UNITED STATES DEPARTMENT OF JUSTICE

DRUG ENFORCEMENT ADMINISTRATION

In the Matter of	**Docket No. 24-24**
Scheduling 2,5-Dimethoxy-4-chloroamphetamine and 2,5-Dimethoxy-4-iodoamphetamine	**ADMINISTRATIVE LAW JUDGE** **PAUL E. SOEFFING**

GOVERNMENT'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

The United States Department of Justice, Drug Enforcement Administration ("DEA" or "Government"), by and through its undersigned attorneys, hereby submits the following Proposed Findings of Fact and Conclusions of Law.

I. STATEMENT OF THE ISSUE

Whether the substances 2,5-Dimethoxy-4-chloroamphetamine (DOC) and 2,5-Dimethoxy-4-iodoamphetamine (DOI) should be placed into schedule I of the Controlled Substances Act (CSA) (21 U.S.C. § 801 *et seq.*).

II. RELEVANT STATUTORY AND REGULATORY PROVISIONS

In 1970, Congress enacted the Comprehensive Drug Abuse Prevention and Control Act, Pub. L. No. 91-513, 84 Stat. 1236. Title II of that enactment, known as the Controlled Substances Act (CSA), regulates the importation, manufacture, distribution, possession, and improper use of substances that have a detrimental effect on public health and welfare. *See* 21

U.S.C. § 801. It establishes five schedules of controlled substances, includes a list of substances initially placed on each schedule, and contemplates the periodic reevaluation of the initial lists and the addition of other substances to the schedules. *See* 21 U.S.C. § 812.

21 U.S.C. § 811(a) grants the Attorney General authority to add substances to the schedules of controlled substances through a rulemaking on the record pursuant to provisions of the Administrative Procedure Act, 5 U.S.C. §§ 553(c), 556, 557. Before initiating a rulemaking for the scheduling of a controlled substance, the Attorney General is required to receive the recommendation of the Secretary of Health and Human Services (HHS). 21 U.S.C. § 811(b). The Secretary's recommendations are controlling as to scientific and medical matters ("The recommendations of the Secretary to the Attorney General shall be binding on the Attorney General as to such scientific and medical matters…"). *Id*. A substance cannot be placed on any one of the schedules if the Secretary recommends against listing it. *Id*. Prior to making a determination as to whether a substance is listed as a controlled substance, the Attorney General and the Secretary of HHS must consider eight factors set forth in 21 U.S.C. § 811(c).

21 U.S.C. §811(c) requires:

> In making any finding under subsection (a) of this section or under subsection (b) of section 812 of this title, the Attorney General shall consider the following factors with respect to each drug or other substance proposed to be controlled or removed from the schedules:
>
> (1) Its actual or relative potential for abuse.
>
> (2) Scientific evidence of its pharmacological effect, if known.
>
> (3) The state of current scientific knowledge regarding the drug or other substance.

(4) Its history and current pattern of abuse.

(5) The scope, duration, and significance of abuse.

(6) What, if any, risk there is to the public health.

(7) Its psychic or physiological dependence liability.

(8) Whether the substance is an immediate precursor of a substance already controlled under this subchapter.

Id. "If the Attorney General determines that these facts and all other relevant data constitute substantial evidence of potential for abuse such as to warrant control … he shall initiate proceedings for control or removal, as the case may be, under subsection (a) of this section." *Id.*

Additionally, prior to placing a substance in any schedule, findings must be met prior to that placement. Specifically, with respect to the present action, 21 U.S.C. § 812(b) states:

> Except where control is required by the United States obligations under an international treaty, convention, or protocol, in effect on October 27, 1970, and except in the case of an immediate precursor, a drug or other substance may not be placed in any schedule unless the findings required for such schedule are made with respect to such drug or other substances. The findings required for each of the schedules are as follows: …
>
> (4) Schedule I. –
>
> (A) The drug or other substance has a high potential for abuse.
>
> (B) The drug or other substance has no currently accepted medical use in treatment in the United States.

> (C) There is a lack of accepted safety for use of the drug or other substances under medical supervision.

Id. Accordingly, to determine whether a substance has "currently accepted medical use in treatment in the United States," the DEA applies a five-part test. "(1)[t]he drug's chemistry must be known and reproducible; (2) there must be adequate safety studies; (3) there must be adequate and well-controlled studies proving efficacy; (4) the drug must be accepted by qualified experts; and (5) the scientific evidence must be widely available." *United States v. Green*, 222 F.Supp.3d 267, 271-72 (W.D.N.Y., 2016), *citing Alliance for Cannabis Therapeutics v. Drug Enforcement Administration*, 15 F.3d 1131, 1135 (D.C. Cir. 1994).

III. PLACEMENT OF DOC IN SCHEDULE I OF THE 1971 CONVENTION

On May 7, 2020, the Secretary-General of the United Nations advised the Secretary of State for the United States that the Commission on Narcotic Drugs (CND), during its 63rd Session in March 2020, voted to place DOC in Schedule I of the 1971 Convention on Psychotropic Substances (1971 Convention), February 21, 1971, 32 U.S.T.543, 1019 U.N.T.S. 175, as amended. Government Exhibit (GE) 9; *see also* Hearing Transcript at pp. 91-93 (Tr. 91-93). Procedures respecting changes in drug schedules under the 1971 Convention are governed domestically by 21 U.S.C. § 811(d)(2)-(4). As a signatory to this international treaty, the United States is required, by scheduling under the CSA, to place appropriate controls on DOC to meet the minimum requirements of the treaty. See *Schedules of Controlled Substances: Placement of 2,5-Dimethoxy-4-iodoamphetamine (DOI) and 2,5-Dimethoxy-4-chloroamphetamine (DOC) in Schedule I*, 88 Fed. Reg. 86278, 86280 (Dec. 13, 2023); GE 7A, p. 2.

IV. BINDING NATURE OF THE HEALTH AND HUMAN SERVICES' MEDICAL AND SCIENTIFIC FINDINGS ON THE DRUG ENFORCEMENT ADMINISTRATION

The medical and scientific findings of the Department of Health and Human Services are binding on the Drug Enforcement Administration. Specifically, the Attorney General is required to request the recommendation of the Secretary of Health and Human Services prior to initiating a rulemaking for scheduling a drug or other substance. 21 U.S.C. § 811(b). "The recommendations of the Secretary to the Attorney General shall be binding on the Attorney General as to such scientific and medical matters…" *Id*. "If the Attorney General determines that these facts and all other relevant data constitute substantial evidence of potential for abuse such as to warrant control … he shall initiate proceedings for control … under" 21 U.S.C. § 811(a). *Id*. Under this provision, a rule may not be "issued except on consideration of the whole record or those parts thereof citied by a party and supported by and in accordance with the reliable, probative, and substantial evidence." 5 U.S.C. § 556(d); *see also Schedules of Controlled Substances: Placement of Carisoprodol Into Schedule IV*, 76 Fed. Reg. 77330, 77334 (2011).

