Drugs That Impair Driving, Instructor Manual
HS 178B R2/06 (February 2006)

Document Description	Page(s) Withheld	Exemption	Comments
Drugs That Impair Driving, Instructor Manual HS 178B R2/06 (February 2006) Knowledge Examination	85-86	**Exam information Test questions - Employment and Licensing** - RCW 42.56.250(1)	Test questions, scoring keys, and other examination data used to administer a license, employment, or academic examination are exempt from production.
Drugs That Impair Driving, Instructor Manual HS 178B R2/06 (February 2006) Answer Key	87-88	**Exam information scoring keys - Employment and Licensing -** RCW 42.56.250(1)	Test questions, scoring keys, and other examination data used to administer a license, employment, or academic examination are exempt from production.

DRUGS THAT IMPAIR DRIVING

INSTRUCTOR'S LESSON PLANS
ADMINISTRATOR'S GUIDE

Printed 2/06

U.S. DEPARTMENT OF TRANSPORTATION
Transportation Safety Institute
National Highway Traffic Safety Administration

HS 178B R2/06

A. Purpose Of This Document

This Administrator's Guide provides an introduction to and an overview of the one day instructional module entitled "Drugs That Impair Driving." This module is to be taught in a State which has a Drug Evaluation and Classification Program, (DEC) or a State that has legislation to be eligible for a DEC Program. The module is designed to be delivered as a stand alone curriculum or as a part of the curriculum entitled "DWI Detection and Standardized Field Sobriety Testing". The program of instruction is intended for delivery to as many as possible of the nation's traffic law enforcement officers. That curriculum is designed to help those officers become more proficient at detecting, apprehending, testing and convicting impaired drivers.

The module's subject matter relates to a second curriculum, "Drug Evaluation and Classification," which provides a seven-day classroom training program as the first step in qualifying an officer to serve as a Drug Recognition Expert (DRE). This training is intended to be delivered on a much more selective basis, e.g., perhaps to only a few percent of traffic law enforcement officers. A qualified DRE is a specially-skilled individual who can examine a person suspected of drug impairment and determine, with a high degree of accuracy, the broad category (or combination of categories) of drugs causing the impairment. A DRE does their specialized work only after a suspect has been apprehended (for DWI or some other offense), and only when there is reason to believe that alcohol alone is not responsible for the impairment.

A mounting body of data suggests that an appreciable percentage of DWI violators may be under the influence of drugs other than alcohol, either alone or in combination with alcohol. Estimates of this "appreciable percentage" vary, but all estimator agree that the average DWI enforcement officer almost inevitably will encounter drug-impaired drivers from time to time. Therefore, it is important that the officer be able to recognize when they have encountered a drug-impaired suspect, and to call this to the attention of a qualified DRE. The module is designed to address that need.

This Administrator's Guide is intended for law enforcement agencies that have already trained their personnel in standardized field sobriety testing. The Guide supports delivery of the module "Drugs That Impair Driving" as a stand-alone program of instruction, e.g., for in-service training.

This Administrator's Guide facilitates planning and implementation of the module. The Guide overviews the one-day course of instruction and the documents and other materials that make up the module's curriculum package. It describes the module's administrative requirements and offers guidelines for discharging those requirements satisfactorily. It outlines the preparatory work that must be accomplished by a law enforcement agency before the module can be offered to that agency's personnel. And, it describes the follow-up work that should be undertaken to ensure the continuing delivery of the highest possible quality of instruction.

Before addressing the details of this introductory module, it is appropriate to emphasize one thing that the module will not do:

THIS TRAINING WILL NOT QUALIFY AN OFFICER TO SERVE AS A DRUG RECOGNITION EXPERT.

The subject matter covered touches upon some (but not all) of the factors a DRE considers in examining a drug-impaired suspect. But no one should attempt to identify drug categories based only on the knowledge acquired through this module. Any such attempt could certainly diminish the court's willingness to accept, the highly specialized knowledge and skills that a DRE must work long and hard to develop.

