP?

A. I was provided with those by Mr. Ferland.

Q. Okay. The Government gave those to you?

A. Yes.

Q. What articles were they?

A. There was a review article about BZP and TFMPP published in Clinical Toxicology. I don't recall the author.

Q. Was that of any assistance to you?

A. Certainly.

Q. In what way?

A. It provided a good overview of the two compounds in regard to their effects on the body.

Q. And did it also reference MDMA, the article?

A. I believe so.

Q. Okay. So the Government provided you with an article basically supporting their position that BZP

combined with TFMPP is similar to MDMA; is that right?
A. Yes.
Q. Okay. What other articles, if any, did the Government provide to you before you did your analysis?
A. That was the primary one. There were a couple of others. I cannot remember exactly which ones they were.
Q. Well, the primary one, do you remember what specifically that was?
A. That was the Clinical Toxicology one that I just mentioned.
Q. And do you have that with you today?
A. Yes. It's in the file folder.
Q. Where's your file folder?
A. On the table.
MR. SMITH: Judge, may I have the witness retrieve the file folder, or I can bring it to her. I'll be happy to do that.
THE COURT: Maybe Mr. Ferland -- you're looking for that article?
MR. SMITH: I am.
THE COURT: Maybe Mr. Ferland can either find the article or give the file folder to the witness and she can find it.
Q. While he's doing that, did you review that file

folder before you testified here today?
A. I reviewed that file folder in preparation, certainly.
Q. In preparation for your testimony?
A. Yes. I would have looked through the materials.
MR. FERLAND: May I approach?
THE COURT: Yes.
Q. How many documents do you have there?
A. Twelve.
Q. Were all of those documents provided by the Government?
A. No.
Q. How many were provided by the Government?
A. The ones that I have here with regard -- the only one that was provided here that I have from the Government was the Clinical Toxicology.
Q. Was that the main document that you were referring to?
A. This is the initial review article that they provided, yes.
Q. Okay. That's the one you just referenced earlier?
A. Yes.
Q. Okay. But they provided how many documents?
A. I can't recall the exact number. It was more than one. I have a lot of PDF studies saved on my computer

and that's, you know, that's why I only have 12 documents here.

Q. Okay. The PDF studies on your computer, were any of those provided by the Government?

A. I know in an e-mail that Mr. Ferland sent me this study in addition to some others, but not a huge quantity. I would say less than five.

Q. So then the means of providing you with material was electronically?

A. Yes.

Q. Okay. With regard to the study that the Government provided correlating BZP and TFMPP with MDMA, what did you do with that document?

A. I read it.

Q. And other than that, did you research any of the contents in the document?

A. Yes.

Q. Okay. Tell us what you did.

A. Well, I started off performing a Medline search using PubMed, which is a database provided by the National Library of Medicine with over 16 million citations to scholarly articles. In that process, I identified a number of articles that referred to benzylpiperazine and TFMPP, which is the focus of the topic today.

Q. Okay. And you used those articles in assisting you in your analysis and your opinion that you testified here to today?

A. Yes.

Q. Okay. Had you ever analyzed BZP prior to this request?

A. No.

Q. Had you ever heard of it before?

A. Actually, no.

Q. Okay. So this was a brand new drug as far as you were concerned, in your experience?

A. Yes.

Q. Okay. And what about TFMPP?

A. The same.

Q. What about MDMA?

A. No. I've definitely heard of MDMA.

Q. Okay. So you knew about the components of MDMA, for lack of a better word, but had no history concerning BZP or TFMPP, correct?

A. That's correct.

Q. So this was a learning process for you?

A. Sure.

Q. Okay. Now, I think you indicated that -- you went into your background and you talked about clinical use with respect to your title in pharmacology, correct?

A. Clinical use? Are you speaking to my personal background?

Q. Yes.

A. Yes. I have been schooled in the clinical use of drugs, which is different. That's pharmacotherapy, not pharmacology, but yes.

Q. Okay. You also talked about drug information practice. What's that again?

A. Drug information practice is when you are presented or posed with a question by a variety of different practitioners in the healthcare setting regarding patients or not, but it regards drugs. And one of the things that you're trained as a drug information practitioner is to be available to evaluate the literature, critically evaluate it and then apply it to the clinical situation at hand. So in order to do that, you have to have clinical experience.

Q. Okay. Let me go back for a moment to the PDF file, the main document that was provided by the Government.

Was there any reference to the Drug Enforcement Administration in that article?

A. They talked a lot about New Zealand. And yes, they do mention a controlled substance. Um-hum. (Affirmative.)

Q. My question was Drug Enforcement Administration.
A. It does not specifically mention the DEA.
Q. Are you familiar with DEA?
A. Absolutely.
Q. Okay. In what way?
A. I know that the Drug Enforcement Administration is responsible for scheduling chemical substances in this country based on the potential for misuse and addiction.
Q. And for how long did you know that?
A. Since I've been in pharmacy school.
Q. Okay. And have you ever accessed any of the DEA publications?
A. Not since school.
Q. Okay. But you were aware of it, correct?
A. Every pharmacist is.
Q. You said you used Medline as a medical search to assist you in rendering your opinion, correct?
A. Yes.
Q. Did you use any other search engines?
A. PubMed is the primary search engine to find medical literature. There are other search engines available; notably, M-Base, which has a broader international coverage. I did run a search in M-Base that produced similar findings to what I found in

PubMed.

Q. Have you ever heard of Google?

A. I have heard of Google.

Q. Did you use Google in any way to assist you?

A. Absolutely not.

Q. Was there a reason why you didn't?

A. My students would be laughing now. I don't advocate Google as a source of professional medical information.

Q. But I'm asking about Google concerning a correlation -- I should have asked it this way.

Did you consider using Google for assisting you in making a determination of the correlation between BZP and TFMPP as it relates to MDMA?

A. No.

MR. SMITH: May I have just a moment to show these to Mr. Ferland?

THE COURT: Yes.

(Pause.)

MR. SMITH: Judge, just so you know, these are items that I've referenced in my sentencing memo so I believe Mr. Ferland has seen them before.

THE COURT: Thank you.

MR. SMITH: You're welcome.

May I have a moment?

THE COURT: Yes.

Q. Are you aware with respect to the scheduling of controlled substances whether or not the Government had considered BZP and TFMPP as controlled substances?

A. Yes.

Q. Okay. When did you become aware of that?

A. After I started researching for this case.

Q. All right.

MR. SMITH: May I approach the witness?

THE COURT: Yes.

Q. I'm showing you Exhibit A, and that's a Code of Federal Regulations but published in a Federal Register. Had you ever seen that before?

A. Not this one particularly, no.

Q. Have you seen ones like it?

A. Yes, I've read stuff from the Federal Register, indeed.

Q. For this case?

A. Not for this case.

Q. Okay. So you would agree with me then, prior to your engagement, you were familiar with the Federal Register and certain publications by the Federal Government concerning drugs?

A. Yes.

Q. Okay. What's the date on that document?

A. July 18th, 2002.
Q. Okay. If I were to suggest to you that was the first document where the Government was investigating scheduling BZP and TFMPP as controlled substances, would you disagree with that?
MR. FERLAND: Objection.
THE COURT: Grounds?
MR. FERLAND: She's already indicated she's not familiar with that particular provision of the CFR, she has not familiarized herself with it. She's not qualified to answer the question one way or the other.
THE COURT: Well, maybe you can ask her in a different way --
MR. SMITH: Certainly.
THE COURT: -- whether she knows or doesn't know the first time.
Q. You're aware of the fact that the Government considered scheduling BZP as a controlled substance, correct?
A. Yes.
Q. Do you have any idea when?
A. No.
Q. By looking at that document, would it refresh your recollection as when the Government intended to schedule BZP as a Schedule I controlled substance?

MR. FERLAND: Objection.

THE COURT: Sustained. She's never reviewed the document before.

MR. SMITH: Then I'd just ask the Court to take judicial notice of the document. It's a Federal Register, Volume 67, Number 138, dated July 18th, 2002, entitled "Proposed Rules," pages 47-341, 47-342 and 47-343.

MR. FERLAND: No objection.

THE COURT: Okay. Thank you. Why don't we make this an exhibit just so the record is clear.

MR. SMITH: It's Exhibit A. I'm sorry.

THE COURT: There's no objection to this?

MR. FERLAND: No, your Honor.

THE COURT: So this will be full, Exhibit A.

(Defendants' Exhibit A admitted in full.)

MR. SMITH: I have in my hands, Judge, Exhibit B. It is the Federal Register, Volume 68, Number 173, dated September 8th, 2003. It's entitled "Proposed Rules." I'd ask the Court to take judicial notice of this document and enter it as a full exhibit.

MR. FERLAND: No objection.

THE COURT: All right. Exhibit B will be full.

(Defendants' Exhibit B admitted in full.)

MR. SMITH: I have in my hands Exhibit C. It's

entitled Federal Register, Volume 69, Number 53, dated March 18th, 2004, entitled "Rules and Regulations," and I'd ask the Court to take judicial notice.

MR. FERLAND: No objection.

THE COURT: All right. C will be full as well.

(Defendants' Exhibit C admitted in full.)

MR. SMITH: Exhibit D is a Federal Register, Volume 75, Number 151, dated August 6, 2010, entitled "Rules and Regulations" and ask the Court to take judicial notice of this document also.

MR. FERLAND: No objection.

THE COURT: All right. D will be full.

(Defendants' Exhibit D admitted in full.)

MR. SMITH: Lastly, I have E, which is a publication entitled "U.S. Department of Justice, Drug Enforcement Administration, Office of Diversion Control," and it's dated May 2010, addressing BZP A-2 Legal E or Legal X.

MR. FERLAND: I object to that, your Honor. It's hearsay. It's not subject to judicial notice.

THE COURT: Well, Exhibit E in your memorandum is a Federal Register, so is this something else?

MR. SMITH: It is. It's not the same exhibit, Judge, only because some of the documents in the memorandum would not be useful in this hearing, and

that's why I'm just going in order. But it's one of the exhibits and it may be F or G. I don't have my memo with me.

THE COURT: Oh, I see. It looks like a Web page?

MR. SMITH: That's correct. It's U.S. Department of Justice, Drug Enforcement Administration, Office of Diversion Control. And there's a date, May 2010.

THE COURT: I'm going to sustain the objection to this document.

Q. Do you -- in your research, did you make a determination as to any comparison of BZP to amphetamine?

A. There is some comparison between BZP and amphetamine. I'm not exactly sure what you're asking me.

Q. Well, I'm asking you if you made any analysis of BZP to amphetamine rather than MDMA?

A. There is no direct comparison between BZP and amphetamine. There is information comparing BZP with dextroamphetamine.

Q. Is there a difference between dextroamphetamine and amphetamine as I use it?

A. Yes. Dextroamphetamine is the dextro isomer of

amphetamine. Amphetamine is composed of the levo and dextro isomers. That's kind of -- they look -- they're like mirror images of each other, right? So the dextroamphetamine is the one side of the mirror image and not the other.

Q. So are you suggesting that there's a significant difference between one or the other?

A. I'm not suggesting that at all. What I'm saying is that there was no direct comparison between benzylpiperazine and amphetamine.

Q. There wasn't any?

A. Not that I evaluated.

Q. Are you aware of any DEA publication that suggests that BZP is similar to amphetamine?

A. I'm not. Again, I reviewed the clinical effects of the drug and not necessarily the Department of Justice's website or publishings on this matter.

Q. So would you agree, then, that you focused primarily just on the clinical aspect of the drug?

A. That's what I would suggest.

Q. Okay. But you were provided with the guidelines also, were you not?

A. Yes.

Q. Was there any explanation by the Government with respect to how to address the guidelines?

A. We were -- I was primarily asked to look at Application Note 5, Section B, and to assess whether or not the combination of BZP and TFMPP had a substantially similar effect on the stimulant, depressant or hallucinogenic effect to a referenced substance.

Q. Okay. Would you agree with this definition: That a hallucinogen is a drug that causes hallucinations, profound distortions in a person's perceptions of reality? Would you agree with that?

A. Yes.

Q. Okay. And would you also agree with this definition: That a stimulant increases the level of activity in the central nervous system, the brain and spinal cord and/or the cardiovascular system? Would you agree with that?

A. Yes.

Q. Okay. Then there is a significant difference between a stimulant and an hallucinogen, isn't that true?

A. Yes.

Q. And why is that?

A. Because the stimulant primarily works through the dopaminergic pathway and norepinephrine. You see more of the hallucinogenic properties with the serotonin

component.
Q. Okay. With respect to the drug BZP, did you make a determination in your analysis as to whether or not it's a stimulant or hallucinogen?
A. The effects of BZP are predominantly from dopamine, which would -- and norepinephrine, which would make it a stimulant.
Q. Okay. And as far as MDMA, did you make any analysis with respect to what type of drug MDMA is with regard to a hallucinogen, depressant or stimulant?
A. I would say that MDMA is a hallucinogenic stimulant. It has both properties of a stimulant and of a hallucinogen.
Q. In your analysis, did you check any Government publications as to how the United States Government quantifies or qualifies MDMA?
A. No.
MR. SMITH: Your Honor, I have here the 21 Code of Federal Regulations, Part 1308, which is Schedules of Controlled Substances. It is approximately 31 pages, and I'd ask the Court to take judicial notice of the Code of Federal Regulations.
MR. FERLAND: No objection.
THE COURT: That's fine. That will be exhibit --

MR. SMITH: That's G full.
THE COURT: G?
MR. SMITH: Yes, sir.
THE COURT: Thank you.
(Defendants' Exhibit G admitted in full.)
MR. SMITH: Could I have just a moment?
THE COURT: Yes.

Q. I'm going to show you G, which is a full exhibit, and it's the 21 Code of Federal Regulations 1308. And do you see this Section D that talks about hallucinogens?

A. Yes.

Q. Would you read just that paragraph.

A. (Reading:) Unless specifically accepted or unless listed in another schedule, any material, compound, mixture or preparation, which contains any quantity of the following hallucinogenic substances or which contains any of its salts, isomers and salts of isomers whenever the existence of such salt, isomers and salts of isomers is possible within the specific chemical designation. For purposes of this paragraph only, the term "isomer" includes the optical position and geometric isomers.

Q. Go down to number 11. Do you see number 11?

A. I do.

Q. And what is that?
A. That is listed as MDMA.
Q. Okay. So at least as far as this publication, MDMA is classified as a hallucinogen, correct?
A. Yes.
Q. Okay. But you're telling this Court that you consider it to be both a stimulant and hallucinogen; is that right?
A. Yes.
Q. Why is that?
A. MDMA, in addition to it's hallucinogenic properties, also stimulates the cardiovascular system, which is a property of a stimulant drug.
Q. So if I had six cups of coffee today, would that be a stimulant?
A. Sure, you would have stimulant effects from that coffee.
Q. Okay. Let's talk about the Baumann report. Did you use that in your analysis?
A. I did.
Q. And what was that?
A. Baumann was a report about the use of N-Substituted Piperazine Produced by Humans Mimic the Molecular Mechanism of 3, 4-Methylenedioxymethamphetamine, which is MDMA or

Ecstasy.

Q. Okay. And that report assisted you in rendering your opinion, correct?

A. It did.

Q. But that was a report on rats, isn't that true?

A. It was.

Q. Okay. Is there anything with respect to epidem -- do you know what I'm saying?

A. Epidemiologic?

Q. Yes. Thank you. Rats to humans, correct?

A. Rats -- animals are common models used in human disease clearly because you cannot evaluate this information in humans because they would need to be deceased.

Q. But is there some kind of buffer, so to speak, that because it turns out one way in rats that you'd have to take the information and apply it to humans with some caveat?

A. That's generally how things go when you have clinical drug trials. Usually start off doing preclinical trials in animals and then you do clinical trials in humans.

Q. Okay. And in this particular report, there were no human studies done, correct?

A. In this?

Q. Baumann.
A. No.
Q. When was that report done?
A. Baumann was published in 2005.
Q. Okay. Do you know whether or not TFMPP was a controlled substance in 2005?
A. I believe it was not. From background reading on some of -- and some of the other articles, but, again, I did not specifically go to the U.S. Code to verify that.
Q. Okay. These articles that you read, did you ever read any articles where any division of the United States Government suggested that you can't compare BZP and TFMPP to arrive at the effects of MDMA?
A. I did not read that.
Q. You did not find one?
A. I did not.
Q. Okay.

MR. SMITH: May I have this marked as H.

(Defendants' Exhibit H admitted in full.)

Q. Showing you H, that's the Baumann report; is that correct?
A. Yes.
Q. Are you familiar with that?
A. I am.

Q. Does that report talk about the ratio of BZP and TFMPP?

A. What do you mean "the ratio"? I'm not sure what you mean "the ratio."

Q. Well, you're relying on the Baumann report for studies with rats that would suggest that a combination of BZP and TFMPP would mimic MDMA.

A. Yes.

Q. Is that true?

A. Yes.

Q. Okay. Does that report talk about the quantity of BZP coupled with TFMPP in order for it to mimic MDMA?

A. They use ten milligrams per kilogram.

Q. But I mean the ratio of BZP to TFMPP?

A. They've used ten milligrams per kilogram of each.

Q. So it was equal amounts?

A. Of BZP and TFMPP.

Q. Okay. So according to that study, you need the same amount of BZP coupled with TFMPP to mimic MDMA; is that right?

A. I would say that the study used ten milligrams per kilogram of each, that the pharmacological profile of the release of neurotransmitters is similar, but it's not exactly the same as MDMA.

Q. Okay. But the report that you're relying upon to

mimic MDMA says it's the same amount or quantity of BZP coupled with TFMPP?

A. Yes. They used ten milligrams per kilogram of each substance.

Q. The identical amount?

A. Yes.

Q. Okay. What amount of BZP and TFMPP were found in the controlled substances in this case?

A. I can't remember the exact amount of BZP that was found in this case. I do recall that there was -- seemed to be no quantification of the TFMPP component.

Q. Okay. So you didn't guess as to what the TFMPP component was, did you?

A. No.

Q. Okay. What did you use to determine whether or not it was the same amount, relying on Baumann's report, of course?

A. I did not try to make any conclusion or assumption about that. I merely used the fact that both substances were present in order to obtain an effect.

Q. Okay. So then correct me if I'm wrong, your opinion is, with respect to BZP and TFMPP, even though you don't know the strength of each drug, your opinion is still that it mimics MDMA?

A. I did know and I have seen the exact amount of

benzylpiperazine that was included in the tablet. I cannot recall it at this moment. I did not know, obviously, the component of TFMPP, but those two agents are used together to elicit an effect. There's a reason that they're put together.

Q. I follow you. But my question is but you have no idea what the quantity was, right?

A. Of TFMPP.

Q. Right. And even though the Baumann report says it has to be of equal quantity, you're basically disregarding that and saying I don't need to know the quantity of TFMPP, I'm just going to say it's MDMA or mimics MDMA, correct?

MR. FERLAND: Objection.

THE COURT: Well, it's cross-examination. I'm not sure that's a fair characterization but let the witness respond to it. Overruled.

Go ahead.

A. I know that when you use TFMPP you do see potentiation of the release of dopamine. I know with the use of TFMPP, you see increases in release of serotonin so I used those characteristics to base my opinion on its equivalency or similarity, is a better word, with MDMA.

Q. Even though you don't know what the quantity of

the TFMPP is?
A. I think that's been established.
Q. So the answer is yes, even though I don't know?
A. Yes.
Q. Okay. You have Exhibit 3 in front of you?
A. Yes.
Q. Okay. That was the guideline that was furnished to you by Mr. Ferland?
A. Yes.
Q. Does it have pages at the bottom?
A. Yes. It's pages 150 and 151.
Q. All right. Now, on page 150, you see paragraph numbered 5?
A. Yes.
Q. Okay. Correct me if I'm wrong, but that's the portion of the guidelines you were directed to, isn't that right?
A. That's correct.
Q. Okay. And going on to page 151, do you see A, B and C?
A. I do.
Q. All right. That was also part of your instruction to review A, B and C in rendering your opinion, correct?
A. Yes. With focus on letter B.

Q. Who said to focus on B?
A. Mr. Ferland.
Q. Okay. Did he say disregard A and C?
A. He did not say disregard. He said that we were hoping to use B when you are -- or to have you evaluate B more specifically.
Q. So did Mr. Ferland suggest to you that B was more important than A and C?
A. He just asked me to keep my mind on number B, the letter B when I was going through.
Q. Okay. So basically, listen, here are the guidelines, concentrate on B? Yes?
A. I think that that's reasonable to say.
Q. Okay. And you've already told us about B and the dopamine and the reuptake and everything else so we won't have to go over that again. But let's talk about chemical structure.
A. Certainly.
Q. Okay? And do you remember looking at the report from Mr. Bono as far as the structure was concerned on page four?
A. Yes. I remember looking at his --
Q. In fairness, why don't I get it for you. Can you see that on the screen?
A. Yes.

Q. Okay. Now, I think on direct examination with regard to the structure, you said they were similar to some degree. Do you remember saying that?

A. Benzylpiperazine and MDMA, yes.

Q. Right. And what did you mean by that?

A. I meant there are some similarities, but they're not substantial if you were to take it across the spectrum of the amphetamine group.

Q. All right. So then going back to page 151 of the guidelines, you'd agree with me that MDMA and BZP coupled with TFMPP are not substantially similar with regard to the chemical structure?

A. Not on the spectrum of all of the stimulant or amphetamine group.

Q. So the answer is no, they're not similar?

A. They're not substantially similar.

Q. Okay. So let's go to C. And C says, and I'll read it: Whether a lesser or greater quantity of the controlled substance not referred to in this guideline is needed to produce a substantially similar effect on the central nervous system as a controlled substance referenced in this guideline.

Did I read that correctly?

A. Yes.

Q. Okay. And you didn't do any studies with regard

to the quantities, isn't that true?
A. I did look to see if there was information available on comparative doses. With regard to effect, there's very little data. And even with prescription drugs, when we're trying to get comparative doses of drugs or equivalent doses, there are very few trials that try to ascertain that. And so I would expect and I found that there is not information regarding that with benzylpiperazine, TFMPP and MDMA.
Q. So you can't answer the question in paragraph C?
A. I cannot.
Q. Okay. Because you could not find any information?
A. Correct. I could not find any information.
Q. But at the same time, you didn't look at any DNA material with regard to paragraph C, did you?
A. Any DNA material?
Q. DEA, excuse me. DEA material.
A. I did not.
Q. Okay. Did you make any search at all?
A. I looked at the clinical effects of the agents that were found in this tablet or in the tablets. I did not go through the law to look at specific listings of the drugs.
Q. Okay.
MR. SMITH: Could I have a moment, please?

THE COURT: Yes.

MR. SMITH: Your Honor, like Mr. Ferland, it's difficult to take no for an answer.

The exhibit that's marked for identification that was not admitted, I'd like to just revisit this for a very short period of time. I understand. I simply suggest that I also would argue that this should be considered as an admission against interest against the Government because it's a Government publication.

THE COURT: An admission against interest?

MR. SMITH: Yes.

THE COURT: Okay. We don't even know who the author of the Web page document is.

MR. SMITH: But it's got -- well, I guess there could be individuals out there making phony websites concerning Department of Justice, DEA and the Office of Diversion Control, but I seriously doubt it. And this kind of a hearing, the strict Rules of Evidence as far as my understanding is do not apply because this is a sentencing hearing. And so I think I get latitude with regard to a sentencing hearing that this kind of documentation can come in to assist the Court, much like information concerning a defendant where he was acquitted of certain charges.

THE COURT: The problem with this is, this

particular document is we don't have any idea looking at it who the author of this is. This could be a summer internship project for all we know. And so how to assess -- even if I did let it in, I don't know how to assess the value that it has.

MR. SMITH: I'm all right with it deserves no weight. I still want it in. The Court can certainly say I let it in but I'm not going to give it any weight, but maybe through another witness I can suggest to the Court that it deserves weight. By way of example, if I may?

THE COURT: Sure.

MR. SMITH: By way of example, an expert physician comes in and says I rely on all of these diagnostic tests to assist me in rendering my opinion, all the tests come in whether they're the greatest tests or the worst because it's the opinion of the expert and the Court is entitled to know what kind of information he relied upon. I can say as an offer of proof that my expert is going to say he is aware of this publication and he did, in fact , rely on it.

THE COURT: Well, then on that basis it may come in. Why don't you attempt to use this in connection with your cross-examination of this witness?

MR. SMITH: Well, I can to a degree, but she has

no knowledge of the document.

THE COURT: But she can read it on the stand and see if she agrees with its conclusions or disagrees with them.

Q. I'm showing you what's been marked as E. You've never seen that before, isn't that true?

A. I have not.

Q. Okay. I'm going to direct your attention to "Illicit Uses," and there's one sentence I want you to review. Actually, read the first three sentences to yourself.

A. Okay.

THE COURT: The first three sentences of which section, "Illicit Uses"?

MR. SMITH: Illicit Uses.

THE COURT: Okay. Thank you.

A. Okay.

Q. Did you read the sentence to yourself, the "However"?

A. Yes.

Q. Okay. Does that in any way change your opinion with respect to what you told us here today?

A. No.

MR. SMITH: Thank you, your Honor. That's all.

THE COURT: Okay. Thank you.

Redirect?

MR. FERLAND: Yes, very briefly.

REDIRECT EXAMINATION BY MR. FERLAND

Q. Doctor, on cross-examination counsel asked you about the hallucinogenic effects of MDMA, is that fair to say?

A. Yes.

Q. And you indicated that you had significant familiarity with the drug MDMA, is that true?

A. Yes.

Q. What is it about MDMA that creates this hallucination-type sensation or effect?

A. This is caused from the rapid release of serotonin.

Q. And what specifically is it that is produced by this rapid release of the serotonin?

A. Serotonin basically has a lot of functions in the body, as we've discussed previously. But it can also, when it's released, it enhances pleasure. It enhances confidence. And as part of the whole experience, there can be hallucinations that occur.

Q. And explain for us, if you would, what is one of the more common hallucinations associated with the use of MDMA?

A. I'm not --

Q. During the course of your earlier direct examination, you made reference to the fact that MDMA is a drug of abuse, is that fair to say?

A. Yes.

Q. And what is it -- what characteristic of the drug entices individuals to want to use it as a drug of abuse?

A. It can cause euphoria.

Q. Okay. And in addition to the euphoria, is there any other sort of sensation that you're familiar with as it relates to why it is abused?

MR. SMITH: I object only because does this make any difference?

MR. FERLAND: Well, it makes a huge difference because the focus here is on whether or not the BZP/TFMPP has an hallucinogenic characteristic or component to it. And the fact of the matter is that counsel wants to, or Defendant wants to lump these substances into one very sort of narrow characteristic or pigeon hole, I should say, when, in fact, that that's not the case.

THE COURT: I'm going to allow it. Overruled. Why don't you reask the question.

MR. FERLAND: Certainly.

Q. Just a moment ago, counsel on cross-examination

showed you some sort of an article; is that correct?
A. Yes.
Q. And one of the things asserted in that article had to do with the abuse of the drug, is that fair to say, that sentence that you were asked to read, the illicit uses of the drug?
A. Those three sentences had more to deal with the fact that they had no studies to confirm that there were a combined effect or something to that extent.
Q. Okay. MDMA is a drug of abuse; is that correct?
A. It is.
Q. And is it used in the youth population?
A. Yes, it is.
Q. Where is it characteristically used?
A. You characteristically hear it being used at raves.
Q. And why is that?
MR. SMITH: I object. We're going far afield for her qualifications.
THE COURT: I think you've sort of opened the door to this by introducing this document, which I'm going to come back to in a minute, by the way. So I'm going to overrule your objection.
A. They use it for the euphoric effects, for the effects that gives them self-confidence and the desire

to socialize. They get a feeling of inner peace when they take this product. They become more sexual. They elicit more sexual behaviors when they take this product. There's a myriad of effects that they have.

Q. You were asked on cross-examination about whether we had spoken in reference to your testimony here today. And in fact, we had spoken; is that correct?

A. That is.

Q. And during our conversation, do you recall talking about the feelings from inside the body as it relates to the use of these drugs?

A. Absolutely. That's called the entactogen or MDMA is classified as an entactogen, which is basically that. When you take MDMA, you experience a feeling of being touched from with inside.

Q. From with inside. Okay.

MR. MURPHY: Can I just ask the witness to repeat that word.

THE WITNESS: Entactogen.

MR. MURPHY: I-n-t-a-c-t --

THE WITNESS: E-N-T-A -- it feels like a spelling bee. E-N-T-A-C-T-O-G-E-N, entactogen.

MR. MURPHY: Thank you very much. Thank you.

THE COURT: I like the way you repeated at the end.

THE WITNESS: I was trying to be consistent there.

THE COURT: Go ahead.

MR. FERLAND: Can you use it in a sentence? No, I'm just kidding.

Q. So as it relates to your focus on the clinical aspects of the MDMA and the BZP/TFMPP combination, are there any hallucinogenic effects of the combination of the BZP and the TFMPP?

A. Yes.

Q. And how is that? What is it about it?

A. That, again, occurs because primarily the TFMPP releases serotonin that would contribute to the development of hallucinations.

Q. And would the drug, and I'm going to use the common sort of industry word, Ritalin, the MP, does that produce hallucinogenic effects?

A. It is not commonly associated with hallucinations.

MR. FERLAND: Thank you. No further questions.

MR. SMITH: No questions.

MR. MURPHY: Can I have just a moment, your Honor?

RECROSS-EXAMINATION BY MR. SMITH

Q. But those effects that you talked about, that's in the area of stimulation, is it not?

A. I'm sorry. Which effects?
Q. The ones that you just finished testifying about.
A. With MDMA?
Q. Yes.
A. Okay. Those are I would consider -- I would consider those to be more related from serotonin, which I would associate with the hallucinogenic side of things. There are some properties like the enhanced self-confidence that you would see from the dopaminergic and norepinephrine pathway, which would be the stimulant properties.
Q. Because the properties that you mentioned, most of them recent, just now, were stimulant properties more so than hallucinogenic, would you agree?
A. I would say there was an even mix.
Q. Okay. So of the even mix, give us the ones that are hallucinogenic.
A. Probably the entactogen feeling; the desire to socialize when, you know, when exhibited to a higher level could produce hallucinations.
Q. Could produce, but it's a desire to socialize, not hallucinogenic aspects, right?
A. Right. It's a desire to socialize.
Q. So that's stimulation more so than hallucinogenic, is it not?

A. It's really hard to separate and clearly say that, you know, one neurotransmitter has an effect over another. So although serotonin we commonly associate with mood, other neurotransmitters affect mood. So to say that desire to socialize is purely a stimulant property, I don't agree with that.

Q. Okay. So you're saying it's a mix?

A. I'm saying it's a mix.

Q. All right. Do you have any literature at all that says it's a mix other than your opinion that you just gave us?

A. Not right now.

Q. This is just your opinion, one person, correct, that it's a mix?

A. Based on the readings and research that I've done.

Q. Right. Have you found anybody else in research, in readings, in Medline or any other search that you made that agrees with your position here today?

A. I wasn't specifically looking for it.

Q. That's not my question.

MR. FERLAND: Objection. This is argumentative, and it's way off base.

THE COURT: Well, no, I'm going to disagree. Don't be argumentative with the witness, but I think it's an appropriate question. Overruled.

MR. SMITH: Can I have it read back.
THE COURT: Sure.
(Pending question read by the reporter.)
A. About the properties being a mix of stimulant and hallucinogenic?
Q. Correct.
A. Most people would not, or most of the stuff that I read does not clearly delineate one effect versus the other as stimulant or hallucinogenic.
Q. So the answer is no?
A. At this point, I would say no.
MR. SMITH: Thank you.
THE COURT: Okay. Thank you. I think that completes your testimony, Dr. Ward. You may step down.
THE WITNESS: Thank you very much.
THE COURT: I want to come back to this Web page printout. Mr. Smith, is this the complete printout of the section associated with BZP?
MR. SMITH: I believe it is, your Honor. I wouldn't just submit one page.
THE COURT: Okay. Well, Mr. Ferland, why wouldn't this be a Government record, essentially, a public record under that exception to the hearsay rule?
MR. FERLAND: A Government record?
THE COURT: Sure.

MR. FERLAND: It's an article that apparently was obtained through the Internet.

THE COURT: Well, the Rule says: Records, reports, statements, data compilations in any form of public offices or agencies setting forth, A, the activities of the office or agency or matters observed pursuant to duty, et cetera.

Now, why wouldn't this be a statement of a public agency, the DEA, setting forth the activities of that office as part of -- I mean, that's exactly what it is. It's information concerning, apparently, from the DEA's Office of Diversion Control.

MR. FERLAND: Well, your Honor, the fact of the matter is that I have an article from the Office of Diversion Control from the Drug Enforcement Administration that has got a different date on it than this one that conspicuously absent is that sentence having to do with the combination -- strike that, however, there are no scientific studies indicating this combination produces the MDMA effect.

So in fact it delves into similarities. This one is entitled "Drugs and Chemicals of Concern," and this one is dated August of 2007. Of course, available on the Internet, and it was a document that I recently downloaded from the Internet as well.

THE COURT: This one is dated 2010, isn't it?
MR. FERLAND: It is.
MR. SMITH: Yes, Judge.
THE COURT: So yours is dated 2007?
MR. FERLAND: Mine is dated 2007, August 2007.
THE COURT: Wouldn't this be the latest statement of DEA in that regard?
MR. FERLAND: Judge, that's the whole problem. We don't know what's going on here in terms of the release of this information. There's no foundation. There's no witness to testify to what studies were done.
THE COURT: Sure. But you've had this document as part of the Defendant's sentencing memorandum for some time, and so if you wanted -- and since the DEA is part of your department, you certainly would have the ability to inquire into how this document came to be and who wrote it and what information did they have and so forth and so on.
I mean, it doesn't seem unfair to me at all, given the advanced notice you've had of the document, given that it seems to fall under the exception to the hearsay rule, not the one identified by Mr. Smith but a different one --
MR. FERLAND: Essentially, then anything that is

printed on the Internet that is by some Government agency would be admissible in this Court, if it's following the Court's reasoning to its logical conclusion?