With respect to the present matter, DEA gathered the necessary data on DOC and DOI and on September 26, 2018, submitted it to the then-Assistant Secretary for Health for HHS a request for a scientific and medical evaluation of available information and a scheduling recommendation for DOC and DOI. (GE) 5. On September 28, 2020, HHS provided to DEA a scientific and medical evaluation entitled "Basis for the Recommendation to Control 2,5-Dimethoxy-4-iodoamphetamine (DOI) and 2,5-Dimethoxy-4-chloroamphetamine (DOC) and their Salts in Schedule I of the Controlled Substances Act (CSA)" and a scheduling recommendation. GE 6. Following considerations of the eight factors and findings related to

these substances' abuse potential, legitimate medical use, and dependance liability, HHS recommended that DOC and DOI and their salts be controlled in Schedule I of the CSA under 21 U.S.C. §812(b). *Id*., at pp. 2-15. In response, DEA reviewed the scientific and medical evaluation and scheduling recommendation provided by HHS and all other relevant data, and completed its own eight-factor review pursuant to 21 U.S.C. § 811(c). GE 7. After a review of the available data, including the scientific and medical evaluation and scheduling recommendation by HHS, the DEA Administrator published a Notice of Public Rulemaking (NPRM) in the Federal Register on April 11, 2022 (87 Fed. Reg. 21069) to place DOC and DOI in Schedule I of the CSA. DEA then withdrew the proposed rule on August 29, 2022 (87 Fed. Reg. 52712) and issued a superseding proposed rule in order to provide additional clarity on the process for submitting hearing requests. *See* 88 Fed. Reg. at 86281. Though the bases for the proposed placement of DOC and DOI in Schedule I remained the same, DEA updated its own eight-factor review pursuant to 21 U.S.C. § 811(c). GE 7A.

V. PROPOSED FINDINGS OF FACT

A. Background

1. On September 26, 2018, DEA submitted a request for a scientific and medical evaluation of available information and a scheduling recommendation for DOC and DOI to the then-Assistant Secretary for Health for HHS. GE 5, p.1; GE 6, p.2; 88 Fed. Reg. at 86280.
2. On May 7, 2020, the Secretary General of the United Nations advised the Secretary of State of the United States that the CND, during its 63rd Session in March 2020, voted to place DOC in Schedule I of the 1971 Convention. GE 9; 88 Fed. Reg. at 86280; Tr. 91-93.

3. As a signatory to the 1971 Convention, the United States is required by scheduling under the CSA, to place appropriate controlled on DOC to meet the minimum requirements of the treaty. 88 Fed. Reg. at 86280.[1]
4. On September 28, 2020, HHS provided to DEA a scientific and medical evaluation entitled "Basis for the Recommendation to Control 2,5-Dimethoxy-4-iodoamphetamine (DOI) and 2,5-Dimethoxy-4-chloroamphetamine (DOC) and their Salts in Schedule I of the Controlled Substances Act (CSA)" and a scheduling recommendation. *Id., see also* GE 6.
5. In that scientific and medical evaluation, HHS recommended that DOC and DOI and their salts be controlled in Schedule I of the CSA under 21 U.S.C. §812(b). GE 6 at pp. 2-15.
6. DEA reviewed the scientific and medical evaluation and scheduling recommendation provided by HHS and all other relevant data, and completed its own eight-factor review pursuant to 21 U.S.C. § 811(c). GE 7.
7. After a review of the available data, including the scientific and medical evaluation and scheduling recommendation by HHS, the DEA Administrator published a Notice of Public Rulemaking (NPRM) in the Federal Register on April 11, 2022 (87 Fed. Reg. 21069) to place DOC and DOI in Schedule I of the CSA. 88 Fed. Reg. at 86281.
8. DEA withdrew the proposed rule on August 29, 2022 (87 Fed. Reg. 52712) and issued a superseding proposed rule in order to provide additional clarity on the process for submitting hearing requests. *Id*.

[1] As explained by Dr. Theresa Carbonaro, the Government's expert, a substance placed in Schedule I of the 1971 Convention does not necessarily have to be placed in Schedule I of the CSA. However, because neither DOI nor DOC have a currently accepted medical use, "there is no other place to put other than Schedule I." Tr. 244.

9. DEA updated its own eight-factor review pursuant to 21 U.S.C. § 811(c). GE 7A.
10. On December 13, 2023, an NPRM was published in the Federal Register on behalf of DEA, proposing to place 2,5-Dimethoxy-4-chloroamphetamine (DOC) and 2,5-Dimethoxy-4-iodoamphetamine (DOI) into Schedule I of the CSA. GE 1, ¶ 3.
11. The NPRM permitted interested persons to file written comments on the proposed rulemaking electronically in in paper directly to DEA. GE 1, ¶ 3. The deadline for submitting written comments was January 12, 2024. *Id*., *see also* GE 2.
12. Approximately 151 electronic comments were submitted through the Federal eRulemaking Portal in response to the NPRM. One comment was submitted via mail. GE 1, § 5.
13. The comments were offered and admitted into the official hearing record. GE 3. (Tr. 43).

B. Factor One: DOC and DOI's actual or relative potential for abuse.

1. DEA DOI and DOC are analogs of the Schedule I hallucinogen 2,5-dimethoxy-4-methamphetamine (DOM)[2] and have similar effects as DOM. GE 7A, p. 5; Tr. 88-89.
2. Like DOM, DOI and DOC "work through the serotonin 2A receptors in the body. Tr. 89.
3. Hallucinogens, such as lysergic acid diethylamide (LSD)[3], psilocyn,[4] and DOM are a diverse group of natural and synthetic substances that alter perception, cognition, and mood. GE 7A, p. 2; Tr. 89-90.
4. The subjective effects of hallucinogens drive their abuse which can lead to a variety of adverse health effects, such as paranoia, agitation, depression, and violent outbursts

[2] DOM is a Schedule I controlled substance, also known as STP. 21 C.F.R. § 1308.11(d)(8).
[3] LSD is a Schedule I controlled substance. 21 C.F.R. § 1308.11(d)(22).
[4] Psilocyn is a Schedule I controlled substance. 21 C.F.R. § 1308.11(d)(30)

toward self and others. Intoxication and deaths associated with the abuse of hallucinogens have been reported. GE 7A, p. 2; Tr. 90.

5. Both DOI and DOC are Schedule I controlled substances in the State of Florida along with LSD, DOM, and psilocyn. Tr. 90; Fla. Stat. Ann. § 893.03(1)(c)(72)-(73) (2024).[5]
6. Both DOI and DOC are controlled substances in other countries, including Canada and the United Kingdom. Tr. 91.
7. DEA traditionally applies a four prong test (Prongs A-D) to assess the actual and relative potential for abuse: (a) There is evidence that individuals are taking the drug or other substances in amounts sufficient to create a hazard to their health or to the safety of other individuals or to the community; or (b) there is significant diversion of the drug or substance from legitimate drug channels; or (c) individuals are taking the substance on their own initiative rather than on the medical advice from a practitioner licensed by law to administer such substance; or (d) the drug is a new drug so related in its action to a drug or other substance already listed as having a potential for abuse to make it likely that the drug substance will have the same potential for abuse as such drugs, thus making it reasonable to assume that there may be significant diversion from legitimate channels, significant use contrary to or without medical advice, or that it has a substantial capability of creating hazards to the health of the user or to the safety of the community.[6] Tr. 95.
8. Based on HHS's evaluation (GE 6, pp. 2-15) and law enforcement seizures of DOI and DOC, there is evidence that individuals are taking the drug in amounts sufficient to create

[5] Florida defines a Schedule I controlled substance as "a substance in Schedule I [that] has a high potential for abuse and has no currently accepted medical use in treatment in the United States and in its use under medical supervision does not meet accepted safety standards." Fla. Stat. Ann. § 893(1).
[6] Comprehensive Drug Abuse Prevention Control Act of 1970, H.R. Rep. No. 91-1444; 91st Cong., Sess. 1 (1970), reprinted in U.S.C.C.A.N. 4566, 4601.

a hazard to their health or to the safety of other individuals or to the community. GE 7A, pp. 3-4; Tr. 96. (Prong A).