B. Overview of the Module

1. For Whom Is the Training Intended?

This module is designed primarily for police officers who meet the IACP/NHTSA National Standardized Field Sobriety Testing Program Standards and who have successfully completed an IACP/NHTSA approved curriculum. The officer must be able to administer and interpret the horizontal gaze nystagmus test for alcohol-impaired suspects. The student should be fully conversant with the procedural "mechanics" of HGN with the three clues of HGN and with the interpretation of those clues for assessing alcohol impairment. A major focus of this module is on the examination of a drug-impaired suspect's eyes, and the procedures for those eye examinations derive largely from HGN procedures.

2. What Are The Purposes of Module?

   The purpose of the module is to improve students' ability to recognize suspects who may be under the influence of drugs other than alcohol, and to take appropriate action when they encounter such suspects. In those agencies that have a Drug Evaluation and Classification Program, the "appropriate action" would be to summon a DRE. In non-DEC States, the "appropriate action" usually will be to request a medical examination of the suspect. The hope and expectation is that, due to this training, fewer drug-or medically-impaired suspects will avoid detection or be treated simply as alcohol-impaired. Note that the purpose of this module does not require that the student develop the ability to distinguish what type of drug is responsible for the observed impairment. Indeed, we assert that this module, by itself, cannot develop that ability. But, the student should become more adept to recognizing the possible presence of some drug other than alcohol, or a medical condition, and at conveying a credible basis for that suspicion.

3. What Will The Students Get Out of The Module?

   The student who successfully completes the module will be able to:

   - define the term "drug" in the context of this course;
   - describe in approximate, quantitative terms the incidence of drug involvement in motor vehicle crashes and DWI enforcement;
   - name the major categories of drugs;
   - describe the observable signs of impairment generally associated with the major drug categories;
   - describe medical conditions and other situations that can produce similar signs of impairment; and,
   - describe appropriate procedures for dealing with drug-impaired or medically impaired suspects.

4. What Subject Matter Does the Module Cover?

   The principal content topics include:

   a. The concept of "drugs" in the context of DWI enforcement. Basically, as far as the traffic law enforcement officer is concerned, a "drug" is a substance that impairs driving ability.

   b. The magnitude and scope of drug use and abuse in America, and the involvement of drugs in impaired driving incidents.

   c. The role of eye examinations in disclosing the possibility of drug impairment, and in suggesting the possible category or categories of drugs, or medical conditions causing a particular suspect's impairment.

   d. The observable effects of each of seven major categories of drugs.

   e. The effects likely to result from various combinations of drugs.

   f. The department's prescribed procedures for dealing with cases involving suspected drug influence or medical conditions.

5. What Activities Take Place During the Training?

   The module relies primarily on instructor-led presentations. This is in keeping with its focus on information development, rather than skill development.

6. How Long Does The Module Take?

   The total instructional time is eight hours.

C. Overview Of The Curriculum Package

In addition to the Administrator's Guide, the curriculum package for this module includes the following material:

- Instructor's Lesson Plans Manual
- Visual Aids
- Student's Manual

1. Instructor's Lesson Plans Manual

The Instructor's Lesson Plans Manual is a complete and detailed blueprint of what the module covers and how it is to be taught. The lesson plans are arranged in a standard, side-by-side format. The left side page outlines the subject-matter content, i.e., what is to be taught. The "content" page presents:

- The approximate amount of time to be devoted to each major content segment;
- indications of what visual aids are to be used and when they are to be used;

The right side page presents "instructional notes" associated with the content. The notes outline how the content is to be taught. Typical entries under the instructional notes column include:

- the approximate amount of time to be devoted to each major content segment;
- indications of what visual aids are to be used and when they are to be used;
- questions that can be posed to the students to involve them more actively in the presentation;
- indications of points requiring special emphasis;
- examples and other techniques for clarifying the concepts being presented.

The Instructor's Lesson Plans Manual serves, first, as a means of preparing the instructor to teach the module. He or she should review the entire set of lesson plans, and become familiar with their contents and learning activities, to develop a clear understanding of how the various segments of the module "fit" together. The instructor is expected to become thoroughly familiar with each segment that he or she is assigned to teach, to prepare the relevant visual aids, and to assemble all "props" and other instructional notes as necessary to ensure that his or her own teaching style is applied to the content.