THE COURT: Well, can you show me some authority that says documents published on the Internet by Government agencies like this are an exception to the exception to the hearsay rule?

MR. FERLAND: Judge, it goes to the liability.

THE COURT: This isn't Wikipedia. This is the DEA's own website, right?

MR. FERLAND: From what I'm led to believe, correct, yes.

THE COURT: You're led to believe. If Mr. Smith is perpetrating a fraud on the Court by creating some false website and pretending that it's the DEA, I mean, I don't think he's doing that. In fact, you seem to have a copy of an earlier version of it.

MR. FERLAND: Judge, not for one second am I intimating that he's pulling some kind of fraud on the Court. That's not the case at all. All I'm saying here is that there should be a witness that is trying to introduce this fact into evidence, not some document that's been printed off the Internet.

THE COURT: All right. Well, you're in control

of the witnesses, and you certainly produced a very well-versed one, but I think that the document falls under the exception and I'm going to allow it to come in either through this witness or maybe more appropriately through your witness, who apparently is the one who pulled it off of the Internet, right?

MR. SMITH: Correct.

THE COURT: But that's how I'm going to handle it.

All right. Do you have any other witnesses, Mr. Ferland?

MR. FERLAND: No.

MR. MURPHY: Your Honor, just for the record, may I renew that series of motions I made in the nature of a motion for a directed verdict? I don't think the Government has met its case here to prove the --

THE COURT: All right. You can renew your motions. I think it might be appropriate just to take a five- or ten-minute break before we start with your witness.

MR. SMITH: Do I understand the exhibit that I wanted to introduce is now full, the DEA Diversion Control.

THE COURT: I'm going to let you lay a little more foundation for it, but unless you really blow

that, I'm going to admit it.

All right. Let's take a five-minute break.

(Short recess.)

THE COURT: All right. Mr. Smith, call your witness, please.

MR. SMITH: Certainly, your Honor. Joseph Bono.

JOSEPH BONO, first having been duly sworn, testified as follows:

THE CLERK: Please state your name and spell your last name for the record.

THE WITNESS: My name is Joseph Peter Bono. Last name B-O-N-O.

THE COURT: Good afternoon, Mr. Bono.

THE WITNESS: Good afternoon, your Honor.

THE COURT: You may inquire, Mr. Smith.

MR. SMITH: Thank you, your Honor.

DIRECT EXAMINATION BY MR. SMITH

Q. Mr. Bono, where do you live?

A. I live in Leesburg, Virginia near Dulles Airport.

Q. How old are you?

A. Sixty-four years old.

Q. Are you married?

A. Yes, sir, I am.

Q. Did you go to college?

A. Yes, sir, I did.

Q. Where?
A. I went to the University of Missouri in St. Louis.
Q. What did you major in?
A. My undergraduate degree is in Chemistry.
Q. What year did you graduate?
A. Graduated with my undergraduate degree in 1969.
Q. Did you have any post-graduation academic activity?
A. Yes, sir, I did.
Q. In what?
A. I had a couple of years of post-graduate work in chemistry, and in 1979 I earned a master of arts degree in Political Science, also from the University of Missouri at St. Louis.
Q. How about any military background?
A. I was in the United States Army for two years from 1969 to 1971.
Q. Okay. Once you got out of the service, did you seek employment?
A. Yes, sir, I did.
Q. And I know you worked for Coca-Cola for nine months but let's move on to January of '74. Were you employed?
A. Yes, sir, I was.
Q. Where?

A. St. Louis County Police Department Laboratory.
Q. As what?
A. I was a forensic chemist.
Q. And just describe to the Court what your activities were as a forensic chemist.
A. In 1974, when I was hired, I was trained -- in those days, we did more than just one specialty. I focused on drug chemistry, arson analysis and trace evidence examinations.
Q. Let's just deal with drug chemistry. What kind of work did you do with respect to that?
A. Analyzing controlled substances, reporting the results of my examination and testifying in court.
Q. With what kind of equipment?
A. The analyses at that point we were using infrared spectrophotometry, ultraviolet spectrophotometry, and we just start using GCMS in about 1980.
Q. What's GCMS?
A. Gas chromatography mass spectroscopy.
Q. I'm going to ask you to go a little bit slower on those big words. Okay?
A. Sorry. Yes, sir.
Q. That's all right. I can't write them down fast and I'm sure -- I want the court stenographer to get it all down. Okay?

A. Yes, sir.
Q. All right. So from 1974 till when were you a criminalist for St. Louis PD?
A. 1981 I left the police department. It was in August of 1981.
Q. And did you seek further employment?
A. They actually sought me. I was hired by the U.S. Department of Defense, Office of Naval Intelligence, Naval Investigative Service to become the laboratory director of the NIS Regional Forensic Laboratory in Naples, Italy.
Q. Slow down. So you went to Italy?
A. Yes, sir, I did.
Q. For how long?
A. Three years.
Q. And just tell us generally as the director of the laboratory in Italy what your functions were.
A. I was responsible for the other forensic chemists in the laboratory, but at the same time I also continued analyzing controlled substances.
Q. And when you say "analyzing controlled substances," just generally, what do you mean by that?
A. At that point, whenever suspected controlled substances were seized from U.S. -- members of the U.S. military in the Mediterranean, they would come into our

laboratory and we would analyze them to determine whether or not, in fact, we were dealing with a controlled substance. If we were, the case would usually go to a military court, military tribunal.

Q. Now, when you refer to "controlled substances," are you familiar with 21 Code of Federal Regulations 1308?

A. Yes, sir, I am.

Q. Okay. Are you also familiar with the Federal Sentencing Guidelines?

A. Yes, sir, I am.

Q. Okay. So when you say "a controlled substance," are you referring to those drugs that are listed in 21 CFR 1308?

A. Yes, sir, I am.

Q. Okay. You'd agree with me that those regulations change from time to time and additional drugs are added, correct?

A. Yes, sir. They do.

Q. Okay. So about how many drug analyses did you make while you were in Italy, roughly?

A. Thousands.

Q. All right. Your service for the NIS was completed, and where did you go after that?

A. I was transferred because it was a three-year

overseas assignment to the Naval Investigative Service Regional Forensic Laboratory in the Pacific. I was assigned to the laboratory in Pearl Harbor, Hawaii.

Q. And what kind of duties did you have there?

A. Same thing. Analyzing controlled substances.

Q. But not as a director; is that right?

A. Not as a director, no, sir.

Q. Was there a reason for that?

A. There was -- my tour of duty was up in Italy and after three years I rotated out.

Q. Okay. But you did the same thing at Pearl Harbor that you did in Italy, correct, as far as drug analyzation?

A. Yes, sir, I did.

Q. After Pearl Harbor, 18 months, where did you go?

A. I was transferred to the NIS laboratory in San Diego, California, and I was there about three years.

Q. And the duties in San Diego were the same as Pearl Harbor?

A. Yes, sir, they were.

Q. Drug analyzation?

A. Drug analysis.

Q. Analysis, excuse me. We've heard a lot about BZP and TFMPP. Are you familiar with those two substances?

A. Yes, sir, I am.

Q. Okay. Had you ever analyzed those while you were working for NIS?

A. No, sir, I did not.

Q. After San Diego, where did you go?

A. I was hired by the United States Department of Justice, Drug Enforcement Administration at the DEA Mid-Atlantic Laboratory in Washington, D.C.

Q. What is the Mid-Atlantic Laboratory?

A. DEA at that point and still today has eight laboratories, eight major laboratories and two satellite laboratories strategically placed around the United States, and those laboratories are responsible for the analysis of suspected controlled substances usually seized by DEA agents at the different offices around the U.S.

Q. And what kind of analysis did you do while you were in Washington, D.C. at the Mid-Atlantic Lab?

A. Again, the full spectrum of controlled substances, and the instrumentation we were using at that point included gas chromatography, gas chromatography mass spectroscopy. And those are two different instruments. Infra spectrophotometry, polarized light microscopy. Quite a few different techniques were used by DEA and still are.

Q. Were those diagnostic tools being used at the

Mid-Atlantic Lab when you were there?
A. Yes, sir, they were.
Q. Now, there's also, besides the Mid-Atlantic Lab, there's a Northeast Lab; is that correct?
A. Yes, sir.
Q. And where is that located?
A. New York City.
Q. Are you aware of whether or not the Northeast Lab was involved in this particular case as far as the drugs seized?
A. Yes, sir, they were.
Q. Did you review the report of the Northeast Lab in this case?
A. Yes, sir, I did.
Q. How long were you in Washington at the Mid-Atlantic Lab?
A. I was in Washington for about 19 years. I was at the Mid-Atlantic Laboratory for three years, and I was promoted to a supervisory chemist in June of 1991. I was transferred to the Drug Enforcement Administration, Special Testing and Research Laboratory in Mclean, Virginia.
Q. What were you doing there?
A. I was a supervisor in charge of about 18 people.
Q. What did the 18 people do?

A. They were analyzing controlled substances not only from the United States but DEA also has a number of agents assigned to overseas offices, and that's the laboratory that handles those drug seizures overseas.

Q. Are you familiar with a department called the Office of Forensic Sciences?

A. Yes, sir, I am.

Q. What is that?

A. That's the main office that I was assigned to. All of my assignments with DEA were under the direction of the Office of Forensic Sciences.

Q. Are you familiar with an organization or a department called the Quality Assurance Program?

A. Yes, sir.

Q. What is that?

A. The Office of Quality Assurance or the quality assurance section was originated or set up with DEA in 2002. And I was in charge of that particular section, responsible for the ensuring that DEA continued to produce a quality work product and ensuring that DEA's laboratories were meeting the accreditation requirements of the American Society of Crime Laboratory Directors laboratory accreditation board.

Q. Would it be fair to say that you were familiar with DEA publications around this period of time?

A. Yes, sir, I was.

Q. And presently?

MR. FERLAND: Objection. What period of time?

THE COURT: You can clarify that.

MR. SMITH: Certainly.

Q. From the moment that you started working for DEA, did you become familiar with their publications?

A. Yes, sir, I did.

Q. And are you familiar with DEA's publications at the present time?

A. Yes, sir, I am.

Q. Are you familiar with an entity called the Division of Diversion with respect to DEA?

A. It's actually the Office of Diversion Control. Yes, sir, I am.

Q. Okay.

MR. SMITH: Judge, for the sake of the record, I asked the previous witness some questions on definitions. I had an exhibit marked F and I'll just move that it be marked for ID.

THE COURT: All right.

(Defendants' Exhibit F marked for ID.)

Q. I'm showing you what's been marked as E for identification. Do you recognize that publication?

A. Yes, sir, I do.

Q. Have you ever seen similar publications like that?
A. The Office of Diversion Control, in fact, most DEA offices do make available to the public publications like this describing updates on controlled substances.
Q. Have you seen publications similar to that?
A. Yes, sir, I have.
Q. Prior to that particular publication of May of 2010?
A. Yes, sir, I have.
Q. And do you know how they're generated?
A. They're generated by a specific office within the Drug Enforcement Administration.
Q. Have you ever used that kind of information with respect to your profession?
A. Yes, sir, I have.
Q. And do you customarily rely upon that kind of information when you render opinions?
A. If I am able to go to the official DEA website and download it from the official DEA website, I will use it.

THE COURT: Mr. Smith, could you get to the podium so the microphone will pick up.

Q. You're familiar with that particular exhibit, are you not?
A. Yes, sir, I am.

Q. Did you do anything by means of a computer to acquire that publication?
A. Yes, sir, I did.
Q. What did you do?
A. I went to the DEA website, which is sponsored by the Department of Justice, to look at updates on what was happening in the area of information on benzylpiperazine, BZP.
Q. Okay. And as a result of doing that and looking for it, did you find anything?
A. Yes, sir, I did.
Q. What did you find?
A. I found this publication.
Q. And did you download it?
A. Yes, sir, I did.
Q. And is that the kind of publication you use to assist you in rendering your opinions?
A. It's one of the publications, yes, sir.

MR. FERLAND: I object. I'd like to be heard. In rendering his opinion about what? It begs the question.

THE COURT: Well, I think -- I take it he's referring to the opinion expressed in his report, but it's a fair point. You can clarify what opinion he's talking about.

Q. It's fair to say, Mr. Bono, you've rendered opinions in various cases, have you not?
A. Yes, sir, I have.
Q. And when you do that, you rely on certain documents, don't you?
A. Yes, sir, I do.
Q. That document in front of you, which is F, have you ever used documents similar to that in rendering opinions?
A. Yes, sir, I have.
Q. And you intend to render an opinion here today with respect to BZP; is that true?
A. Yes, sir, I do.
Q. Did you use that document to assist you in formulating your opinion?
A. Yes, sir, I did.

MR. SMITH: Move it full.

THE COURT: Any objection?

MR. FERLAND: I'm not going to object to it being moved in full because as I understand the Rules of Evidence, they don't apply at a sentencing hearing.

THE COURT: Okay. Well, you've been arguing about pressing them prior to this point.

MR. FERLAND: Somebody enlightened me, your Honor, and I believe it's to my favor.

THE COURT: Okay. Well, I think they apply loosely. In any event, it will be admitted in full.

MR. SMITH: Thank you.

(Defendants' Exhibit F admitted in full.)

Q. So let's see. Were you ever the Director of DEA Special Testing?

A. I was the Director of DEA Special Testing and Research Laboratory, yes, sir.

Q. In charge of how many people?

A. About 60 people.

Q. Would you agree that was between the years 2000 and 2002?

A. Yes, sir, it was.

Q. And in 2002 to 2006, what were you doing?

A. I was responsible for the Quality Program within all eight DEA laboratories.

Q. All right. And in 2006 to 2007?

A. 2006, as I was ending or nearing the end of my career, I was hired by the United States Secret Service to become the laboratory director of that laboratory in Washington, D.C.

Q. And for how long did you do that?

A. I was only there 14 months.

Q. Did you finally retire from Government service?

A. Yes, sir, I did.

Q. When was that?
A. September of 2007.
Q. Okay. And after 2007, what did you do?
A. I was hired by Indiana University, Purdue University in Indianapolis to teach a course in forensic science and the law.
Q. And did you do that?
A. Yes, sir, I did.
Q. For how long?
A. Four years.
Q. Are you familiar with the American Academy of Forensic Sciences?
A. Yes, sir, I am.
Q. And how are you familiar with that?
A. I was the 2010-2011 president of the American Academy of Forensic Sciences.
Q. And what is that organization?
A. It's the foremost forensic science organization in the world. We have about 6800 members. Probably close to 800 of them are from outside of the United States. It represents 11 different disciplines, including a jurisprudence section. We have a number of attorneys who are also members of the academy.
Q. Have you ever testified as an expert rendering opinion with respect to certain drugs?

A. Yes, sir, I have.
Q. About how many times?
A. Couple hundred times, at least. Two hundred times minimum.
Q. And what kind of courts?
A. Golly. I've testified in maybe 15 states in the United States in Federal courts, in state and local courts. I've testified overseas. I've testified in Hawaii. I've testified in a lot of different places.
Q. Okay. Since your retirement, have you ever been engaged by the Government as an expert witness?
A. Since my retirement, no, sir.
Q. Have you ever been engaged by the defense as an expert witness?
A. Yes, sir, I have.
Q. About how many times, the engagement?
A. About ten times.
Q. And with respect to the ten times, did you ever qualify as an expert witness and give testimony in any of those cases?
A. Yes, sir, I did.
Q. How many times?
A. I think three.
Q. Okay. With respect to the three times that you were qualified as an expert witness, do you recall

which specific drugs that you were rendering an opinion on?

A. Two of the cases involved BZP. One of the cases in San Diego involved MDA, 3, 4-methylenedioxyamphetamine.

Q. Is there a difference between MDA and MDMA?

A. Yes, sir, there is.

Q. What is it?

A. One methyl group attached to a bridge carbon.

Q. Okay. And with respect to the BZP, you testified twice as far as your opinions concerning that drug?

A. Yes, sir.

Q. Okay. With regard to the BZP and your expert testimony, do you recall what you were engaged for?

A. I was asked to look at the properties of BZP as they relate to the United States Sentencing Guidelines and render an opinion as to which drug which is delineated in the sentencing guidelines most closely adheres to the requirements of the sentencing guidelines regarding where BZP falls for the purposes of sentencing.

Q. Okay. Now, you mentioned the sentencing guidelines. You've reviewed those before?

A. Yes, sir, I have.

Q. And you're familiar with Chapter 2D1.1,

Application Note 5?
A. Yes, sir, I am.
Q. I'm showing you Exhibit 3, which is the page 150 and 151 of the guidelines. Do you recognize that?
A. Yes, sir, I do.
Q. With regard to the 2D1.1 Application Note 5, is that referenced in that document?
A. Yes, sir, it is.
Q. Okay. The two times that you were engaged to testify about BZP, did you address Application Note 5 in that testimony?
A. Yes, sir, I did.
Q. Okay. Were you engaged in this case by me?
A. Yes, sir, I was.
Q. Do you recall what it was I requested of you?
A. I believe you requested that I look at BZP and determine where it would fall in the sentencing guidelines based on the verbiage in the sentencing guidelines.
Q. What do you mean by "verbiage"?
A. You gave me no directions or said I want you to compare it to any specific drug. You simply, based on my memory, said where does BZP fall because it is not mentioned specifically in the sentencing guidelines.
Q. And with that kind of instruction, did you have

any idea of what your responsibility was?
A. Yes, sir, I did.
Q. Okay. And upon receiving that instruction, tell the Court what it is you started to do.
A. I'd been involved in a number of these other cases before where I was asked to evaluate BZP and its positioning in the sentencing guidelines as that position relates to a named controlled substance. And I had done work I believe at that point in two other cases. And I believed that the most closely related controlled substance based on paragraph 5, Subsections A, B and C, that methylphenidate was the most closely related controlled substance.
Q. That was in the other cases?
A. That was in the other cases, yes, sir.
Q. So with that information, tell us what you did as far as your research to render an opinion in this case.
A. As a scientist, I looked at what is on paper in terms of the requirements. And the first requirement is to determine whether a controlled substance -- and I'm reading, your Honor, if I might: Whether a controlled substance not referenced in the guideline is a chemical structure that is substantially similar to a controlled substance referenced in the guideline.
Q. And did you do that?

A. Yes, sir, I did.
Q. Can you see that, Mr. Bono?
A. Yes, I can.
Q. That's page four of your report?
A. Yes, sir, it is.
Q. And do you recognize those drawings?
A. Yes, sir, I do.
Q. At the bottom of four, the sketch to the left, what drug is that?
A. That's benzylpiperazine, BZP.
Q. Is that BZP? And how were you able to determine that that is the schematic drawing of BZP, how do you do that?
A. There are many literature references available, including DEA. There's a number of publications that show the chemical structures of controlled substances and they're online. Plus my experience, I recognize most of the structures.
Q. With respect to this structure at the bottom of page four on the left-hand side for BZP, did you get that from some publication?
A. Yes, sir, I did.
Q. And have you ever used that publication before?
A. Yes, sir, I have.
Q. And do you customarily rely on that kind of

information to assist you in your analysis and opinions?

A. Yes, sir, I do.

Q. Did you do so in this case?

A. Yes, sir, I did.

Q. Where did you get this diagram for BZP?

A. I believe that this particular diagram came from some DEA analysis of drugs manual that I had a hard copy of. Not a hard copy. An electronic copy. Plus it was also available -- I want to say there's an analysis -- not analysis but a drug reference -- there are a number of drug reference books that are out there and I was able to get this structure from that book. And they all correlated. They were all the same. That's benzylpiperazine.

Q. And those drug publications, you customarily rely upon that information, too, in rendering opinions and doing your analysis?

A. For structure of the chemical, yes, sir.

Q. Yes. We're only talking structure here.

A. Yes, sir.

Q. Okay. Now, on page four, the bottom right-hand side, that structure is what?

A. That's 3, 4-methylenedioxymethamphetamine, also referred to as MDMA.

Q. And you obtained that structure from the same sources that you've already told us about?

A. Yes, sir, I did.

Q. Okay. Now, with regard to paragraph A of Application Note 5, whether the controlled substance not referenced in this guideline has a chemical structure that is substantially similar to a controlled substance referenced in the guideline, my question to you is do you have an opinion to a reasonable degree of scientific certainty as to whether or not BZP is substantially similar to -- whether or not BZP has a chemical structure that is substantially similar to MDMA. Do you have an opinion?

A. Yes, sir, I do.

Q. What is that?

A. It's not substantially similar. In fact, it's dissimilar.

Q. All right. Now, let's go to the first set of drawings on page four of your report. Do you see that?

A. Yes, sir, I do.

Q. Okay. At the top, it's still BZP, correct?

A. Yes, sir, it is.

Q. All right. What's the one underneath that to the left-hand side?

A. Underneath the BZP to the left is

methyl-alpha-phenyl-alpha-(2-piperidyl)acetate, otherwise known as methylphenidate.

Q. Or MP, as we've heard it abbreviated?

A. Yes, sir.

Q. Okay. And you obtained that clinical structure or chemical structure from the same publications you've already told us about?

A. Yes, sir, I did.

Q. What's the one on the right?

A. That's amphetamine.

Q. And again, you obtained that structure from the publications you've told us about?

A. Yes, sir, I did.

Q. All right. Now, we heard some testimony and you were in the room by Ms. Ward about the -- I want to get the right word, the phrase "similar to some degree." Do you remember hearing that?

A. Yes, sir.

Q. Okay. Now, with regard to the BZP and the amphetamine, did you make a comparison to assist you in a response to paragraph A of Application Note 5?

A. As amphetamine relates to BZP?

Q. Correct.

A. Yes, sir, I did.

Q. Okay. And tell us what you did to make that

analysis.
A. Those two compounds are similar in that they both contain carbon, hydrogen and nitrogen. However, amphetamine has one ring, BZP has two rings. If you look at the structure, one on the left, one on the right, amphetamine doesn't have that.
Q. So with respect to your analysis of BZP to amphetamine, do you have an opinion to a reasonable degree of scientific certainty whether BZP has a chemical structure that is substantially similar to amphetamine?
A. There are some similarities. I would not say those two are substantially similar.
Q. Okay. So let's talk about methylphenidate. You see that clinical structure that you drew?
A. I see the chemical structure, yes, sir.
Q. Did you make a comparison of BZP to methylphenidate?
A. Yes, sir, I did.
Q. Tell us what you did.
A. When you look at the BZP, again, you have two ring structures, one of which is what we call an aromatic hydrocarbon. There's a six-membered ring with three lines inside of the circle. That appears in both the benzylpiperazine and the methylphenidate on the

right-hand side.

On the left side, we have another six-membered ring with a carbon in one of the six positions. Benzylpiperazine has two carbons; methylphenidate has -- I'm sorry, two nitrogens. That's the N. Methylphenidate has one nitrogen, but again those two compounds are substantially similar.

The bottom part of that molecule is an acetate group. That's a functional group. And if I could use the analogy that Dr. Ward used, which I thought was quite good, where she talked about a house. Think about the benzylpiperazine structure and the methylphenidate structure without that bottom part of the molecule, that would be your house with windows, flat front, flat back, windows on the side. Think about that functional group as a patio. So again, the actual structure of those two molecules is very good, and the analogy was quite good.

Q. So now I'll ask you whether or not after your research with respect to the chemical structure, do you have an opinion to a reasonable degree of scientific certainty whether BZP has a chemical structure that is substantially similar to a controlled substance in the guideline, yes or no?

A. I do have an opinion.

Q. And what is that opinion?
A. Benzylpiperazine is most closely related to methylphenidate when one looks at those compounds that are mentioned and delineated in the United States Sentencing Guidelines.
Q. All right. Let's go to page 151 of Exhibit 3, Part B. Do you see that?
A. Yes, sir, I do.
Q. Okay. Now, you had the opportunity to hear Dr. Ward testify about the effects that are referenced in Part B; is that true?
A. Yes, sir, I did.
Q. Okay. Now, do you know what a stimulant is?
A. Yes, sir, I do.
Q. What is it?
A. A stimulant is a drug, in this case controlled substances that causes rapid heartbeat, increased blood pressure, a certain degree of shall we say fidgetiness. People just look like they are very -- moving a lot.
Q. What's a depressant, do you know what that is?
A. The depressant has the exact opposite effect, and an example of that would be a barbiturate. It causes people to become lethargic, to want to go to sleep.
Q. What about a hallucinogen?
A. Hallucinogens, the category of drugs refers to

those substances which cause people to -- and again, I'm going to use some layman's language -- see things that aren't there, hear bells ringing, see lights, become disconnected from reality I think is a good way to put it.

Q. All right. Now, have you ever made any comparison concerning the effects of -- well, before I get to that, are you familiar with, showing you G, this publication, 21 CFR 1308?

A. Yes, sir, I am.

Q. How are you familiar with that?

A. During my many years with the Drug Enforcement Administration, this was a type bible where we would be asked to testify and show a reference when we were identifying a controlled substance to a statutory requirement. This was the document that we used.

In my university career, part of the course that I taught also dealt with instructing students on how to use Part 1308 of the Code of Federal Regulations under Title 21.

Q. Do you know whether or not BZP is listed in 21 CFR 1308?

A. Yes, sir, it is.

Q. Do you know how it's listed?

A. Listed as a Schedule I stimulant.

Q. Now, do you know whether or not MDMA is listed in 21 CFR 1308?

A. Yes, sir, I do.

Q. And how is it listed?

A. It's listed as a Schedule I hallucinogen.

Q. Is there anything in 21 CFR 1308 that suggests that MDMA is part stimulant and part hallucinogen?

A. Not according to the Code of Federal Regulations.

Q. With regard to the paragraph B of Application Note 5, have you ever, in your capacity as an expert witness, ever made a comparison of a stimulant to another stimulant for its effect?

A. Using the Code of Federal Regulations as the guide, I have.

Q. And explain to us what you did.

A. It's simply a matter of looking at the code under Title 21, 1308, and determining whether or not when we're looking at two different drugs they're contained under the same subsection. In other words, if you're going to call a drug a stimulant and it's listed as a stimulant in the Code and you're going to be comparing two drugs, they both have to be listed under the stimulant section. You can't compare a stimulant to a depressant or a stimulant to an hallucinogen and then apply paragraph B. There's a disconnect. It doesn't

make sense.

Q. Have you ever at any time when you testified for those 200-odd times that you've told us about, ever made a comparison similar to -- strike that. I'll start over.

As an expert witness, have you ever rendered an opinion with respect to paragraph B by comparing a stimulant effect to a non-stimulant?

MR. FERLAND: Objection. The form of the question.

THE COURT: Well, he's asking whether in his career he's made a comparison of a stimulant to a non-stimulant. What's wrong with that?

MR. FERLAND: In what way? Comparison in what way? What type of a comparison?

THE COURT: Okay. I assume as under the guidelines, but go ahead and --

MR. SMITH: I thought I was talking about paragraph B, but I'll reask it.

THE COURT: Reask your question.

Q. Keeping in mind paragraph B that talks about a substantially similar comparison of a known stimulant to an unknown drug, are you with me so far?

A. Yes, sir.

Q. Okay. With respect to paragraph B, have you ever

compared an unknown stimulant to a known hallucinogen?
A. That's an oxymoron. You can't compare a stimulant to an hallucinogen under paragraph B.
Q. Have you ever --
THE COURT: I think Mr. Ferland wants to pose an objection.
MR. FERLAND: I do object, your Honor. I object as it relates to the qualifications of the witness to render such opinions.
THE COURT: Okay. You can handle that on cross-examination, so I'll overrule the objection.
Go ahead.
Q. And what about -- I guess the question I really want to ask is must there always be stimulant-to-stimulant, depressant-to-depressant and hallucinogen-to-hallucinogen?
A. According to the way I read the guidelines, yes, sir.
Q. Okay. So let's move to Part C. But prior to that --
MR. SMITH: May I remain here near the mike, Judge.
THE COURT: Yeah, as long as the mike can pick you up. That's the main thing.
Q. I'm going to show you A, and that's the Federal

Register, Volume 67, 138, dated July 18, 2002. Are you familiar with that?

A. Yes, sir, I am.

Q. What is that?

A. That's a publication in the United States Federal Register.

Q. And it concerns what?

A. Concerns TFMPP and benzylpiperazine.

Q. And what is the purpose of that document?

A. This document temporarily scheduled BZP and TFMPP as Schedule I controlled substances.

THE COURT: What exhibit is that?

MR. SMITH: That's A.

THE COURT: Thank you.

Q. Let me show you -- that's a notice of intention?

A. That's a notice of intention, correct.

Q. Okay. So now, let me show you B and ask you if you recognize that document, which is Federal Register, Volume 68, Number 173, dated September 8, 2003. Are you familiar with that document?

A. Yes, sir, I am.

Q. What is that?

A. That is a Department of Justice entry into the Federal Register which controls benzylpiperazine and TFMPP and puts it into Schedule I of the Controlled

Substances Act.

Q. All right. Now, I'm going to now show you Exhibit C and ask you if you recognize that.

A. Yes, sir, I do.

Q. How do you recognize that document, which is Federal Register, Volume 69, Number 53, dated March 18th, 2004?

A. That's also a Federal Registry entry that describes the control of BZP under Schedule I.

Q. Well, I thought the other two documents you told me that it was also controlling TFMPP; is that correct?

A. Yes, sir, it is.

Q. So is this document different from that?

A. This one reverses what was done in 2002 and 2003. It basically says that on March 10th, 2004, the acting assistant director recommended that TFMPP -- did not recommend that TFMPP be controlled. That accordingly, and I'm reading in quotes: TFMPP will no longer be controlled under the Controlled Substances Act after March 19th, 2004.

So this document reverses what was done in 2002 and 2003 with TFMPP.

Q. So it's no longer a controlled substance as of that date, correct?

A. As of that date, TFMPP was no longer controlled.

Q. Now, in your experience with DEA, were you aware of any comparisons of BZP to amphetamine?

A. In my experience with DEA?

Q. Yes.

A. Yes, sir, I am. I was aware of that.

Q. Was there ever a comparison as far as the effects of BZP versus amphetamine determined by the DEA?

A. There were actually two reports, the second of which repeated what was in the first report.

Q. Let's talk about the first report that you're aware of.

A. Yes, sir.

Q. Do you recall --

THE COURT: Unless there's something you want to show him, I would prefer you be back there. Do you need to go through another document?

MR. SMITH: I do.

THE COURT: All right.

A. In I believe it was in 2003 when BZP was originally controlled, the DEA reported that BZP was 10 to 20 times stronger than amphetamine in terms of its stimulant effect on the central nervous system.

Q. Now let me show you Exhibit D. Do you recognize that document, which is Federal Register, Volume 75, Number 151, August 6th, 2010?

A. Yes, sir, I do.
Q. And what is that document?
A. This document says, in effect, that a mistake was made.
Q. How is it entitled?
A. It's entitled "Schedules of Controlled Substances" or -- oh, "Final Rule Correction." I'm sorry. It's an action that DEA put into the Federal Register. It was a correction to what was done earlier in 2002 and 2003.
Q. And what was that correction, according to that document?
A. According to this document, and actually there was actually a document that preceded this, DEA said it's not -- BZP is not 10 to 20 times stronger than amphetamine. It's one-tenth to one-twentieth as strong. So that's a gigantic difference.
Q. Well, in your experience, did the DEA have an opinion based on their publications as to what was -- what BZP was most substantially similar to?
A. It never really in my experience had not come out and said it's most similar to any one controlled substance. They've talked about it being similar to amphetamine, but I've never seen anything saying that BZP is similar to MDMA. They're two different drugs. One's a central nervous system stimulant; the other is

a central nervous system hallucinogen.
Q. But I think my question is are you aware of any publications where DEA makes a comparison of BZP to amphetamine?
A. To amphetamine? There's a mention of it in the Federal Register. It talks about amphetamine.
THE COURT: I thought, Mr. Smith, your first question to him was actually whether DEA had ever definitively said that BZP was comparable to another substance. And then when you clarified it, you said to amphetamine. Did I misunderstand your question?
MR. SMITH: No, you didn't.
THE COURT: All right. Do you --
Q. I'm going to show you what is Exhibit D, and you've already told us that's the Final Rule Correction. Do you remember that?
A. Yes, sir, I do.
Q. Do you see it in front of you, which is Exhibit D?
A. Yes, sir, I do.
Q. The paragraph that starts "Each of these rules"?
A. Yes, sir, I do.
Q. And the next sentence says: In each rule, it was erroneously stated that BZP is 10 to 20 times more potent than amphetamine, correct?
A. Yes, sir, that's what it says.

Q. And in actuality, the converse is true; i.e., BZP is 10 to 20 times less potent than amphetamine?

A. Yes, sir, that's what it says.

Q. Okay. And you were aware of that particular publication for that correction, were you not?

A. Yes, sir, I was.

Q. Okay. Now, you have already told us that you researched this exhibit, which is E, the Office of Diversion Control, correct?

A. Yes, sir, I did.

Q. And do you see the section that talks about illicit uses?

A. Yes, sir, I do.

Q. First of all, can you tell us how you actually found this publication?

A. Again, I try to keep abreast of the different publications that DEA disseminates to the public because those publications have an effect on how different controlled substances can be treated in the courts. And in the course of, again, my teaching at the university, teaching drug chemistry and teaching the use of DEA publications as well as understanding the Code of Federal Regulations, it was a part of my responsibility to ensure the students at least knew how to use these references.

Q. Well, in the section called "Illicit Uses," the third sentence says: However, there are no scientific studies indicating this combination produces MDMA-like behavioral effects. And this combination is TFMPP coupled with BZP. Are you aware of that statement?

A. That's the position of the Drug Enforcement Administration in this document.

Q. Have you found any publications that would suggest that BZP coupled with TFMPP mimics MDMA?

A. I've read some studies that, again, use rats or used polydrug users to report different effects of controlled substances, but in terms of a scientific publication or a publication from a Government agency that has a lot of experience with controlling controlled substances, I agree with this particular document.