9. Public online forums and other anecdotal reports[7] indicate the types of doses of DOI and DOC which would "cause a strong psychoactive hallucinogenic effect." Tr. 160. (Prongs A and C).
10. According to a recently published post on the online site "Reddit," DOI was reported to be used in a "large group gathering" by "two to three hundred people." Tr. 172; GE 10, p. 2. That same thread includes a reference to DOI as "one of the compounds DEA is trying to place in Schedule I." *Id*. (Prong C).
11. Online posts are "often used to assess abuse liability" due to ethical concerns associated with giving drugs to "a human to ask them what the effects are without knowing how safe or effective it would be." Tr. 174; GE 18, p. 35.
12. HHS approves the use of post-market and illicit drug abuse data that includes "abuse-related information" obtained from "internet forums and social media sites through which drug experiences are reported and discussed." Tr. 402; GE 18, p. 35.
13. According to the Government's expert, DOI and DOC are "very potent" and a "small amount" could be very likely to cause significant harm. Tr. 159. (Prong C)
14. DOI and DOC have been encountered by law enforcement in the United States. GE 7A, p. 3. (Prongs A and C)
15. Based on HHS's evaluation and law enforcement seizure data, people are using DOI and DOC for non-medical purposes. Tr. 96, 98-99. (Prong C)

[7] Alexander Shulgin & Ann Shulgin, PIHKAL, A Chemical Love Story 627-28, 636-37 (1991). Alexander Shulgin, a medicinal chemist, synthesized both DOI and DOC and reported on their effects.

16. HHS has determined that consuming DOI and DOC due to their hallucinogenic properties creates a hazard to the user's health. GE 7A, p. 4. (Prong A).
17. DOI and DOC are currently available for purchase from legitimate chemical companies. GE 7A, p. 4; Tr. 97. (Prong B).
18. There are websites where DOI and DOC can be purchased for recreational use. Tr. 164. (Prong B).
19. The facts that (1) DOI and DOC have been found on blotter paper and (2) individuals are reporting the effects of DOI and DOC on online forums is indicative of DOI and DOC's recreational use. Tr. 164-65. (Prongs A and C).
20. Because neither DOI nor DOC are controlled substances, they are exempt from the CSA's closed system of distribution. TR. 97.
21. There are no clinical trials to suggest that either DOI or DOC have any medical utility. Tr. 98. (Prong C).
22. There is no evidence that it these substances are being diverted from legitimate medical channels or from legitimate medical research channels. GE 7A, p. 4, Tr. 97. (Prong B and C).
23. Individuals are taking DOI and DOC on their own initiative, rather than based on medical advice from a practitioner licensed by law to administer drugs. GE 7A, p. 4; Tr. 98. "This is consistent with law enforcement data and anecdotal reports indicating that DOI and DOC are available 'on the street" as illicit substances." GE 7A, p. 4; Tr. 99. (Prong C).
24. Because DOI and DOC have effects similar to LSD and 2,5-dimethoxy-4-bromoamphetamine (DOB),[8] individuals are using DOI and DOC on their own initiative

[8] DOB is a Schedule I controlled substance. 21 C.F.R. § 1308.11(d)(3).

rather than on the medical advice of a licensed practitioner, possibly because they are seeking hallucinogenic effects while attempting to avoid the legal consequences associated with Schedule I controlled substances. GE 7A, p. 4. (Prong C).

25. DOI and DOC are similar to other drugs with known abuse liabilities such as LSD and DOB. Tr. 99. (Prong D)
26. The effects and pharmacological action of DOI and DOC are similar to DOM and LSD, which have no accepted medical use and a high abuse potential. GE 7A, p. 6. (Prong D).
27. Like DOM, DOI and DOC produce hallucinogenic activity and have the same potential for the psychological and cardiovascular effects seen in other Schedule I hallucinogenic substances. Tr. 90, 101. (Prong D).
28. In drug discrimination studies,[9] which are used to assess drug abuse liability of test drugs in comparison to known drugs of abuse, DOI and DOC fully substituted for the discriminative stimulus effects of the Schedule I controlled substances DOM, LSD and N-*N*-dimethyltrypamine (DMT).[10] Tr. 102-03. (Prong D).
29. Drug discrimination is "essentially the gold standard for assessing abuse liability in hallucinogenic substances." Tr. 114. (Prong D).
30. Though "self administration studies" may be useful to assess abuse liability for some substances, "drugs that work for the serotonin 2A receptor," like DOI and DOC and other

[9] As Dr. Carbonaro explained; drug discrimination studies involve "different groups of rats" which are trained to learn how to discriminate known drugs of abuse versus saline. When given a drug, they learn to press a lever "based on the effects of those drugs." Tr. 101. In this case, the rats responded the same to DOI and DOC as they did to other known Schedule I hallucinogenic drugs of abuse, such as DOM and LSD. Tr. 101-03. But when given certain stimulants, the rats responded differently. Tr. 102-03. Despite extensive cross examination, Dr. Carbonaro testified unequivocally that drug discrimination is a "well-established paradigm" that can access a hallucinogen's "abuse potential." Tr. 186-87. Dr. Carbonaro further explained that drug discrimination studies have been used for over 30 years by the National Institute on Drug Abuse (NIDA) to assess abuse liability, as well as by the Food and Drug Administration (FDA) which has contracts with those who use drug discrimination to assess abuse liability. Tr. 188.

[10] DMT is a Schedule I controlled substances. 21 C.F.R. § 1308.11(d)(15).

Schedule I controlled hallucinogens, do not produce self-administration. Tr. 192-95, 393, 1221-22, 1229. (Prong D).

31. A drug may have abuse potential even if it does not cause addiction. Tr. Tr. 195. (Prong D).

32. In humans, anecdotal reports,[11] including online posts[12] suggest DOI and DOC produce "classic hallucinogenic effects similar to DOM, including visual and auditory hallucinations, fatigue, headache, gastrointestinal distress, insomnia, and anxiety." GE 7A, p. 5. Therefore, both substances produced "psychological harm to some degree." Tr. 103-04. (Prong D).

33. HHS reported that use of DOC in combination with other drugs was associated with emergency room admissions and one death. GE 7A, p. 5; Tr. 105-06. (Prong D).

34. Because DOI and DOC have a similar mechanism of action to Schedule I controlled substances DOM, DOB, LSD, and DMT, both DOI and DOC are "likely to be abused" and can "create hazard to the health of the user or safety of the community." GE 7A, p. 5; Tr. 106, 142-44. (Prong D).

35. DOI is also structurally similar to the "2C series of substances" which are Schedule I controlled substances. Tr. 239. A drug identified as 2C-B, also known as "pink cocaine," was recently associated with the death of a noted singer and celebrity. Tr. 395-96.

36. The term "new drug" as applied in Prong D is "relative" and refers to a "new drug of concern" rather than a newly discovered substance. Tr. 179. (Prong D).[13]

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[11] *See* Shulgin & Shulgin*, supra* 627-28, 633-37; Tr. 104-05, 115.

[12] *See* erowid,org/library/books_online/pihkal/pihkal067.shtml (DOI) and erowid,org/library/books_online/pihkal/pihkal064.shtml (DOC).

[13] As the Government's expert pointed out, the term "new" is also used for drugs "that have been around for decades and are now being tested for medical use." Tr. 180. The same terminology is also used by HHS. *Id*., at 182.

37. If people are using DOI and DOC "intentionally for hallucinogenic effects," this is evidence of abuse. Tr. 273.

C. Factor Two: Scientific evidence of DOI and DOC's pharmacological effects, if known.

1. There is adequate scientific evidence of DOI and DOC's pharmacological effects, including the ability to produce hallucinations. Tr. 143.
2. Both DOI and DOC produce pharmacological effects similar to DOM, LSD, and DMT. Tr. 143-44.
3. The neurochemical effects of DOI and DOC occur primarily through the serotonergic system in the brain. GE 7A, p. 6.
4. Hallucinogens are believed to produce their characteristic effects primarily through stimulations of the serotonin 2A receptors. GE 7A, p. 6.
5. In cell (*in vitro*) studies, DOI and DOC bind to the serotonin 2A receptor and have agonist effects. Tr. 107.
6. After evaluating the central nervous system effects of DOI and DOC, HHS concluded that DOI and DOC are similar to those of the Schedule I hallucinogen, DOM. GE 7A, p. 5-6; Tr. 108-10.
7. The administration of DOI in animals produces "overt behavioral effects" such as increased "wet dog shakes and back muscle contraction." GE 7A, p. 6. Such behavioral effects are induced by activating the serotonin 2A receptor and suggest that DOI has hallucinogenic effects. GE 7A, p. 6; Tr. 110-12.
8. In drug discrimination studies with rats trained to discriminate the stimulus effects of DOM, LSD, or DMT; DOI and DOC fully substituted for all three Schedule I controlled substances. GE 7A, p. 7; Tr. 112.