Subsequently, the Instructor's Lesson Plans Manual serves as an in-class reference document for the instructor, to help him or her maintain the sequence and pace of presentations and other learning activities.

It is worth emphasizing that the Instructor's Lesson Plans Manual does not contain the texts of speeches. Although its outlines of content information are fairly well detailed, those outlines are not to be read verbatim to the participants.

2. Visual Aids

Four types of visual aids are used in this module:

- o dry-erase board/flip-chart presentations (which are indicated in the"instructional notes" of the lesson plans, and are self-explanatory);
- o overhead transparencies;
- o PowerPoint;
- o video tape/DVD.

The overhead transparencies, or "visuals", are simple displays of graphic and/or narrative material that emphasize key points and support the instructor's presentation.

Each visual is numbered, and is referenced by number in the lesson plans to indicate when and how the visual is to be used.

Paper copies of all visuals are included in the Instructor's Lesson Plans Manual. Those copies can be photocopied onto acetate to produce overhead transparencies, or they can be photographed to produce 35mm slides, or PowerPoint slides can be used.

The videos are excerpts from the videos developed for NHTSA's Drug Evaluation and Classification Training Program. They depict portions of examinations of persons suspected of drug impairment.

3. Student's Manual

The Student's manual is the principal reference source for this module. It contains summaries of the main points of the module's content and

guidance for further study and review by the student.

D. General Administrative Requirements

1. Delivery Contexts

This module is compatible with a wide variety of delivery contexts. NHTSA designed the module as an integral part of the "DWI Detection and Standardized Field Sobriety Testing" curriculum. But the module can also be delivered as a stand-alone training program, e.g., as a portion of the department's annual in-service training schedule. The module is also suited to serve as briefing material for judges, prosecutors and other traffic safety personnel.

2. Facility Requirements

The module requires no special instructional facilities. A standard classroom, equipped with a screen, dry-erase board, appropriate projector, video tape player and monitor and adequate seating/table space for all students will suffice.

3. Instructor Qualifications

The principal instructor(s) for this module should be a Drug Evaluation and Classification Instructor or a DRE who is a SFST Instructor.

4. Class Size Considerations

Because the module is concerned primarily with information delivery rather than skills development, reasonably large classes can be accommodated. A practical upper limit is approximately 35-40 students sufficient opportunity to interact with instructors (e.g., through questions, comments, etc.) as much as would be desired.

E. Planning and Preparation Requirements

The planning and preparation requirements for this module are the standard requirements associated with any classroom training:

- Select instructors and assign them to deliver specific segments of the module. Make sure that all instructors review all portions of the module, so that they understand how their assignments "fit into" the total program.

- o Prepare all visuals.

- o Obtain the necessary instructional equipment and make sure that all equipment is in proper working order.

- o Verify that all candidate students have successfully completed (or will have completed, prior to delivery of the module) the IACP/NHTSA Standardized Field Sobriety Testing Training.

- o Arrange the classroom so that all students will have a clear view of the instructor, screen, dry-erase board and video monitor.

- o Obtain (or reproduce) sufficient copies of the Student's Manual and any other handout materials.

F. Follow-Up Requirements

It is highly desirable that both the delivery and impact of this module be evaluated. Evaluation of "delivery" focuses on the general question "what did the students think of this training?" Evaluation of the "impact" concerns itself with "how has the training affected students' on-the-job performance"?

Important data for evaluating training "delivery" can be obtained from the anonymous Student's Critique Form (included in the Instructor's Lesson Plans Manual). Each student should be requested to complete and submit the form immediately upon conclusion of the training. Guidelines for analyzing the students Critique Form and preparing a post-course evaluation report are covered in Section G.

G. Guidelines For Preparing Post-Course Evaluation

A participant's critique form is provided to document participant's initial rating of course content and activities.

The following instructions are provided to guide review, analysis and interpretation of participant's comments:

Section A - Workshop/Seminar Objectives

Determine raw tabulation and percentages for each objective:

- o If the "no"/"not sure" responses total 20% or more, some explanation should be provided. Assess the problem and explain

or recommend changes as appropriate.