Q. Now, I'm going to address Exhibit C, page 151, Subparagraph C of Application Note 5. Did you do anything with respect to my request of your analysis in this case concerning the lesser or greater quantity of the controlled substance?

A. Yes, sir, I did.

Q. Tell us what you did.

A. Again, there are a number of DEA publications that talk about amphetamine, the comparison of amphetamine

to BZP. They're both central nervous system stimulants. They both have similarities in chemical structure.

So if we're talking about BZP -- let's turn that around. If we're talking about amphetamine having a value of 20, then BZP would have a value of at the low end one and at the high end two. So that's one-tenth or one-twentieth as strong.

Q. And how do you arrive at that?

A. It's in the DEA publications. It's a part of the Federal Register.

Q. What we just talked about, the 10 to 20 times less than amphetamine, is that what you're referring to?

A. Yes, sir, it is.

Q. Okay. So with respect to your request for a determination as to what is the most closely-related controlled substance, and your testimony with regard to those things that you did in Subparagraph A as far as the chemical structure, and your analysis in paragraph B with regard to the effects on the central nervous system and paragraph C with respect to the lesser or greater quantity of the controlled substance, do you have an opinion to a reasonable degree of scientific certainty what drug is most closely related to BZP that exists in the guidelines?

MR. FERLAND: I object.

THE COURT: Grounds?

MR. FERLAND: Again, I renew my objection as to qualifications, but secondly, it doesn't sound to me as if it's a scientific opinion. It's an opinion based on reading of literature, essentially the CFR.

THE COURT: Well, all right. I'll let you make that point in argument. I'm going to let him express his opinion. Go ahead.

A. The most closely related drug to BZP in the U.S. Sentencing Guidelines is methylphenidate.

MR. SMITH: Can I have a moment?

THE COURT: Yes.

(Pause.)

MR. SMITH: I would just ask if it hasn't been, the Office of Diversion Control document be marked as a full exhibit.

THE COURT: I think I did admit it in full, but if I didn't, I will now.

(Defendants' Exhibit E admitted in full.)

MR. SMITH: Thank you. I have no further questions.

THE COURT: All right. Mr. Ferland?

MR. FERLAND: Thank you, your Honor.

CROSS-EXAMINATION BY MR. FERLAND

Q. Good afternoon, Mr. Bono.
A. Good afternoon, sir.
Q. Sir, you've had a long law enforcement-related career, is that fair to say?
A. Yes, sir, that's fair.
Q. And based on the direct examination, it would appear that in many instances you were employed with forensic laboratories affiliated with law enforcement agencies, is that fair to say?
A. Yes, sir, that's correct.
Q. Now, as I understand your role as a forensic chemist, you would be provided with an unknown or suspect material; is that correct?
A. That's part of what I did, yes, sir.
Q. And then you would analyze that material to make a determination as to whether or not that material was, in fact, a controlled substance; is that right?
A. That was a part of what I did, yes, sir.
Q. And in doing that, you would use some of the instrumentation that you've told us about, gas mass spectrometry and the infrared, and those sorts of things, correct?
A. Yes, sir.
Q. And you would formulate an opinion as to what, in fact, that suspect material was; is that correct?

A. Yes, sir.
Q. Now, the times that you've testified in court, those hundreds of times that you've been qualified to give expert testimony, those instances, did those primarily relate to your opinion as to what the substance was that had been submitted by a law enforcement agency?
A. In some instances, yes. In other instances, I've testified before the United States Sentencing Commission also.
Q. As it relates to the nature of the substance?
A. Yes, sir, in terms of dosage unit strength. I testified I think it was in 1991 in front of the Sentencing Commission.
Q. Again, that would be based upon your affiliation with one of these laboratories and the examination of these materials that you've conducted, correct?
A. It's while I was part of the Drug Enforcement Administration Special Testing Research Laboratory, yes, sir.
Q. And I do want to get back to that. I want to ask you about that particular laboratory, but before we go there, I want to shift sort of toward the tail end of your career. With both NCIS and DEA, your primary focus was on forensic chemistry; is that right?

A. Yes, sir, it was.
Q. When you went over to the Secret Service laboratory, what was your primary focus there?
A. I was the laboratory director.
Q. And I have to admit, I'm not familiar with the forensic laboratory for the Secret Service. Do they do question document examination?
A. They do a lot of ink chemistry. They have the largest ink library in the world. When I left, they had like 8700 samples of ink. We did a lot of work on threat notes to high government officials. There are a lot of threat notes that come in, and we had systems to look at the handwriting.

The Secret Service also is involved in counterfeit currency examination. So we did a lot of fingerprint work on counterfeit currency seizures.
Q. Okay. So this fingerprint examination, that is, handwriting analysis, and as you pointed out there's some sort of analysis that can be conducted with various inks?
A. Yes, sir.
Q. And you oversaw that?
A. Yes, sir, I did.
Q. There was no testing of human beings as to the effects of controlled substances on them in that Secret

Service laboratory, was there?
A. No, sir.
Q. And you didn't oversee any studies outside of the laboratory setting as it relates to the clinical effects of these drugs on individuals, were you?
A. I did not, no, sir.
Q. Now, there's no question that the subject BZP and the MDMA are not structurally similar, are they?
A. They are not structurally similar, no, sir.
Q. There's no question about that?
A. In my mind, they are not structurally similar.
Q. Okay. Now, would you also agree with me that as it relates to MDMA, it is a neurotransmitter?
A. I am not a pharmacologist, and that's outside the area of my expertise.
Q. So as it relates to the effect on the human body of these various substances, you would agree with me that it's beyond your ken, it's beyond your expertise?
A. In terms of neurotransmitters, that is in terms of categorizing the drug as a stimulant or hallucinogen, that is within my area of expertise.
Q. And you're basing that, and you correct me if I'm wrong, you're basing that on what labels have been ascribed to various drugs or substances by the Code of Federal Regulations, correct?

A. Which is an act of Congress, yes, sir.
Q. No, I understand. But that's what you're going by. You're going by what label has the Government assigned a particular substance, correct?
A. That's true, yes, sir.
Q. And you're relying primarily on the CFR?
A. And other DEA publications from the Office of Diversion Control.
Q. Okay. I do want to talk about those other publications.

MR. FERLAND: Can I see that drug control article. I think it's D? E. I'm sorry. E.

Q. Sir, I'll show you this publication. That's Defendant's E and it's a full exhibit. And you recognize that, correct?
A. Yes, sir, I do.
Q. And it was in this document, sir, that you called the Court's attention to the fact that there are no scientific studies indicating this combination, that is the TFMPP and BZP, produces MDMA-like behavioral effects, correct?
A. Yes, sir.
Q. Now, in that same article, you would agree with me that this drug is apparently being distributed as a substitute for MDMA in the youth population; is that

correct?

A. That's what I have read, yes, sir.

Q. Now, it's your familiarity, and correct me if I'm wrong, that in many instances the BZP/TFMPP combination is being marketed as an Ecstasy knock-off; is that correct?

A. I really don't feel comfortable talking about what a drug is being marketed as, or the term "knock-off." I just -- I've read that. I can't testify as an expert. A DEA agent would more qualified to testify to that than I would be.

Q. Well, let's look at another DEA publication, if we could.

MR. FERLAND: May I have this marked for identification, please.

MR. SMITH: Could I have a moment.

(Pause.)

Q. Sir, in your capacity as a forensic chemist and a supervisor with the Drug Enforcement Administration for all of those years, did you become familiar with the National Drug Intelligence Center?

A. Yes, sir, I did.

Q. And can you tell us very briefly, what is the National Drug Intelligence Center?

A. It's a DEA office -- it used to be located in

Johnstown, Pennsylvania. I'm not sure whether it's still there or not. And that office tracks drug trends, drug seizures, different kinds of drugs, drug production laboratories around the country. Just keeping track of where drugs are being sold, what kinds of drugs are being sold.

Q. And the uses to which those drugs are being put, is that fair to say?

A. The uses to which are the categories under which the drugs are sold. When a DEA agent makes a buy or makes an arrest, they usually indicate in the report what the drug is purportedly being marketed as.

Q. And that Center keeps track of those recordings?

A. Yes, sir, they do.

Q. I want to show you this document that's been marked as Government 5.

In the course of your research and looking for literature related to BZP and TFMPP, did you encounter that article?

A. No, sir, I did not.

Q. And you would agree with me that that is a Web-based official publication of the Drug Enforcement Administration, United States Justice Department, correct?

A. Yes, sir, it is.

Q. Okay. And in that particular publication, in fact, there is a reference to the fact that BZP with TFMPP is known to mimic the effects of MDMA?

A. I see where it talks about TFMPP producing mild hallucinogenic effects. And I may be missing it. I don't see where it talks about BZP in combination with TFMPP mimicking --

Q. Sir, I'll point out the part of the document that I underlined in blue ink in the first paragraph.

Correct me if I'm wrong, but does that not say: BZP and TFMPP in combination mimic the molecular mechanism of MDMA.

A. That's what it says, yes, sir.

Q. And that is an official Government publication as well, isn't it?

A. Yes, sir, it is.

MR. FERLAND: I'd like to move that in as full, please, your Honor.

THE COURT: Any objection?

MR. SMITH: What's good for the goose is good for the gander.

THE COURT: That's right. It's full.

(Government Exhibit 5 admitted in full.)

Q. As it relates to Defendant's E, the Office of Diversion Control, you would agree with me that the

Drug Enforcement Administration makes mistakes, don't they?

A. Yes, sir.

Q. In fact, you pointed out to us right here in this courtroom the fact that they had reported in the Code of Federal Regulations, in the Congressional Federal Register of the CFR, and I'm absolutely butchering it and I apologize, in the CFR, that they inflated the potency comparison 10 to 20 times, correct?

A. In the Code of Federal Regulations they misreported it. I don't know if I would say inflated. It was misreported.

Q. It was misreported?

A. Yes, sir.

MR. FERLAND: Okay. I have no further questions.

THE COURT: Okay. Thank you.

Redirect, Mr. Smith.

MR. SMITH: No, your Honor.

THE COURT: No? Okay. Just one minute.

I want to come back to this point that Mr. Smith was asking you about, and I think you gave a partial answer to it, whether DEA has ever definitively said that BZP is comparable to any other drugs, and are you aware of any such statements by DEA, definitive

statements about comparability?

THE WITNESS: There are no definitive statements in terms of its relationship to the sentencing guidelines. DEA has talked about BZP being comparable because of the stimulant effect to amphetamine, but when we get to Part C of the Code of Federal Regulations, that dosage part isn't very strong in my opinion.

THE COURT: Now, as far as you know, has DEA ever made any definitive statements with respect to the comparability of BZP in combination with TFMPP as to any other drug in the -- any other controlled substance?

THE WITNESS: No, your Honor, except for what we have here and what Mr. Ferland, I believe, showed me. Those are the only two documents I'm aware of.

THE COURT: Okay. Very good. You can step down. Thank you very much.

THE WITNESS: Thank you, sir.

THE COURT: Do you have any other witnesses?

MR. SMITH: I do not.

THE COURT: Okay. I think that it would be appropriate to hear you on the evidence that's been received, but I'm wondering if you might prefer to do that in writing as opposed to arguing it orally. I'll

leave it up to you.

MR. SMITH: Writing is fine.

MR. MURPHY: I think writing would be better, your Honor.

THE COURT: I don't have a preference. I want you to have your preference. You prefer --

MR. MURPHY: I'd prefer to do it in writing in about ten days.

THE COURT: Mr. Ferland, do you have any feeling about that?

MR. FERLAND: I have no objection either way.

THE COURT: All right. Well, you're not required to submit anything. I think you've submitted briefing on this. But now that you've heard the testimony and all the evidence is in, I think if you wish to submit anything in writing, I'll receive it.

Now, is there a need for any other testimony with respect to your -- either of the two Defendants? I don't think there is. I think the rest is just argument with respect to the application of the guidelines and your objections, right?

MR. SMITH: I think so.

MR. MURPHY: I agree. That's correct.

THE COURT: Okay. Very good. Do you agree with that, Mr. Ferland?

MR. FERLAND: Yes, your Honor.

THE COURT: All right. Then I'll wait to receive what you will file and from there I'm going to -- once I resolve this question about the appropriate analog, I'll inform you of my decision and then we'll proceed with the rest of the sentencing.

What I may do is I may inform you of my decision in a summary fashion without a lot of the explanation, leaving the explanation to a sentencing memorandum that I would file after the sentence so that I can incorporate into it any rulings made during the actual sentencing with respect to the other matters that I have to consider and the determination of what I think the appropriate sentence is.

In cases like this in the past, I've used that approach, leaving kind of the full explication of the reasoning to a post-sentencing sentencing memorandum. I'm not certain I'll do that, but I think that's probably the direction I'll go. Okay?

All right. We'll be in recess.

(Court concluded at 4:06 p.m.)

C E R T I F I C A T I O N

I, Anne M. Clayton, RPR, do hereby certify that the foregoing pages are a true and accurate transcription of my stenographic notes in the above-entitled case.

/s/ Anne M. Clayton

_____

Anne M. Clayton, RPR

November 7, 2011

_____

Date

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA

HONORABLE LARRY ALAN BURNS, JUDGE PRESIDING

UNITED STATES OF AMERICA, PLAINTIFF, VS. DUNG QUOC NGUYEN, NAM NGOC TRAN, DEFENDANTS.	CASE NO. 10CR00798-LAB CASE NO. 10CR00799-LAB SAN DIEGO, CALIFORNIA JUNE 21, 2010 3:00 P.M.

REPORTER'S TRANSCRIPT
MOTION HEARING/TRIAL SETTING

APPEARANCES:

FOR THE GOVERNMENT:	LAURA E. DUFFY, U.S. ATTORNEY BY: PAUL L. STARITA, ESQ. ASSISTANT U.S. ATTORNEY 880 FRONT STREET SAN DIEGO, CA 92101
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COURT REPORTER:	EVA OEMICK OFFICIAL COURT REPORTER UNITED STATES COURTHOUSE 940 FRONT STREET, STE. 2190 SAN DIEGO, CA 92101 TEL: (619) 615-3103

SAN DIEGO, CALIFORNIA - MONDAY, JUNE 21, 2010, 3:00 P.M.

THE CLERK: CALLING NO. 32 ON THE CALENDAR, 10CR798, UNITED STATES OF AMERICA VERSUS DUNG QUOC NGUYEN;

NO. 33, 10CR799, UNITED STATES OF AMERICA VERSUS NAM NGOC TRAN.

THE COURT: WHICH IS MR. TRAN AND MR. NGUYEN?

YOU MAY JOIN YOUR COUNSEL OVER AT COUNSEL TABLE.

MR. STARITA: GOOD AFTERNOON, YOUR HONOR.

PAUL STARITA ON BEHALF OF THE UNITED STATES. JOINING ME AT COUNSEL TABLE ARE TWO MEMBERS OF THE DEA, DIVERSION, DR. PRIOLEAU AND DR. DIBERARDINO.

THE COURT: MS. DAMIANI IS HERE ON BEHALF OF MR. NGUYEN.

MS. DAMIANI: YES.

MS. CASTILLO: KASHA CASTILLO, FEDERAL DEFENDERS. I'M HERE ON BEHALF OF MR. TRAN, WHO IS PRESENT BEFORE THE COURT.

THE COURT: THE COURT AGREED TO HEAR THIS MOTION IN ADVANCE. THIS IS KIND OF A PECULIAR CASE BECAUSE THE NATURE OF THE ALLEGED CONTROLLED SUBSTANCE IS PECULIAR, AND THERE'S A DISPUTE ABOUT WHAT IT'S CLOSER TO. AND ORDINARILY, THIS WOULD NOT BE THE KIND OF THING I DO. BUT IT'S UNIQUE AND PECULIAR ENOUGH THAT I THOUGHT THAT WAS IN THE INTEREST OF THE PARTIES AND THE UNITED STATES TO HAVE A DETERMINATION, AT LEAST BY THE COURT, OF WHAT THIS SUBSTANCE WAS CLOSER TO.

YOU THINK IT'S CLOSER, MR. STARITA, TO?

MR. STARITA: AMPHETAMINE, YOUR HONOR.

THE COURT: AND THE DEFENSE BELIEVES IT'S CLOSER TO?

MS. CASTILLO: TO METHYLPHENIDATE.

THE COURT: THE PRACTICAL DIFFERENCE IS IF YOU'RE RIGHT AND IT'S CLOSER TO METHYLPHENIDATE, THAT THAT INVOKES A DIFFERENT AND LOWER --

MS. CASTILLO: THE GUIDELINE CALCULATIONS IN THIS CASE BETWEEN THESE TWO DRUGS ARE PRETTY SIGNIFICANT. AND SO THE GUIDELINE CALCULATIONS WOULD BE --

MR. STARITA: JUST SO WE'RE CLEAR, ALTHOUGH THE GOVERNMENT SAYS IT'S CLOSER TO AMPHETAMINE, IT'S NOT AS POTENT. AND THERE IS A POTENCY REDUCTION.

THE COURT: BUT IT'S STILL A HIGHER EXPOSURE THE WAY YOU SEE IT THAN THE WAY THE DEFENDANTS SEE IT?

MR. STARITA: YES, YOUR HONOR.

THE COURT: LET ME MAKE SURE THAT THAT'S THE ONLY THING HERE. THERE'S DISCLOSURE OF THE INFORMANT. THERE'S DISCOVERY.

IS ALL THE OTHER DISCOVERY DONE OR SATISFACTORY?

MS. CASTILLO: NO. THERE'S OUTSTANDING DISCOVERY, AND I DON'T WANT TO PUT MR. STARITA TOTALLY ON THE SPOT ON THIS BECAUSE IT WAS LUELLA CALDITO'S CASE ORIGINALLY, AND HE TOOK IT OVER BECAUSE SHE WENT ON MATERNITY LEAVE. SO THERE IS STILL OUTSTANDING DISCOVERY.

THE COURT: WHAT'S MISSING?

MS. CASTILLO: SHE HAD INDICATED THAT SHE WOULD PRODUCE, HAS NOT YET PRODUCED, INFORMATION ON THE CI'S IN THE CASE.

THE COURT: DO YOU CONSIDER YOURSELF BOUND BY THE CONCESSIONS THAT SHE MADE; RIGHT?

MR. STARITA: ABSOLUTELY, YOUR HONOR. I'M CONFIDENT THAT ANY DISCOVERY ISSUES WE HAVE --

THE COURT: WHEN WAS SHE GOING TO DO THAT, MS. CASTILLO?

MS. CASTILLO: REALLY, THIS ISSUE HAS BEEN REALLY ON THE FOREFRONT OF THIS CASE WITH THE DISCOVERY GOING BACK AND FORTH WITH OUR EXPERTS. WE HADN'T EVEN GOTTEN TO ANY ISSUES REGARDING THE ACTUAL MAYBE TRIAL ISSUES BECAUSE THIS REALLY HAS BEEN ON THE FOREFRONT OF --

THE COURT: ASSUMING YOU GET A RULING ON THIS TODAY, HOW SOON WOULD YOU NEED TO KNOW THE IDENTITY OF THE INFORMANTS AND ANY IMPEACHMENT MATERIAL?

MS. CASTILLO: WE WOULD BE ASKING -- I SPOKE WITH MR. STARITA ABOUT POSSIBLE TRIAL DATES, AND WE WOULD -- I HEARD THE COURT WAS SAYING TOWARDS THE END OF AUGUST AS FAR AS TRIAL DATES.

THE COURT: WHAT'S OUR MAXIMUM TRIAL DATE, TISH, IF THE MOTIONS GET RESOLVED?

THE CLERK: AUGUST 5TH.

THE COURT: YOU CAN FILE A MOTION IN LIMINE.

MS. CASTILLO: DEFINITELY.

THE COURT: WHAT I'D BE INCLINED TO DO IS SET THIS FOR THE 31ST OF AUGUST, WHICH GIVES PLENTY OF TIME.

BUT LET'S CUT THROUGH THESE OTHER THINGS. IF I DO THAT, AUGUST 1ST, WOULD THAT BE SATISFACTORY FOR THE DISCLOSURE OF THE INFORMANTS AND ANY IMPEACHMENT MATERIAL?

MS. CASTILLO: BY AUGUST 1ST? YES.

THE COURT: YOU CAN DO THAT, RIGHT, MR. STARITA?

MR. STARITA: YES, YOUR HONOR.

THE COURT: WHAT ELSE ON DISCOVERY?

MS. CASTILLO: I BELIEVE THERE'S PROBABLY SUPPLEMENTAL REPORTS REGARDING THE UNDERCOVER INVESTIGATION THAT WAS OCCURRING. I RECEIVED SOME OF THOSE REPORTS, BUT I THINK THERE ARE PROBABLY MORE.

THE COURT: MR. STARITA, WILL YOU GIVE ALL THAT STUFF OVER BY AUGUST 1ST OR SOONER?

MR. STARITA: YES, YOUR HONOR. ABSOLUTELY.

THE COURT: ARE YOU HOLDING ANYTHING BACK DELIBERATELY AT THIS POINT?

MR. STARITA: NO. IF I CAN EXPLAIN. CERTAINLY NOT. THIS ISSUE HAS BEEN AT THE FOREFRONT. AND WHEN I FIRST CAME IN CONTACT WITH THIS CASE, I JUST HAPPENED TO BE HERE IN THIS COURT WHEN YOU'D ASKED ME IF I WOULD STAND IN FOR HER. AND THEN I ASKED TO GET THE FILE ONCE IT WAS CLEAR THAT MY OFFICE

WAS GOING TO ASSIGN THE CASE TO ME. AND SO I'VE SPENT MOST OF MY TIME ON THIS ISSUE.

THE COURT: THAT'S UNDERSTANDABLE.

MR. STARITA: I WILL RESOLVE ALL THE DISCOVERY ISSUES.

THE COURT: SO YOU'LL GET ANY SUPPLEMENTAL REPORTS AS SOON AS POSSIBLE. IN ANY EVENT, NO LATER THAN AUGUST 1ST.

MS. CASTILLO: JUST SO WE'RE CLEAR, THESE TWO CASES ARE ACTUALLY SEPARATE CASES, BUT THEY'RE ONLY JOINED FOR THE PURPOSES OF THIS HEARING. I CAN'T SPEAK AS TO MS. DAMIANI.

THE COURT: THERE'S NO HISTORICAL CONNECTION IN THE INVESTIGATIONS? IT JUST HAPPENS THAT TWO GUYS HAD THIS OBSCURE DRUG, SO THE GOVERNMENT ALLEGES?

MR. STARITA: NOT THAT I AM AWARE OF, YOUR HONOR.

THE COURT: WE WOULD HAVE SEPARATE TRIAL DATES, THEN?

MS. DAMIANI: THAT'S WHAT I WAS GOING TO REQUEST OF THE COURT. I WAS WONDERING IF THE COURT'S IMPOSING THE SAME ORDER, BECAUSE THEY ARE SEPARATE CASES.

THE COURT: CAN YOU TRY YOUR CASE A WEEK BEFORE THE 24TH?

MS. DAMIANI: I DON'T HAVE MY CALENDAR. I'M GOING TO BE OUT OF THE DISTRICT FROM THE 22ND OF JULY UNTIL THE 29TH OR SO.

THE COURT: THIS ISN'T TILL AUGUST WE'RE TALKING

ABOUT, AUGUST 24TH. CAN YOU TRY IT ON AUGUST 24TH? THAT'S A TUESDAY.

MS. CASTILLO: I DON'T SEE WHY NOT.

THE COURT: SO I WOULD TENTATIVELY SET --

IT'S MR. TRAN YOU REPRESENT OR MR. NGUYEN?

MS. DAMIANI: MR. NGUYEN.

THE COURT: MR. NGUYEN'S CASE WOULD BE SET, PENDING RESOLUTION OF THE OTHER MOTIONS, FOR THE 24TH, AND THEN THE OTHER CASE ON THE 31ST.

MR. STARITA: YOUR HONOR, TO BE COMPLETELY CANDID, WHEN I READ THROUGH THE FACTS AGAIN, THERE IS SOME CONNECTION. I KNOW THAT THEY HAVE THE CONFIDENTIAL INFORMANT IN COMMON. BUT IT'S NOT CLEAR TO ME THAT THEY WERE ENGAGED IN ANY TYPE OF CONSPIRACY.

THE COURT: IF IT'S A RELATED CASE, FILE A NOTICE OF RELATED CASE AND I'LL CONSIDER IT. BUT IF IT'S NOT, THEN JUST BE PREPARED TO TRY THE CASE.

MR. STARITA: THAT'S FINE WITH ME.

THE COURT: SO THE TENTATIVE TRIAL DATE FOR MR. NGUYEN WOULD BE THE 24TH. I'LL HEAR MOTIONS IN LIMINE ON THE 23RD, MS. DAMIANI. FOR MR. TRAN, IT WOULD BE THE 31ST, AND I'LL HEAR MOTIONS IN LIMINE ON THE 30TH. MOTIONS IN LIMINE TIME IN BOTH CASES WOULD BE 2:00. THE TRIAL TIME WOULD BE 9:00 THE FOLLOWING MORNING.

MS. DAMIANI: IN SUCH CASE, CAN I GET MY REPORT THE

WEEK SOONER?

THE COURT: YEAH, I THINK SO.

WILL YOU TURN OVER EVERYTHING TO MS. DAMIANI THE WEEK BEFORE AUGUST 1ST, THEN?

I THINK WITH REPORTS, HE SAYS HE'S GOING TO TURN THEM OVER AS SOON AS POSSIBLE, BUT NOT LATER THAN THE AUGUST --

MR. STARITA: AS SOON AS I GET IT, THEY CAN HAVE IT. I'M NOT GOING TO WAIT. AS SOON AS I GET ALL THE INFORMATION THAT THEY WANT, I'LL TURN IT OVER.

THE COURT: HERE'S THE POINT: ARE YOU WILLING TO SIT DOWN WITH THEM AT SOME POINT, OPEN YOUR FILE, AND SAY, "OKAY. YOU'VE GOT THIS. YOU'VE GOT THIS. YOU'VE GOT EVERYTHING HERE"?

MR. STARITA: ABSOLUTELY. THAT'S MY PRACTICE.

MS. CASTILLO: IT IS.

THE COURT: JUST SIT DOWN WITH HIM, AND YOU CAN BE ASSURED THAT YOU'VE GOT EVERYTHING HE HAS.

AND YOU'LL MAKE THE APPROPRIATE INQUIRIES OF THE AGENTS TO MAKE SURE THEY'RE NOT HOLDING ANYTHING BACK IN THEIR FILES?

MR. STARITA: YES, YOUR HONOR.

THE COURT: GIVE HIM A WEEK TO DO THAT, MS. DAMIANI, AND THEN HE'LL SIT DOWN AND GIVE YOU EVERYTHING AND MAKE SURE YOU'VE GOT IT.

MS. DAMIANI: I WILL.

THE COURT: DOES THAT SOLVE THE DISCOVERY OTHER THAN THIS ISSUE?

MS. CASTILLO: AS FAR AS I KNOW AT THIS POINT, YOUR HONOR, YES. IF THERE'S ANYTHING THAT COMES UP, I CAN LET THE COURT KNOW. I DON'T ANTICIPATE ANY PROBLEMS.

THE COURT: THERE HAS BEEN A MOTION -- MS. CASTILLO, YOU MADE A MOTION ALSO TO PRESERVE THE EVIDENCE.

YOU'RE NOT GOING TO GET RID OF THIS BZP; RIGHT?

MR. STARITA: THAT WOULD NOT BE MY PLAN. I HOPE THAT NO ONE HAS GOTTEN RID OF IT. I DON'T THINK ANYONE HAS, BECAUSE I KNOW THEY MADE THE MOTION BEFORE. SO IT'S OUR PRACTICE --

THE COURT: THE COURT ORDERS THAT THE DRUG IN THIS CASE -- IN THESE CASES BE PRESERVED UNTIL AUGUST 24TH. THAT'S A WEEK AHEAD OF YOUR TRIAL DATE. SO IF YOU'RE GOING TO RETEST IT OR ANYTHING, GET THE MOTIONS IN TO ME TO RETEST IT. I DON'T KNOW IF THERE'S A DISPUTE ABOUT THE WEIGHT. I KNOW THERE'S A DISPUTE ABOUT WHETHER THIS IS FISH OR FOWL.

MS. CASTILLO: MY TRIAL IS ON THE 24TH?

THE COURT: RIGHT.

MS. CASTILLO: YOU SAID A WEEK BEFORE.

THE COURT: YEAH, GET YOUR MOTIONS IN TO ME TO RETEST A WEEK BEFORE THE 24TH. NO LATER THAN A WEEK BEFORE. OBVIOUSLY, YOU CAN DO IT ANY TIME IF YOU WANT TO RETEST IT.

I'M ASSUMING IT'S BEEN --

HAS IT BEEN RETESTED ALREADY, THE CHEMICAL ITSELF?

MS. CASTILLO: NO.

THE COURT: YOU JUST ASSUME THAT IT IS WHAT THE GOVERNMENT CHEMIST SAYS IT IS.

MS. DAMIANI: FOR THE PURPOSES OF THIS HEARING, YES, YOUR HONOR.

THE COURT: BUT IF YOU WANT TO REWEIGH IT OR RETEST IT, YOU MAY DO SO. JUST GET THE MOTIONS IN TO ME A WEEK BEFORE THE 24TH. THAT'S IN BOTH CASES.

ANY OTHER SUBSTANTIVE MOTIONS THAT NEED TO BE RULED UPON BESIDES THIS DETERMINATION OF WHETHER THIS THING IS CLOSER TO WHAT THE GOVERNMENT SAYS OR WHAT THE DEFENSE BELIEVES?

MS. CASTILLO: NOT THAT I'M AWARE OF AT THIS TIME BASED ON THE DISCOVERY I HAVE SO FAR.

THE COURT: THE MOTION FOR RECIPROCAL DISCOVERY IS GRANTED.

YOU DIDN'T HAVE ANY OTHER AFFIRMATIVE MOTIONS, DID YOU, MR. STARITA?

MR. STARITA: I DID NOT.

THE COURT: THEN THE QUESTION BEFORE THE COURT IS WHAT'S THE NATURE OF THIS, WHAT'S IT CLOSE TO?

MR. STARITA, I THINK WHAT I'LL DO IS GIVEN YOU -- I THINK YOU DO HAVE THE BURDEN OF PROOF ON THIS ULTIMATELY EVEN

IF IT'S A SENTENCING ISSUE. SO YOU MAY CALL YOUR WITNESS.

MR. STARITA: YOUR HONOR, AT THIS TIME THE UNITED STATES WOULD CALL DR. DIBERARDINO TO THE STAND.

DR. THOMAS DIBERARDINO

WAS CALLED AS A WITNESS AND, AFTER HAVING BEEN DULY SWORN, TESTIFIED AS FOLLOWS:

THE CLERK: PLEASE STATE YOUR FULL NAME AND SPELL YOUR LAST NAME FOR THE RECORD.

THE WITNESS: THOMAS DIBERARDINO, D-I-B-E-R-A-R-D-I-N-O.

DIRECT EXAMINATION

BY MR. STARITA:

Q. GOOD AFTERNOON, SIR.

SIR, WHO DO YOU WORK FOR?

A. DRUG ENFORCEMENT ADMINISTRATION.

Q. AND WHAT'S YOUR JOB THERE?

A. I'M A CHEMIST.

Q. WHAT ARE YOUR DUTIES AS A CHEMIST THERE?

A. I'M NOT A FORENSIC CHEMIST, SO I DON'T WORK IN THE LAB. I'M MORE ON THE ADMINISTRATIVE SIDE; REGULATORY, CONTROL, AND DRUG EVALUATION.

Q. WHAT'S THE NAME OF THE SECTION YOU WORK IN?

A. THE OFFICE OF DIVERSION CONTROL, DRUG AND CHEMICAL EVALUATION SECTION.

THE COURT: OFFICE OF WHAT CONTROL?

THE WITNESS: DIVERSION CONTROL.

BY MR. STARITA:

Q. WHAT IS YOUR PRIMARY RESPONSIBILITY THERE? WHAT DO YOU FOCUS ON EVERY DAY?

A. EVERY DAY ROUTINELY I WOULD LOOK AT SUBSTANCES AND DETERMINE THEIR CONTROL STATUS BASED ON THEIR CHEMICAL STRUCTURE AND THE REGULATORY DEFINITIONS WITHIN THE CODE OF FEDERAL REGULATIONS AND USC.

Q. SO WHEN A SUBSTANCE IS IDENTIFIED, A NARCOTIC OR A DRUG IS IDENTIFIED, TO BE CONTROLLED AND IT'S GOING TO BE SCHEDULED, YOU PARTICIPATE IN THE RULE-MAKING, THE AGENCY RULE-MAKING?

A. THE SCHEDULING ACTUALLY WOULD COVER CHEMICAL ISSUES, THE ISSUES RELATED TO THE CHEMISTRY. I DON'T INVOLVE MYSELF IN PHARMACOLOGY. I WOULD ALSO INVOLVE MYSELF IN HOW THE SUBSTANCE IS BEING USED IN TERMS OF THE TYPE OF PERSONS THAT ARE USING IT AND DISTRIBUTIONS, STATISTICAL TYPE OF ANALYSIS, TO SOME EXTENT.

BUT MOSTLY, I LOOK AT THE CHEMICAL STRUCTURE AND ANALYZE IF THE SUBSTANCE CAN BE CONTROLLED BY DEFINITION BECAUSE THE REGULATIONS COULD BE A LITTLE BIT COMPLICATED IN THE SENSE THAT NOT EVERYTHING IS SPECIFICALLY NAMED. SOME THINGS HAVE TO BE EVALUATED BASED ON THOSE DEFINITIONS. SO I WOULD LEND MY HAND TO THAT.

THE COURT: HOLD ON A SECOND. I HAVE A QUESTION FOR

HIM BASED ON THE LAST ANSWER.