9. When rats were trained to discriminate the stimulus effects of DOI; DOM, DOB, LSD, and DMT fully substituted for DOI, thus showing cross substitution for DOI and other Schedule I controlled substances. GE 7A, p. 7, Tr. 112-14.

10. Conversely, DOI did not substitute for amphetamine or methamphetamine, but partially substituted for MDMA[14] or ecstasy. Tr. 113. Partial substitution is "still considered to have some abuse potential." *Id.*

11. In terms of pharmacological effects noted in humans, DOI is reported as "probably the most potent of the phenethylamine psychedelics … and certainly one of the most long lived." GE 7A, p. 8, see also www.erowid.org/library/books_online/pihkal/pihkal067.shtml, *quoting* Shulgin & Shulgin, *supra*, at 633-37. DOC is reported as creating "visuals" and "interpretive problems with knowing just where you really are." GE 7A, p. 8, *see also* www.erowid.org/library/books_online/pihkal/pihkal064.shtml, GE 7A, p. 8.

12. The effects of DOI can last longer than 24 hours depending on the dose and route of administration. Tr. 115, 401. Unlike opioids, there is no antagonist to block the effects of hallucinogens like DOI and DOC. Tr. 115-16.

13. According to HHS, recreational drug users of DOI and DOC report that the substances "induce hallucinogenic effects, including prominent visual effects." GE 7A, p. 8.

14. The effects of DOI, according to the World Health Organization (WHO), may last 12 to 24 hours. GE 7A, p. 8. WHO also reports that the long duration of DOC's effects is shared by structurally related hallucinogens including DOI, DOB, and DOM. *Id.*; Tr. 117.

[14] MDMA is another Schedule I controlled substances. 21 C.F.R. § 1308.11(d)(11).

15. WHO further reports that DOC is commonly administered orally in the form of blotters. GE 7A, p. 98. Blotters are pieces of paper on which a drug is saturated and then cut up to create individual doses. According to the Government's expert, blotters are traditionally a delivery method for illegitimate drugs and not drugs approved for medical use. Tr. 130-3.

D. Factor Three: The state of current scientific knowledge regarding DOI and DOC.

1. DOI and DOC both have a well known chemistry that has been synthesized. Tr. 118.
2. As demonstrated by the Government's expert, DOI is structurally similar to DOM. Tr. 119-22, 144. GE 7A, p. 9.
3. There are no approved medical drug products that contain either DOI or DOC. Tr. 123, 144.
4. There are no investigational new drugs (INDs) containing DOI or DOC. Tr. 123-25. An IND is necessary to obtain FDA approval to study a drug for "clinical implications. Tr. 124.
5. There are no "new drug applications" (NDAs) for DOI or DOC. Tr. 124-25. A new drug application is necessary when a drug is going through the approval process for human use.

E. Factor Four: DOI and DOC's history and current pattern of abuse.

1. Based on data from National Forensic Laboratory Information System (NFLIS),[15] DOI and DOC have been seized and encountered by law enforcement since 2005. GE 7A, p. 9; Tr. 126.

[15] NFLIS is a drug database that collects data about drugs specific to law enforcement seizures and encounters. The data is provided on a voluntary basis by state, local, and federal drug laboratories. Tr. 86-87. The data consists only of "confirmed positive[s]" of drugs which are seized or encountered by law enforcement agencies. Tr. 86.

2. According to anecdotal evidence, individuals are using substances identified as DOI and DOC for their hallucinogenic effects, not for any legitimate medical purpose. GE 7A, p. 9;[16] Tr. 128.
3. DOI and DOC have been encountered in the following forms: powder, tablets, capsules, liquid, and blotter paper. GE 7A, p. 9.
4. With one exception, the Government's expert found no instances where DOI is being taken for a medicinal effect. Tr. 127-28.
5. Animal drug discrimination test results support the inference that DOI and DOC are being abused because they have similar effects to DOM, LSD, and DMT. GE 7A, pp. 9-10; Tr. 128, 145.
6. DOM, LSD, and DMT have a history and pattern of abuse. Tr. 145.
7. WHO reports that DOC has been available in Europe since 2001. GE 7A, p. 10.
8. The United Nations Office on Drugs and Crime (UNODC) reported 16 non-fatal intoxications involving DOC between 2008 and 2017. GE 7A., p. 10.

F. Factor Five: The scope, duration, and significance of abuse.

1. According to NFLIS, since 2005, law enforcement has encountered DOI on 40 different occasions in 15 different states. GE 7A, p. 10;[17] GE 8.[18]
2. According to NFLIS, since 2005, law enforcement has encountered DOC on 790 occasions in 39 different states. GE 7A, p. 10, GE 8.[19]

[16] *See* www.erowid.org/chemicalc/doi/doi.shtml and www.erowid.org/chemcials/doc/doc.shtml.
[17] As explained by the Government's expert, an encounter consists of a drug seizure following by a positive lab result. Tr. 129-30.
[18] GE 8, p. 1 is a chart created by DEA to reflect the total number of known law enforcement encounters of DOI (40) recorded by NFLIS from 2005 through a portion of 2023. Tr. 137-39.
[19] GE 8, p. 2 is a chart created by DEA to reflect the total number of known law enforcement encounters of DOC (790) recorded by NFLIS from 2005 through a portion of 2023. Tr. 137-39.

3. Because NFLIS is a voluntary system and the types of drugs that are tested and confirmed are based on lab priorities, the absence of reports involving DOI between 2019 and 2024 does not necessarily mean "they're not there." Tr. 167.[20]
4. Generally, because DOI and DOC are non-controlled drugs, "it is very likely these numbers [of reported seizures] are under-reported" and reports of seizures of DOI and DOC would likely increase if both drugs were controlled. Tr. 168, 394-95.
5. According to a DEA Microgram Bulletin in November 2006, the DEA North Central Laboratory in Chicago, Illinois, received a variety of substances in various forms, some marked DOI, DOB, or DOC, which were seized at a residence in Berkley, Michigan. Analysis of the liquid marked DOI indicated it was DOC. Analysis of the white powder[21] marked DOB indicated it was DOI. Analysis of the off-white crystals/solid chunks indicated it was DOC. GE 11, p. 5; see also Tr. 132-33.
4. According to a DEA Microgram Bulletin in September 2007, the DEA North Central Laboratory in Chicago received a liquid purported to contain DOB that was seized by agents from the DEA Madison Resident Office. Analysis of the liquid determined that it was DOI. GE 12, p. 5; Tr. 133.
5. According to a DEA Microgram Bulletin in March 2008, a Kentucky State Police laboratory received a white square of blotter paper[22] that was suspected LSD. Analysis of the paper indicated it was a mixture of DOI and DOC. GE 13, p. 4.

[20] Dr. Carbonaro also pointed out that "during COVID there was a significant reduction in NFLIS reports" which may explain the absence of repots during the hearings 2021 through 2023. Tr. 213-14.
[21] According to the Government's expert, a drug found in powder form may be indicative of non-medical use. Tr. 134, 216-19.
[22] As explained previously, the use of blotter paper as a drug delivery method is indicative of non-medical use, or abuse. Tr. 131-32, 397. .