Section B - Course Activities

The rating choice are as follows:

1. Very Important
2. Somewhat Important
3. Un-Important
4. Not Sure

Analysis Procedures

Step 1: Tabulate total number of responses in each category for each activity.

Step 2: The following values should be applied:

- o +2 for each "very important"
- o 0 for each "somewhat important"
- o -2 for each " un-important"
- o -1 for each "not sure"

Step 3: Determine total number of points for each activity.

Step 4: Divide the totals by twice the number of votes(N).

Step 5: The result is the final rating.

Any rating of +.5 or higher indicated the participant's consensus was that the activity (segment) was "very important."

If the rating is below +2, some explanation should be provided...assess the reason(s) and explain or recommend changes as appropriate.

If the rating is below 0 there is a serious problem...assess the problem(s) and explain or recommend changes as appropriate.

Section C - Course Design

Determine raw tabulation and percentage for each statement.

Some comment or explanation should be provided if the inappropriate ("agree"/"disagree") or "not sure" responses exceed 20%.

Section D & E - Topic Deletion/Additions

Prepare a summary of responses for each section. Comment as appropriate.

Section F - Overall Quality of the Seminar

Total the numerical ratings, and divide by the number of responding participants. That gives the average rating for the seminar, on the scale from 1 ("very poor") to 5 ("excellent"). Comment as appropriate.

Section G - Quality of Instruction

For each instructor, tabulate his or her numerical ratings, and divide by the number of responding participates. Comments as appropriate.

Sections H - Final Comments

Prepare a summary of responses for each section. Comment as appropriate.

Note: A copy of the completed post course evaluation report should be forwarded to the appropriate State Highway Safety Office and/or NHTSA Regional Office.

H. Requests For Information, Assistance or Materials

Requests for further assistance should be directed to the Transportation Safety Institute, via your State's Office of Highway Safety and your NHTSA Regional Office.

30 Minutes

SESSION I

INTRODUCTION AND OVERVIEW

SESSION I INTRODUCTION AND OVERVIEW

Upon successfully completing this session, the participant will be able to :

- State the goals and objectives of the course.
- Define the term "drug" in the context of DWI enforcement.
- Name the seven categories of drugs.
- Describe the observable signs generally associated with the seven drug categories.
- Describe medical conditions and other situations that can produce similar signs.
- Describe the applicable laws relating to driving under the influence of drugs.
- Describe the administrative per se requirements and procedures involved in DWI drug incidents.
- Describe the procedures for obtaining, packaging and processing toxicology samples.

CONTENT SEGMENTS		LEARNING ACTIVITIES	
A.	Overview	o	Instructor-Led Presentations
B.	Objectives	o	Instructor-Led Presentations
C.	Definition of "Drug"	o	Instructor-Led Presentations
D.	Overview of Seven Drug Categories	o	Instructor-Led Presentations
E.	Legal Issues	o	Instructor-Led Presentations

Aids	Lesson Plan	Instructor Notes
 **30 Minutes**	INTRODUCTION AND OVERVIEW	Total Session Time: Approximately 30 Minutes
	A. Welcoming Remarks and Overview	**Segment A: 5 Minutes**
	1. **If this is taught as a stand alone curriculum begin here:** Welcome to the Drugs That Impair Driving. Introduce the Instructors. Ask participants to introduce themselves.	Ask participants why they are taking the course and when they were trained in SFST. If any participants have not attended a SFST training program, they can not attend this module.
 **Display** I-1	2. **If this is taught as part of the SFST curriculum begin here:** Session purpose.	
	a. The purpose of this session is to improve your ability to recognize suspects who may be under the influence of drugs other than alcohol or medically impaired and to take appropriate action when you encounter such a suspect.	
	b. Alcohol certainly remains the most frequently abused drug, and most impaired drivers are under the influence of alcohol.	Ask participants: What drug is responsible for most DWI violations in America?"
	c. But many other drugs also are routinely abused by many drivers.	