I DON'T UNDERSTAND THE DISTINCTION, JUST BECAUSE I'M IGNORANT OF IT, BETWEEN -- YOU SAY YOU'RE INVOLVED IN ANALYZING THE CHEMISTRY ASPECT, NOT THE PHARMACOLOGY ASPECT.

WHAT'S THE DIFFERENCE BETWEEN THOSE TWO FUNCTIONS?

THE WITNESS: THE CHEMISTRY, SOMETIMES SUBSTANCES ARE CREATED IN CLANDESTINE LABORATORIES. SO I WOULD ANALYZE AND STUDY THE TYPES OF REACTIONS NEEDED TO PRODUCE THOSE CHEMICALS WITH PRECURSORS, WITH REAGENTS, WITH SOLVENTS, WHAT CHEMICALS I NEEDED TO MAKE IT. THOSE ARE IMPORTANT. BECAUSE THEN WE WOULD REGULATE CERTAIN CHEMICALS TO PREVENT THE BAD GUYS FROM GETTING THOSE.

THE COURT: WHAT'S MEANT BY "PHARMACOLOGY"?

THE WITNESS: THE PHARMACOLOGY IS AFTER THE SUBSTANCE HAS BEEN SYNTHESIZED AND ISOLATED AND WHATNOT AND THEN INGESTED, WHAT EFFECT DOES IT HAVE ON YOUR CENTRAL NERVOUS SYSTEM.

THE COURT: OKAY. I GET IT. GO AHEAD.

BY MR. STARITA:

Q. SIR, HOW LONG HAVE YOU BEEN DOING THIS JOB?

A. ABOUT 15 YEARS, FROM '94. I STARTED WITH DEA IN 1994.

Q. WHAT DID YOU DO PRIOR TO THAT?

A. I WAS A RESEARCH CHEMIST.

Q. FOR THE GOVERNMENT OR FOR --

A. ACTUALLY FOR THE NAVY. I WAS PRIVATE INVESTIGATOR FOR

THE -- I WASN'T IN THE NAVY. I'M NOT MILITARY. I WAS A CIVILIAN RESEARCHER, BUT I WAS EMPLOYED BY THE NAVY.

Q. NOW, SIR, YOU HAVE A PH.D. IN CHEMISTRY?

A. THAT'S CORRECT.

Q. WHEN AND WHERE DID YOU RECEIVE THAT?

A. I RECEIVED IT IN 1989. AND THAT WAS THROUGH GRAD SCHOOL, CITY UNIVERSITY OF NEW YORK.

Q. SIR, WITH REGARD TO THIS CASE, WHY DID THE UNITED STATES CONSULT YOU WITH REGARD TO THIS SPECIFIC CASE?

A. THE GOVERNMENT NEEDED CLARIFICATION AS TO WHAT THIS SUBSTANCE IS RELATED TO IN TERMS OF ITS CHEMICAL STRUCTURE.

Q. WHAT SUBSTANCE ARE WE REFERRING TO?

A. I'M SORRY. BENZYLPIPERAZINE, BZP.

Q. IT'S KNOWN BY THE ACRONYM BZP?

A. BZP.

Q. AND YOU WERE ASKED TO ANALYZE THE CHEMICAL STRUCTURE OF BZP?

A. YES.

Q. AND COMPARE THAT CHEMICAL STRUCTURE TO AMPHETAMINE AND METHYLPHENIDATE?

A. THAT'S CORRECT.

Q. NOW, IN ORDER TO DO A COMPARISON OF THE STRUCTURES, DID YOU PREPARE ANY DIAGRAMS TO SHOW THE COURT?

A. YES, I DID.

MR. STARITA: MAY I APPROACH?

THE COURT: YES.

BY MR. STARITA:

Q. I'M SHOWING YOU WHAT'S MARKED AS GOVERNMENT EXHIBITS 1, 2, AND 3.

MR. STARITA: YOUR HONOR, I HAVE A COPY FOR YOU AS WELL. DEFENSE COUNSEL HAS BEEN PROVIDED A COPY.

THE COURT: ALL RIGHT.

BY MR. STARITA:

Q. NOW, IF YOU COULD, COULD YOU DESCRIBE FOR THE COURT WHAT WE SEE IN GOVERNMENT EXHIBIT 1.

WHAT ARE THOSE DIAGRAMS OF?

A. THE TOP CHEMICAL STRUCTURE IS THAT OF AMPHETAMINE, THE MIDDLE THAT OF BZP, AND THE BOTTOM THAT OF METHYLPHENIDATE.

Q. SIR, COULD YOU TURN TO GOVERNMENT EXHIBIT 2.

A. OKAY.

Q. WHAT IS DEPICTED IN THIS DIAGRAM?

A. WELL, IT'S -- THE FIRST DIAGRAM IS MEANT JUST TO SHOW THE BASIC STRUCTURES SO YOU COULD JUST VISUALIZE SIMILARITIES AND DIFFERENCES. I THINK THAT'S THE GIST OF THIS, TO BRING THAT OUT.

THE SECOND DIAGRAM IS AN ATTEMPT TO BETTER SHOW THE DIFFERENCES AND SIMILARITIES.

SHALL I EXPLAIN?

Q. PLEASE.

A. AGAIN, THE TOP CHEMICAL STRUCTURE IS THAT OF BZP. THIS

TIME THE MIDDLE ONE IS METHYLPHENIDATE, AND THE BOTTOM ONE IS AMPHETAMINE. YOU NOTICE THAT THERE ARE SOME LINES CONNECTED. WELL, THE LINES ARE JUST CHEMICAL BONDS THAT GIVES WEIGHT TO THE CHEMICAL STRUCTURE. THE BONDS THAT ARE DRAWN AS SOLID LINES ARE WHAT IS SIMILAR. THE BONDS THAT ARE DRAWN AND DASHED LINES IS WHAT'S DIFFERENT.

SO THIS DIAGRAM SHOWS THAT IN THE MIDDLE THERE IS -- ONE OTHER THING I WANT TO POINT OUT, TOO, IS THAT THERE'S TWO ENDS. YOU SEE THAT ON THE TOP DIAGRAM OF BZP, THERE ARE THOSE TWO NITROGEN ATOMS. I FAILED TO POINT OUT THAT WHERE THE BONDS CONNECT, WE ASSUME -- WE DON'T DRAW -- AS A CHEMIST, WE DON'T DRAW THE ATOMS. WE ASSUME ALL THOSE ATOMS ARE CARBONS. SO PRETTY MUCH WE'RE LOOKING AT CARBONS AND NITROGENS. THE NITROGENS ARE AS INDICATED. ALL THE OTHER CONNECTING BONDS ARE WHERE CARBONS RESIDE.

NOW, IF YOU LOOK AT METHYLPHENIDATE, THE SECOND ONE IN THAT DIAGRAM, THERE IS A NITROGEN -- THERE ARE TWO NITROGENS THAT ARE SHADED. THOSE ARE TO INDICATE -- THAT'S THE ORIGINAL POSITION OF THE NITROGENS IN THE BZP. ALL THE OTHER PARTS OVERLAY EXCEPT FOR THE ONES THAT ARE DASHED. THAT THING STICKING OUT AT THE TOP IS CALLED A METHYL ESTER GROUP. THAT PART IS DIFFERENT AS THESE POSITIONS OF THE NITROGENS. THOSE ARE THE DIFFERENCES. THE SIMILARITIES ARE THE TWO RINGS AND THE TWO BONDS THAT JOIN THOSE RINGS.

Q. SO IN GOVERNMENT EXHIBIT 2, THERE -- IN THE SECOND -- THE

MIDDLE DIAGRAM, YOU HAVE THE LIGHTER COLORED N AND THE LIGHTER COLORED NH.

WHAT ARE THOSE AGAIN?

A. THOSE ARE THE ORIGINAL POSITIONS OF THE NITROGENS THAT ARE IN THE BZP IF WE TAKE THE BZP AND COMBINE IT WITH METHYLPHENIDATE.

Q. SO IF YOU SUPERIMPOSE THE BZP OVER THE METHYLPHENIDATE STRUCTURE, THAT'S WHAT WE'RE LOOKING AT?

A. CORRECT.

Q. NOW, THE BOTTOM STRUCTURE, WHAT IS THAT? THAT'S SUPERIMPOSING THE BZP OVER THE AMPHETAMINE?

A. THAT'S CORRECT. SO WHEN THAT IS DONE, AGAIN, THE NITROGENS ARE SHADED BECAUSE AMPHETAMINE DOES NOT HAVE NITROGENS JUST LIKE METHYLPHENIDATE DOES NOT HAVE NITROGENS IN THOSE POSITIONS.

THE TWO BONDS COMING OFF THAT SHADED NITROGEN ARE SOLID BECAUSE THEY'RE SIMILAR AS IN BZP. THE DIFFERENCE ARE THE BONDS THAT ARE DASHED. THOSE BONDS DO NOT EXIST IN THE AMPHETAMINE.

SO THE DIFFERENCE THERE IS THOSE BONDS THAT ARE DASHED AND THE SIMILARITIES IS EVERYTHING ELSE. SO PRETTY MUCH THIS AMPHETAMINE CAN FIT ENTIRELY ON TOP OF THE BZP.

Q. NOW, LET ME DRAW YOUR ATTENTION TO GOVERNMENT EXHIBIT 3, SIR.

A. YEAH.

Q. WHAT DOES GOVERNMENT EXHIBIT 3 SHOW?

A. THIS IS -- IF YOU UNDERSTOOD EVERYTHING SO FAR PRETTY MUCH, THIS IS KIND OF A SUMMARY/CLARIFICATION. HERE WE HAVE ON THE TOP AMPHETAMINE. WELL, IT'S A REPRESENTATION OF AMPHETAMINE. AND THE BOTTOM IS A REPRESENTATION OF METHYLPHENIDATE.

AND WHAT'S SUMMARIZED IN HERE ARE THE ACTUAL DIFFERENCES SO THAT EVERYTHING ELSE WOULD BE THE SAME. AGAIN, YOU HAVE THE NITROGENS AND EVERYTHING. EVERYTHING LOOKS THE SAME. BUT ON THE RIGHT-HAND SIDE ON THE COLUMN, THE DIFFERENCE BETWEEN AMPHETAMINE AND BZP ARE THOSE THREE CARBONS, THE TWO CARBONS AND THE NITROGEN.

ON THE BOTTOM, THE DIFFERENCE IN WHAT'S SHOWN ON THE RIGHT-HAND COLUMN ARE THE TWO CARBONS AND TWO OXYGENS. THAT'S THAT METHYL ESTER GROUP THAT DOESN'T EXIST IN BZP. AND THEN, OF COURSE, THE NITROGEN ATOM, THAT WOULD HAVE BEEN PART OF THE RING, BUT IT'S NOT THERE.

SO IN AMPHETAMINE YOU HAVE A DIFFERENCE OF TWO CARBONS AND ONE NITROGEN. IN METHYLPHENIDATE, YOU HAVE A DIFFERENCE OF TWO CARBONS AND TWO OXYGENS. IN AMPHETAMINE, THOSE TWO CARBONS AND ONE NITROGEN THAT ARE NOT THERE COMPLETE THE RING. IF THAT WERE THERE, THEN BZP AND AMPHETAMINE WOULD BE ALMOST EXACTLY THE SAME. BUT BEING IT'S NOT THERE, THAT'S THE DIFFERENCE.

IN METHYLPHENIDATE, YOU HAVE THE RING SYSTEM MEANS

THAT NITROGEN, BUT YOU DON'T HAVE THAT METHYL ESTER GROUP, WHICH IS ABSENT IN BZP. SO THE DIFFERENCE BETWEEN THE TWO IS THAT AMPHETAMINE LACKS THREE ATOMS WHEREAS METHYLPHENIDATE HAS AN ADDITIONAL FOUR ATOMS. AND THIS SLIDE JUST REPRESENTS THAT.

Q. SIR, BASED ON YOUR ANALYSIS OF THE CHEMICAL STRUCTURE, CAN YOU SAY WITH ANY DEGREE OF CERTAINTY WHETHER BZP IS MORE SIMILAR TO METHYLPHENIDATE OR MORE SIMILAR TO AMPHETAMINE?

A. BASED ON THIS ANALYSIS, BY SHEER NUMBER OF DIFFERENT ATOMS, YOU COULD LOOK AT IT AND ARGUE THAT AMPHETAMINE IS MORE SIMILAR BECAUSE IT'S ONLY A DIFFERENCE OF THREE ATOMS WHEREAS METHYLPHENIDATE IS A DIFFERENCE OF FOUR ATOMS.

HOWEVER, YOU HAVE THE OTHER SIDE OF THE ARGUMENT WHERE AMPHETAMINE LACKS THE SECOND RING, METHYLPHENIDATE HAS THAT COMPLETE RING. SO THERE ARE SIMILARITIES AND DIFFERENCES ON BOTH OF THESE.

I WOULD BE A LITTLE BIT UNCOMFORTABLE IN TRYING TO CONVINCE THE COURT THAT ONE IS MORE OR LESS THAN THE OTHER. THEY'RE ALMOST EQUIVALENTLY DIFFERENT OR SIMILAR, AS YOU WILL, DEPENDING ON YOUR OUTLOOK. BOTH ARE THE VERY CLOSE. I WOULDN'T CALL EITHER OF THEM SUBSTANTIALLY SIMILAR, BUT THEY BOTH HAVE REAL SIMILARITIES. BECAUSE THE DIFFERENCES AND SIMILARITIES BETWEEN THE TWO, YOU HAVE FOUR CARBONS AND THREE CARBONS AND ONE, IT'S NOT SUBSTANTIALLY DIFFERENT OR SUBSTANTIALLY THE SAME, BUT EACH HAVE A GOOD DEGREE OF

SIMILARITY.

THE COURT: IS IT A WASH BETWEEN THEM IN YOUR JUDGMENT?

THE WITNESS: IS IT A WASH?

THE COURT: YES.

THE WITNESS: YOU MEAN --

THE COURT: IN COMPARING THE BZP TO ON THE ONE HAND THE AMPHETAMINE AND ON THE OTHER HAND THE METHYLPHENIDATE, I UNDERSTAND YOUR TESTIMONY. YOU SAID, "LOOK, IT LOOKS CLOSER -- IF YOU CAN DISCOUNT THE ADDED DASHED LINES AT THE TOP AND THE ADDITIONAL ELEMENTS THERE, METHYLPHENIDATE LOOKS CLOSER TO BZP BECAUSE OF THE TWO COMPLETED BOXES WHEREAS AMPHETAMINE IS NOT A COMPLETED BOX."

ON THE OTHER HAND, I UNDERSTAND WHAT YOU'RE SAYING THAT THERE ARE MORE ELEMENTS --

THE WITNESS: ATOMS.

THE COURT: -- IN THE METHYLPHENIDATE, FOUR AS OPPOSED TO THREE.

SO MY QUESTION IS THE FACT THAT THE BOX IS ALMOST COMPLETE ON THE METHYLPHENIDATE, DOES THAT MAKE UP FOR THE ADDITIONAL ELEMENTS SUCH TO RENDER THIS A WASH?

THE WITNESS: I WOULD DISAGREE WITH THAT CONCLUSION, BUT I UNDERSTAND WHY SOMEBODY WOULD HAVE THAT OPINION. BECAUSE I THINK WHEN YOU LOOK AT THIS, YOUR MIND JUST FUNCTIONS IN THAT YOU LOOK AT THE SIMILARITIES FIRST AND YOU

LOOK AT THOSE TWO BOXES. AND THEY'RE BOTH VARYING IN EITHER COMPOUND.

AND THAT'S A POSITIVE REINFORCEMENT. YOUR MIND LOOKS AT THAT AND YOU SAY, "WELL, THEY'RE VERY MUCH ALIKE." YOU TEND TO EXCLUDE THAT EXTRA GROUP OF ATOMS. BUT IF -- AS A CHEMIST, THAT JUST JUMPS OUT AT ME, AND I CAN'T EXCLUDE IT. IF I COULD, THEN I WOULD ABSOLUTELY AGREE THAT METHYLPHENIDATE IS MORE SIMILAR.

THE COURT: NEITHER ONE IS AN EXACT COPY. I GET THAT. BUT AS I UNDERSTOOD YOUR TESTIMONY, YOU'RE SAYING ON THE ONE HAND METHYLPHENIDATE LOOKS CLOSER BECAUSE THE TWO COMPLETED BOXES -- BZP HAS A COMPLETED BOX, METHYLPHENIDATE HAS A COMPLETED BOX. THAT'S VERY, VERY SIMILAR LEAVING ASIDE FOR A MINUTE THE ADDITIONAL ELEMENTS THAT ARE DEPICTED IN THE DASHED LINE BOX AT THE TOP.

THEN YOU SAY, "BUT ON THE OTHER HAND, YOU'VE GOT FOUR ADDITIONAL ELEMENTS PRESENT IN METHYLPHENIDATE THAT AREN'T PRESENT IN BZP. THAT MAKES IT VERY DISSIMILAR, WHEREAS AMPHETAMINE JUST HAS THREE ADDITIONAL ELEMENTS. AND SO JUST BY COUNT, ONE FEWER WOULD MAKE IT CLOSER." I'M ASSUMING MORE ELEMENTS, THE MORE DISSIMILAR.

WHAT I'M ASKING YOU IS IS THE SIMILARITY BETWEEN WHAT'S THERE, WHICH SEEMS TO FAVOR THE METHYLPHENIDATE COMPARISON, IS THAT ENOUGH TO OFFSET THE FACT THAT THERE'S AN ADDITIONAL ELEMENT IN METHYLPHENIDATE OVER AMPHETAMINE WHICH

WOULD MAKE THIS A WASH IN TRYING TO COMPARE THESE TWO DRUGS TO BZP?

THE WITNESS: THAT AND THE ADDITIONAL NITROGEN THAT ISN'T THERE IN THAT BOX. BECAUSE AGAIN, AS A CHEMIST I LOOK AT THAT AND I'M LOOKING -- I'M PICTURING -- TO BE SIMILAR, THAT NITROGEN SHOULD BE A CARBON, BUT IT'S NOT. IT'S DIFFERENT. IT'S A NITROGEN.

SO YES, IN ADDITION TO THOSE FOUR ATOMS OR ELEMENTS AND THE NITROGEN, I THINK THERE'S A TENDENCY TO OVERLOOK THAT BECAUSE IT'S STUFF THAT'S NOT THERE IN THE ORIGINAL.

I'M NOT COMFORTABLE IN SAYING THAT METHYLPHENIDATE IS MORE SIMILAR TO BZP. I'M NOT COMFORTABLE WITH THAT BECAUSE I CANNOT OVERLOOK THAT METHYL ESTER GROUP, THOSE FOUR CARBONS AND THAT ADDITIONAL NITROGEN.

I'M NOT COMFORTABLE IN SAYING THAT AMPHETAMINE IS CLOSER EITHER. AND I WOULD NOT WANT TO BE PUSHED TO MAKE A DECISION LIKE THAT BECAUSE IT'S PRETTY MUCH AN OPINION. BUT IF I WERE PUSHED, IT'S A HARD CALL. I UNDERSTAND. YOU ONLY HAVE THOSE THREE ATOMS, BUT THOSE THREE ATOMS COMPLETE THAT RING.

THE COURT: WHAT IF WE WERE TO ASK YOU TO STATE OPINIONS OF THIS SORT IN TERMS OF REASONABLE SCIENTIFIC CERTAINTY? IT DOESN'T SOUND LIKE ANY OF THIS APPROACH IS THAT STANDARD OF SCIENTIFIC CERTAINTY.

THE WITNESS: AS A PH.D. CHEMIST, I HATE TO ADMIT

THIS, BUT THIS IS NOT REAL SCIENCE. THIS IS YOUR OPINION LOOKING AT THESE STRUCTURES. I COULD POINT OUT THE SIMILARITIES AND DIFFERENCES, BUT ANY RESPECTED CHEMIST COULD HAVE AN OPINION THAT DIFFERS FROM ANOTHER.

THE COURT: DEA AS AN AGENCY HAS NOT TAKEN AN OFFICIAL POSITION ON THIS YET OR THEY HAVE?

THE WITNESS: WE HAVE. THAT'S NOT SO MUCH BASED ON THE STRUCTURE, BUT MORE SO BASED ON THE PHARMACOLOGY.

I JUST WANT TO MAKE A CLARIFYING STATEMENT. I KNOW THIS IS CONFUSING.

I DON'T SEE ONE BEING OVERWHELMINGLY MORE SIMILAR TO THE OTHER. AND I THINK THAT A LOT OF PEOPLE MIGHT REACH THAT CONCLUSION AS YOU DID BECAUSE OF THE TWO COMPLETE BOXES AND JUST OVERLOOK -- AGAIN, YOUR MIND SEES THE SIMILARITIES, BUT DOESN'T LOOK AT WHAT'S EXCLUDED FROM THAT, THE EXCLUSION BEING THOSE FOUR ATOMS AND THAT OTHER NITROGEN.

THE COURT: I SEE IT. I'M TRYING TO FIGURE OUT IS IT SIGNIFICANT THAT THE TWO BOXES MATCH UP EVEN THOUGH IT'S GOT THESE EXTRAS OR IS IT A WASH? DOES THE EXTRA ATOM RENDER THIS A WASH EVEN THOUGH THE BOXES MATCH UP?

THE WITNESS: WHEN YOU SAY THE EXTRA ATOM RENDER THIS A WASH, YOU MEAN WHAT?

THE COURT: IF I'M FOLLOWING YOU, WHEN YOU LOOK AT METHYLPHENIDATE, WHICH THE DEFENDANTS SAY THAT'S THE CLOSER ANALOG HERE, AND YOU IMPRINT IT OVER BZP, IF I FOLLOWED YOUR

TESTIMONY CORRECTLY -- AND I HAVE TO CONFESS I'VE NEVER DONE WELL WITH CHEMISTRY. THAT'S THE REASON I BECAME A LAWYER.

BUT WHEN I LOOK AT THE CHART, I'M LOOKING NOW AT 3 AND COMPARING 3, WHICH I UNDERSTAND TO BE METHYLPHENIDATE ON THE BOTTOM. AND I COMPARE THAT TO THE TOP DIAGRAM ON 2, WHICH IS THE BZP. THERE'S A SMALL PORTION MISSING THERE, AND IT'S FILLED IN ON METHYLPHENIDATE.

BUT IT'S THE NH CARBON; RIGHT?

THE WITNESS: THE NH IS A NITROGEN.

THE COURT: SO I SEE THE OVERLAY THERE. AND IF IT WAS JUST FOR THAT, THEN I WOULD SAY, YES, THESE LOOK VERY MUCH ALIKE.

YOUR POINT IS, WELL, YOU CAN'T IGNORE THE TOP BOX THAT EXTENDS OUT OF METHYLPHENIDATE THAT INCLUDES THOSE OTHER FOUR ELEMENTS, AND THAT MAKES IT DISSIMILAR. I GET THAT.

BUT THEN WHEN I DO THE COMPARISON WITH THE AMPHETAMINE, WHICH THE GOVERNMENT SAYS IS REALLY THE OVERLAY FOR BZP, HALF OF THE BOX ON THE RIGHT-HAND SIDE -- LOOKING AGAIN AT EXHIBIT 3, HALF OF THE BOX IS MISSING.

AND THOSE ARE IMPUTED ELEMENTS THERE, RIGHT, AMPHETAMINE?

THE WITNESS: RIGHT.

THE COURT: AND THE OVERLAY LOOKS DIFFERENT BECAUSE HALF OF THE BOX OF BZP IS MISSING. IF IT WEREN'T FOR THE ADDITIONAL ELEMENTS DEPICTED IN THE BOTTOM DIAGRAM ON

GOVERNMENT'S 3, THEN I WOULD SAY THE CLOSER ONE LOOKS LIKE METHYLPHENIDATE FOR ME.

NOW, WHAT I'M WRESTLING WITH IS, OKAY, GIVEN THAT THAT LOOKS CLOSER, BUT THEN YOU ADD INTO THE EQUATION THE FACT THAT IT'S GOT THESE ADDITIONAL ELEMENTS IN METHYLPHENIDATE THAT AREN'T THERE IN THE BZP, WHAT AM I TO MAKE OF THAT? IS IT A WASH THAT IT LOOKS CLOSER, BUT BECAUSE OF THESE ELEMENTS IT'S VERY DIFFERENT FROM THE AMPHETAMINE WHICH IS MISSING, THE OVERLAY THAT THE BZP HAS -- OR THE METHYLPHENIDATE HAS TO BZP? THAT'S WHAT I'M STRUGGLING WITH HERE. I GET THE DISTINCTIONS THAT YOU MAKE.

THE WITNESS: YOU ASKED DEA'S POSITION. DEA'S POSITION IS NOT BASED ON SOLELY ONE ASPECT, AND MAYBE THERE'S A CONFLICT IN TERMS OF THE WAY THE LAW INTERPRETS THIS.

THE COURT: YOU SAY IT'S BASED ON PHARMACOLOGY AND NOT CHEMISTRY.

HE COURT: YOU'VE TESTIFIES STRICTLY AS A CHEMIST FROM THE CHEMISTRY COMPARISON OF THESE SUBSTANCES?

THE WITNESS: I'M SORRY. I SHOULD HAVE SAID IT'S BASED ON CHEMISTRY AND PHARMACOLOGY. IT'S NOT SO DIFFERENT THAN AMPHETAMINE THAT IT'S NOT LIKE AMPHETAMINE. BUT THE PHARMACOLOGY IS MORE -- I'M NOT A PHARMACOLOGIST. JUST BASED WHAT I KNOW, IT'S MORE COMPATIBLE.

MS. CASTILLO: I HATE TO INTERRUPT, BUT I'M GOING TO OBJECT TO THE LAST STATEMENT THAT HE MADE TO ANY OPINION THAT

HE HAS AS TO THE PHARMACOLOGY AND ANY EFFECTS IT MIGHT HAVE.

THE COURT: I DON'T THINK HE'S OFFERING AN OPINION ON THAT. HE'S OFFERING ME HIS READ ON HOW THE DEA HAS CATEGORIZED IT. HE SAID IT'S BASED ON BOTH. HE'S NOT PURPORTING TO TELL ME WHAT THE PHARMACOLOGY IS. HE MADE THAT CLEAR FROM THE --

THE WITNESS: I'M NOT GOING TO PRESUME --

THE COURT: HE'S SAYING IT'S BASED ON THE COMBO OF CHEMISTRY AND PHARMACOLOGY.

BUT IF YOU COULD FOR JUST A SECOND TAKE THE PHARMACOLOGY OUT OF IT.

IT SOUNDS TO ME LIKE YOU CAN'T REACH A DEFINITIVE CONCLUSION JUST AS A MATTER OF CHEMISTRY ON THIS; RIGHT?

THE WITNESS: I'M COMFORTABLE IN SAYING THAT THEY BOTH HAVE ALMOST EQUAL WEIGHT IN TERMS OF ITS STRUCTURAL COMPARISON. BUT I THINK I WOULD LEAN A LITTLE MORE TOWARDS AMPHETAMINE BECAUSE OF THE DIFFERENCE IN ONLY ADDING THOSE THREE ATOMS THAT PREVENT THE RING FROM BEING COMPLETED.

THE COURT: BUT THE LEAN DOESN'T PUSH YOU TO THE POINT AS A RESEARCH CHEMIST WHERE YOU CAN SAY, "I'M CONFIDENT THAT AS A MATTER OF SCIENTIFIC CERTAINTY OR REASONABLY CONFIDENT?" IT'S NOT THAT STRONG?

THE WITNESS: I DON'T LOOK AT THIS AS A SCIENTIFIC CONCLUSION. I'M JUST -- AS A SCIENTIST, I'M TRYING TO RELATE THE STRUCTURES.

THE COURT: I UNDERSTAND THE TESTIMONY ABOUT STRUCTURE, BUT HOW DO YOU PROPOSE THAT I DEAL WITH THE DOCTOR'S TESTIMONY? YOU'RE OFFERING IT AS SCIENTIFIC CHEMISTRY EVIDENCE; RIGHT?

MR. STARITA: THE CHEMICAL STRUCTURE, BASED ON THE WAY THE GUIDELINES LAY OUT THEIR TESTS IN COMMENT 5, THERE ARE THREE ASPECTS OF IT. ONE OF THE ASPECTS IS CHEMICAL STRUCTURE. SO I'M PROVIDING THE COURT WITH THE DEA'S POSITION ON CHEMICAL STRUCTURE.

THE COURT: I DON'T MEAN THIS AS DISPARAGING THE DOCTOR. IT SOUNDS LIKE A PRETTY WEAK POSITION. THE POSITION IS "IF I HAD TO BE PUSHED, I WOULD SAY IT'S CLOSER TO AMPHETAMINE, BUT I'M NOT REAL COMFORTABLE IN COMING OUT AND SAYING THAT. IT'S KIND OF A PUSH BECAUSE THERE'S DISSIMILARITIES WITH BOTH. I'M BEING ASKED TO STAKE OUT A POSITION HERE THAT I'M NOT DEFINITIVE ABOUT."

MR. STARITA: I STRUGGLED WITH THAT AS WELL. I CREATED AN ANALOGY IN MY HEAD THAT I ASKED THE DOCTOR ABOUT. I SAID, OKAY, I'M SIMPLE, SO THAT'S WHY I BECAME A LAWYER. I'M HORRIBLE AT CHEMISTRY AND MATH. SO IF YOU TAKE PRIMARY COLORS, FOR EXAMPLE, AND YOU COMBINE VARIOUS PRIMARY COLORS, YOU GET DIFFERENT COLORS. SO YOU COULD TAKE ONE PRIMARY COLOR AND MIX IT WITH A PRIMARY COLOR AND GET A TOTALLY DIFFERENT COLOR. AND YOU COULD TAKE THAT SAME PRIMARY COLOR AND MIX IT WITH ANOTHER PRIMARY COLOR AND GET A COMPLETELY DIFFERENT

COLOR. YOU HAVE NOW TWO DIFFERENT COLORS THAT AREN'T SIMILAR, BUT THEY SHARE A COLOR.

THE COURT: TO BE PERFECT, THE ANALOGY WOULD REQUIRE MIXING WITH YET A THIRD COLOR AND THEN HAVING A THIRD ONE THAT SHARES. THAT'S WHAT WE'VE GOT HERE. IT LOOKS LIKE THERE'S A LOT OF SIMILARITIES BETWEEN ALL THREE OF THESE THINGS AND THEN SOME NOTABLE DIFFERENCES WHICH THE DOCTOR HAS STAKED OUT.

FRANKLY, OTHER THAN KIND OF A JUDGMENT CALL -- AND I WOULD DEFER TO YOUR JUDGMENT. YOU DO THIS FOR A LIVING AND HAVE FOR A LONG TIME.

WHAT'S THE STANDARD HERE BY WHICH I HAVE TO BE CONVINCED IN MAKING A RULING ON THIS?

MR. STARITA: YOU WOULD HAVE TO DECIDE BY A PREPONDERANCE OF THE EVIDENCE UNDER THE GUIDELINES. AND I THINK THAT REALLY THE FULL PICTURE, AS THE DOCTOR INDICATED, WAS THAT THERE'S THE CHEMICAL -- NOT THE CHEMISTRY, BUT THE CHEMICAL STRUCTURE ANALYSIS AND THEN THE PHARMACOLOGICAL ASPECT.

THE COURT: WHAT IF THE -- THE CHARGE HERE IS JUST CONTROLLED SUBSTANCE --

MS. CASTILLO: YOUR HONOR, JUST TO INTERJECT HERE FOR A MOMENT.

FIRST, I JUST WANT TO SAY FOR THE RECORD THAT THERE IS SUCH A BIG SWING IN THE GUIDELINES ON THIS ISSUE THAT I WOULD ARGUE THAT THE STANDARD IS ACTUALLY CLEAR AND CONVINCING

EVIDENCE. IT COULD VERY WELL BE A LEVEL OF A TEN-LEVEL SWING. IT'S A SIGNIFICANT DIFFERENCE WITHIN THE GUIDELINES AS TO THE DETERMINATION.

MS. DAMIANI: YOUR HONOR, IF I MIGHT BUTT IN WHILE WE'RE AT IT, EVEN IF THE COURT HAS TO DECIDE THIS ISSUE BASED UPON CLEAR AND CONVINCING EVIDENCE OR PREPONDERANCE OF THE EVIDENCE, I THINK THAT THE RULE OF LENITY WOULD APPLY IN THIS CASE. AND IF IT IS A CLOSE CALL, THE COURT WOULD HAVE TO DEFER WITH THE DEFENSE.

THE COURT: I'M NOT SURE THAT THE RULE OF LENITY HAS APPLICATION HERE, BUT I DO FEEL PRETTY CONFIDENT THAT IF IT MEANS MORE THAN A SEVEN-LEVEL SWING --

YOU'RE SAYING IT'S TEN -- IT IS THE EQUIVALENT OF TEN POINTS?

MS. DAMIANI: LEVEL 26. IF THE COURT WERE TO SAY IT WERE AMPHETAMINE, IT WOULD BE A LEVEL 26.

THE COURT: VERSUS?

MR. GARRISON: VERSUS A LEVEL 12 IN OUR CASE.

MR. STARITA: THERE'S A POTENCY REDUCTION THAT'S RECOGNIZED AS WELL THAT BZP CLEARLY IS NOT AMPHETAMINE AND IT IS LESS POTENT THAN --

THE COURT: SO WHAT DOES THAT REDUCE IT TO?

MR. STARITA: IT DEPENDS ON HOW MUCH WE HAVE. IT'S BY A FACTOR OF TEN. LET'S SAY, FOR EXAMPLE, AMPHETAMINE, YOU HAVE A CERTAIN QUANTITY OF AMPHETAMINE, AND IT WOULD BE A

LEVEL 26. THEN THAT SAME QUANTITY OF BZP WOULD BE A 16.