6. According to a DEA Microgram Bulletin in June 2008, the Palm Beach County Sheriff's Office Crime Laboratory received two different exhibits of blotter paper that were suspected LSD. Analysis of one exhibit indicated it was DOI. Analysis of the other indicated it was DOC. GE 14, p. 3. The Microgram editor wrote that "submissions of 'blotter acid' actually containing LSD are currently uncommon" and usually contain either a hallucinogenic tryptamine or phenethylamine such as DOI or DOC. *Id*. The editor also wrote that hallucinogenic phenethylamines (such as DOI or DOI) "are becoming predominant." *Id*.
7. According to a DEA Microgram Bulletin in March 2009, a Georgia Bureau of Investigation (GBI) crime laboratory received "one square of tie-dyed blotter paper" that was suspected LSD. Analysis of the paper indicated it was a mixture of DOC and DOB. The GBI also noted that it had previously encountered "blotter acid mimics that contained either DOC or DOB." GE 15, p. 3.
8. According to a DEA Microgram Bulletin in April 2009, a Kansas Bureau of Investigation (KBI) crime laboratory received two squares of blotter paper "with a Yoda design" that were suspected LSD. Both were seized during a traffic stop. Analysis of the exhibits indicated they were a mixture of DOC and DOB. GE 16, p. 4.
9. The above facts support the conclusion that there is evidence that both DOI and DOC have significant abuse potential. Tr. 145.

G. Factor Six: What, if any, risk there is to the public health.

1. The risk to public health posed by DOI and DOC relates "primarily to [the drugs'] ability to induce hallucinogenic effects and other sensory distortions, impaired judgment, and strange or dangerous behavior." GE 7A, p. 11; Tr. 134.[23]
2. HHS reported a case of a 20-year old man who ingested DOC while attending a rave party. He collapsed with tonic-clonic seizures and reduced consciousness. He was taken to the emergency department where he was unresponsive with sinus tachychardia, hypertension, dilated pupils, nonresponsive to light, and rhabdomyolysis. A toxicological analysis determined he had ingested DOC and MDMA. GE 7A., p. 11, Tr. 135-36.
3. According to a 2014 report, a 37-year-old man with a history of methamphetamine abuse was found dead. A toxicological analysis was positive only for DOC and caffeine. GE 7A., p. 11. Tr. 136.
4. In another report, an 18-year-old man experienced hallucinations and agitation, followed by seizures, shaking in extremities and dilated pupils. He was intubated due to sinus tachycardia, hypertension, tachypnea, and rhabdomyloysis. A toxicological analysis was positive for DOC, cannabinoids, and opioids. GE 7A, p. 11. Tr. 137.
5. Because DOI is structurally similar to DOC and produces similar effects to DOC, it is likely that DOI is equally as dangerous as DOC and presents the same risk to public health. GE 7A, p. 11-12.

[23] This statement is derived in part from the writings of one of the Petitioners' witnesses, David E. Nichols. Tr. 134-35. *See* Nichols, D.E., *Hallucinations*, Pharmacology and Therapeutics 101 (2004), at 135. (https://maps.org/research-archive/w3pb/2004/2004_Nichols_22684_1.pdf). Dr. Nichols writes that "[t]here are … real and significant dangers that can accompany recreational use of these substances. Although LSD or other classical hallucinogens have not directly caused overdose death, fatal incidents during LSD intoxication have occurred." Dr. Nichols writes that "[t]his danger is significant, particularly when these drugs are used recreationally in unsupervised settings. Belief that one has superhuman powers while judgment is impaired by hallucinogens can lead to injury or death when an unsupervised user carries out dangerous activities such as walking out on a freeway or attempting to fly." (internal citations omitted).

6. Because DOC has been trafficked and is similar in structure to other hallucinogens, it would likely produce "serious adverse effects." Tr. 146.
7. Based of reported DOI seizures and encounters, DOI poses a risk to public health. Tr. 146.

H. Factor Seven: DOI and DOC's psychic or physiological dependence liability.

1. According to HHS, DOI and DOC and other related phenethylamine hallucinogens are highly abusable substances. GE 7A, p. 12.
2. Psychic, or psychological dependence, is a willingness to repeatedly take a drug despite knowledge of its harms and/or "knowing that there are dangers that could happen to themselves or others." Tr. 139-41, 269.
3. Psychic dependence can result if a drug causes euphoria or "markers of like drug liking." Tr. 269.
4. A drug can manifest psychic dependence if "people seeking out long-acting phenethylamines such as DOM that have long-acting effects." Tr. 271.
5. Though drug discrimination studies do not produce direct evidence of psychic dependance, drug discrimination studies which "show [DOI and DOC] are similar to other drugs that have known psychic dependence" create the reasonable inference "that DOI and DOC could then have the same potential for psychic dependence as those hallucinogens." Tr. 272.
6. Hallucinogen abusers may develop psychological dependance as evidenced by the continued use of these substances despite knowledge of their potential toxic and adverse effects. GE 7A., p. 12.

7. Hallucinogens that work through the serotonin 2A receptor can create psychic dependence. Tr. 140.
8. Drug discrimination studies in animals show that DOI and DOC fully substitute to the discriminative stimulus effects of Schedule I hallucinogens DOM, LSD, and DMT. GE 7A, p. 12.
9. Both DOI and DOC have psychic dependence liability and a high potential for abuse. Tr. 146; 1231-32.

I. Factor Eight: Whether DOI and DOC are immediate precursor of a substance already controlled under this subchapter.

1. DOI and DOC are not immediate precursors of a substance already controlled under the CSA as defined by 21 U.S.C. § 802(23).

J. Findings for Schedule Placement Pursuant to 21 U.S.C. § 812(b).

1. DOI and DOC have a high potential for abuse because both are similar to the Schedule I controlled substance, DOM. Tr. 146-47. 21 U.S.C. § 812(b)(1)(A).
2. The chemistry of DOI and DOC are known and reproducible. Tr. 147-48. 21 U.S.C. § 812(b)(1)(B).
3. Because there have been no clinical trials for DOI or DOC, there are no adequate safety studies for DOI and DOC. Tr. 148. 21 U.S.C. § 812(b)(1)(B).
4. There is no evidence that adequate and well controlled studies have proven efficacy regarding DOI or DOC. Tr. 148. 21 U.S.C. § 812(b)(1)(B).
5. Because there have been no clinical trials for DOI or DOC, the use of DOI and/or DOC have not been accepted by any qualified medical experts. Tr. 149. 21 U.S.C. § 812(b)(1)(B).

6. There is no published research regarding any human clinical trials related to DOI or DOC. Tr. 149. 21 U.S.C. § 812(b)(1)(B).
7. Regarding 21 U.S.C. § 812(b)(1)(C), the use of DOC "is associated with serious adverse consequences including deaths." Tr. 150. Because DOI is structurally similar to DOC, it produces effects similar to DOC and "may produce serious adverse effects as well." *Id*.
8. Because there is no currently accepted medical use for DOI or DOC, and neither have been investigated as new drugs, their safety for use under medical supervision cannot be determined. 21 U.S.C. § 812(b)(1)(C).

K. Additional findings regarding DOI and DOC's currently accepted medical use.

1. There is no evidence that healthcare providers in the United States have widespread experience with the medical use of either DOI or DOC. Tr. 150.
2. There is no evidence that the use of DOI or DOC is recognized by entities that regulate the practice of medicine. Tr. 150.

VI. EVALUATION OF THE PETITIONERS' WITNESSES

Collectively, the Petitioners promised to call 16 witnesses, 15 of whom were billed as "experts." One of the Petitioners, Panacea Plant Sciences, failed to send a representative to the hearing. Of the remaining 15 witness, six did not testify, one was rejected by the tribunal as an expert and another, based on his lack of qualifications, was withdrawn as an expert. In summary, the gravamen of Petitioners' case was to (1) claim (through conjecture and hearsay) that scheduling DOI and DOC would hamper ongoing research efforts; (2) disparage HHS and DEA's methodology in arriving at its conclusions pursuant to the eight-factor analysis; and (3) minimize the impact of (without offering any contrary evidence) DEA and HHS's data regarding the use and/or abuse of DOI and DOC.