Aids	Lesson Plan	Instructor Notes
	d. It is highly likely that every experienced DWI enforcement officer has encountered at least some suspects who were under the influence of drugs other than alcohol or in combination with alcohol.	
	e. Depending upon the specific types of drugs they have taken, some drug-impaired suspects may look and act quite a bit like persons who are under the influence of alcohol.	
	f. But others will look and act very differently from alcohol-impaired suspects.	
	g. It is important that you be able to recognize suspects who may be under the influence of other drugs, so that you will know when to summon assistance from physicians, other appropriate persons or trained Drug Recognition Experts.	Point out: that not all States have Drug Recognition Experts. Point out: Some States refer to DREs as Drug Recognition Technicians (DRT), Drug Recognition Evaluators (DRE) or Drug Recognition Specialists (DRS).
	B. Goals and Objectives of Course	**Segment B: 5 Minutes**
 **Display** I-2	1. Goal: To identify and apprehend individuals who are impaired by drugs.	

Aids	Lesson Plan	Instructor Notes
 Display I-3	2. Objectives: a. To recognize impairment associated with drug use. b. To define "drug" as it relates to highway safety. c. To identify the seven categories of drugs and recognize the major observable indicators. d. To successfully document the impaired driving arrest. e. One important thing that this session <u>WILL NOT</u> accomplish: it <u>WILL NOT</u> qualify you to perform the functions of a Drug Recognition Expert (DRE). f. Officers become DREs only after they have completed a very challenging program that includes nine days of classroom training and many weeks of closely supervised on-the-job training.	Selectively reveal the objectives. <u>STRESS THIS POINT</u>
 **Display** I-4	C. Definition of "drug" 1. The word "drug" is used in many different ways, by many different people.	**Segment C: 5 Minutes**

Aids	Lesson Plan	Instructor Notes
	2. The corner druggist and the U.S. Drug Enforcement Administration are both concerned with "drugs", but they don't have exactly the same thing in mind when they use that word.	
	3. And neither the druggist nor the DEA have the same perspective as the DWI enforcement officer.	
 **Display** I-5	4. For our purposes, a "drug" is: any substance, which, when taken into the human body, can impair the ability of the person to operate a vehicle safely.	Working definition is derived from California Vehicle Code, Section 312; 1992. This is the standard working definition as adapted by the IACP National Drug Recognition Expert Training Standards.
	a. This definition excludes some substances that physicians consider to be drugs. Example: nicotine.	Ask participants: What are some things that physicians would consider to be "drugs" that would not be covered under this definition?
	b. This definition includes some substances that physicians don't usually think of as drugs. Examples: model airplane glue, paint.	Ask participants: What are some common chemical substances that doctors don't usually consider drugs, but that definitely impair driving ability?
	D. Overview of Drug Categories	**Segment D: 10 Minutes**
	1. The seven categories are organized on the basis of the physiological effects or signs that they produce.	Point out that some medical texts may use different numbers of drug categories, with different names for the various categories.

Aids	Lesson Plan	Instructor Notes
	a. The drugs that belong to a particular category produce basically the same effects.	Example: Alcohol and Valium both are CNS depressants. A person under the influence of Valium will look, act and feel basically the same as a person under the influence of alcohol.
	b. Basically, two different categories produce different effects.	Example: A person under the influence of a CNS Stimulant will not look, act or feel exactly like someone under the influence of PCP.
 **Display** I-6	2. Within this enforcement-oriented definition, there are seven categories of drugs. a. Central Nervous System (CNS) Depressants b. Central Nervous System (CNS) Stimulants c. Hallucinogens d. Dissociative Anesthetics e. Narcotic Analgesics f. Inhalants g. Cannabis	Selectively reveal each category. Solicit participants' questions concerning drug categories.
	3. The exact incidence of drugged driving is not actually known. However, the following facts are known about this highway safety problem: a. Fact: In 2002, about 11 million illicit drug users admitted driving after using	Source: National Survey on Drug Use and Health (NSDUH), September 2003.