THE COURT: THAT'S A FLY IN THE OINTMENT, MS. CASTILLO, BECAUSE I KNOW THE NINTH CIRCUIT SUGGESTED ADJUSTMENTS THAT AFFECT SEVEN LEVELS OR MORE TO BE EVALUATED UNDER A HEIGHTENED STANDARD.

WHAT ABOUT WHAT HE SAYS ABOUT THE DECREASE BASED ON THE POTENCY? BZP IS NOT TREATED JUST LIKE AMPHETAMINE. IN FACT, THERE'S A TEN-LEVEL DECREASE. SO 26 WOULD BE --

MS. CASTILLO: THAT'S WHAT THE POSITION IS NOW ON THIS CASE.

THE COURT: I WOULD HOLD THEM TO THAT IF I'M MAKING A RULING ON THIS BECAUSE IT DEFINES THE STANDARD OF PROOF. IF IT'S ONLY FOUR LEVELS, THEN I'D BE INCLINED TO THINK IT'S PREPONDERANCE. IF IT'S TEN LEVELS, THEN I'M WITH YOU AND I WOULD THINK THAT IT'S CLEAR AND CONVINCING.

MS. CASTILLO: IT IS TEN LEVELS. THE DIFFERENCE OF WHAT WE'RE REQUESTING AND WHAT THE GOVERNMENT IS REQUESTING. EVEN INCLUDING THIS REDUCTION THAT MR. STARITA SUGGESTED, IT'S STILL A TEN-LEVEL SWING.

THE COURT: HOW DO YOU SAY IT? BECAUSE HE SAYS, NO, THAT'S NOT RIGHT. THIS GOES FROM 26 TO 16 GIVEN --

MS. CASTILLO: HE IS SAYING IT'S A CONCESSION TO OFFER US A LEVEL 26 BECAUSE OF THIS POTENCY ISSUE. THAT'S A CONCESSION TO US.

THE COURT: YOU'RE MAKING THAT -- THAT'S NOT --

MR. STARITA: MY UNDERSTANDING WAS, YOUR HONOR, WAS THAT THAT IS, IN FACT --

MS. CASTILLO: ORIGINALLY, THE OFFER WAS "LOOK, THIS COULD BE A BASE OFFENSE LEVEL OF 32, AND WE'LL CONCEDE TO A POTENCY REDUCTION. AND THAT BRINGS US DOWN TO A 26. I'M SAYING NO WAY.

THE COURT: I THOUGHT YOU MEANT THAT THE SENTENCING COMMISSION OR THE DEA HAS TREATED IT THAT WAY.

THIS IS PECULIAR TO THIS CASE WHERE YOU'RE SAYING, "WE'LL OFFER TEN POINTS OFF"?

MR. STARITA: MY UNDERSTANDING WAS, YOUR HONOR, THE DEA'S POSITION THAT THERE IS -- THE CHEMIST -- THE ORIGINAL CHEMIST -- ORIGINAL PHARMACOLOGIST, WHO'S GOING TO TESTIFY IN THIS CASE, IN HER OPINION -- THAT WAS DR. TELLER -- SHE SAID THAT THE DIFFERENCE IN POTENCY, BZP WAS TEN TIMES LESS POTENT THAN AMPHETAMINE.

IF THE AGENCY POSITS THAT, THEN FAR BE IT FROM THE UNITED STATES ATTORNEY'S OFFICE TO DISAGREE WITH IT.

MS. CASTILLO: I AGREE THAT THERE'S A POTENCY ISSUE. I AGREE THAT IT'S AT THE LEAST 10, UP TO 20 TIMES DIFFERENCE BETWEEN THE TWO. BUT THE OFFER IN THE CASE FOR THE BASE OFFENSE LEVEL, THE 26 IS THE GOVERNMENT SAYING, "WELL, FINE, WE'LL TAKE INTO THIS CONSIDERATION." BECAUSE ORIGINALLY IT WAS, LIKE, "YOU'RE GETTING A DEAL BECAUSE THE BASE OFFENSE LEVEL IS 32, AND WE'RE GOING TO GIVE YOU THE 26," WHICH WE'RE

STILL LOOKING AT A TEN-LEVEL REDUCTION NONETHELESS.

THE COURT: ARE THERE ANY REPORTED CASES ON THIS? ARE THERE ANY OTHER PENDING CASES IN THE UNITED STATES?

MS. CASTILLO: THERE IS ONE -- I RECEIVED AN E-MAIL FROM A WOMAN, OUR OFFICE DID, FROM A DIFFERENT DISTRICT. HER CASE IS NOT AS FAR ALONG AS OURS IS. SHE WAS ACTUALLY LOOKING FOR GUIDANCE ON THIS ISSUE. THIS IS PRETTY --

THE COURT: MR. STARITA, IS THIS TEN-LEVEL POTENCY REDUCTION REDUCED TO WRITING? IS THERE ANY GUIDANCE FROM DEA ON THAT ANYWHERE?

MS. CASTILLO: I HAVE THE WRITTEN REPORT.

THE COURT: I WANT TO ASK --

MR. STARITA: THERE WAS AN EXHIBIT THAT MS. CALDITO FILED THAT WAS AN OPINION OUT OF THE NORTHERN DISTRICT OF INDIANA. IN THE COURT'S SENTENCING MEMORANDUM, IT LAID OUT THIS EXACT ISSUE, THE POTENCY REDUCTION.

THE COURT: THAT'S KIND OF SLENDER READ FOR ME TO HOLD ONTO AT THIS POINT.

MR. STARITA: IF I CAN ASK ONE QUESTION ABOUT THE RULE-MAKING WITH REGARD TO BZP, I THINK THAT --

THE COURT: GO AHEAD.

I'LL LET YOU FULLY CROSS-EXAMINE, MS. CASTILLO AND MS. DAMIANI.

GO AHEAD.

BY MR. STARITA:

Q. SIR, IS THERE RECOGNITION BY THE DEA THAT THERE NEEDS TO BE A CERTAIN RECOMMENDATION MADE TO THE SENTENCING COMMISSION SO THAT BZP CAN BE FULLY EVALUATED FOR SENTENCING PURPOSES?

A. THERE IS A CONSENSUS THAT BZP NEEDS TO BE NAMED IN THE GUIDELINES.

IS THAT WHAT YOU'RE ASKING?

Q. YES. I'M SORRY. YOU SAID IT MUCH BETTER THAN I DID. THANK YOU.

A. WE ARE ACTIVELY MOVING TO NAME THAT, BUT I CAN'T SAY WHEN THAT WILL HAPPEN OR -- IT'S A SLOW PROCESS.

Q. BUT IT'S IN PROCESS?

A. YES.

THE COURT: MR. STARITA, BEFORE THEY CROSS-EXAMINE, I'M ASSUMING YOU'RE GOING TO OFFER TESTIMONY ON THE PHARMACOLOGY, TOO.

MR. STARITA: CORRECT, YOUR HONOR.

THE COURT: I'LL WAIT TO HEAR THAT. BUT ON THIS ISSUE OF WHAT STANDARD APPLIES -- BECAUSE I THINK THAT'S IMPORTANT TO THE OUTCOME HERE, I THINK, IF THE STARTING POINT IS AMPHETAMINE AND THAT IS A TEN-LEVEL DIFFERENCE OR MORE.

IN THIS CASE, I'M TOLD, WHAT, IT'S A 13-, 14-POINT DIFFERENCE BETWEEN 12 AND 26?

MR. STARITA: WELL, IT CAN BE WITHOUT THE POTENCY REDUCTION, THAT'S CORRECT. BUT I THINK THE WHOLE POINT IS IS THAT IT'S RECOGNIZED THAT RIGHT NOW BZP IS A FAIRLY NEW

SUBSTANCE OF ABUSE, SO THERE'S OBVIOUSLY NOTHING THAT THE GUIDELINE COMMISSION --

THE COURT: I GET THAT, BUT IT COULD BE DIFFERENT IN ANOTHER CASE, IT SOUNDS LIKE, PARTICULARLY IF THE DEA HAS NOT REDUCED ANY POTENCY REDUCTION TO WRITING OR AS A MATTER OF POLICY YET. ADVOCATING IT BEFORE THE SENTENCING COMMISSION IS SOMETHING QUITE DIFFERENT FROM SAYING, "OKAY. HERE'S OUR GUIDELINES. IT WILL GUIDE ALL OF OUR CHEMISTS WHEN CALLED ON THIS IN CASES." THEN I'D HAVE SOMETHING TO HANG MY HAT ON.

BUT IN THE ABSENCE OF THAT, WHAT YOU'RE ASKING ME TO DO IN THE FIRST INSTANCE IS COMPARE THIS TO AMPHETAMINE. I THINK I HAVE TO GO WITH WHAT THE GUIDELINE LEVELS ARE ON THAT. IF I DO THAT, THEN THE DISPARITY IS MORE THAN SEVEN LEVELS. AND I WOULD THINK YOU'D BE SUBJECT TO THE HIGHER STANDARD OF PROOF, CLEAR AND CONVINCING RATHER THAN JUST MORE LIKELY THAN NOT.

MR. STARITA: I WOULD AGREE WITH THE COURT. I WOULD NOT DISAGREE.

THE COURT: WELL, LET'S ALL ASSUME THAT THAT'S THE STANDARD OF PROOF BY WHICH THE GOVERNMENT HAS TO PERSUADE ME HERE.

DO YOU HAVE ANY OTHER QUESTIONS OF THIS GENTLEMAN?

MR. STARITA: I DO NOT, YOUR HONOR.

THE COURT: MS. CASTILLO, YOU MAY EXAMINE.

//

CROSS-EXAMINATION

BY MS. CASTILLO:

Q. SIR, NOT TO BEAT A DEAD HORSE, BUT BASICALLY WHEN YOU WERE PUSHED A MOMENT AGO AND YOU SAID "I DON'T WANT TO, BUT IF I HAD TO PICK, I WOULD SAY AMPHETAMINE," THAT'S NOT SOMETHING THAT YOU'RE COMFORTABLE STATING AS AN EXPERT; CORRECT?

A. I'M COMFORTABLE STATING IT. I'M NOT COMFORTABLE IN THAT ANOTHER PERSON JUST AS CAPABLE AS MYSELF WOULD HAVE A DIFFERENT OPINION.

Q. THAT'S NOT THE POSITION OF THE DEA?

A. WHAT'S NOT THE POSITION OF THE DEA?

Q. TO SAY THAT AMPHETAMINE IS MORE CLOSELY RELATED TO BZP STRUCTURALLY; CORRECT?

A. I WOULD NOT MAKE THAT REPRESENTATION, AND MAYBE SOMEBODY AT DEA WOULD HAVE A DIFFERENT OPINION.

Q. IN FACT, IN THIS CASE YOU -- IN YOUR REPORT, YOU SAY THAT AMPHETAMINE HAS SIMILARITIES TO BZP; RIGHT?

A. YES.

Q. BUT METHYLPHENIDATE HAS SIMILARITIES AS WELL?

A. THAT'S CORRECT.

Q. THERE'S NO DISTINCTION MADE BETWEEN WHICH ONE IS STRONGER; CORRECT?

A. CORRECT.

Q. NOW, GOING BACK TO THE EXHIBITS FOR JUST A MOMENT, IF I CAN TURN YOUR ATTENTION TO EXHIBIT NO. 1, YOU WERE DISCUSSING

THE DIFFERENCES BETWEEN BZP AND METHYLPHENIDATE, BZP BEING THE MIDDLE STRUCTURE; CORRECT?

A. CORRECT.

Q. AND THE BOTTOM STRUCTURE BEING METHYLPHENIDATE?

A. CORRECT.

Q. AND ON THE BOTTOM STRUCTURE, WHAT WE SEE ON THE BOTTOM STRUCTURE IS THIS ADDED TOP PART WHICH IS DIFFERENT; CORRECT?

A. CORRECT.

Q. THAT ADDED TOP PART IS CALLED A FUNCTIONAL GROUP; CORRECT?

A. IN VERY BROAD TERMS.

Q. A FUNCTIONAL GROUP?

A. YES.

Q. THE SIGNIFICANCE OF HAVING THAT FUNCTIONAL GROUP PRESENT IS THAT IT'S EASY TO REMOVE OR ADD TO THE STRUCTURE; CORRECT?

A. ARE YOU ASKING IF THAT WILL GO THROUGH CHEMICAL REACTIONS?

Q. NO.

THAT FUNCTIONAL GROUP, THE TOP SECTION THAT WE'RE TALKING ABOUT, THAT'S DIFFERENT TO THE METHYLPHENIDATE, THAT FUNCTIONAL GROUP, YOU CAN REMOVE THAT FUNCTIONAL GROUP FROM THE REST OF THE STRUCTURE; CORRECT?

A. ACTUALLY, I WOULD NOT KNOW HOW TO DO THAT. YOU MAY --

I'VE BEEN TAUGHT THAT IF YOU EXPECT 100 REACTIONS, EXPECT 101. SO IN THE UNIVERSE OF CHEMISTRY, IT MAY BE POSSIBLE, BUT IT'S NOT OBVIOUS.

Q. SO YOU DON'T KNOW WHETHER THAT'S POSSIBLE OR NOT?

A. OFFHAND, NO.

Q. THE REST OF THE STRUCTURE, THE TWO RINGS THAT WE'RE LOOKING AT OF THE BZP AND THE METHYLPHENIDATE, THAT'S THE SKELETAL STRUCTURE; CORRECT?

A. THAT'S AN INTERESTING POINT. I WOULD IDENTIFY THE SKELETAL STRUCTURE OF BOTH AMPHETAMINE AND METHYLPHENIDATE AS AN ETHYLENE STRUCTURE. AND THAT'S VARIED WITHIN THE STRUCTURES OF THESE TWO SUBSTANCES. IT'S NOT THE SAME AS BZP, BUT THAT STRUCTURE IS COMMON TO BOTH AMPHETAMINE AND METHYLPHENIDATE.

Q. AND CALLED THE SKELETAL STRUCTURE?

A. CORRECT.

Q. NOW, ONE QUESTION THAT I WANTED TO ASK YOU IS FIRST AS FAR AS YOUR BACKGROUND IS CONCERNED, YOU'RE NOT ACTUALLY CERTIFIED, ARE YOU, IN FORENSIC DRUG CHEMISTRY?

A. I'M NOT A FORENSIC CHEMIST. THAT'S CORRECT.

Q. AND SO YOU DON'T HAVE A CERTIFICATION?

A. NO.

Q. AND ARE YOU PART OF THE AMERICAN BOARD OF CRIMINALISTICS?

A. NO.

Q. BEFORE WE GET INTO THE ACTUAL STRUCTURE CONVERSATION AGAIN, I JUST WANTED TO ASK YOU SOME QUESTIONS ABOUT BEING PART OF THE DEA OFFICE OF DIVERSION CONTROL.

YOU'VE HAVE BEEN THERE SINCE 1994?

A. CORRECT.

Q. WHICH MEANS THAT IF YOU'VE BEEN THERE SINCE 1994, YOU'RE FAMILIAR WITH THE HISTORY OF BZP AND ITS ORIGINAL CLASSIFICATION INTO A CONTROLLED SUBSTANCE?

A. THE "HISTORY"? I'M NOT SURE WHAT YOU'RE GETTING AT.

Q. BZP WAS MADE A CONTROLLED SUBSTANCE -- LISTED AS A CONTROLLED SUBSTANCE I BELIEVE IN 2002; CORRECT?

A. I BELIEVE THAT'S CORRECT.

Q. AND WHEN IT WAS ORIGINALLY CLASSIFIED OR PUT AS A CONTROLLED SUBSTANCE, IT WAS DONE SO FROM A REPORT THAT CAME OUT OF THE OFFICE OF DIVERSION CONTROL; CORRECT?

A. I THINK YOU'RE REFERRING TO OUR -- WHAT WE CALL AN A FACTOR ANALYSIS. OKAY. YES.

Q. THE REASON THAT IT WAS ORIGINALLY CLASSIFIED AS A CONTROLLED SUBSTANCE WAS BASED ON A MISTAKE; ISN'T THAT RIGHT?

A. I DON'T THINK THAT'S TRUE. WE DON'T CONTROL SUBSTANCES. WE ENFORCE THE CONTROLLED SUBSTANCES ACT.

CAN I EXPLAIN THAT?

Q. LET ME JUST ASK YOU THIS. LET ME SEE IF IT HELPS CLARIFY THE POINT I'M TRYING TO MAKE.

ORIGINALLY, YOUR OFFICE, THE OFFICE OF DIVERSION CONTROL, LISTED AND CREATED A REPORT THAT SAID BZP WAS 20 TIMES MORE POTENT THAN AMPHETAMINE; ISN'T THAT RIGHT?

A. I THINK YOU'RE -- YES, THERE WAS SOME SORT OF REFERENCE TO THAT. QUITE FRANKLY, I DON'T KNOW THE BACKGROUND OF THAT.

Q. BUT THAT'S TRUE; RIGHT? THERE WAS A REPORT THAT CAME OUT OF YOUR OFFICE THAT SAID THAT BZP WAS 20 TIMES MORE POTENT THAN AMPHETAMINE; RIGHT?

A. I'M NOT FAMILIAR WITH THAT REPORT. I THINK WHAT YOU'RE REFERRING TO IS THE PROCESS BY WHICH WE HAD IT PUT INTO THE CFR.

Q. AND IT WAS BASED ON INCORRECT INFORMATION, RIGHT, THAT IT WAS BELIEVED AT THE TIME THAT IT WAS 20 TIMES MORE POTENT THAN AMPHETAMINE?

A. I'M NOT SURE.

Q. BECAUSE THAT IS INCORRECT; RIGHT? THE POTENCY --

A. THAT'S ABSOLUTELY INCORRECT. IF WE HAD MADE THAT STATEMENT, I WOULD AGREE WITH YOU THAT IT'S INCORRECT, YES.

Q. SO IN ACTUALITY, THE POTENCY IS 10 TO 20 TIMES LESS THAN AMPHETAMINE; ISN'T THAT RIGHT?

A. I WOULD -- I BELIEVE THAT'S TRUE, BUT I'D RATHER YOU ASK A PHARMACOLOGIST.

MS. CASTILLO: YOUR HONOR, I DON'T HAVE ANY OTHER QUESTIONS.

THE COURT: MS. DAMIANI.

MS. DAMIANI: NO, YOUR HONOR. I HAVE NO QUESTIONS.

THE COURT: THANK YOU.

NEXT WITNESS.

MR. STARITA: AT THIS TIME, WE'D CALL DR. PRIOLEAU TO THE STAND.

THE COURT: THANK YOU. YOU MAY STAND DOWN.

DR. CASSANDRA PRIOLEAU

WAS CALLED AS A WITNESS AND, AFTER HAVING BEEN DULY SWORN, TESTIFIED AS FOLLOWS:

THE CLERK: PLEASE STATE YOUR FULL NAME AND SPELL YOUR LAST NAME FOR THE RECORD.

THE WITNESS: CASSANDRA PRIOLEAU, P-R-I-O-L-E-A-U.

DIRECT EXAMINATION

BY MR. STARITA:

Q. GOOD AFTERNOON, MA'AM.

A. GOOD AFTERNOON.

Q. WHO DO YOU WORK FOR?

A. DRUG ENFORCEMENT ADMINISTRATION.

Q. HOW LONG HAVE YOU WORKED THERE?

A. I STARTED IN OCTOBER 2008.

Q. WHAT DID YOU DO BEFORE -- WHERE DID YOU WORK BEFORE THE DEA?

A. AT THE CONSUMER PRODUCTS SAFETY COMMISSION.

Q. HOW LONG HAVE YOU WORKED THERE?

A. I STARTED THERE IN JANUARY OF 2004 -- 2005.

Q. WHAT IS YOUR CURRENT POSITION IN DEA?
A. DRUG SCIENCE SPECIALIST.
Q. AND AS FAR AS EDUCATIONAL BACKGROUND, WHAT DEGREES DO YOU HAVE?
A. A B.S. IN CHEMISTRY AND A PH.D. IN PHARMACOLOGY.
Q. ARE YOU RECOGNIZED AS A PHARMACOLOGIST? WHAT DO YOU CALL YOURSELF?
A. I CALL MYSELF A PHARMACOLOGIST, BUT MY OFFICIAL TITLE IS DRUG SCIENCE SPECIALIST.
Q. AND WHY WERE YOU REQUESTED TO BECOME INVOLVED IN THIS SPECIFIC CASE?
A. TO TALK ABOUT THE PHARMACOLOGY OF BZP.
Q. NOW, EXACTLY WHAT TYPE OF DRUG IS BZP?
A. IT'S A STIMULANT.
Q. AND WHAT IS A STIMULANT?
A. IT JUST CAUSES HYPERACTIVITY, IT MOTIVATES YOU, THOSE KIND OF ACTIVITIES.
Q. WHAT KIND OF DRUG IS METHYLPHENIDATE?
A. METHYLPHENIDATE IS ALSO A STIMULANT.
Q. WHAT ABOUT AMPHETAMINE?
A. AMPHETAMINE IS ALSO A STIMULANT.
Q. NOW, OBVIOUSLY YOU LISTENED TO THE TESTIMONY OF DR. DIBERARDINO WITH REGARD TO THE CHEMICAL STRUCTURE.
A. YES.
Q. AND HE MENTIONED IN HIS TESTIMONY THAT THERE'S ALSO

ANOTHER IMPORTANT ASPECT IN COMPARING DIFFERENT DRUGS, WHICH IS THE PHARMACOLOGICAL EFFECTS OF THE DRUG.

A. YES.

Q. NOW, HAVE YOU, YOURSELF, COMPARED BZP TO METHYLPHENIDATE AND AMPHETAMINE?

A. YES. I REVIEWED THE LITERATURE.

Q. NOW, WHEN YOU SAID YOU REVIEWED THE LITERATURE, WHAT EXACTLY ARE WE TALKING ABOUT?

A. I LOOK FOR ANY EVIDENCE OR STUDIES THAT WILL COMPARE BZP TO AMPHETAMINE OR BZP TO METHYLPHENIDATE. IT COULD BE IN HUMANS, AND OTHER STUDIES COULD BE IN ANIMALS.

Q. NOW, WHAT TYPES OF STUDIES ARE WE TALKING ABOUT?

A. IT COULD BE CLINICAL STUDIES WHERE THEY TEST THE BZP -- GIVE BZP OR AMPHETAMINE TO A PATIENT AND DO VARIOUS TYPES OF SURVEYS OR MEASURE -- PHYSIOLOGICAL MEASURES OR THEY CAN DO FUNCTIONAL ASSAYS IN ANIMALS.

Q. NOW, BASED ON YOUR REVIEW OF LITERATURE, DID YOU DRAW A CONCLUSION AS TO WHICH DRUG BZP WAS MORE SIMILAR TO?

A. BASED ON THE LITERATURE THAT'S OUT THERE, BZP IS SIMILAR TO AMPHETAMINE.

Q. IT IS MOST SIMILAR TO AMPHETAMINE?

A. THAT'S THE EVIDENCE THAT'S OUT THERE, IS THAT IT'S SIMILAR TO AMPHETAMINE.

Q. NOW, DID YOU DO ANY RESEARCH ON THE POTENCY COMPARING BZP TO AMPHETAMINE?

A. DEPENDING ON WHICH STUDY YOU READ, IT'S EITHER 10- TO 20-FOLD LESS POTENT THAN AMPHETAMINE.

Q. SO IT CAN BE AS HIGH AS 20 AND AS LOW AS 10?

A. YES.

Q. WHAT DID YOU FIND THAT TO BE BASED ON?

A. I DON'T UNDERSTAND.

Q. IN OTHER WORDS, IN THE STUDIES, WAS THAT FOUND IN CERTAIN STUDIES ON ANIMAL TESTING OR WHAT WAS FOUND IN A CLINICAL TRIAL RELATED TO A HUMAN PATIENT? WHAT EXPLAINS THE VARIANCE?

A. AN EXAMPLE IS THERE'S A CLINICAL STUDY WHERE THEY GAVE TEN MILLIGRAMS OF AMPHETAMINE TO A PATIENT. THEY GAVE THEM ALSO 100 MILLIGRAMS. THEY WERE SIMILAR -- THE PATIENTS THOUGHT THEY WERE SIMILAR IN EFFECT. SO THAT WAS A TENFOLD DIFFERENCE.

AND THEN THERE ARE OTHER STUDIES WHERE THEY'VE GIVEN DIFFERENT AMOUNTS, MAYBE -- I CAN'T RECALL THE EXACT STUDY, BUT THE DOSAGE WAS 1 TO MAYBE 20. IT'S ALWAYS LOWER FOR AMPHETAMINE AND IT'S ALWAYS HIGHER FOR BZP. AND IN THAT CASE, THE RATIO CAME OUT TO BE EITHER FROM 10- TO 20-FOLD DIFFERENT, LOWER, FOR BZP.

Q. NOW, WERE YOU ABLE TO FIND ANY TYPE OF CLINICAL RESEARCH OR ANY RESEARCH AT ALL THAT COMPARED BZP TO METHYLPHENIDATE?

A. BASED ON THE LITERATURE, I COULDN'T FIND ANY STUDIES THAT COMPARED BZP TO METHYLPHENIDATE.

MR. STARITA: NO FURTHER QUESTIONS, YOUR HONOR.

THE COURT: CROSS-EXAMINATION, MS. CASTILLO.

MS. CASTILLO: THANK YOU, YOUR HONOR.

CROSS-EXAMINATION

BY MS. CASTILLO:

Q. WHEN YOU WERE ASKED TO COME AND TESTIFY, IN ORDER TO REACH YOUR OPINION, YOU BASICALLY LOOKED FOR REPORTS REGARDING BZP AND AMPHETAMINE; CORRECT?

A. YES.

Q. AND BASED ON THOSE REPORTS, I BELIEVE YOU QUOTED ABOUT FOUR DIFFERENT REPORTS?

A. IN THE DECLARATION? YES.

Q. YES.

A. YES.

Q. AND THOSE REPORTS DEALT WITH THE SIMILARITIES OR -- SIMILARITIES BETWEEN BZP AND AMPHETAMINE?

A. YES.

Q. AND WE AGREE THAT THERE ARE SOME SIMILARITIES; CORRECT?

A. YES.

Q. BUT YOU DIDN'T FIND ANY REPORTS COMPARING BZP WITH METHYLPHENIDATE?

A. NO, I COULDN'T FIND ANY.

Q. BUT THAT DOESN'T NECESSARILY MEAN THAT THE TWO DRUGS ARE NOT SIMILAR?

A. THAT'S CORRECT.

Q. THEY ARE SIMILAR?

A. I CAN'T MAKE -- I CAN'T ACTUALLY SAY BECAUSE I BASE MY DECISIONS ON THE EVIDENCE, THE SCIENTIFIC EVIDENCE. SO I COULD NOT FIND ANY STUDIES WHERE THEY COMPARED BZP TO METHYLPHENIDATE. SO I COULDN'T MAKE A DETERMINATION?

Q. YOU'RE SAYING THAT YOU CAN'T MAKE THAT DETERMINATION BECAUSE YOU COULDN'T FIND ANY LITERATURE ON IT?

A. YES, THAT'S CORRECT.

Q. NOT NECESSARILY THAT IT'S INCORRECT?

A. RIGHT.

Q. YOU COULDN'T FIND ANY LITERATURE?

A. RIGHT.

Q. YOU ARE A PHARMACOLOGIST?

A. YES.

Q. AND AS A PHARMACOLOGIST WORKING WITH THE DEA, PART OF YOUR DUTIES IS TO PREDICT, CONFIRM, AND RECOMMEND THE DRUGS OF ABUSE POTENTIAL FOR SCHEDULING UNDER THE CONTROLLED SUBSTANCE ACT; RIGHT?

A. IN A SENSE, YES. WE WRITE REVIEW DOCUMENTS, AND WE LIST WHAT -- THE EVIDENCE ON WHAT WE FIND, BASICALLY.

Q. AS A PHARMACOLOGIST, YOU'RE ABLE TO LOOK AT ONE DRUG AND RESEARCH THE EFFECTS THAT THAT DRUG WOULD HAVE ON AN INDIVIDUAL; CORRECT?

A. I JUST GO BY WHAT'S IN THE LITERATURE, YES.

Q. BASICALLY, YOU JUST LOOK AT LITERATURE?

A. OR IF WE CAN, WE WOULD CONTRACT OUT AND HAVE STUDIES

DONE.

Q. SO YOU'RE ABLE TO LOOK AT LITERATURE AND DETERMINE ON A CERTAIN TYPE OF DRUG WHAT EFFECTS IT WOULD HAVE ON A PERSON?

A. I DON'T ACTUALLY DETERMINE WHAT EFFECTS, BUT I READ WHAT THE STUDIES HAVE RECORDED THAT THESE DRUGS DO.

Q. YOU'RE ABLE TO LOOK UP THE LITERATURE?

A. YES.

Q. AND IN THIS CASE, IN ORDER TO QUALIFY YOURSELF HERE AS AN EXPERT, YOU'RE FAMILIAR WITH THE EFFECTS ON AN INDIVIDUAL WITH THE DRUG METHYLPHENIDATE?

A. IT'S A WEAK STIMULANT USED TO TREAT MOST ATTENTION DEFICIT/HYPERACTIVITY --

Q. WE'LL GET INTO EXACTLY WHAT THEY ARE AT THE MOMENT.

YOU ARE FAMILIAR WITH THE EFFECTS?

A. I'M FAMILIAR, YES.

Q. YOU ARE FAMILIAR WITH THE EFFECTS OF BZP?

A. YES.

Q. AS WELL AS AMPHETAMINE?

A. FROM WHAT I'VE READ IN THE LITERATURE, YES.

Q. AND A PIECE OF LITERATURE THAT YOU READ AND RELY UPON IS INFORMATION RECEIVED FROM U.S. DEPARTMENT OF JUSTICE, DEA FROM THE OFFICE OF DIVERSION CONTROL; CORRECT?

A. I WORK IN THE OFFICE OF DIVERSION CONTROL.

Q. SO ANYTHING THAT'S PUBLISHED FROM YOUR OFFICE, YOU WOULD CONSIDER THAT INFORMATION THAT YOU WOULD RELY UPON IN FORMING

AN OPINION?
A. YES.
Q. AND BEFORE COURT TODAY, I GAVE YOU A CHART THAT WAS RECEIVED FROM YOUR OFFICE COMPARING THE EFFECTS OF METHYLPHENIDATE AND AMPHETAMINE; CORRECT?
A. YES, THE ADVERSE EFFECTS.
Q. YOU HAD THE CHANCE TO REVIEW THAT CHART; CORRECT?
A. YES.
Q. AND WHERE THAT CHART WAS ORIGINATED FROM; CORRECT?
A. YES.
Q. AND REVIEWING THAT CHART, THE CHART WAS ACCURATE?
A. YES.

MR. CASTILLO: YOUR HONOR, MAY I APPROACH?

THE COURT: YES.

IS THIS DEFENDANT'S A?

MS. CASTILLO: THIS IS GOING TO BE DEFENDANT'S A. I HAVE A COPY FOR THE COURT AS WELL.

BY MS. CASTILLO:
Q. I JUST HANDED YOU A CHART THAT I'VE MARKED AS DEFENDANT'S EXHIBIT A.

DO YOU RECOGNIZE THAT CHART?

A. YES.
Q. THIS IS THE CHART THAT WAS CREATED BY YOUR OFFICE DISCUSSING THE ADVERSE EFFECTS OF METHYLPHENIDATE AND AMPHETAMINE?

A. YES.
Q. WITH AN ADDED COLUMN OF BZP?
A. YES.
Q. AND THIS CHART WAS ACCURATE, CORRECT, AFTER YOU REVIEWED IT?
A. YES.
MS. CASTILLO: YOUR HONOR, I'D ASK THAT DEFENDANT'S EXHIBIT A BE ENTERED INTO EVIDENCE.
THE COURT: ANY OBJECTION TO A?
MR. STARITA: NONE, YOUR HONOR.
THE COURT: A IS RECEIVED.
(EXHIBIT A RECEIVED INTO EVIDENCE.)
THE COURT: I'M ASSUMING YOU'RE OFFERING GOVERNMENT'S 1 THROUGH 3?
MR. STARITA: YES, YOUR HONOR.
THE COURT: ANY OBJECTION TO THOSE?
MS. CASTILLO: NO, YOUR HONOR.
THE COURT: ALL EXHIBITS OFFERED SO FAR ARE RECEIVED.
(EXHIBITS 1 THROUGH 3 RECEIVED INTO EVIDENCE.)
BY MS. CASTILLO:
Q. NOW, LOOKING DOWN THIS CHART, THIS CHART DISCUSSES THE EFFECTS ON A PERSON IN DIFFERENT AREAS OF A PERSON'S BODY; CORRECT?
A. YES.

Q. FOR EXAMPLE, THE CARDIOVASCULAR EFFECTS?
A. YES.
Q. THE CENTRAL NERVOUS SYSTEM EFFECTS?
A. YES.
Q. THE GASTROINTESTINAL EFFECTS?
A. YES.
Q. AND THEN THE METABOLIC EFFECTS?
A. YES.
Q. WHEN YOU LOOK AT THOSE DIFFERENT EFFECTS OF METHYLPHENIDATE AND AMPHETAMINE, THE EFFECTS ON A PERSON IN EACH CATEGORY ARE EXACTLY THE SAME?
A. YES.
Q. SO TO SAY THAT BZP HAS SIMILAR EFFECTS ON A PERSON AS AMPHETAMINE --
RIGHT? THAT WOULD BE A STATEMENT YOU SAY IS TRUE; CORRECT?
A. YES.
Q. -- THE SAME WOULD ALSO HAVE TO BE SAID FOR BZP AND METHYLPHENIDATE; CORRECT?
A. I COULDN'T OBJECT TO IT BECAUSE I -- THERE'S NO DATA THAT COMPARES BZP TO METHYLPHENIDATE.
Q. BUT WE DO HAVE A COMPARISON OF METHYLPHENIDATE TO AMPHETAMINE?
A. YES.
Q. THAT'S REFLECTED IN THIS CHART?