First and foremost, none of the Petitioners' witnesses performed an eight-factor analysis of either DOI or DOC that would even arguably conform to 21 U.S.C. § 811(c). Secondly, none of the Petitioners offered any law enforcement data to refute DEA's data showing multiple law enforcement encounters with DOI and DOC, as well as the anecdotal evidence demonstrating that both substances are being used absent a legitimate medical purpose. Third, the unduly repetitious testimony regarding potential research harm amounted to nothing more than pure speculation, without a single witness able to testify that his or her ongoing research activity would be harmed if DOI or DOC were scheduled.

Finally, the testimony questioning HHS and DEA's methodology for analyzing DOI and DOC was, at times, highly misleading, and overall, strained and unpersuasive as the following illustrates.

A. Testimony questioning the use of drug discrimination to assess abuse liability

Several of the Petitioners' witnesses testified that animal drug discrimination studies are insufficient to compare the effects of DOI and DOC to the effects of other Schedule I hallucinogens with known abuse potential. None of these witnesses performed an eight-factor analysis for either DOI or DOC and to the extent any had evaluated the abuse potential of either substance, they produced no sufficient research to support those specific findings.

Alaina Jaster

The first witness to testify, Dr. Alaina Jaster, admitted she never performed an eight-factor analysis for DOI (Tr. 473).[24] Instead, she relied on a ten-year old non-peer reviewed[25] article titled "The rise (and fall?) of drug discrimination research" which never mentions or DOI or DOC. Petitioners' Exhibit (PE) 37; Tr. 513. From that article, Dr. Jaster concluded that "the use of drug discrimination, specifically in neurobiology research and pharmacology research, is on a steady decline and that other methods are more widely used, or used in conjunction with drug discrimination measures to determine abuse liability." Tr. 483. Dr. Jaster argued that "drug self-administration" and "intracranial self-stimulation" are other methods which should be employed. Tr. 484.

Dr. Jaster then testified regarding her own article which, again, has nothing to do with the abuse liability of DOI but rather discusses the effects of an antagonist on various psychedelic substances, specifically DOI, LSD, psilocybin, and mescaline. PE 18, Tr. 485. Even so, Dr. Jaster attempted to use the article to argue that examining "head-twitch" response (HTR) in rodents is a "very good standard of a read out of psychedelic effects." Tr. 487.

Dr. Jaster's use of PE 18 was misleading on many levels. First, she compared DOI to "stimulants and opioids," which neither DEA nor HHS has ever used to prove the abuse liability of hallucinogenic substances. Tr. 489. Second, she admitted that "the same pattern [with DOI] did occur with LSD, which is consistent with DEA's conclusions that both DOI and DOC have high abuse liability like LSD. Tr. 490; *See* Petitioners' Exhibit (PE) 18, p. 18-19 (comparing

[24] Dr. Jaster testified she had "assisted in compiling data for a publication through ASPET" or American society for Pharmacology and Experimental Therapeutics. Tr. 473. However, no exhibits or witnesses from ASPET were ever offered by any of the Petitioners.

[25] As the footnote on p. 1 states, the "material is not peer-reviewed" by the "Drug and Alcohol Dependence" Journal. PE 37.

figures 2 and 3). Third, she failed to discuss similar findings with respect to psilocybin and mescaline, two more Schedule I drugs with known high abuse liability and which behaved the same way as DOI. *Id*., pp. 18-20.[26]

In truth, Dr. Jaster's article *supports* the belief that DOI performs in the same manner as other Schedule I psychedelics. On page 8, she wrote that "DOI administration … eliminated ICSS responding," Then, on the same page, she also wrote that "acutely administered LSD … also produced significant depression of ICSS." She then wrote that "[m]escaline … produced significant depression of ICSS" and "psilocybin … also produced significant depression of ICSS." *Id,.* at p. 9. In other words, all four psychedelic substances, including DOI, performed the same way. Therefore, if Dr. Jaster argues that DOI has no abuse liability based on her findings, she must then reach the same conclusions about LSD, psilocybin, and mescaline, three Schedule I controlled substances with *known* abuse potential. In fact, throughout her testimony, she "lumped" all psychedelics together, indicating her belief that that share the same properties:

> So the general conclusion from that study is while psychedelics do produce potential psychedelic effects, as measured through head-twitch, that the abuse liability is actually quite low in this measure of intracranial self-stimulation.
> …
> But psychedelics reduce that self-stimulation.

Tr. 493, 496. Dr. Jaster's article also omits any mention of DOM and DOB, the two Schedule I controlled substances that are most similar to DOI in both structure and effects. This alone would be grounds to give her testimony diminished weight, but her misleading, "cherry picked" analysis of PE 18 more than justifies giving her testimony no weight whatsoever.

[26] This was likely due to the fact that Dr. Jaster's article contained a grave error. Inexplicably, pp. 19 and 20 contain identical graphs referencing only LSD even though p. 20 should show graphs relating to the "Effects of volinanserin on *mescaline* … or *psilocybin*," (italics added). Neither of these drugs are mentioned in any graphs within the exhibit and there is no explanation for why the LSD graph has been printed twice.

As for Dr. Jaster's testimony disparaging the use of drug discrimination studies (PE 37), her bias and "cherry picking" was even more evident because her testimony could not overcome the obvious *positive* reviews contained in the same article:

> Drug discrimination has provided an excellent alternative for classifying these and other drugs[27] on the basis of hallucinogenic activity measured by $5HT_{2A}$ receptors.
>
> …
>
> … drug discrimination has been a valuable resource for assessing the in vivo pharmacology of drugs with unique physicochemical properties.

PE 37, p. 2; see also Tr. 513-15. In fact, the article actually conflicts in part with Dr. Jaster's endorsement of self administration, a method disfavored by HHS in assessing abuse liability of hallucinogenic substances. (*See* GE 18, pp. 21-22; Tr. 1221-22):

> A reduction in self-administration is often misinterpreted as a decrease in reinforcing effects without first eliminating simpler interpretations (i.e. general suppression of all operant behavior) that can only be rejected by gathering additional, control data.
>
> …
>
> Drug discrimination has many applications, some tried-and-true and other more novel and unique. Most importantly, drug discrimination continues to be among the best if not the best option for classifications and characterization of the mechanism of action of [central nervous system] acting drugs in whole animals.

PE 37, pp. 2, 4.

Finally, perhaps the best reason for ignoring Dr. Jaster's testimony, and questioning her credibility as a witness, was her use of a one page chart to infer that Conditioned Place Preference (CPP) studies are preferable to drug discrimination. PE 17.[28] First, Dr. Jaster refused

[27] Referring to "[h]allucinogens such as" LSD and DOM. PE 37, p 2. Interestingly, the article also notes that neither LSD nor DOM are "typically self-administered by non-human specifies" – another direct contradiction to Dr. Jaster's testimony.

[28] As pointed out several times during the hearing, CPP is disfavored when determining abuse liability of hallucinogenic substances. Tr. 1223-24; GE 18, p. 22.

to provide her entire dissertation, none of which has apparently been peer reviewed. Secondly, PE 17 supposedly discusses the effects of DOI on oxycodone cravings, a thesis that is not relevant in this proceeding and has more bearing on determining DOI's abuse liability than a study showing that methadone, a Schedule II controlled substance, reduces the cravings for heroin. Also, because only one page was offered, this tribunal should reach an adverse inference that the *entire* article would likely have shown that, once again, DOI behaves the same way as other Schedule I hallucinogenic substances, all of which were conveniently excluded from PE 17.