Aids	Lesson Plan	Instructor Notes
	an illicit drug.	
Display I-7	b. Fact: A study in California of young male (15-34 years old) drivers killed in crashes in the early 1980's revealed that more than half (51 percent) tested positive for drugs other than alcohol. The most prevalent drug (other than alcohol) was cannabis at 37%. 30% of all cases had both alcohol and cannabis.	Source: Compton, R. and Anderson, T. The incidence of Driving Under the Influence of Drugs: 1985, National Highway Traffic Safety Administration, 1985.
	c. Fact: University of Tennessee (1988) found 40% of crash injured drivers had drugs other than alcohol in them.	Source: **Washington Post**, February 17, 1987.
Display I-8	d. In 2004, 19.1 million Americans (7.9% of the population) aged 12 years or older were current illicit drug users.	Source: Results from the 2004 National Survey on Drug Use and Health: National Findings.
	e. Marijuana was the most commonly used illicit drug in 2004, with 14.6 million.	Source: Results from the 2004 National Survey on Drug Use and Health: National Findings.
	f. In 2004, 6.0 million people were users of psychotherapeutic drugs taken non-medically.	Source: Results from the 2004 National Survey on Drug Use and Health: National Findings.
	g. In2004, an estimated 2 million persons were current Cocaine users.	Source: Results from the 2004 National Survey on Drug Use and Health: National Findings.
	E. Legal Issues	Segment E: 5 Minutes
	1. Address the applicable state	Ask participants' to discuss the

Aids	Lesson Plan	Instructor Notes
	laws relating to DWI/Drugs with specificity.	following questions regarding DWI/Drugs: - Does the same law apply to DWI alcohol and/or drugs, or are there separate laws? - Does the statute address operating a vehicle while under the influence or while being impaired. - Is there an additional, separate statute making general drug intoxication or internal bodily possession illegal?
	2. Discuss the administrative per se issues relating to ability to demand and obtain urine and/or blood tests.	- What process is in place to obtain a urine and/or blood test for drug influence cases? - What basis of suspicion, i.e., reasonable cause, is required?
	3. Discuss the procedures for obtaining, collecting and analyzing toxicology samples.	- How is the blood or urine sample to be obtained? - How is the sample to be processed, i.e., packaged, deposited or delivered to the toxicology lab? Solicit participants' questions or comments concerning drug use and drug involvement in impaired driving.

2 Hours

SESSION II

THE SEVEN DRUG CATEGORIES AND MAJOR INDICATORS OF IMPAIRMENT

SESSION II THE SEVEN DRUG CATEGORIES AND MAJOR INDICATORS OF IMPAIRMENT

Upon successfully completing this session, the participant will be able to :

- o Overview the major indicators of impairment.
- o Name examples of the drugs in each of the seven categories.
- o Identify the indicators of impairment associated with each category.
- o Describe medical clues that mimic drug impairment.

CONTENT SEGMENTS		LEARNING ACTIVITIES	
A.	Major Indicators of Impairment	o	Instructor-Led Presentation
B.	Drug Categories	o	Instructor-Led Presentation

Aids	Lesson Plan	Instructor Notes
120 Minutes	THE SEVEN DRUG CATEGORIES AND MAJOR INDICATORS OF IMPAIRMENT	
30 Minutes	A. Major indicators of impairment.	
	1. All drugs affect the body in predictable fashion with different categories affecting the body differently.	THIS SESSION IS ON A VERY COMPACT TIME SCHEDULE. THEREFORE, IT IS IMPERATIVE THAT YOU DO NOT EMBELLISH THE MATERIAL PROVIDED.
	2. The signs and symptoms you see during the suspect's arrest will be essential to determine if they are impaired by a drug other than alcohol.	
	3. As the arresting officer, it will be imperative that you document your observations for use in court.	Even if an expert is called to conduct an evaluation on the suspect, the arresting officer's field observations are essential for that evaluation as well as court testimony.
	4. Most law enforcement agencies have a field note sheet to document your findings.	Suggest that if their Agency doesn't have a field note sheet, they may want to develop one that is consistent with Phase I, II, III of the SFST program.
 **Display** II-1	5. Some common observations, signs and symptoms of drug impairment have been included in your manual for a reference and may assist in preparing your field notes and arrest reports.	Refer the participants to the Field Note Sheet.