A. YES.

Q. AND THE EFFECTS ON A PERSON BETWEEN METHYLPHENIDATE AND AMPHETAMINE ARE IDENTICAL?

A. YES. THEY'RE STIMULANTS, SO THEY HAVE SOME ADVERSE EFFECTS.

Q. NOW, I WANTED TO TALK TO YOU FOR A MOMENT ABOUT POTENCY ISSUE THAT WE'VE BEEN TALKING ABOUT TODAY.

YOU STATED EARLIER THAT THERE'S A DIFFERENCE IN POTENCY FROM 10 TO 20 TIMES BETWEEN BZP AND AMPHETAMINE; CORRECT?

A. YES.

Q. AND YOU FOUND THIS 10 TO 20 TIMES RATIO BASED ON LITERATURE THAT YOU'VE RELIED UPON IN ORDER TO COME TO COURT TODAY; CORRECT?

A. YES.

Q. AND THAT'S RELIED UPON BY THE DEA?

A. YES.

MS. CASTILLO: YOUR HONOR, I DON'T HAVE ANY FURTHER QUESTIONS.

THE COURT: MS. DAMIANI.

MS. DAMIANI: JUST BRIEFLY.

CROSS-EXAMINATION

BY MS. DAMIANI:

Q. YOU JUST TESTIFIED THAT METHYLPHENIDATE AND AMPHETAMINE HAVE SIMILAR REACTIONS ON A PERSON'S BODY?

A. YES. THEY'RE BOTH STIMULANTS.
Q. BUT METHYLPHENIDATE IS NOT AS POTENT AS AMPHETAMINE; ISN'T THAT CORRECT?
A. YES.
Q. AND ARE YOU AWARE OF ANY LITERATURE THAT INDICATES HOW LESS POTENT METHAMPHETAMINE (SIC) IS FROM AMPHETAMINE?
A. I'M SURE IT'S OUT THERE, BUT I DON'T KNOW WHAT THE LITERATURE IS. I DIDN'T RESEARCH THAT BEFORE.
Q. AS YOU SIT HERE TODAY, YOU CAN'T TESTIFY AS TO HOW LESS POTENT METHYLPHENIDATE IS TO AMPHETAMINE?
A. NO, I CAN'T, BUT I BELIEVE THAT IT IS.
Q. IT COULD BE 10 TO 20 PERCENT OR 10 TO 20 TIMES LESS POTENT?
A. YES, BUT I DON'T KNOW.

MS. DAMIANI: NOTHING FURTHER.

THE COURT: ANYTHING ELSE, MR. STARITA?

MR. STARITA: JUST BRIEFLY.

REDIRECT EXAMINATION

BY MR. STARITA:

Q. THE DIAGRAM THAT WAS DEFENDANT'S EXHIBIT A, THAT CAME FROM A BACKGROUND PAPER PUBLISHED BY DEA, THE OFFICE YOU WORK IN, IN OCTOBER OF 1995?
A. THE FIRST DIAGRAM?
Q. YES.
A. I BELIEVE IT DID.

THE COURT: HAS ANYTHING CHANGED WITH RESPECT TO THE SYMPTOMS THAT ARE OUTLINED IN THAT DIAGRAM SINCE THEN?

THE WITNESS: THE SYMPTOMS OF BZP OR --

THE COURT: OF BOTH. DEFENDANT'S A PURPORTS TO DO A COMPARATIVE ANALYSIS OF SYMPTOMS BETWEEN BZP, METHYLPHENIDATE, AND AMPHETAMINE. ACTUALLY, NOT BZP, BUT METHYLPHENIDATE AND AMPHETAMINE.

HAS THERE BEEN ANY CHANGE IN THIS, TO YOUR KNOWLEDGE?

THE WITNESS: NOT TO MY KNOWLEDGE, NO.

BY MR. STARITA:

Q. AND THE PURPOSE -- IF YOU KNOW, WHAT WAS THE PURPOSE OF THE BACKGROUND PAPER?

A. I'M NOT FAMILIAR.

Q. YOU'RE NOT FAMILIAR WITH THE PAPER?

A. I'VE SEEN THE PAPER TODAY, BUT I WASN'T HERE WHEN IT WAS PUBLISHED. I DIDN'T STUDY -- I DIDN'T SEE THAT PAPER.

Q. NOW, WHEN THEY TALK ABOUT THAT THE DRUG HAS SIMILAR SIDE EFFECTS, WHAT EXACTLY DOES THAT MEAN? DOES THAT MEAN THAT THEY PRODUCE THE EXACT SAME SIDE EFFECTS?

A. THESE ARE JUST SIDE EFFECTS THAT MOST LIKELY PEOPLE REPORTED FROM WHEN THEY TAKE METHYLPHENIDATE OR WHEN THEY TOOK AMPHETAMINE. AND SO THEY'RE LISTED. USUALLY, THEY'RE PRETTY MUCH SIMILAR SINCE THEY'RE IN THE SAME CATEGORY AS BEING STIMULANTS.

Q. SO OTHER STIMULANTS LIKE METHAMPHETAMINE OR COCAINE COULD HAVE THE SAME SIDE EFFECTS?

A. YES.

MR. STARITA: NOTHING FURTHER, YOUR HONOR.

THE COURT: HAS DEA TAKEN AN OFFICIAL POSITION ON THIS? I HEARD FROM YOUR COLLEAGUE THAT THERE'S ADVOCACY BEFORE THE SENTENCING COMMISSION. IS THERE ANY OFFICIAL DOCUMENTED POSITION OF DEA CONCERNING BZP AND WHAT ITS ANALOG IS?

THE WITNESS: FOR THE PHARMACOLOGY, WE JUST REPORT THAT IT'S SIMILAR TO AMPHETAMINE BECAUSE THAT'S WHAT THE LITERATURE HAS STATED IT TO BE.

THE COURT: THANK YOU. YOU MAY STAND DOWN.

ANYTHING ELSE, MR. STARITA?

MR. STARITA: NO, YOUR HONOR.

THE COURT: MS. CASTILLO AND MS. DAMIANI, I KNOW YOU HAVE A WITNESS YOU WANT TO CALL. I'LL PERMIT YOU TO DO IT, BUT I DON'T THINK IT'S NECESSARY AT THIS POINT GIVEN THE COURT'S RULING ON THE STANDARD OF PROOF. MR. STARITA CONCEDES, GIVEN MY FINDING, THAT IT MUST BE -- THAT THE COMPARISON MUST BE THE AMPHETAMINE AND NOT SOMETHING PECULIAR TO THIS CASE, WHICH MIGHT BE A TEN-LEVEL ADJUSTMENT DOWNWARD BASED ON POTENCY.

THAT WOULDN'T CONTROL. I THINK I HAVE TO START WITH THE STARTING POINT, WHICH THEY WANT ME TO SAY IS AMPHETAMINE

SINCE IT'S NOT A LISTED DRUG UNDER THE SENTENCING GUIDELINES.

I CAN GIVE YOU MY FINDING VERY QUICKLY. I DON'T KNOW THAT THERE'S ANY NEED -- I APPRECIATE THAT THIS GENTLEMAN'S HERE PROBABLY PREPARED TO TESTIFY TO CONTRARY FINDINGS, BUT I WOULD FIND THAT THE STANDARD HERE IS CLEAR AND CONVINCING EVIDENCE. AND I'M NOT CLEARLY CONVINCED THAT THIS IS CLOSER TO AMPHETAMINE THAN IT IS TO METHYLPHENIDATE.

MS. DAMIANI BROUGHT UP THE RULE OF LENITY. I'M BUFFETED A LITTLE BIT. THERE'S A CASE CHEVRON VERSUS NATURAL RESOURCES DEFENSE COUNCIL, 467 U.S. 837, 1984.

IT SAID IN CONSTRUING A STATUTE THAT'S AMBIGUOUS -- HERE IT WOULD BE THE GUIDELINES AND WHAT THE ANALOG IS -- THAT I SHOULD SHOW DEFERENCE TO THE AGENCY. COURTS WILL GENERALLY REFER TO AN AGENCY THAT ADMINISTERS IT. BUT THAT'S NOT HELPFUL HERE BECAUSE THE DEA HASN'T COME OUT WITH ANYTHING DEFINITIVE YET. THE MOST THEY'VE COME OUT IS "LOOK, THERE'S SIMILARITIES." WE CAN'T BE SURE. AND DEFENDANT'S A SORT OF MARKS UP THE LACK OF CERTAINTY ON THAT.

I SUPPOSE ANOTHER WAY TO LOOK AT THIS, MR. STARITA, IS UNDER THE DAUBERT STANDARD. I JUST DON'T THINK THERE'S ENOUGH LITERATURE FOR ANYONE TO REACH A CONCLUSION ON THIS AT THIS POINT. I'M NOT FAULTING DEA OR EITHER OF THE WITNESSES WHO TESTIFIED HERE TODAY, BUT I THINK THIS IS ALL IN VERY NASCENT FORM AT THIS POINT. IT'S VERY NEW, AND NO ONE'S HAD A CHANCE TO LOOK AT IT. THE TESTABILITY OF IT HASN'T BEEN GOOD.

DR. PRIOLEAU SAYS SHE'S UNAWARE OF ANY STUDIES WITH METHYLPHENIDATE, BUT THAT SEEMS TO ME TO BE A RIPE AREA FOR STUDIES GIVEN WHAT IS KNOWN, WHICH IS THERE ARE A GREAT NUMBER OF SIMILARITIES IN THE SYMPTOMOLOGY OF THE TWO DRUGS THAT MAY MATCH -- MAY CAUSE BOTH TO MATCH BZP.

THE GREAT UNKNOWN IS HOW MUCH LESS POTENT IS METHYLPHENIDATE THAN BZP. IF IT'S CLOSE, THAT WOULD BE ANOTHER FACTOR THAT WOULD SUPPORT THE FINDING OF THE COURT THAT BZP IS MORE --

MS. CASTILLO: CAN I BRING UP ONE FACTOR FOR THE COURT?

THE COURT: SURE.

MS. CASTILLO: IT'S WITHIN THE SENTENCING GUIDELINES THEMSELVES THAT ANSWERS THIS QUESTION FOR US.

IN THE SENTENCING GUIDELINES, METHYLPHENIDATE -- THE METHYLPHENIDATE IS -- THE CALCULATION THAT THE COURT WOULD HAVE TO USE FOR THE CONVERSION IS 1 -- LET ME GET THIS RIGHT SO I STATE IT CORRECTLY. SO 1 GRAM OF METHYLPHENIDATE EQUALS 100 GRAMS OF MARIJUANA. IT'S 1 GRAM OF AMPHETAMINE EQUALS 2 KILOGRAMS OF MARIJUANA, WHICH IS THE PERFECT 20-TO-1 RATIO, WHICH IS WHAT WE WERE SAYING TODAY FROM WHAT WE'VE HEARD, THAT IT'S POSSIBLE THAT IT'S UP TO 20-TO-1 RATIO ON BZP TO --

THE COURT: BELOW.

MS. CASTILLO: WE DO HAVE SOME --

THE COURT: PUTS IT CLOSER TO METHYLPHENIDATE.

SUFFICE IT TO SAY -- AND I DON'T THINK I HAVE TO GO FARTHER THAN THIS AT THIS POINT -- I'M NOT CONVINCED BY CLEAR AND CONVINCING STANDARD THAT THE ANALOG IS AMPHETAMINE. AND IN THIS RESPECT, GIVEN THAT THE AGENCY DOESN'T HAVE A DEFINITIVE PUBLISHED POSITION ON THIS, I DON'T THINK I'M BOUND BY THE CASE THAT I CITED, THE CHEVRON CASE.

I DO THINK UNDER THE CIRCUMSTANCES, THEN, THERE IS AMBIGUITY IN THE STATUTE. IT AFFECTS THE PENALTY TO WHICH THE DEFENDANTS ARE SUBJECTED. MS. DAMIANI IS CORRECT TO INVOKE THE RULE OF LENITY UNDER THE CIRCUMSTANCES.

FOR ALL THOSE REASONS, THE COURT WOULD FIND AND DOES FIND THAT THE CLOSER ANALOG IN THIS PARTICULAR CASE -- THIS COULD CHANGE, I SUPPOSE, WITH ADDITIONAL STUDIES AND THE DEA TAKING A MUCH MORE DEFINITIVE POSITION BOTH FROM A PHARMACOLOGICAL ASPECT AS WELL AS THE CHEMISTRY ASPECT. BUT FOR THIS PARTICULAR CASE AT THIS MOMENT IN TIME, I FIND THAT THE ANALOG WOULD BE METHYLPHENIDATE FOR PURPOSES OF THIS CASE RATHER THAN AMPHETAMINE.

I JUST DON'T THINK THE PROOF IS SUFFICIENT FOR ME TO ORDER OR FIND THAT THE DEFENDANT'S EXPOSURE IS TO THAT HIGHER LEVEL, WHICH THEY WOULD BE IF I USED AMPHETAMINE. SO I DID THIS, AS I SAID, BECAUSE IT'S A UNIQUE CASE. I KNOW THERE'S A RULE AGAINST GIVING ADVISORY TYPE OPINIONS, BUT IT SEEMED TO ME THAT THIS WAS IMPEDING SETTLEMENT DISCUSSIONS ON THE CASE.

SO RATHER THAN -- INVARIABLY, I WOULD HAVE HAD TO DECIDE IT BECAUSE THE GOVERNMENT, I SUPPOSE, HAD THERE BEEN A PLEA --

(TELEPHONIC INTERRUPTION.)

THE COURT: -- HAD THERE BEEN A PLEA, WOULD HAVE COME IN AND OFFERED THE SAME WITNESSES. AND RATHER THAN HAVE THE DEFENDANTS BE UNCERTAIN ABOUT THEIR EXPOSURE, I THOUGHT IT WAS BETTER TO RESOLVE THIS IN ADVANCE SO THAT THERE WOULD BE SOME CERTAINTY.

BUT THAT'S MY RULING WITH RESPECT TO THIS CASE. AGAIN, IT'S WITHOUT PREJUDICE TO FURTHER STUDIES OR INFORMATION PROVING SCIENTIFICALLY AND BY AN APPROPRIATE STANDARD THAT AMPHETAMINE MIGHT IN THE FUTURE BE CONSIDERED THE CLOSER ANALOG.

DOES THAT DO IT, THEN?

MS. CASTILLO: IT DOES, YOUR HONOR.

THE COURT: THANK YOU FOR COMING. I'M SORRY WE DIDN'T GET TO YOUR TESTIMONY, BUT IT WASN'T NECESSARY FOR PURPOSES OF THIS CASE.

WE'RE IN RECESS.

--OOO--

I HEREBY CERTIFY THAT THE TESTIMONY ADDUCED IN THE FOREGOING MATTER IS A TRUE RECORD OF SAID PROCEEDINGS.

S/EVA OEMICK 8-16-2010

EVA OEMICK DATE
OFFICIAL COURT REPORTER

COMPUTER-AIDED TRANSCRIPTION

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October 5, 2011

REPORT OF EVALUATION

I. INTRODUCTION

I have been retained by Penny Beardslee of the Federal Public Defender's Office in United States v. Kevin Reid, a case involving distribution of the substance benzylpiperazine ("BZP"). I have been asked to give an opinion on the following issue: Which substance listed in the Federal Sentencing Guidelines is most closely related to BZP, a substance that is not listed in the Sentencing Guidelines? Ms. Beardslee has specifically asked me to consider the substances amphetamine and MDMA in my evaluation.

The Sentencing Guidelines set forth three factors to consider in making this determination: (1) chemical structure, (2) effect of the substance; and (3) potency. As set forth below, based on the factors listed in the Sentencing Guidelines, I conclude that the substance most closely related to BZP is methylphenidate, more commonly known as Ritalin.

II. BACKGROUND

Synopses of the issues in this case include:

1. Ms. Penny Beardslee is representing an individual who was arrested with tablets identified by the Drug Enforcement Administration, North Central Laboratory (DEA NCL) with the "Active Drug Ingredient" N-Benzylpiperazine and 3,4-Methylenedioxymethamphetamine. Both are Schedule 1 controlled substances under Part 1308 of the Code of Federal Regulations (CFR). However, as will be described later in this document, the "Amount of Actual Drug" values are significantly different and should enter be considered when determining sentencing levels.

2. N-Benzylpiperazine, also known as BZP or benzylpiperazine or 1-Benzylpiperazine (these terms may be used interchangeably in this report), is classified as a "stimulant" in the CFR. 3,4-Methylenedioxymethamphetamine is more commonly known as MDMA, and is classified as a hallucinogen in the CFR. There is no question at this point related to the identification of the controlled substances, BZP and MDMA. From the laboratory reports sumitted in this case,

the tablets submitted to the DEA NCL did contain BZP and MDMA. The resultant information in the DEA NCL laboratory reports also include the following descriptions:

Reference: Synopsis of Drug Enforcement Administration (DEA), North Central Laboratory Report
Case Number: DT13ZE10DT0048

Laboratory Number 5198830

Exhibit 1.01 N-Benzylpiperazine (Calculated as di-Hydrochloride)

Gross Weight	607.1 g
Net Weight	593.8 g (+/- 0.1 g)
Conc. or Purity	34.2% (+/- 2.0%)
Amount of Actual Drug	203.0g (+/- 11.7 g)
Reserve Weight	591.1 g

3,4-Methylenedioxymethamphetamine (Salt undetermined)

Conc. or Purity	--- (None Reported)

Exhibit 1.02 N-Benzylpiperazine (Calculated as di-Hydrochloride)

Gross Weight	---
Net Weight	0.87 g (+/- 0.02 g)
Conc. or Purity	---
Amount of Actual Drug	---
Reserve Weight	0.73 g

3,4-Methylenedioxymethamphetamine (Salt undetermined)

Conc. or Purity	--- (None Reported)

Laboratory Number 5198831

Exhibit 2 N-Benzylpiperazine (Calculated as di-Hydrochloride)

Gross Weight	603.7 g
Net Weight	591.5 g (+/- 0.1 g)
Conc. or Purity	33.8% (+/- 2.0%)
Amount of Actual Drug	199.9g (+/- 11.6 g)
Reserve Weight	589.7 g

3,4-Methylenedioxymethamphetamine (Salt undetermined)

Conc. or Purity	--- (None Reported)

Remarks

The reported uncertainty values represent expanded uncertainty estimates at the 95% confidence level.

Exhibit 1.01: Also contains 1-(3-trifluoromethylphenyl)-piperazine (salt undetermined, caffeine and dimethylsulfone

Exhibit 1.01: Total unit count: 1993 tablets (net); 1987 tablets (reserve); active drug concentration: 101.8 mg/tablet.

Exhibit 1.02: Also contains 1-(3-trifluoromethylphenyl)-piperazine (salt undetermined, caffeine and dimethylsulfone

Exhibit 1.02: Total unit count: 3 tablets (net); 2.4 tablets (reserve);

Exhibit 2: Also contains 1-(3-trifluoromethylphenyl)-piperazine (salt undetermined), caffeine and dimethylsulfone

Exhibit 2: Total unit count: 2002 tablets (net); 1996 tablets (reserve); active drug concentration: 99.8 mg/tablet.

Laboratory Number 5198832

Exhibit 3 N-Benzylpiperazine (Calculated as di-Hydrochloride)

Gross Weight	586.0 g
Net Weight	573.7 g (+/- 0.1 g)
Conc. or Purity	46.9% (+/- 2.4%)
Amount of Actual Drug	269.0 g (+/- 13.7 g)
Reserve Weight	571.3 g

3,4-Methylenedioxymethamphetamine (Salt undetermined)

Conc. or Purity	--- (None Reported)

Laboratory Number 5198833

Exhibit 4 N-Benzylpiperazine (Calculated as di-Hydrochloride)

Gross Weight	462.3 g
Net Weight	450.2 g (+/- 0.1 g)
Conc. or Purity	46.8% (+/- 2.4%)
Amount of Actual Drug	210.6 g (+/- 10.8 g)
Reserve Weight	447.3 g

3,4-Methylenedioxymethamphetamine (Salt undetermined)

Conc. or Purity	--- (None Reported)

Remarks:

The reported uncertainty values represent expanded uncertainty estimates at the 95% confidence level.
Exhibit 3: Also contains caffeine and dimethylsulfone
Exhibit 3: Total unit count: 1922 tablets (net;) 1914 tablets (reserve); active drug concentration: 139.9 mg/tablet.
Exhibit 4: Also contains caffeine and dimethylsulfone
Exhibit 4: Total unit count: 1549 tablets (net) 1539 tablets (reserve); active drug concentration: 136.0 mg/tablet.

NOTE 1: The total amount of actual BZP in all the exhibits delineated above is: 882.5 grams. (This calculation represents the summation of the four reported "actual" weights of BZP without considering the 95% confidence levels.)
NOTE 2: The total amount of actual MDMA in all exhibits was too low to meet the limit of the quantitation reporting threshold of the DEA NCL laboratory and the laboratory report, DEA 7. It is also important to note that the salt form of the BZP is reported and calculated as the di-hydrochloride. The salt form of the MDMA was not determined for reporting purposes. The controlled substance in the four exhibits with the predominant effect on the central nervous system is BZP, not MDMA. The reports actually use the term "active drug concentration" in reporting the amount of BZP in the tablets without any reference to the MDMA.

3. Considering the fact that the reported "actual" weight of BZP (882.5 grams) is far above the reported presumed actual weight of MDMA (0 grams) based on the DEA reporting documents, Ms. Beardslee has asked for an expert opinion as to what drug in the Federal Sentencing Guidelines is the most analogous to BZP? In my opinion, the most analogous drug in the guidelines is **methylphenidate**.

III. THE ISSUE

The issue at hand relates to application of the Sentencing Guidelines, (USSG) §2D1.1, Part D to determine the sentencing level in this specific case. BZP is not listed in the USSG. As such, the following commentary does apply:

In the case of a controlled substance that is not specifically referenced in this guideline, determine the base offense level using the marihuana equivalency of the most closely related controlled substance referenced in this guideline. In determining the most closely related controlled substance, the court shall, to the extent practicable, consider the following:

> **(A)** Whether the controlled substance not referenced in this guideline has a chemical structure that is substantially similar to a controlled substance referenced in this guideline.
>
> **(B)** Whether the controlled substance not referenced in this guideline has a stimulant, depressant, or hallucinogenic effect on the central nervous system that is substantially similar to the stimulant, depressant, or hallucinogenic effect on the central nervous system of a controlled substance referenced in this guideline.
>
> **(C)** Whether a lesser or greater quantity of the controlled substance not referenced in this guideline is needed to produce a substantially similar effect on the central nervous system as a controlled substance referenced in this guideline.

Therefore, in order to determine the most analogous drug to BZP, factors A, B and C must be evaluated.

SUMMARY OF CONCLUSIONS

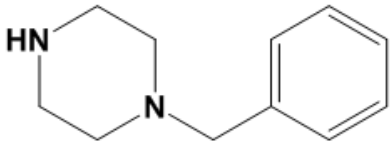
(A) Whether the controlled substance not referenced in this guideline has a chemical structure that is substantially similar to a controlled substance referenced in this guideline.

a. **BZP is a controlled substance.**
b. **BZP is not referenced directly in the USSG**
c. **The chemical structure of the controlled substance methylphenidate is most closely related to BZP.**
d. **The chemical structure of the controlled substance MDMA is not the next closest drug to BZP. In fact the structure of MDMA is not "closely related" to BZP.**
e. **The chemical structure of amphetamine has similarities to BZP; however BZP is more closely related to the chemical structure of methylphenidate.**

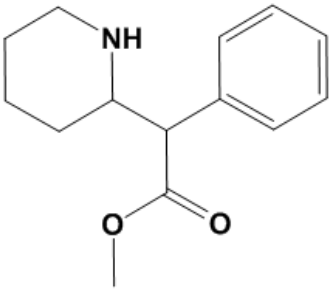
Section A of the Guidelines requires a comparison of the chemical structures of the subject drugs. The chemical structures below will place this discussion into a visual format that is intended for the non-scientist to interpret the term "*chemical structure that is substantially similar to*…" The term "chemical structure" refers to a graphical representation of the "molecular structure" showing how atoms are arranged in space. There are specific legal precedents for the interpretation of the relationship between these terms. For Instance, United States v. Klecker, 348 F.3d 69, 74 (4th Cir. 2003) is

instructive because the Court noted that the use of chemical diagrams to compare the chemical structures of competing drugs was useful:

Accordingly, **"It is useful to compare chemical diagrams"** (molecular structures) of BZP, MDMA, Methylphenidate and Amphetamine to note that there are "similarities" between BZP and methylphenidate and between BZP and amphetamine, but not MDMA.

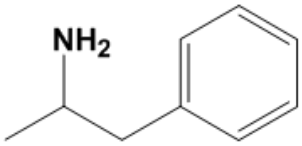


Benzylpiperazine



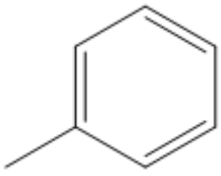
Methyl-alpha-phenyl-alpha-(2-piperidyl)acetate

Methylphenidate

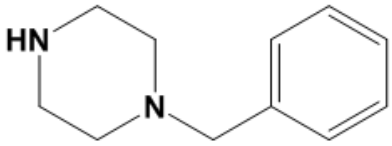


Amphetamine

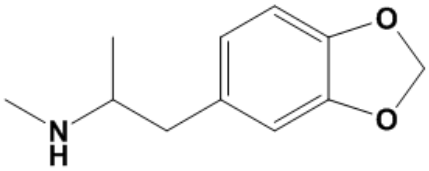
All three of these compounds possess a **methylphenyl /phenylmethyl / benzyl** skeleton.



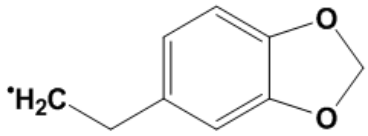
On the other hand, MDMA and BZP have different skeletal structures. MDMA is a "3,4-methylenedioxyphenyl" compound, not a methylphenyl / phenylmethyl / benzyl / compound:



[1] Benzylpiperazine



3,4-Methylenedioxymethamphetamine
MDMA



3,4-methylenedioxyphenethyl

The conclusion from these diagrams of the chemical structures of these substances is that structurally, BZP and MDMA are not similar. While showing some structural similarities to amphetamine, BZP is most similar to methylphenidate. This statement is based on the two six membered rings. The methylphenidate structure contains one nitrogen in the non-aromatic ring (a piperidine); and BZP contains two nitrogens in the non-aromatic ring (a piperazine). In both cases the two rings are connected by a carbon. Amphetamine is a phenethylamine containing one aromatic ring and no second ring. These ring structures are important in determining a "chemical structure that is substantially similar."

SUMMARY OF CONCLUSIONS

(B) Whether the controlled substance referenced in this guideline has a stimulant, depressant, or hallucinogenic effect on the central nervous system that is substantially similar to the stimulant, depressant, or hallucinogenic effect on the central nervous system of a controlled substance referenced in this guideline.

Section B of the Guidelines requires a qualitative evaluation of the effects of the comparative effects of the subject drugs on the central nervous system. BZP, methylphenidate and amphetamine are all central nervous system stimulants; MDMA is a central nervous system hallucinogen.

---

[1] BZP has the following names 1-Benzylpiperazine N-Benzylpiperazine, 1-(phenylmethyl) piperazine or 4-Benzylpiperazine.
MDMA has the following chemical names: N, α-dimethyl-1,3-benzodioxole-5-ethanamine and N-methyl-3,4-methylenedioxyphenylisopropylamine.
Amphetamin**e** has the following chemical names: α-Methylbenzene-ethanamine, α-Methylphenethylamine, and 1-Phenyl-2-aminopropane.
Methylphenidate has the following chemical names: Methylphenidate; Methyl phenidylacetate, and Methyl α-phenyl-α-(2-piperidyl)acetate.

BZP does not conform to the requirement of being "substantially similar to the …effect on the central nervous system" as MDMA. The effects of these two controlled substances on the central nervous system are different. BZP is a stimulant; MDMA is a hallucinogen. A stimulant (in some instances referred to as an "upper") causes a "stimulating" effect (as the name implies) wherein the person ingesting the drug becomes somewhat hyperactive and unable to sleep; a hallucinogen causes the person ingesting the drug to experience euphoria, thereby becoming detached from reality.

In May 2010, DEA published a document which states the following:

> "BZP is often abused in combination with 1-[3-(trifluoro-methyl)phenyl]piperazine (TFMPP), a non-controlled substance. This combination has been promoted to the youth population as a substitute for MDMA at raves (all-night dance parties). However, there are no scientific studies indicating this combination produces MDMA-like behavioral effects."[2]

To pursue an argument which states that there are valid scientific studies indicating a combination of BZP and TFMPP MDMA-like behavioral effects is in direct conflict with a US Department of Justice publication.

As set forth below, the comparison of the effects on the central nervous system between BZP and MDMA is like comparing the actions of person who has ingested a few cups of coffee to those of a person who has ingested the better known drug Lysergic Acid Diethylamide (LSD). According to official characterizations in Part 1308 of the Code of Federal Regulations, there are no substantive comparative similarities between the effects of BZP and MDMA. Conversely, there is a similarity of the effect comparing BZP to stimulants listed in the CFR, though at varying levels.

SUMMARY OF CONCLUSIONS

(C) Whether a lesser or greater quantity of the controlled substance not referenced in this guideline is needed to produce a substantially similar effect on the central nervous system as a controlled substance referenced in this guideline.

a. BZP and amphetamine are both stimulants defined by CFR.
b. Methylphenidate and amphetamine are both central nervous system stimulants as defined by the CFR and USSG.
c. BZP is 1/10th to 1/20th as potent as amphetamine.
d. The potency of methylphenidate is between amphetamine and caffeine.[3]

[2] DEA Office of Diversion Control Publication dates May 2010, Drugs and Chemicals of Concern, N-Benzylpiperazine

[3] Remington, The Science and Practice of Pharmacy, 21st edition, Lipppincott Williams & Wilkins, 2006, p. 1555

Section C of the Guidelines requires a quantitative evaluation of the effects of the comparative effects of the subject drugs on the central nervous system.

At the time BZP was being reviewed by the DEA for inclusion as a Schedule I drug, there was a great deal of confusion and misinformation about the drug. Since 2007, that confusion and misinformation has been clarified. In DEA publications that appeared in 2002 and 2003, it was the prevailing theory that BZP was 10-20 times more powerful than amphetamine and that tablets containing BZP could produce hallucinogenic effects if used with other drugs.[4] However, the purported hallucinogenic effect, which is very problematic, was reported to have been produced by the "other drug," 1-(3-trifluoromethylphenyl) piperazine (TFMPP), not the BZP. One cannot lose sight of the fact that BZP, the only reported controlled substance which has been quantified in any of any of the exhibits in these cases, is a central nervous system stimulant, not a CNS hallucinogen.

In actuality, the potency information (that BZP is about 10 to 20 times more potent than amphetamine) is incorrect, even though it appeared in the 2003 DEA publication. The DEA corrected itself and determined that **BZP is not "10 to 20 times more potent than amphetamine…."** Another revised and updated DEA Office of Diversion Control publication appeared in 2007 and concluded that BZP is actually 10 to 20 times LESS potent than amphetamine in producing certain effects. That publication concluded with the following statement related to the potency of BZP:

> Both animal studies and human clinical studies have demonstrated that the pharmacological effects of BZP are qualitatively similar to those of amphetamine. BZP has been reported to be similar to amphetamine in its effects on chemical transmission in the brain. BZP fully mimics discriminative stimulus effects of amphetamine in animals. BZP is self-administered by monkeys indicating reinforcing effects. Subjective effects of BZP were amphetamine-like in drug-naive volunteers and in volunteers with a history of stimulant dependence. BZP acts as a stimulant in humans and produces euphoria and cardiovascular effects, namely increases in heart rate and systolic blood pressure. BZP is about 10 to 20 times less potent than amphetamine in producing these effects. Experimental studies demonstrate that the abuse, dependence potential, pharmacology and toxicology of BZP are similar to those of amphetamine. Public health risks of BZP are similar to those of amphetamine.[5]

There is an inconsistency in the last sentence of this statement: To say that BZP is about 10 to 20 times less potent than amphetamine in producing these effects and is at

[4] See DEA publications for 2002 and 2003, attached, exhibit 1 & 2, respectfully.

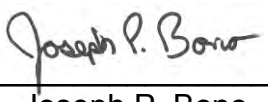
[5] See 2007 DEA publication attached hereto, exhibit 3

the same time similar to amphetamine in terms of health risks is similar to saying a person who consumes one cup of coffee will display the same pharmacological effects as the person who consumes 10 to 20 cups of coffee. This is quantitatively illogical. Potency considerations are important in determining what drug is most closely related. To say that amphetamine and BZP are closely related is to completely disregard their disparate potency levels.

In my opinion, the stimulant effects of BZP are similar to but much weaker than amphetamine, and more closely resemble the effects of methylphenidate. Methylphenidate does appear in the Guideline table of drugs and the guideline calculations should therefore be based on methylphenidate.

IV. CONCLUSIONS

In evaluating the requirements of the US Sentencing Guidelines as they relate to "*a controlled substance that is not specifically referenced in [the] guideline*" and delineated in this report, there is sufficient evidence to conclude that, to a reasonable degree of scientific certainty, **Methylphenidate** is the "*most closely related controlled substance*" to **N-Benzylpiperazine**.