Dr. Jaster also seemed to have no knowledge of HHS guidance on Conditioned Place Preference (CPP) studies which clearly states "CPP … is … not considered to be a sensitive or reliable as self-administration." GE 18, p. 22, Tr. 1219. She also ignores HHS commentary on "animal self-administration studies," where HHS states that "[c]ertain classes of drugs with hallucinogenic properties do not typically produce animal self administration (e.g. 5HT2A agonists), or are only self-administered by animals under limited conditions (e.g. cannabinoids), even when they are known to be taken by humans for their rewarding effects." GE 18, p. 21. Rather, HHS defaults to drug discrimination studies, stating that if a "test drug produces full or partial generalization to the training drug (a known drug of abuse), it may have abuse potential." GE 18, p. 22; *See also* Carbonaro rebuttal testimony, Tr. 1224-28.

In addition to the problems illustrated above, Dr. Jaster was neither an objective witness, nor a forthright one. Though she admitted that the ICSS effects in DOI are similar to other psychedelics such as LSD, she disputed that LSD, DOM, and psilobybin have high abuse liability. Tr. 521-22. On cross examination, Dr. Jaster also admitted to her personal belief that *no*

drugs should be scheduled or criminalized (Tr. 524-25). She also distanced herself from the notion that psychedelic drugs could cause harm, and that "bad trips" constitute suffering:

> Q: And bad trips in your view is tantamount to suffering, is it not?
> A: I would not say so

Tr. 549. Yet, this was sharply disputed when the Government confronted her with her own online post, stating: "Bad trips exist. *Suffering* does not equal growth. If you had what you consider a bad trip, don't let someone discount your experience." GE 17 (italics added). *See also* Tr. 553 (discussion about "harm").

Mario de la Fuente Revenga

Dr. de la Fuente Revenga (Dr. de la Fuente) was an argumentative and confusing witness who contributed little if anything to the understanding of drug discrimination studies. He did not review the Government's case, nor listen to any testimony offered by the Government. Tr. 1184-85. And though he claimed under oath that he had performed "studies on the abuse liability of DOI," he inexplicably failed to produce any such documents or have them included in any of the Petitioners' already voluminous exhibits. TR. 1193. Again, to the extent such studies exist, this tribunal should reach an adverse inference that the results of those studies would conform to the Government's eight-factor analysis.

As far as his criticism of drug discrimination studies, Dr. de la Fuente admitted that his previous writings showed *support* for using drug discrimination studies to assess the "effect of classic psychedelics" and "comparable effects in animal models." Tr. 1195. And though Dr. de la Fuente spent considerable time criticizing the use of head-twitch response, or HTR, to assess abuse liability, he failed to reconcile his statements with the fact that Petitioners' own exhibit (PE 11) discussed using HTR to show "ramifications into abuse." Tr. 1210. Moreover, despite his rambling protests against HTR, his testimony fell flat insofar as he could not locate anywhere in

GE 7A the term "HTR" or "head twitch response," Instead, he falsely posited that these terms did not exist in 2023 when Dr. Carbonaro wrote her report. Tr. 1213.[29]

Harrison Elder and Lindsay Cameron

Though conceding that drug discrimination studies are a "component of abuse liability assessment," Dr. Elder claimed without elaborating, that the results were not "absolutely indicative of abuse liability, just similarities between drugs and their interoceptive effects. Tr. 817-18. On the other hand, Dr. Cameron baldly concluded the "drug discrimination is not a good measure of all" and that "no one in the field of addiction uses drug discrimination anymore." Tr. 862. She further implied, without providing any corroborating evidence, that NIDA will not fund any "grants unless they involve self-administration." *Id*.[30] Again, these uncorroborated statements cannot be reconciled with HHS industry guidance which indicates drug discrimination studies may reveal "abuse potential" and that "[c]ertain classes of drugs with hallucinogenic properties do not typically produce animal self-administration." GE 18, p. 21.

B. Testimony questioning DEA data regarding use and abuse of DOC and DOC.

DEA's direct evidence regarding the use and abuse of DOI consisted primarily of HHS reports, NFLIS data, and anecdotal evidence, some of which appeared in online forums. DEA also offered a number of Microgram Bulletins, detailing more specifically law enforcement encounters with DOI and DOC.

Though many of the Petitioners' witnesses disparaged the use of online activity to show evidence of use, none could refute these comments with any contradictory reports. In fact, one of the Petitioners' witness, Dr. Elder admitted to relying on online reports for his own research:

[29] This is patently untrue. Dr. de la Fuente's own article, published in 2022, extensively discussed HTR and/or "head-twitch response." See PE 11.

[30] This is likely a misleading statement provided without context. As Dr. Carbonaro explained, NIDA has "had a longstanding contract in place" where "one of the primary things is to assess drug discrimination." Tr. 1230.

> Q: You testified yesterday that comments on internet forums are unreliable?
> A: Yes, I did.
> Q: However, you've relied on those kinds of reports from internet user forums in hour own articles.
> A: Yes. And I do believe I stated yesterday that reports on internet forums can be useful for background information and when surveyed to provide a rationale for further studies, which is how I used them, I believe.

Tr. Tr. 819. Moreover, Dr. Joseph Palomar, the Petitioners' expert in the "field of drug use epidemiology" did not listen to or read any of the Government's testimony, nor did he review any of the Microgram Bulletins (GE 11-16) offered by the Government. Tr. 1109-10. As a result, he offered nothing to dispute either the Government's NFLIS data or its anecdotal data. Tr. 1112. Rather, Dr. Palomar opined on research he conducted in New York, despite the fact that only 5 of 790 DOC seizures were reported in New York and none of the 40 seizures were reported in New York. Tr. 1112-13. Dr. Palomar also did not dispute reports that "DOx compounds" such as DOM have been on the illicit drug market for decades and DOC had been found on the "black market." Tr. 1114-15. Dr. Palomar also admitted that he did no surveys in the states where DOI and/or DOC were found and documented in GE 11-16. Tr. 1124-26.

C. Testimony regarding research harm.

As preliminary matter, evidence regarding research harm may be considered, but bears to no relevance to the analysis of the eight factors pursuant to 21 U.S.C. § 811(c) or the three factors under 21 U.S.C. § 812. In *Grinspoon v. Drug Enforcement Administration*, 828, F.2d 881 (1st Cir. 1987), which included a discussion of research harm evidence, the First Circuit wrote:

> We can only conclude that Congress has already weighed the costs and benefits of legitimate research on dangerous drugs and has determined, in a categorical matter that if the three Schedule I criteria are satisfied, *see* 21 U.S.C. § 812(b)(1), then the substance should be subject to Schedule I controls even if this action will create administrative burdens for researchers. *Greenspoon*, 828, F.2d at 897.

So, while comments regarding barriers or hinderances to research may be considered by the Administrator, such evidence is not relevant to addressing the factors listed above and resolving the ultimate issues posed by 21 U.S.C. §§ 811 & 812(b)(1). Just as the Administrator must consider comments submitted by the public, she may consider evidence of possible research harm, but such evidence is not dispositive of whether DOI and DOC should be scheduled, or where they should be placed on the schedules.

To that point, *none* of the Petitioners' witnesses testified that scheduling DOI or DOC will halt their research efforts. In fact, many conducted their prior research using Schedule I DEA research registrations that were already in place. *See* Jaster testimony, p. 522. Dr. Ramos, who was excluded as an expert, admitted that scheduling DOI will not "shut down" his research. Tr. 688. And though he seemed to indicate that his colleagues would not allow him to use their Schedule I registrations in the event that DOI is scheduled, he eventually admitted that "they did not say no." Tr. 689-90.

Another witness, Joseph Hennessy, who was presented as an expert but later withdrawn after his credentials were called into question, complained without citing any evidence that if DOI were placed in Schedule I he "certainly would not be able to meet" his fellowship deadline and it "would adversely affect the timelines" for him to complete his Ph.D. Tr. 907. He then complained that the "scheduling of DOI would adversely affect our --- plans for future research, which includes potential research into potential treatments for depression and addiction." Tr. 909. However, not surprisingly, Mr. Hennesy uttered these alarmist and hearsay statements without consulting anyone at DEA to determine the actual procedure and timelines for obtaining a registration to conduct research with Schedule I substances. Tr. 911.