Aids	Lesson Plan	Instructor Notes
	6. We will discuss the major indicators of impairment, then tie the observable signs of impairment with the drug category.	
	a. Psychophysical Tests	Note: If the instructor determines that a detailed review of the walk and turn and one leg stand is necessary, refer to the lesson plans in Appendix I.
 **Display** II-1a - II-1d	(1) HGN (a) Review	
 **Display** II-2a - II-2g	(2) Walk and Turn (a) Review	
 **Display** II-3a - II-3e	(3) One Leg Stand (a) Review	
 **Display** II-4a - II-4b	(4) Romberg Balance (a) The Romberg Balance is an additional test that can be administered if drug use is suspected.	
	(b) The test requires the suspect to stand with the feet	Demonstrate the stance required of the suspect.

Aids	Lesson Plan	Instructor Notes
	together and the head tilted back slightly and with the eyes closed.	
	(c) The test also requires that the suspect attempt to estimate the passage of 30 seconds; the suspect must be instructed to open the eyes and tilt the head forward and say stop when they think that 30 seconds have gone by.	Emphasize that the officer must not instruct the suspect as to how he or she is supposed to estimate the passage of thirty seconds.
	(d) The officer must record how much time actually elapsed from the start of the test until the suspect opened the eyes.	Point out that some drugs tend to "speed up" the suspect's internal body clock, so that the suspect may open the eyes after only 10 or 15 seconds have gone by. Other drugs may "slow down" the internal body clock, so that the suspect keeps the eyes closed for 60 or more seconds. And, sometimes the drugs confuse the suspect to the point where he or she won't remember to open the eyes until instructed to do so by the officer.
	(e) If the suspect continues to keep the eyes closed for 90 seconds, the officer should stop the test and record the fact that it was terminated at 90 seconds.	

Aids	Lesson Plan	Instructor Notes
 **20 Minutes**	B. Administrative Procedures	Two instructors should demonstrate the administrative procedures for Romberg Balance. One instructor will play the role of the officer, the other the "suspect".
	1. Stand with your feet together, arms at your sides.	
	2. Just watch me and listen to me while I give you the instructions for this test; don't start doing the test until I tell you to start.	Ask the "suspect" if he or she understands the instructions thus far. If the subject fails to maintain the starting position during your instructions, discontinue the instructions and direct the subject back to the starting position before continuing.
	3. When I tell you to start, I want you to tilt your head back slightly (demonstrate), and close your eyes (don't demonstrate).	Emphasize that the officer must not close his or her own eyes, for officer safety.
	4. Once you have closed your eyes, I want you to remain in that position until you think that 30 seconds have gone by.	Ask the "suspect" if he or she understands the instructions.
	5. As soon as you think 30 seconds have passed by, open your eyes and tilt your head forward and say stop.	Emphasize that the officer must look at a watch as soon as the suspect starts the test, and must record the actual amount of time that passes by until the suspect opens the eyes.

Aids	Lesson Plan	Instructor Notes
 **10 Minutes**	C. Instructor-led demonstrations	
	o Instructor-to-instructor demonstrations.	One instructor should administer a complete Romberg Balance test to another. Solicit participant's questions. Select a student to participate in the demonstration. The instructor should administer a complete Romberg Balance test to the student.
	o Instructor-to-student demonstrations.	Thank the student for his or her participation and solicit questions. Select two participants to conduct demonstrations.
 **20 Minutes**	D. Student-led demonstrations	**Segment D: 20 Minutes** Have the first student administer the test to the second student. Offer constructive criticism, as appropriate, about the student-administrators demonstration. Have the second student administer the test to the first student, and offer appropriate constructive criticism. Thank the participants for their participation and solicit questions.