Signature  October 5, 2011

Joseph P. Bono Date

NICHOLAS T. LAPPAS, Ph. D.
Forensic Toxicologist

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June 23, 2011

Richard J. O'Neill, Esquire
Federal Defender Office
Legal Aid & Defender Association, Inc.
613 Abbott Street, 5th Floor
Detroit, MI 48226

Re: United States v. Samantha Ross

Dear Mr. O'Neill:

At your request, I have reviewed the following materials in relation to the above cited case:

1) Drug Enforcement Administration (DEA) North Central Laboratory reports of the analysis of the following exhibits: Lab. No. (Exh. No.); 195319 (2), 195712 (3.01), 195712 (3.02), 5200970 (4), 5200971 (5), 5200972 (6) and 5200973 (7);
2) Part D of the Federal Sentencing Guidelines (FSG) Manual, pp. 139-164;
3) Transcript of the testimony of Thomas DiBerardino in United States of America vs. Dung Quoc Nguyen and Nam Ngoc Tran;
4) Transcript of the testimony of Laureen Marinetti in United States of America vs. Arthur Beckley.

Samantha Ross was arrested with several tablets in her possession. These tablets were analyzed by the Drug Enforcement Administration (DEA) North Central Laboratory and the following results were obtained:

- N-benzylpiperazine (BZP) as the hydrochloride salt was detected in the following items:
  - Lab. No. (Exh. No.): 195319 (2); 45.0 mg/tablet;

- Lab. No. (Exh. No.): 195712 (3.01); 46.1 mg/tablet; and
- Lab. No. (Exh. No.): 195712 (3.02); 45.3 mg/tablet

- Each of these tablets also contained caffeine and 1-(3-trifluoromethylphenyl)-piperazine hydrochloride (TFMPP), both in unreported quantities.

Since BZP is not included in the FSG, the issue you have asked me to address is whether BZP is more analogous to amphetamine, methylphenidate or 3, 4-methylene dioxymethamphetaine (MDMA), as defined in Application Notes, 5B and 5C in §2D1.1 of Chapter 2, Part D of the FSG, as presented below[1]. Therefore, my review of the materials was focused on that issue.

Section 5B

"(B) Whether the controlled substance not referenced in this guideline has a stimulant, depressant, or hallucinogenic effect on the central nervous system that is substantially similar to the stimulant, depressant, or hallucinogenic effect on the central nervous system of a controlled substance referenced in this guideline.'

BZP is a central nervous system (CNS) stimulant and has been compared to both amphetamine and methylphenidate (Ritalin®) since, qualitatively, it produces many of the same effects, e.g., increased blood pressure, increased heart rate and euphoria. Amphetamine and methylphenidate are known to produce hallucinations at high doses, whereas, this effect has not been reported for BZP. It is for that reason that BZP is often found in a dosage form that also contains TFMPP, a known hallucinogen. MDMA produces certain of the same stimulant effects as BZP, methylphenidate and amphetamines as well as mild hallucinations and sensory distortions. In addition, MDMA produces an increased understanding of and friendship with others, stimulates the ease of the development of interpersonal relationships and increases empathy. These effects produced by MDMA differentiate it from BZP, amphetamine and methylphenidate and has caused MDMA to be labeled an "entactogen" or "empathogen", a classification which is not applied to BZP, methylphenidate or amphetamine. Since BZP does not produce these entactogen or empathogen effects and hallucinations, it is not "substantially similar to the stimulant, depressant, or hallucinogenic effect on the central nervous system" of MDMA. Because BZP used alone does not produce MDMA-like effects, TFMPP, a known hallucinogen often is found, as in this case, with BZP in abused drugs often referred to as "party pills".

Section 5C

"(C) Whether a lesser or greater quantity of the controlled substance not referenced in this guideline is needed to produce a substantially similar effect on the central nervous system as a controlled substance referenced in this guideline."

Although BZP has certain similarities of action in common with amphetamine and methylphenidates, the relative potencies of these 3 drugs differ. The oral potency of BZP

[1] Although I have not addressed Application Note 5A in §2D1.1 of Chapter 2, Part D of the FSG in my analysis and opinions, I agree with the opinion of Mr. Bono that the chemical structure of BZP is more closely related to methylphenidate than to either MDMA or amphetamine.

has been reported to be approximately 1/10 to 1/20 that of amphetamine (Campbell, DEA), whereas the therapeutic dose of methylphenidate is less than the commonly used abuse dose of BZP[2]. Therefore, BZP is less potent than either methylphenidate or amphetamine, but is closer in potency to methylphenidate (which has been described as having a potency between that of caffeine and amphetamine) than to amphetamine.

Based on my review of the facts in this case and a review of the scientific literature, it is my opinion, with a reasonable scientific certainty, that BZP is more similar in effects on the central nervous system and potency to methylphenidate than to amphetamine and MDMA.

Very truly yours,

Nicholas T. Lappas

Nicholas T. Lappas, Ph. D.

[2] The amounts of BZP in commercially available products, with or without TFMPP, have been reported to be as great as 500 mg with an average of 150 mg and a median of 120 mg (Wilkins, Drug Alc. Rev, 27, 633-639, 2002); the amounts of BZP found in the tablets in this case, less than 50 mg, were less than 28 of the 29 BZP containing products in this study of commercially available products. Furthermore, the amounts of TFMPP in the tablets in this case were not determined; therefore, it is not known whether the tablets contained sufficient TFMPP to produce hallucinations.

NICHOLAS T. LAPPAS
CURRICULUM VITAE

PERSONAL DATA

Date of birth: January 24, 1943
Married with two children

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DEGREES

Ph.D.
Pharmaceutical Chemistry
Duquesne University 1975

M.S.
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Biology
Thiel College 1964

PROFESSIONAL EXPERIENCE

Director of Graduate Studies
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Director, Chemical Toxicology Program
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1968 - 1973

Research Assistant in Gastroenterology
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1965 - 1966

PROFESSIONAL MEMBERSHIPS

The American Academy of Forensic Sciences
The Forensic Science Society
The Society of Forensic Toxicologists
The International Association of Forensic Toxicologists

PUBLICATIONS

R.L. Weaver, N.T. Lappas and W.F. Rowe, "Utilization of medically obtained evidence in cases of sexual assault: Results of a survey", J. For. Sci., 23, 809-823 (1978).

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PRESENTATIONS

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J.W. Snyder and N.T. Lappas, "An estimate of the post-mortem interval by means of the in vitro glucose utilization by cerebral cortical homogenates", presented at the 12th semi-annual meeting of The Mid-Atlantic Association of Forensic Scientists, Pittsburgh, PA, September 29, 1978.

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unintentional exposure", The Mid-Atlantic Association of Forensic Scientists, Harrisburg, Pa., May 9, 1996.

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N.T. Lappas, "Problems of interpretation in forensic toxicology", Department of Biology, University of Richmond, 1998.

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N.T. Lappas, "Forensic toxicology: Drugs in the Classroom", Virginia Association of Independent Schools, Richmond, VA, November 6, 2000.

N. T. Lappas, "Forensic Toxicology: The determination and interpretation of drug concentrations in human samples", Forensic Chemistry in Action, Chemical Society of Washington Symposium, Washington, DC, October 21, 2006

N. T. Lappas, "Chemistry in toxicology", Greater Washington Institute of Chemists, Washington, DC, May 11, 2007.

N.T. Lappas, "Introduction to Toxicology", "Chemical Toxicology in Action", Chemical Society of Washington Symposium, Washington, DC, April 12, 2008.

N.T. Lappas, "Development of forensic toxicology", Retired Chemists Society of Washington, Washington, D.C., June 18, 2008

RECORD OF EXPERT TESTIMONY

Admitted as an expert in forensic toxicology on approximately 100 occasions in the state courts of Maryland, Michigan, Pennsylvania, Virginia and West Virginia, the Superior Court of the District of Columbia and the United States District Courts for the Eastern District of Virginia, the District of Columbia and the District of Maryland.

Litigation Consultant Report

RE: ***USA vs. Lewis Aaron NIXON III; 10-CR-13***
DATE: April 8, 2010

Issue: Relative potency of 1-benzylpiperazine (BZP) compared to 3,4-methylenedioxymethamphetamine (MDMA)

prepared for: Mr. R. Scott Williams
Taylor, Ryan, Schmidt, & Van Dalsem, P.C.
850 Boulder Towers
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prepared by: Craig W. Stevens, Ph.D.[1]
Professor of Pharmacology
Oklahoma State University-Center for Health Sciences
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Summary:

1-Benzylpiperazine (BZP) is a recently added controlled substance placed into Schedule I classification by the Drug Enforcement Agency in 2004. BZP has pharmacological actions like 3,4-methylenedioxymethamphetamine (MDMA, *Ecstasy*), another drug in the Schedule I classification. Drug sentencing guidelines for BZP specifically do not exist and in such cases, comparison to existing listed drugs should be used. Crucial to this comparison is an examination of the relative potency of the unlisted drug (BZP) to the listed drug of comparison (MDMA). In all measures of pharmacological potency, BZP is significantly less potent than MDMA. Depending on the measure of pharmacological potency examined, the range of relative potency of BZP is 3-172 times less potent than MDMA. Using standard pharmacological measures of BZP and MDMA effects on the brain, BZP averages 50 times less potent than MDMA. For drug equivalency purposes, BZP should be considered to be 50 times less potent, or one-fiftieth (1/50) as potent as MDMA.

1. Background information ou 1-benzylpiperazine (BZP) and 3,4-methylenedioxymethamphetamine (MDMA)

1-Benzylpiperazine (BZP) is a common chemical used in the manufacture of industrial chemicals and other drugs. It exhibits pharmacological action on the brain and the U.S. Drug Enforcement Administration recently declared BZP a Schedule I controlled substance. MDMA (*Ecstasy*, full chemical name is: 3,4-methylenedioxymethamphetamine) is a recreational drug associated with "rave" parties, exhibits pharmacological action on the

[1] Dr. Stevens' *Curriculum Vitae* is attached as Appendix A to this report.

EXHIBIT
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brain, and is also classified as a Schedule I drug. BZP is often packaged with trifluorophenylpiperazine (TFMPP) which may also have some MDMA-like effects, however TFMPP is not a controlled substance. The effects of BZP are independent of the presence or absence of TFMPP.

MDMA and BZP both exhibit the same unique profile of pharmacological effects on the brain. This unique profile shows that MDMA and BZP affect two distinct neurotransmitter systems in the brain, the dopamine system and the serotonin system.[2,3] These two drugs both act to increase dopamine release and to increase serotonin release in the brain. The amount of dopamine and serotonin release can be measured in animal models. The effects of MDMA and BZP increasing dopamine and serotonin in the brain is what leads to both drugs being used in humans. It is clear that BZP by itself has the same mechanism of pharmacological action as MDMA. Earlier, less direct research on BZP suggested that BZP was like methamphetamine. This is no longer true given the more recent data using precise measures of pharmacological effect which clearly show that BZP is like MDMA.

The pharmacological effects of MDMA and BZP are also measured by an animal's desire to be administered the drug. This effect is tested in a procedure called conditioned place preference (CPP). CPP is a common way to test for the reinforcement properties of a drug and is quite simple in its concept: a rodent is put in a two-chambered cage and in one chamber gets the drug and the other chamber gets a blank injection (water or saline). This procedure is repeated for a number of days then at some point the animal is placed in the cage and the time spent in the chamber that is associated with the test drug administration is recorded. If the animal spends significantly more time in the drug-chamber than the blank-chamber, then the drug is said to be reinforcing (or 'addicting' in more common parlance). Both MDMA and BZP show reinforcing effects on the CPP test.[4,5]

MDMA and BZP exhibit toxicity at high doses and this can be considered another pharmacological effect of a drug. While there are only a few studies of BZP toxicity in humans and none of direct BZP lethality, MDMA has been used by numerous individuals over the last twenty years. As such, large studies of MDMA toxicity are available in humans. A recent study of emergency room admissions in the U.K. showed that from 1996-2006, an average of 50 drug-related deaths per year involved MDMA. It was the sole drug given as cause of death in an average of 10 cases per year.[6]

2. Relative potency of 1-benzylpiperazine (BZP) and 3,4-methylenedioxymethamphetamine (MDMA)

Drug potency is a fundamental characteristic of all drug action. Drug potency gives a quantitative measure of the amount of a drug that is needed to produce an effect and is a way to compare two or more drugs. When the effects of two or more drugs are compared, a

[2] Baumann *et al.*, Ann. NY Acad. Sci. 1025: 189-197 (2004)
[3] Baumann *et al.*, Neuropyschopharmacology 30: 550-560 (2005)
[4] Bilsky *et al.*, Pharm. Biochem. Behav. 40: 443-447 (1991)
[5] Meririnne *et al.*, Basic Clin. Pharmacology 98: 346-350 (2006)
[6] Rogers *et al.*, Health Technol. Assess. 13 (6) 1-315, 2009

relative potency (one drug relative to the other) can be determined. MDMA is well-researched by pharmacologists and other scientists and its effects on the brain are well-known. BZP research is more limited and there are only a handful of studies that compare both MDMA and BZP effects on the same pharmacological test.

The relative potency of BZP and MDMA was tested by measuring the amount of dopamine and serotonin released from the brain tissue of rodents *in vitro*.[7] BZP was 1.5 times less potent than MDMA in releasing dopamine and greater than 170 times less potent than MDMA in releasing serotonin from these brain slices. In a second study using whole animals and a method to measure dopamine and serotonin levels in the awake animal, BZP was 3 times less potent than MDMA in increasing dopamine levels and BZP was 30 times less potent than MDMA is increasing serotonin levels.[8] These two studies above are the only studies reporting the relative potency of BZP and MDMA from direct pharmacological effects on brain tissues done in the same laboratory and at the same time.

The relative potency of BZP and MDMA was also determined in separate studies using a behavioral test that measure effects of the drugs downstream from the initial pharmacological effect in the brain described above. Conditioned place preference (CPP) measures the reinforcing effects of a drug (see §1, above). In two studies from different laboratories, BZP and MDMA both support CPP however BZP was about 3 times less potent than MDMA in doing so.[9,10]

The relative potency of BZP to produce toxicity compared to MDMA can be estimated from data on emergency room admissions and clinical studies. The lethal range of plasma levels for MDMA is 0.11- 2.1 mg/L blood plasma.[11] There have been no reports of BZP lethality to date, but no lethality (other than toxic seizures which were controlled) is correlated with a blood level as high as 6.29 mg/L plasma.[12] Making the conservative assumption that doubling the blood concentration of BZP that produces non-lethal seizures will produce some lethality, then BZP is about 6 times less potent than MDMA in toxic and lethal effects.

The conclusion from the limited scientific studies comparing the potency of BZP and MDMA is that BZP is less potent that MDMA in general. However, there are only two studies that give robust measures of pharmacological potency measured directly. These studies are the *in vitro* and *in vivo* studies of dopamine and serotonin release in the brain. At present, relative potency values can be obtained by taking the average values from these two studies: first obtain the average relative potency value of dopamine release in the two papers (1.5 + 3.0 = 4.5 / 2 = 2.25 average) and that of serotonin release (170 + 30 = 200 /2 =100 average) then take the average of these two values (100 + 2.25 = 102.25 / 2 = 51.125 overall average value, rounded to 50). Thus, a working value at this stage of the scientific knowledge is that BZP is 50 times less potent than MDMA, or that BZP is one-fiftieth (1/50) as potent as MDMA.

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[7] Baumann *et al.* (2004), *Op. Cit.*
[8] Baumann *et al.* (2005), *Op. Cit.*
[9] Bilsky *et al.* (1991), *Op. Cit.*
[10] Meririnne *et al.* (2006), *Op. Cit.*
[11] Gee *et al.*, Clinical Toxicology 1-4: 1556-3650 (2010)
[12] *Ibid.*

3. Conclusions: Federal Sentencing Guidelines for BZP

BZP is listed in Schedule I of the Controlled Substances Act (Fed. Reg. 69(53), March 18, 2004, 12794-12797), but is not among the specifically named controlled substances referenced in the Federal Sentencing Guidelines. The Sentencing Guidelines make provisions for controlled substances not listed (*to wit*):

> *"In the case of a controlled substance that is not specifically referenced in this guideline, determine the base offense level using the marihuana equivalency of the most closely related controlled substance referenced in this guideline. In determining the most closely related controlled substance, the court shall to the extent practicable, consider the following: (a) Whether the controlled substance not referenced in this guideline has a chemical structure that is substantially similar to a controlled substance referenced in this guideline. (b) Whether the controlled substance not referenced in this guideline has a stimulant, depressant, or hallucinogenic effect on the central nervous system that is substantially similar to the stimulant, depressant, or hallucinogenic effect on the central nervous system of a controlled substance referenced in this guideline. (c) Whether a lesser or greater quantity of the controlled substance not referenced in this guideline is needed to produce a substantially similar effect on the central nervous system as a controlled substance referenced in this guideline."* (2008 Federal Sentencing Guidelines Manual)

For BZP, considerations (a), (b), and (c) can be applied as follows (paraphrased from the above guidelines for brevity):

(a) Similar chemical structure to a listed drug?

BZP is not similar in structure to any other listed drug in the Federal Sentencing Guidelines.

(b) Similar pharmacological effects to a listed drug?

BZP has similar pharmacological effects as MDMA, a listed drug (see §1, above).

(c) What is the unlisted drug potency compared to the listed drug potency?

BZP is 50 times less potent than MDMA using averaged values that are the results of the most direct and side-by-side comparative studies available in the scientific literature (see §2, above). Thus the equivalency ratio that should be used at this time with the available scientific knowledge is that BZP is one-fiftieth (1/50) as potent as MDMA. Thus, 50 grams of BZP equates to 1 gram of MDMA. The finding that BZP is 1/50th as potent as MDMA is not dependent on the presence or absence of TFMPP or any other substance that may be found packaged with BZP.

4. Attachments

A. *Curriculum Vitae* of Craig W. Stevens, Ph.D., Professor of Pharmacology

CURRICULUM VITAE

Craig W. Stevens, Ph.D.
Professor of Pharmacology
Department of Pharmacology & Physiology
OSU-Center for Health Sciences, College of Osteopathic Medicine
1111 W. 17th Street
Tulsa, OK 74107-1898
Ph. (918) 561-8234 FAX (918) 561-8276
email: cw.stevens@okstate.edu

PROFESSIONAL APPOINTMENTS

2000-present	**Professor of Pharmacology**, Dept. of Pharmacology/Physiology, OSU-CHS, Tulsa, OK
2007-2009	**Chair,** Dept. of Pharmacology/Physiology, OSU-CHS, Tulsa, OK
1993-1999	**Associate Professor of Pharmacology**, Dept. of Pharmacology/Physiology, OSU-CHS, Tulsa, OK
1990-1993	**Assistant Professor of Pharmacology**, Dept. of Pharmacology/Physiology, OSU-CHS, Tulsa, OK
1989-1990	**Development Manager,** Minnesota Academy of Science, St. Paul, MN
1984-1986	**President** (*founding*), Mayo Graduate Students Association, Mayo Grad. Schl Med., Rochester MN

EDUCATION AND TRAINING

2005	**Molecular Biology and PCR Course,** Smith College/New England Biolabs, Northampton, Massachusetts
1988-1990	**Postdoctoral Research Fellow,** Dept. of Cell Biology and Neuroanatomy, Univ. of Minnesota, Minneapolis, MN. Supervisor: *Dr. Virginia Seybold*
1984-1988	Mayo Graduate School of Medicine, Rochester, MN, **Ph.D. in Pharmacology**. Thesis: *Behavioral and Biochemical Characteristics of Opioid Tolerance in Rat Spinal Cord.* Supervisor: *Dr. Tony L. Yaksh*
1981-1984	University of Illinois, Chicago, IL; **M.S. in Biological Sciences.** Thesis: *Endogenous Opioid Systems in Amphibians*. Supervisor: *Dr. Paul D. Pezalla*
1978-1981	**American Peace Corps** in Nepal; Science/Math Instructor, *Katmandu, NEPAL*
1974-1978	Augustana College, Rock Is., IL; **B.A. in Biology, *cum laude***

TEACHING EXPERIENCE

1990-present	Lecturer, *Medical Pharmacology I-II*, (Course-Coordinator 1997-2007) OSU-CHS, COM, Tulsa, OK
1997-present	Instructor, *Neuropharmacology* (graduate course, alternate years) OSU-CHS, COM, Tulsa, OK
1991-present	Facilitator, *Medical Information Systems Course*, OSU-CHS, COM, Tulsa, OK
2000-2004	Visiting Professor, Neuroscience Lab Course, U of MN Medical School, Minneapolis, MN
1998-2001	Adjunct Professor of Pharmacology, University of Tulsa Nursing School, Tulsa, OK
1989-1990	Lecturer, *Pharmacology for Nurse Anesthetists*, University of Minnesota, Minneapolis, MN
1989-1990	Lecturer, *Neuropharmacology Course*, Dept. of Neurology, Univ. of MN, Minneapolis, MN
1984-1987	Community Education, *Juggling Instructor*, Rochester, MN
1984-1987	IBM-PC Instructor, *Microcomputer Education Cntr.*, Mayo Clinic, Rochester, MN
1981-1983	Teaching Assistant; *Dept. of Biological Sciences*, University of IL at Chicago, IL

ACADEMIC COMMITTEES

2004	*Member,* Research and Creative Activities Task Force, OSU-System, appt. by OSU President Schmidly
2003	*Member,* Search Committee for VP Health Affairs OSU/Dean OSU-COM
2002-2003	*President,* Faculty Senate
2002-2003	*Member,* Board of Directors for Academic Health Center, joint affiliation of TRMC and OSU-CHS
2001-2002	*Vice-President* Faculty Senate
1994-2001	*Founding Member & Chair (2000-2001),* Biomedical Sciences Graduate Committee
1996-2001	*Chair,* Hazardous Materials and Equipment
1994-98, 2000-07	*Member, Chair (2001-2004; 2006-2007)* OSU-CHS Promotion and Tenure Committee
1996-1998, 2009	*Senator,* Faculty Senate
1991-2000, 2006	*Member, (Chair, 2006)* Research Committee
1991-92, 2002-04	*Member, (Chair, 2002-2004)* Academic Appeals Board
1991-1992	*Member,* Learning Resources Committee
1990-1999	*Chair (1990-1993), Member (1994-1999),* Animal Use Committee (IACUC)

PROFESSIONAL AFFILIATIONS

American Society for Pharmacology and Experimental Therapeutics (ASPET)
International Narcotics Research Conference (INRC), Oklahomans for Excellence in Science Education (OESE)
Society for Neuroscience (SFN), American Association for the Advancement of Science (AAAS)
Scientists Center for Animal Welfare (SCAW), Committee on Problems of Drug Dependence (CPDD)

EXTRAMURAL FUNDING

2007-2011	*"Functional Evolution of Opioid Receptors"*, NIH NIDA AREA Grant, R15DA12448, C.W. Stevens (PI), $150,000 (direct costs) (no-cost extension for 2011)
2004-2007	*"Functional Evolution of Opioid Receptors"*, NIH NIDA AREA Grant, R15DA12448, C.W. Stevens (PI), $100,000 (direct costs)
2002-2004	*"Sequence and Pharmacology of Novel Opioid Receptors"*, Oklahoma Center for the Advancement of Science and Technology (OCAST) C.W. Stevens, (PI), $68,264 (direct costs)
2001-2003	*"Functional Evolution of Opioid Receptors"*, NIH NIDA AREA (Academic Research Enhancement Award) Grant, R15DA12448, C.W. Stevens (PI), $100,000 (direct costs)
1999-2001	*"Functional Evolution of Opioid Receptors"*, NIH NIDA AREA (Academic Research Enhancement Award) Grant, R15DA12448, C.W. Stevens (PI), $69,605 (direct costs)
1998-1999	*"Testing and Comparison of Analgesic Agents"*, American College of Laboratory Animal Medicine (ACLAM), C.W. Stevens (PI), $11,555 (direct costs)
1995-1997	*"Graduate Student Research", Gardner Spring, Co., Tulsa, OK* ($4,000)
1994-1996	NRSA postdoctoral grant for Dr. Stan Willenbring, C.W. Stevens (sponsor).
1992-1998	*"Studies of Opioid Analgesia in Amphibians"*, NIH-NIDA First Award (DA07326), C.W. Stevens, Principal Investigator (PI), $418,000. (direct costs) (no-cost extension for 1998)
1992-1995	*"Spinal Sites of Endogenous Opioid Action in Amphibians"*, Research Grant, Whitehall Foundation, C.W. Stevens, PI, $70, 785.
1991-1992	*"Nociceptive Processing in the Amphibian Spinal Cord"*, Grants-In-Aid, Whitehall Foundation Research Fund, C. W. Stevens, PI, $10,375.
1988-1990	*"NIDA Neuroscience Training Grant"*, Postdoctoral position (*salary only*), University of Minnesota Medical School, Minneapolis, MN
1987-1988	*"Issues related to tolerance development and tissue toxicology of chronically administered 4-anilinopiperidines"*, T.L. Yaksh (PI) and C.W. Stevens (Co-I). Janssen Pharm., $46,000.
1985-1986	*"Effects of capsaicinoid agents on peptide levels and behavioral function"*, T.L. Yaksh (PI) and C.W. Stevens (Co-I). Procter and Gamble Co., $25,000.
1985-1986	*"Effects of drugs on the shock titration threshold in the primate"*, T.L. Yaksh (PI) and C.W. Stevens (Co-I). $10,000, Sterling Winthrop Pharmaceuticals.

HONORS AND AWARDS

2006	Regents Research Award, Inaugural awardee for OSU-Center for Health Sciences
1992	Young Investigator Travel Award, American Pain Society, San Diego, CA
1992	NIDA Travel Award, International Narcotics Res. Comm. (INRC), Keystone, CO
1991	Young Investigator Travel Award, American Pain Society, New Orleans, LA
1991	Young Scientist Travel Award, ASPET Annual Meeting, San Diego, CA
1990	Fulbright Scholarship for Research & Teaching in India *(declined to accept faculty position)*
1990	CPDD Travel Award, CPDD Annual Meeting, Keystone, CO
1989	NIDA Travel Award, CPDD Annual Meeting, Keystone, CO
1987	Upjohn Travel Award, ASPET Annual Meeting, Honolulu, HA
1987	NIDA Training Grant, Gordon Research Conference, *"Mode of Action of Opiates"*, CA
1983	UIC Research Assistantship, University of Illinois, Chicago, IL
1983	NIH Training Grant,*"Neural Systems & Behavior"*, MBL Summer course, Woods Hole, MA
1982	UIC Research Board Travel Grant, *"Strategies for studying the role of peptides in neuronal function"*, Society for Neuroscience Short Course, Minneapolis, MN

GRADUATE TRAINING ACTIVITIES

1997-2000	Chair/Major Advisor to Leslie C. Newman (Ph.D. student, completed 8/2000 with university-wide honors).
1998-2005	Member, Advisory Committee for John Paulson (Ph.D. student, completed 8/2005)
2001-2005	Chair, Advisory Committee for Eva Garringer (Ph.D. student, completed 5/2005)
2002-2004	Member, Advisory Committee for Randy Benton (M.S. student; completed 5/2004)
2002-2004	Member, Advisory Committee for Raju N. Kacham (M.S. student at OSU-CVHS, Stillwater; completed 5/2004)
2001-2007	Chair/Major Advisor to Kristin K. Martin (M.S. student; completed 5/2007)

GRADUATE TRAINING ACTIVITIES (CONT.)

2003-2008	Chair/Major Advisor to Christopher M. Brasel (Ph.D., completed 5/2008)
2004-2008	Chair/Major Advisor to Shekher Mohan (Ph.D. student, completed 12/2008)
2007-2009	Member, Advisory Committee for Danielle Armstrong (completed M.S. 7/2009)
2005-	Chair/Major Advisor to Julie Duffey (Ph.D. student, completed M.S. degree 5/2008)
2006-	Member, Advisory Committee for Neda Saffarian-Toussi (Ph.D. student)
2007-	Member, Advisory Committee for Arunkumar Thangaraju (Ph.D. student)
2008-	Chair/Major Advisor to Shruthi Aravind (M.S. student)
2009-	Chair/Major Advisor to John Knox (D.O./M.S. student)

PEER-REVIEWED PRIMARY PUBLICATIONS

1. Stevens, C.W. and Pezalla, P.D., A spinal site mediates opiate analgesia in frogs. Life Sci. 33: 2097-2013, 1983.
2. Stevens, C.W. and Pezalla, P.D., Naloxone blocks the analgesic action of levorphanol but not dextrorphan in the leopard frog. Brain Research 301: 171-174, 1984.
3. Pezalla, P.D., and Stevens, C.W., Behavioral effects of morphine, levorphanol, dextrorphan, and naloxone in *Rana pipiens*. Pharm. Biochem. Behavior 21: 213-217, 1984.
4. Yaksh, T.L., and Stevens, C.W., Simple catheter preparation permitting bolus intrathecal administration during chronic intrathecal infusion. Pharmacology, Biochemistry and Behavior, 25: 483-485, 1986.
5. Stevens, C.W. and Yaksh, T.L., Spinal action of dermorphin an extremely potent opioid peptide from frog skin, Brain Research, 385: 300-304, 1986.
6. Stevens, C.W. and Yaksh, T.L., Dynorphin A and related peptides administered intrathecally in the rat: A search for putative kappa opiate receptor activity. J. Pharmacol. Exp. Ther., 238: 833-838, 1986.
7. Stevens, C.W. Pezalla, P.D., and Yaksh, T.L., Spinal antinociceptive action of three representative opioids in frogs. Brain Research, 402: 201-203, 1987.
8. Stevens, C.W., Weinger, M.B. and Yaksh, T.L., Intrathecal dynorphins suppress hindlimb electromyographic activity in rats. Eur. J. Pharmacol., 138: 299-302, 1987.
9. Stevens, C.W. and Yaksh, T.L., Chronic antagonist infusion does not increase morphine antinociception in rat spinal cord. Brain Research, 425: 388-390, 1987.
10. Stevens, C.W., Monasky M.S. and Yaksh, T.L., Spinal infusion of opiate and alpha-2 agonists in rats: Tolerance and cross-tolerance studies, J. Pharmacol. Exp. Ther. 244: 63-70, 1988.
11. Schick, R.R., Stevens, C.W., Yaksh, T.L. and Go, V.L.W., Chronic intraventricular administration of CCK octapeptide suppresses feeding in rats. Brain Research, 448:294-298, 1988.
12. Stevens, C.W., and Yaksh, T.L., Potency of infused spinal antinociceptive agents is inversely related to magnitude of tolerance after continuous infusion. J. Pharmacol. Exp. Ther. 250: 1-8, 1989.
13. Sosnowski, M., Stevens, C.W., and Yaksh, T.L., Assessment of the role of A1/A2 adenosine receptors mediating the purine antinociceptive, motor, and autonomic function in rat spinal cord. J. Pharmacol. Exp. Ther. 250: 915-922, 1989.
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15. Stevens, C.W., and Yaksh, T.L., Magnitude of opioid dependence after continuous intrathecal infusion of mu and delta opioids in the rat. Eur. J. Pharmacol. 166: 467-472, 1989.
16. Morón, M.A., Stevens, C.W., and Yaksh, T.L., Diltiazem enhances and flunarizine inhibits nimodipine's antiseizure effects. Eur. J. Pharmacol. 163: 299-307, 1989.
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18. Yanez, A., Sabbe, M.B., Stevens, C.W., and Yaksh, T.L., Interaction of midazolam and morphine in the rat spinal cord. Neuropharmacology 29: 359-364, 1990.
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21. Stevens, C.W., Lacey, C.B., Miller, K.E., Elde, R.P., and Seybold, V.S., Biochemical characterization and regional quantification of mu, delta, and kappa opioid binding sites in rat spinal cord. Brain Research 550: 77-85, 1991.
22. Stevens, C.W., Kajander, K.C., Bennett, G.J., and Seybold, V.S., Bilateral and differential changes in spinal mu, delta and kappa opioid binding in rats with a painful, unilateral neuropathy. Pain 46: 315-326, 1991.
23. Stevens, C.W. and Yaksh, T.L., Studies of morphine and DADLE cross-tolerance after continuous intrathecal infusion in the rat. Anesthesiology 76: 596-603, 1992.
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28. Stevens, C.W. and Seybold, V.S., Changes of opioid binding density in the rat spinal cord following unilateral dorsal rhizotomy, Brain Research 687: 53-62, 1995.
29. Willenbring, B. and Stevens, C.W., Thermal, mechanical, and chemical peripheral sensation in amphibians: opioid and adrenergic effects. Life Sciences 58: 125-133, 1996.
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35. Newman, L. C., Wallace D.R. and Stevens, C.W., Characterization of [3H]-diprenorphine binding in Rana pipiens: observations of filter binding enhanced by naltrexone. J. Pharmacol. Toxicol. Meth. 41: 43-48, 1999.
36. Newman, L. C., Wallace D.R. and Stevens, C.W., Selective opioid agonist and antagonists displacement of [3H]-naloxone binding in amphibian brain, European Journal of Pharmacology, 397: 255-262, 2000.
37. Newman, L. C., Wallace D.R. and Stevens, C.W., Selective opioid agonist and antagonists competition for [3H]-naloxone binding in amphibian spinal cord, Brain Research, 884: 184-191, 2000.
38. Stevens, C.W., MacIver, D. N., Newman, L.C., Testing and comparison of non-opioid analgesics in amphibians, Cont. Topics in Lab. Animal Sciences 40: 47-51, 2001.
39. Newman, L. C., Sands, S.S., Wallace D.R. and Stevens, C.W., Characterization of selective μ, κ, and δ opioid radioligand binding in amphibian brain. Journal of Pharmacology and Experimental Therapeutics 301:364–370, 2002.
40. Mohan, S. and Stevens, C.W., Systemic and spinal administration of the mu opioid, remifentanil, produces antinociception in amphibians, European Journal of Pharmacology, 534: 89-94, 2006.
41. Stevens, C.W., Toth G., Borsodi A., Benyhe S., Xendorphin B1, a novel opioid-like peptide determined from a Xenopus laevis brain cDNA library, produces opioid antinociception after spinal administration in amphibians. Brain Res Bulletin., 71:628-632, 2007.
42. Stevens, C.W., Brasel, C.M. and Mohan, S.K., Cloning and bioinformatics of amphibian mu, delta, kappa, and nociceptin opioid receptors expressed in brain tissue: evidence for opioid receptor divergence in mammals. Neuroscience Letters, 419: 189-194, 2007
43. Davis, R.L., Buck, D.J., Saffarian, N. and Stevens, C.W., The opioid antagonist, β-funaltrexamine, inhibits chemokine expression in human astroglial cells. Journal of Neuroimmuunology 186: 141-149, 2007.
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45. Brasel, C.M., Sawyer, G.W. and Stevens, C.W., A pharmacological comparison of the cloned frog and human mu opioid receptors reveals differences in affinity and function. Eur J Pharmacol 599:36-43, 2008.
46. Stevens, C.W., Martin, K.K. and Stahlheber, B.W., Nociceptin produces antinociception after spinal administration in amphibians. Pharm Biochem Behav 91:436-440, 2009.