Another witness, also citing hearsay, claimed that it would take at least a year to obtain a registration to conduct research with a Schedule I drug. Tr. 933. Yet, like Mr. Hennessy, he admitted he also never consulted with anyone at DEA to determine the actual timeline. Tr. 934.

Even more telling was the testimony of Dr. David Nichols, a veteran researcher who began his career before the creation of the CSA. Again, he never indicated that having to obtain a DEA registration hampered his work:

> Q:What were you doing before the passage of the Controlled Substances Act?
> A: I was working with psychedelics doing research as a graduate student and as a post-doc.
> Q: And what were – were you continuing to work with psychedelics after the passage of the Controlled Substances Act?
> A: That's when I went to Purdue. I had to get a license to work with them.
> Q: So you did not quit your job, did you?.
> A: No, because this an an area that I was dedicated to, and I wanted to get into this area.
> Tr. 991-92.

VII. PROPOSED CONCLUSIONS OF LAW

A. Finding One: DOI and DOC have an actual or relative potential for abuse

The Government's expert credibly testified that DOI and DOC are analogs of the Scheduled I hallucinogen DOM and have similar effects. GE 7A, p. 5; Tr. 88-89. Like DOM, both DOI and DOC work through the serotonin 2A receptors and are similar to hallucinogens where subjective effects drive their abuse. GE 7A, p. 2; Tr. 89-90. Based on HHS's evaluation and reported law enforcement seizures, there is evidence individuals are talking DOI and DOC for their ability to cause hallucinations and in amounts sufficient to cause harm to their health and safety of others. GE 7A, pp. 3-4, Tr. 96, 98-99.

DOI and DOC can be purchased online for recreational use. Law enforcement data and anecdotal reports indicate DOI and DOC are commercially available "on the street" as illicit substances. GE 7A, Tr. 99, 164. Both drugs have been found in "blotter paper" form, which is

consistent with the abuse of illicit substances. Tr. 164-65. In drug discrimination studies, DOI and DOC fully substituted for the discriminative stimulus effects of known drugs of abuse, including DOM, LSD, and DMT. Tr. 102-03. DOI and DOC also have a similar mechanism of action to Schedule I controlled substances such as DOM, DOB, LSD, and DMT. As a result, DOI and DOC are likely to be abused. GE 7A, p. 5; Tr. 106, 142-44.

B. Finding Two: DOI and DOC have a history and current pattern of abuse and the scope and duration of abuse is significant

DOI and DOC have been seized by law enforcement since 2005. According to anecdotal evidence, including comments on online forums, individuals are using DOC and DOC for their hallucinogenic effects and not for a legitimate medical purpose. GE 7A, P. 9; Tr. 128. DOI and DOC have been encountered in forms consistent with illicit drug use, *i.e.* blotter paper, liquid, and powder. GE 7A, p. 9. DOM, LSD, and DMT have a history and pattern of abuse. Based on animal drug discrimination studies, these substances have similar effects to DOI and DOC. GE 7A; Tr. 128, 145.

According to NFLIS data, there have been approximately 790 law enforcement encounters with DOC in 39 different states and 40 encounters with DOI in 15 different states. GE 7A, p. 10, GE 8. Both DOI and DOC were found in a residence in Michigan. A substance marked DOB was actually DOI. GE 11, p. 5; Tr. 132-22. A substance seized in Wisconsin purported to contain DOB was actually DOI. GE 12, p. 5; Tr. 133. Suspected LSD blotter seized in Kentucky was actually a mixture of DOI and DOC. GE 13, p.4. In Florida, seizures of suspected blotter paper LSD also turned out to be DOI and DOC. GE 14, p. 5. More suspected blotter paper LSD was seized in Georgia and turned out to be a mixture of DOC and DOB. GE 15, p. 3. In Kansas, suspected blotter paper LSD also turned out to be DOC mixed with DOB. GE 16, p.4.

C. Finding Three: DOI and DOC have psychic dependence liability and pose a risk to public health

DOI and DOC are phenethylamine hallucinogens which are historically abusable substances. GE 7A, p. 12. Because psychic dependence is a willingness to repeatedly take a drug despite knowledge of its harms, the fact that individuals are using DOI and DOC for its hallucinogenic effects confirms its psychic dependence liability. Tr. 139-41, 269. Drug discrimination studies create the reasonable inference that any drug similar to one with a known psychic dependence liability, such as DOM and DOB, will also have psychic dependence liability. GE 7A, p. 12; Tr. 272.

Both DOI and DOC create hallucinations that alter perception, cognition, and mood. GE 7A, p 2; Tr. 89-90. Their effects include sentory distortion, impaired judgment, and strange or dangerous behavior. GE 7A, p. 11; Tr. 134. The effects of these drugs can lead to paranoia, agitation, depression, and violent outbursts toward self and others. GE 7A, p. 2; Tr. 90. There are reported intoxications involving DOC, resulting in seizures, reduced consciousness, sinus tachychardia, hypertension, dilated pupils, nonresponsive to light, and rhabdomyolysis. GE 7A., p. 11; Tr. 135-37. Both DOI and DOC have long last effects, some for longer than 24 hours. Because there is no antagonist for hallucinogens, these effects cannot be shortened or blocked. Tr. 115-16.

D. Finding Four: Neither DOI nor DOC have a currently accepted medical use

There have been no published clinical trials for DOI and DOC, and no adequate safety studies for human use. Tr. 148. There is no evidence that any adequate and well controlled studies have proven efficacy regarding DOI or DOC in humans. Tr. 148. Neither DOI nor

DOC have been accepted by any qualified medical experts and such scientific evidence of such does not exist.

E. Finding Five: To meet U.N. Treaty oblications, DOC must be controlled in the United States

DOC has been placed in Schedule I of the 1971 Convention of Psychotropic Substances (1971 Convention). As a signatory to the 1971 Convention and in order to meet its treaty obligations, the United States must schedule DOC in order to place appropriate controlled on DOC to meet the minimum requirements of the treaty. Since DOC has no currently accepted medical use, it can only be placed in Schedule I pursuant to the requirements of 21 U.S.C. § 812(b)(1).

VIII. CONCLUSION

DOI and DOC have actual or relative potential for abuse, There is a history and current pattern of abuse as well as scope, duration , and significance of abuse. Both substances create psychic dependence and pose a risk to pubic health. Neither have a currently accepted medical use and DOC, pursuant to the 1971 Convention, must be scheduled for the United States to meet its treaty obligations.

The record as a whole, and the specific matters contained discussed herein, provide substantial evidence upon which the Administrative Law Judge may base the findings required to place DOI and DOC in Schedule I. Wherefore, the undersigned request that the Administrative Law Judge expeditiously recommend that DOI and DOC be placed in Schedule I.

Respectfully submitted,

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Dated: January 6, 2025

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CERTIFICATE OF SERVICE

I hereby certify that on January 6, 2025, I electronically submitted the foregoing to the DEA Office of Administrative Law Judges via the DEA Judicial Mailbox, at EFC-DEA@dea.gov, and simultaneously to the Petitioners/Objectors at:

- David Heldreth, CEO of Panacea Plant Sciences, via email at davidh@panaceaplantsciences.net.
- Brett Phelps, Esq., Counsel for Science Policy Council, Students for Sensible Drug Policy, via email at brett@brettphelpslaw.com.
- Robert T. Rush, Esq., Counsel for Dr. Paul A. Ramos, Amelia A. Furbish, PharmD, and Megan Francis, via email at rrush@rrushlaw.com.

Frank W. Mann

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