BOOKS, BOOK CHAPTERS, REVIEWS & CONFERENCE PROCEEDINGS

1. Yaksh, T.L., Durant, P., Onofrio, B. and Stevens, C.W., The effect of spinally administered agents on pain transmission in man and animals. In: Spinal Opioids and the Relief of Pain, J.M. Besson and J. Lazorthes (Eds.), INSERM 127: 317-332, 1984.
2. Yaksh, T.L., Durant, P.A.C., Gaumann, D.M., Stevens, C.W. and Mjanger, E., The use of receptor-selective agents as analgesics in the spinal cord: Trends and possibilities. J. Pain Sympt. Manag., 2: 129-138, 1987.
3. Stevens, C.W. and Yaksh, T.L., Opioid and adrenergic spinal receptor systems and pain control, In: Problems of Drug Dependence 1987, Harris, L.S. (Ed.), NIDA Research Monograph, 81: 343-352, 1988.
4. Yaksh, T.L, Durant, P.A.C., Monasky, M.S., Stevens, C.W. and Schick, R.R., Spinal pharmacology of agents which alter pain transmission and muscle tone. In: Local-Spinal Therapy of Spasticity, H. Müller, J. Zierski, R.D. Penn, (Eds.), Springer-Verlag, Berlin, pp. 19-36, 1988

BOOKS, BOOK CHAPTERS, REVIEWS & CONFERENCE PROCEEDINGS (CONT.)

5. Yaksh, T.L., Stevens, C.W., Gaumann, D.M., and Mjanger, E., Receptors in the dorsal horn and intrathecal drug administration. In: Neurological applications of implanted drug pumps, Ann. NY Acad. Science 531: 90-107, 1988.
6. Yaksh, T.L. and Stevens, C.W., Properties of the modulation by receptor-selective agents of spinal nociceptive processing. In: Proceedings of the 5th World Congress of Pain, R. Dubner, G.F. Gebhart, M.R. Bond (Eds.), Elsevier Science Publishers, Amsterdam, pp. 417-435, 1988.
7. Yaksh, T.L., Mjanger, E., and Stevens, C.W., Pharmacology of the analgesic effects of opioid and non-opioid receptor selective agents in the spinal cord. J. Anest. Reanim., pp. 221-242, 1988.
8. Stevens, C.W., Opioid antinociception in amphibians, Brain Research Bulletin, 21: 959-962, 1988.
9. Stevens, C.W. and Yaksh, T.L., Opioid dependence after continuous intrathecal infusion of mu and delta opioids in the rat. In: Problems of Drug Depend.'88, Harris, L.S., (Ed.), NIDA Res. Mongr. 95:544-545, 1989.
10. Stevens, C.W., Kajander, K.C., Bennett, G.J., and Seybold, V.S., Differential regulation of opioid binding sites in an experimental model of chronic pain. In: Proceedings of the 6th World Congress of Pain, M.R. Bond, J.E. Charlton, C.J. Woolf (Eds.), Elsevier Science Publishers, Amsterdam, 283-289, 1991.
11. Stevens, C.W., Intraspinal opioids in frogs: a new behavioral model for the assessment of opioid action. In: Problems of Drug Dependence 1990, Harris, L.S., (Ed.), NIDA Research Monograph 105: 561-562, 1991.
12. Stevens, C.W., Alternatives to the use of mammals for pain research. Life Sciences 50: 901-912, 1992.
13. Adams, J.U., Izenwasser, S., Kramer, T.H., Stevens, C.W., Tiseo, P.J., and Unterwald, E.M., Tolerance and sensitization to opioids and cocaine. In: Problems of Drug Dependence 1993, Harris, L.S., (Ed.), NIDA Research Monograph 140: 69-73, 1994.
14. Stevens, C.W., Environmental factors influencing pain physiology in amphibians. In: Environment and Physiology: 38th Annual Conference of the Association of Physiologists and Pharmacologists of India, Mallick, B.N. and Singh, R. (Eds.), Narosa Publishing House, New Delhi, pps. 54-61, 1994.
15. Stevens, C.W., Perspectives on opioid tolerance from basic research: behavioral studies after spinal administration in rodents. In: Cancer Surveys: Palliative Medicine Volume 21, Banks, G.W. (Ed.),Cold Spring Harbour Laboratory Press, London, pps. 25-47, 1994.
16. Stevens, C.W. Relative analgesic potency of mu and kappa opioids in amphibians: a unique assay for kappa opioid action? In: Problems of Drug Dependence 1994, Harris, L.S., (Ed.), NIDA Research Monograph 152: 446, 1995.
17. Stevens, C.W., An amphibian model for pain research, Lab Animal: 24: 32-36, 1995.
18. Stevens, C.W. An amphibian model for the assessment of opioid analgesia: systemic and spinal studies. Proc. International Narcotics Research Conference, Analgesia 1: 766-769, 1995.
19. Rothe-Skinner, K.S. and Stevens, C.W., Distribution of opioid-expressing neurons in the frog: an in situ hybridization study. Proc. International Narcotics Research Conference, Analgesia 1: 683-686, 1995.
20. Stevens, C.W. and Paul, D.J. Opioid analgesia after spinal administration in amphibians: binding and behavioral studies, In: Problems of Drug Dependence 1995, Harris, L.S., (Ed.), NIDA Research Mon., 162: p 222, 1996.
21. Stevens, C.W. An alternative model for testing opioid analgesics and pain research using amphibians, In: van Zutphen, L.F.M., and Balls, M. (eds) Animal Alternatives, Welfare and Ethics, Elsevier Science Publishers, Amsterdam, pp. 247-251, 1997
22. Stevens, C.W. and Willenbring, S., Pain sensation and analgesia in amphibians and reptiles, In: The Biology, Husbandry and Health Care of Reptiles and Amphibians Vols. I,II,III. Ackerman, L. (Ed.), T.F.H. Publications, Neptune City, New Jersey, pp. 309-324, 1997.
23. Stevens, C.W., A whole-animal, alternative model for pain research. Animal Welfare Information Center (AWIC) Newsletter, Volume 8: 3-5, 1998.
24. Stevens, C.W., An amphibian model for investigation of opioid analgesia and pain-processing. In: Proceedings of the Mayday Conference: A Cross-Species Approach to Pain and Analgesia - 2002, Ludders J.W., Paul-Murphy J., Robertson S., Gaynor J., Hellyer P.W., Wong P. and Barakatt C. (Eds.). International Veterinary Information Service, Ithaca NY (www.ivis.org), 2002; P0512.1202.
25. Stevens, C.W., Opioid research in amphibians: a unique perspective on mechanisms of opioid analgesia and the evolution of opioid receptors. Reviews in Analgesia 7: 69-82, 2003.
26. Stevens, C.W., Opioid research in amphibians: an alternative pain model yielding insights on the evolution of opioid receptors. Brain Res Brain Res Rev. 46:204-15, 2004.
27. Stevens, C.W., Molecular evolution of vertebrate opioid receptor proteins: a preview. In: Recent Developments in Pain Research, 2005, pps. 13-29, Ed. Capasso, A., Research Signpost, Kerala, India, 2005.
28. Brenner, G.M. and Stevens, C.W., Pharmacology, 2/e. Pharmacology textbook for medical and health professional students, Saunders/Elsevier, Philadelphia/London, March, 2006.
29. Stevens, C.W. Opioid analgesia research in amphibians: from behavioral assay to cloning opioid receptor genes. Proceedings of the Annual Conference of the Association of Reptilian and Amphibian Veterinarians 13: 9-15, 2006.
30. Stevens, C.W., Non-Mammalian Models for the Study of Pain, in Sourcebook of Models for Biomedical Research, Ed. Conn, M, Humana Press, Towata, NJ, USA, pp. 341-352, 2008.

BOOKS, BOOK CHAPTERS, REVIEWS & CONFERENCE PROCEEDINGS (CONT.)

31. Stevens, C.W., The evolution of vertebrate opioid receptors, Frontiers in Bioscience, 14: 1247-1269, 2009.
32. Brenner, G.M. and Stevens, C.W., Pharmacology, 3/e. Pharmacology textbook for medical and health professional students, Saunders/Elsevier, Philadelphia/London, February, 2009.
33. Stevens, C.W. Alternative Models for Pain Research: A Translational, Non-Mammalian Model with an Ethical Advantage, in Translational Neuroscience and its Advancement of Animal Research Ethics, Eds. Warnick, J.E. and Kalueff, A.V., Nova Science Publishers, New York, NY, USA, 2009
34. Stevens, C.W. (Editor) Newest Methods in G Protein-Coupled Receptor Research, a book volume in the series Neuromethods, Springer-Verlag Publishers, Heidelberg, Germany (in preparation) 2010

GRANT STUDY SECTIONS

Reviewer for NIH grants, Special Emphasis Pain Study Sections (1998-present)
Grant consultant for the AAAS, Univ of Michigan, Centers of Research Excellence project (2003)
Grant Reviewer for National Science Foundation (1996-2002)
Grant Reviewer for the Veterans Administration (1995- present)
Chair (1999), Member (1997) Biological Sciences Panel, Texas State Granting Program-Advanced Research Proposals
Grant Reviewer (2008) for Neuroscience and Mental Health Grants, The Wellcome Trust

EDITORIAL & ADVISORY BOARDS/PEER-REVIEWER FOR THE FOLLOWING SCIENTIFIC JOURNALS

Peer-Reviwer for:J. Pharmacol. Exp. Ther., Brain Research, Life Sciences, Neuroscience Letters, Eur. J. Pharmacology, J. Neuroscience, Pain, American Journal of Physiology, Journal of Pain
Editorial Advisory Board, Pharmacology Online (Italy), Editor: Anna Capasso.
Editorial Advisory Board, Computational Biology and Chemistry: Advances and Applications, Editor: Bruno Villoutreix
Advisory Board Member, Tobacco-Free Zone, Tulsa, OK
Consultant, Reuters News Service, Insight Service

LITIGATION CONSULTANT/EXPERT WITNESS

Researched, wrote litigation report, and testified in Federal Circuit Court on the classification of opioids and other CNS depressants with regard to federal mandatory drug sentencing guidelines while working as consultant for Monroe and Associates, Tulsa, OK.
Researched and wrote litigation report on antihistamines for Riggs, Abney, Neal, Turpen, Orbison & Lewis, P.C., Tulsa, OK.
Researched, wrote litigation report, and was deposed on zolpidem adverse effects in the elderly for Pinkerton & Finn, Tulsa, OK.
Researched, wrote report, and testified in preliminary hearing and in jury trail on tramadol effects for the DA, LeFlore Co., Poteau, OK.
Researched and wrote litigation report on venlafaxine and zolpidem for the DA's office, Le Flore County, Poteau, OK.
Researched and wrote litigation report on pain medications for Sneed Lang, P.C., Tulsa, OK.
Researched and consulted on marijunana intoxification for Brewster & De Angelis, P.L.L.C., Tulsa, OK
Researched, wrote litigation report, and testified in court on alcohol neurotoxicity for Benjamin Faulkner law firm, Tulsa, OK
Researched, wrote litigation report on venlafaxine and effects on driving for DA's office, Le Flore County, Poteau, OK.
Researched, wrote litigation report on alprazolam and alcohol and behavioral disinihibtion for Kurt Glassco Law Firm, Tulsa, OK
Researched, was deposed, and testified in court on CNS effects of oxycontin for Matt Devlin Law Firm, Stillwater, OK
Researched, wrote report, and testified in court on propoxyphene and zolpidem use on driving, DA's Office, LeFlore County, OK
Researched, wrote report, and testified in court on impact of morphine, lorazepam, diphenhydramine, oxycodone, and risperidone administration with regard to subsequent police interview and waiving of rights, Martin Law Firm, Tulsa, OK

COMPUTER CONSULTING

SigmaPlot for Windows, β-tester, Jandel Scientific, CA., 1992-1999.
Reference Manager for Windows, β-tester, Research Information Systems, Inc., CA., 1993-1999.
Institute for Scientific Information (ISI), focus group meeting, San Francisco, CA, April, 1998.
Knowledge Acquisition Consultant for Ingenuity.com (2001).
β-tester for JPET Online Review and Submission website, (2001)

COMMUNITY SCIENCE INITIATIVES

Science Fair Judge at School (Carver and Elliot) and Regional (Tulsa County) Level, 1990-present
Institutional Representative for the Tulsa Biological and Clinical Research Alliance (TBCRA), 1998-2001
Science Enrichment for University of Tulsa- Gifted School, 1998-present, also at Trinity Episcopalian Day School.
Faculty Participant in High School Ambassador Program at OSU-CHS, 1994-2000
Workshop participant in "Speaking out for Science", sponsored by AAAS, March 28, 2009.
Member, Oklahomans for Excellence in Science Education.

VISITING SCIENTIST/RESEARCH CONSULTANT/OUTSIDE COLLABORATION

1994 Laboratory of Tony L. Yaksh, Ph.D., Vice Chair for Research, Dept. of Anesthesiology, UCSD, La Jolla, CA. Project entailed characterization of met-enkephalin extended sequences in Rana pipiens and presentation to research group.
1996 Laboratory of George Wilcox, Ph.D., Professor of Pharmacology, University of Minnesota Medical School, Minneapolis, MN. Training of intrathecal catheterization to research group and general lab QC.
1999 Laboratory of Howard Gutstein, M.D./Ph.D., Director of Research, Dept. of Anesthesiology, MD Anderson Cancer Center, Houston, TX. Training of intrathecal catheterization and analgesic modeling techniques to research group.
2000 Research consultant for Ligand Pharmaceuticals, San Diego, CA.
2000 Laboratory of Dr. Sandra Roerig, Professor of Pharmacology/Associate Dean for Research, LSU Medical Center, Shreveport, LA. Training of intrathecal catheterization and analgesic modeling techniques to research group.
2000 Laboratory of Dr. James Zadina, Professor of Pharmacology/ Director of Neurosciences Program, Tulane University School of Medicine, New Orleans, LA. Training of intrathecal catheterization to research group.
2001 Visiting Professor, Neuroscience Lab Course, Dr. George Wilcox, co-director, University of Minnesota Neuroscience Program. Amphibian model for testing analgesics used in a live laboratory course (also subsequent years).
2001 Laboratory of Ken McCarson, Ph.D., Associate Professor of Pharmacology, University of Kansas Medical Center, Kansas City, KS. Training and collaboration on vanilloid-like receptor function in Rana pipiens.
2002 Laboratory of Paul Prather, Ph.D., Associate Professor of Pharmacology. University of Arkansas for Medical Sciences, Little Rock, AR. Collaboration on transfection of frog opioid receptors in cell lines.
2002 Visiting Professor, Dept. of Neuroscience, University of Minnesota Medical School, March 12-14, 2002.
2003 Visiting Professor, Dept. of Neuroscience, University of Minnesota Medical School, April 8 to 10, 2003.
2003 Visiting Professor, Dept. of Medicinal Chemistry, University of Mississippi, Oxford. MI, May 7-9, 2003.
2004 Visiting Professor, Dept. of Neuroscience, University of Minnesota Medical School, April 12-15, 2004.
2005 Visiting Professor, Dept. of Neuroscience, University of Minnesota Medical School, April 11-13, 2005.

INVITED TALKS/SEMINARS/KEYNOTE PRESENTATIONS

1. "Opioid antinociception in amphibians", Satellite Symposium: Behavioral Biology of Nociception: Comparative, Developmental, and Sexual Aspect, Society for Neuroscience, New Orleans, LA, November, 1987.
2. "An amphibian model for the assessment of opioid action", Annual Meeting of the College on Problems in Drug Dependence (CPDD), Richmond, VA, June, 1989.
3. "Alternatives to the use of mammals for pain research", OSU College of Veterinary Sciences, Annual Research Symposium, Stillwater OK, May 1991.
4. "An amphibian model for pain research", Northeastern State University, Science and Technology Seminar Series, Tahlequah OK, October, 1991.
5. "An amphibian model for pain research", Children's Medical Center, Chapman Research Institute Seminar Series, Tulsa OK, November, 1991.
6. "An amphibian model for pain research", Oklahoma State University, Dept. of Zoology Seminar Series, Stillwater OK, January, 1992.
7. "Alternatives to the use of mammals for opioid research", OSU College of Veterinary Sciences, Annual Research Symposium, Stillwater OK, May 1992.
8. "An amphibian pain model for opioid research", University of Tulsa Biology Department Colloquium, Tulsa, OK, September 1992.
9. "An amphibian pain model for opioid research", University of Oklahoma Health Sciences Center, Dept. of Anatomy, Oklahoma City, OK, October, 1992.
10. "Studies of opioid tolerance in an amphibian pain model", 1st Annual Young Investigators Symposium, College on Problems in Drug Dependence (CPDD), Toronto, June, 1993.
11. " Relative analgesic potency of mu and kappa opioids in amphibians: a unique assay for kappa opioid action?" , College on Problems of Drug Dependence (CPDD), Palm Beach, FL, 1994.
12. "An amphibian pain model for opioid research", UCSD, Anesthesiology Research Lab Group, April, 1994.
13. " An amphibian model for pain research" , Pharmacology Dept., LSU Med Center, New Orleans, 9/27/94.
14. "Alternatives to the use of mammals for pain research", NIH/OPPR/LSU sponsored workshop, New Orleans, September 29-30, 1994.
15. " Alternatives to the use of mammals for pain research: an amphibian model" , SCAW/CCAC Conference, Toronto, Canada, September 28, 1995.
16. " An amphibian model for studies of opioid action" , University of Minnesota Medical School, Dept. of Pharmacology Seminar Series, Minneapolis, MN, January 19, 1996.
17. " An alternative model for testing of opioid analgesics and pain research using amphibians" , 2nd World Congress on Alternatives and Animal Use in the Life Sciences, Utrecht, Netherlands, October 21, 1996.
18. " From Pond to Pain: An Amphibian Model for Opioid Analgesia" , Anatomy/Physiology Seminar Series, University of Oklahoma Health Sciences Center, Oklahoma City, OK, May 20, 1997.

INVITED TALKS/SEMINARS/KEYNOTE PRESENTATIONS (CONT.)

19. " From Pond to Pain: An Amphibian Model for Opioid Analgesia" , invited Symposium speaker, Annual Meeting of the Midwest Pain Interest Group (PIG), Medical College of Wisconsin, Milwaukee, WI, June 6, 1997.
20. " Studies of selective mu opioid antagonism after spinal administration of beta-FNA in amphibians" , invited Symposium speaker, College on Drug Dependence (CPDD) Annual Meeting, Nashville, TN, June 16, 1997.
21. " The unireceptor hypothesis of opioid antinociception in amphibians: implications for the evolution of opioid receptors" , invited Symposium speaker, International Narcotics Research Conference (INRC), Munich, Germany, July 20-25, 1998.
22. " An Amphibian Whole-Animal Alternative for the Study of Pain" , invited participant for symposium, All Creatures Weird and Wonderful: Revolutionary Approaches to Medical Discovery, AAAS Meeting, Anaheim, CA, Jan, 23, 1999.
23. " Perspectives on Opioid Tolerance from Basic Research" , MD Anderson- University of Texas Medical Center, Dept. of Anesthesiology and Critical Care, Houston, TX, November 18, 1999.
24. " An Alternative Model for Pain and Analgesia Research Using Amphibians" , invited Symposium speaker, Scientists Center for Animal Welfare (SCAW), Spring Meeting, Baltimore, MD, May 19, 2000.
25. " From Pond to Pain: Investigating Mechanisms of Opioid Analgesia Using Amphibians" , OSU, Zoology, Stillwater, OK, 9/22/00.
26. " Investigating Mechanisms of Opioid Analgesia in Amphibians" , LSU-Medical Center, Dept. of Pharmacology, Shreveport, LA, December 5, 2000.
27. " An Amphibian Model for the Study of Opioid Analgesics" , University of Kansas Medical Center, Dept. of Pharmacology, Toxicology and Therapeutics, Kansas City, KS, September 11, 2001 (re-scheduled and presented on December 11, 2001).
28. " An Amphibian Model for Analgesia Testing" , Univ. of Oklahoma Dental School, Student Research Society Annual Banquet, Myriad Convention Center, Oklahoma City, OK, April 12, 2002.
29. " Mechanisms of Opioid Analgesia in Amphibians" , Dept. of Neuroscience, Univ. of MN, Minneapolis, MN, April 16, 2002.
30. " An Amphibian Model for Investigation of Opioid Analgesia and Pain-processing" , at the Cross-Species Approach to Pain and Analgesia conference, sponsor: Mayday Fund, Airlie Conference Center, Warenton, VA, Sept. 19, 2002.
31. " An Amphibian Model for Opioid Research" , Dept. of Pharmacology and Toxicology, University of Arkansas for Medical Sciences, Little Rock, AR, October 16, 2002.
32. " Opioid research using amphibians and the evolution of opioid receptors" , Dept. of Medicinal Chemistry, University of Mississippi, Oxford. MI, May 8, 2003.
33. " Opioid research using amphibians and the evolution of opioid receptors" , invited Symposium speaker, British Society for Experimental Biology, Edinburgh, Scotland, April 2, 2004.
34. " Opioid research using amphibians and the evolution of opioid receptors" , invited Symposium speaker, European Opioid Conference, Budapest, Hungary, April 8, 2004.
35. " Opioid research using amphibians: a unique perspective on the evolution of vertebrate opioid receptors" , Seminar for the Center for Pain Research, University of Minnesota, Minneapolis, MN, April 15, 2004.
36. "An Evolutionary Approach to Understanding Vertebrate Opioid Rceptors", Veterinary Biomedical Sciences Seminar Series, OSU-College of Veterinary Medicine, Stillwater, OK, January 27, 2005.
37. " Opioid research using amphibians: An Evolutionary Approach to Understanding Vertebrate Opioid Receptors" , Seminar for the Department of Neuroscience, University of Minnesota Medical School, Minneapolis, MN, April 12, 2005.
38. " Opioid analgesia research in amphibians: from behavioral assay to cloning opioid receptor genes" , Keynote speaker, Annual meeting of the Association of Reptile and Amphibian Veterinarians, Baltimore, MD, April 23-26, 2006
39. " Insights on the Molecular Evolution of Vertebrate Opioid Receptors: From Frog to Man", Physiology Seminar Series, University of Oklahoma Health Sciences Center, Oklahoma City, OK, January 25, 2007.
40. "Evolution of opioid receptors: why the mu opioid receptor would make Darwin proud" INRC Annual Meeting, Charleston, SC, USA, July 15, 2008.
41. "Evolution of Opioid Receptors: Why the Mu Opioid Receptor Would Make Darwin Proud", Veterinary Biomedical Sciences Seminar Series, OSU-Center for Veterinary Medical Sciences, OSU-Stillwater, Stillwater, OK, March 5, 2009.
42. "Evolution of Opioid Receptors", AAAS-SWARM Meeting, Tulsa, OK, March 30, 2009.

SCIENTIFIC PRESS

1. Stevens, C.W., "No Pain, Some Gain: A New Model for Neuropathic Pain", Journal of NIH Research, News Note, May, 1990, p.33.
2. Stevens, C.W., "Funding for Young Investigators", Letters to the Editor, Science, Vol. 255, p. 142, 1992.
3. Stevens, C.W., Response to "Letters from the Editor", Lab Animal, Vol. 25, p. 42, 1996.
4. Stevens, C.W.; Response to Protocol Review Column, Lab Animal, Vol. 26, p 23-24, October, 1997.
5. Stevens, C.W., "Evolution and Faith: Empathy Is Misplaced", Letters to the Editor, Science, Vol. 320, p. 745, 9 May 2008.

MEDIA ARTICLES/INTERVIEWS/PRESS CONFERENCES

1. "Northern grass frog helps Tulsan gig research grants", Tulsa World Newspaper, August 21, 1992.
2. "Research Grants", op-ed page, Tulsa World Newspaper, September 7, 1992 (Animal rights response).
3. "Get Priorities Straight", op-ed page, Tulsa World Newspaper, September 20, 1992. (support of research)
4. "Animal Research Needed", op-ed page, Tulsa World Newspaper, September 20, 1992. (support)
5. "Who Suffers? Children or the Frogs?", op-ed page, Tulsa World Newspaper, September 27, 1992. (support)
6. "The Frogman", Tulsa People Magazine, March, 1994. (profile)
7. " Success by Six" Interview on brain activity in children, KGRH, Tulsa 6pm Evening News, August 10, 1996
8. " State's Share of Funds Short, Researchers Say" , interviewed & (mis)quoted, The Daily Oklahoman, January 11, 1999.
9. " State's Research Fund Malnourished" , interviewed & (mis)quoted, Tulsa World, Jan. 15, 1999, p A10
10. " All Creatures Weird and Wonderful: Revolutionary Approaches to Medical Discovery" , Press Conference, American Association for the Advancement of Sciences (AAAS) Anaheim, CA, Jan 23, 1999.
11. "Research Report", radio interview for Radio Netherlands, Jan 23, 1999.
12. " Animals Hold Key to Cures: Medical Science Plumbs Secrets of Scorpions, Fish, Frogs" SF Examiner, Jan. 25, 1999.
13. " What will ease the pain? Ask a frog" , Science News, Vol. 155, p. 91, February 6, 1999.
14. " Painful Choices" , New Scientist Online Conference Reports, Feb. 6, 1999.
15. " Notebook: Frog Simplicity" , The Scientist, Vol. 13 (4), p. 32, February 15, 1999.
16. " Suffer the little amphibians" , The London Times- Higher Education Supplement, Issue 1379, pp. 22-23, April 9, 1999.
17. " Heat, Some Medicines Don't Mix" , Tulsa World Newspaper, p A-9, August 4, 1999.
18. " OSU grant allows pain medicine study" , The Daily Oklahoman, p. 3-B, August 27, 2001
19. " Research frogs may lead to medical leaps and bounds" , The Tulsa World, Sept. 5, 2001.
20. " OSU researchers to study pain relief" , The Tulsa World, p. D-7, Aug. 22, 2002.
21. " Of Frogs and Pain – Weird Lab Recognized" , Tulsa Business Journal, Vol 12 (#36), p. 10, Sept 6-12, 2002.
22. " Oklahoma Innovations Radio Show" , invited guest to talk about OSU-CHS and OCAST-funded research, 3/4/03.
23. " Oklahoma Scientists and the Human Genome" , article about the Stevens' lab, Oklahoma Magazine, Oct. , 2003.
24. " OSU Professor Receives Grant" , The Daily O'Collegian, OSU Newspaper, September 8, 2004.
25. " The Other O.C. (Oxycontin)" , The Tulsa World Newspaper, Feb, 17, 2005, D-1 (cont. D-6). CWS is the " voice of reason" .
26. "Do Boiling Lobsters Feel Pain?" interviewed for ABC news special series on pain, May 10, 2005. Available at: http://abcnews.go.com/Health/PainManagement/story?id=722163
27. " Tough times add to panic, anxiety disorders", Tulsa World Newspaper interview, D-3, April 2, 2009.
28. "Take pains to excercise", Tulsa World Newspaper interview, D-3, July 18, 2009.

CONFERENCE ABSTRACTS

1. Stevens, C.W. and Pezalla, P.D., Antinociceptive activity of intraspinal morphine and naloxone attenuation in Rana pipiens, Chicago Chapter Soc. Neuroscience, 1983.
2. Stevens, C.W. and Pezalla, P.D., Dextrorphan analgesia in Rana pipiens, Committee on Neuroscience, University of Illinois, 1984.
3. Pezalla, P.D., Stevens, C.W. and Dicig, M., Opioid and non-opioid pain control systems in an amphibian, Chicago Chapter Society for Neuroscience (SFN), 1984.
4. Stevens, C.W. and Yaksh, T.L., Is intrathecal dynorphin A a kappa ligand in rats ?, Society for Neuroscience (SFN) Dallas, Texas, Oct. 20-25, 1985.
5. Stevens, C.W. and Yaksh, T.L., Studies of opiate tolerance in spinal catheterized rats, Society for Neuroscience (SFN) Washington, DC, Nov. 9-14, 1986.
6. Stevens, C.W. and Yaksh, T.L., Time course of tolerance development in rat spinal cord, American Society of Pharmacology and Experimental Therapeutics (ASPET), Honolulu, HA, 1987.
7. Stevens, C.W. and Yaksh, T.L., Time course of tolerance development to antinociceptive agents in rat spinal cord, Society for Neuroscience (SFN), New Orleans, Louisiana, Nov. 16-21, 1987.
8. Morón, M.A., Yaksh, T.L., and Stevens, C.W., Further studies on the anticonvulsant activity of nimodipine. Workshop: Pre-clinical Studies with Nimodipine. Miles Pharmaceutical, 1988.
9. Morón, M.A., Yaksh, T.L., and Stevens, C.W. The anti-epileptic activity of eight dihydropyridine calcium channel antagonists: mechanism of action. American Society of Pharmacology and Experimental Therapeutics (ASPET) 1988.
10. Morón, M.A., Yaksh, T.L., and Stevens, C.W., Diltiazem enhances and flunarizine suppresses nimodipine's anti-epileptic actions: a reflection of allosteric binding interactions at the dihydropyridine binding site?, Society for Neuroscience (SFN) Toronto, Canada, Nov. 13-18, 1988.
11. Sabbe, M., Yanez-Gonzalez, A., Stevens, C.W., and Yaksh, T.L., Society for Neuroscience (SFN) Toronto, Canada, Nov. 13-18, 1988.
12. Sosnowski, M., Stevens, C.W., and Yaksh, T.L., Effects of intrathecal adenosine receptor agonists on the nociceptive, motor, and bladder function in the rat, Society for Neuroscience (SFN) Toronto, Canada, Nov. 13-18, 1988.

CONFERENCE ABSTRACTS (CONT.)

13. Stevens, C.W., and Yaksh, T.L., Infusion potency is inversely related to the magnitude of spinal antinociceptive tolerance, Society for Neuroscience (SFN) Toronto, Canada, Nov. 13-18, 1988.
14. Stevens, C.W., and Yaksh, T.L., Opioid dependence after continuous intrathecal infusion of mu and delta opioids in the rat. College on Problems of Drug Dependence (CPDD) 1989, Keystone, CO, USA, June 19-22, 1989.
15. Stevens, C.W., Kajander, K.C., Bennett, G.J., and Seybold, V.S., Analysis of mu, delta, and kappa opioid binding sites in the spinal cord of rats in a model of neuropathic pain. Society for Neuroscience (SFN) Phoenix, Arizona, Oct. 29-Nov. 3, 1989.
16. Stevens, C.W., Kajander, K.C., Bennett, G.J., and Seybold, V.S., Differential regulation of opioid binding sites in the spinal cord of rats in an experimental model of chronic pain. International Association for the Study of Pain (IASP) 1990.
17. Stevens, C.W. and Seybold, V.S., Distribution of mu, delta, and kappa opioid receptors in rat spinal cord after unilateral dorsal rhizotomy. Society for Neuroscience (SFN) St. Louis, Missouri, Oct. 28-Nov. 2, 1990.
18. Stevens, C.W., Spinal analgesia in frogs: studies with highly-selective opioid agents. American Society of Pharmacology and Experimental Therapeutics (ASPET), Atlanta, GA, USA, April 21-25, 1991.
19. Kirkendall, K. and Stevens, C.W., Studies of morphine tolerance in amphibians, Oklahoma Academy of Science Annual Meeting, Durant, OK, 1991.
20. Stevens, C.W., Spinal analgesia in frogs: studies with highly-selective opioid agents. Society for Neuroscience (SFN) New Orleans, Louisiana, Nov. 10-15, 1991.
21. Stevens, C.W., Relative potency of systemic opioids and morphine tolerance in an amphibian pain model. Joint meeting of International Narcotics Res. Comm. (INRC) and College on Problems of Drug Dependence (CPDD), Keystone, CO, 1992.
22. Stevens, C.W., and Klopp, A.J., Opioid analgesia after systemic administration of eight opioid agents in amphibians, Society for Neuroscience (SFN) Anaheim, California, Oct. 25-30, 1992.
23. Mitchell, M.A., Stevens, C.W., and Klopp, A.J., Sedative-induced analgesia in a non-mammalian vertebrate pain model, American Osteopathic Association Meeting, San Diego, CA, 1992.
24. Stevens, C.W., Brenner, G.M., Deason, L.L., and Klopp, A.J., Studies of opioid and alpha-2 analgesia and morphine tolerance in amphibians. Inaugural Symposium of the Oklahoma Center for Neuroscience, Oklahoma City, OK, 1992.
25. Stevens, C.W., Studies of morphine tolerance in an amphibian pain model. College on Problems of Drug Dependence (CPDD), Toronto, Canada, 1993.
26. Stevens, C.W., Opioid analgesia after systemic administration of eight opioid agents in amphibians, 7th World Congress, International Association for the Study of Pain (IASP), Paris, France, 1993.
27. Deason, L.L., Brenner, G.M., and Stevens, C.W., Alpha$_2$-analgesia after systemic administration of adrenergic agents in amphibians, Society for Neuroscience (SFN) Washington, DC, Nov. 7-12, 1993.
28. Stevens, C.W., Deason, L.L., and Brenner, G.M., Analgesic action of intraspinal adrenergic agents in amphibians, Society for Neuroscience (SFN) Washington, DC, Nov. 7-12, 1993.
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