Aids	Lesson Plan	Instructor Notes
 **30 Minutes**	E. Recording Results of the Romberg Balance Test.	
 **Display** II-5	1. The major items that need to be recorded for the Romberg test are: o the amount that the suspect sways o the actual amount of time that the suspect keeps the eyes closed	
	2. To record swaying, the officer must estimate how many inches the suspect sways, either front to back or left to right, or both.	Example: if the suspect sways approximately two inches toward the left and approximately two inches toward the right, the officer should make note of that fact.
	3. To record the suspect's time estimate, simply write the number of seconds that the suspect kept his or her eyes closed.	
 **20 Minutes**	F. Hand's On Practice.	Solicit participant's questions. Assign participants to work in pairs. Instruct teammates to practice administering the Romberg Balance test to each other. Monitor the practice and offer coaching and constructive criticism, as appropriate.

OBSERVATIONS

SUSPECT'S BREATH
- ____Odor of alcohol
- ____Chemical odor
- ____Cannabis odor

OBSERVATION OF FACE
- ____Normal
- ____Flushed
- ____Pale
- ____Other (describe)

GENERAL APPEARANCE
- ____Clean
- ____Orderly
- ____Disarranged
- ____Bloody
- ____Vomit
- ____Urine

EYES
- ____Normal
- ____Watery
- ____Bloodshot
- ____Pink/Red

ATTITUDE
- ____Anxious
- ____Restless
- ____Agitated
- ____Excited
- ____Combative
- ____Disinterested
- ____Uninhibited
- ____Disoriented
- ____Drowsy
- ____Confused
- ____Hallucinating
- ____Loss of Memory
- ____Cyclic mood swings
- ____Polite
- ____Antagonistic
- ____Stuporous
- ____Cooperative/indifferent
- ____Laughing
- ____Insulting
- ____Argumentative
- ____Fumbling

SPEECH
- ____Talkative
- ____Thick, slurred
- ____Incoherent
- ____Rapid
- ____Slow
- ____Non-communicative
- ____Repetitive

PHYSICAL ACTIONS
- ____Facial itching
- ____Dry mouth
- ____Nodding
- ____Droopy eyelids
- ____Low, raspy voice
- ____Body tremors
- ____Muscle tone - rigid
- ____Muscle tone - flaccid
- ____Muscle tone - normal
- ____Grinding of teeth

OTHER
- ____Nasal redness
- ____Runny nose
- ____Track marks
- ____Perspiring
- ____Warm to touch
- ____Intense headaches
- ____Residue of paint on person
- ____Debris
- ____Pills
- ____Vials
- ____Syringes
- ____Drug paraphernalia

1 Hour

SESSION III

EYE EXAMINATIONS: DETECTING SIGNS OF DRUG INFLUENCE

SESSION III: EYE EXAMINATIONS: DETECTING SIGNS OF DRUG INFLUENCE

Upon successfully completing this session, the participant will be able to:

- Overview the major eye indicators of impairment

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Detecting Signs of Drug Influence	o Instructor-Led Presentation

Aids	Lesson Plan	Instructor Notes
	EYE EXAMINATIONS: DETECTING SIGNS OF DRUG INFLUENCE	
60 Minutes	A. Detecting Signs of Drug Influence	
	1. The eyes disclose some of the clearest signs of drug influence or medical impairment.	Ask participants: What is one of the most reliable signs of alcohol influence that can be observed in the eyes?
 **Display** III-1	a. Horizontal Gaze Nystagmus is an indication of possible alcohol influence. b. There are a number of drugs, other than alcohol, that will enhance horizontal gaze nystagmus. c. There are a number of other drugs that will not cause horizontal gaze nystagmus. d. There are other clues that the eyes will disclose, all of which will suggest the presence or absence of drugs or medical impairment.	
	2. Overview of eye examinations	
	a. The eye examinations that you can conduct to assess possible drug or medical impairment include:	Select a student to serve as a demonstration subject.
	o tracking ability o pupil size o horizontal gaze nystagmus o vertical nystagmus	Position a stimulus in front of a student's eyes, and check for lack of smooth pursuit across both of the student's eyes.

Aids	Lesson Plan	Instructor Notes
	b. Watery and or redness of the eyes.	Explanation: This will be further explained in the individual drug categories.
	c. Tracking ability will be affected by certain categories of drugs, and also by certain medical conditions or injuries involving the brain:	
	o If the two eyes do not track together, the possibility of a serious medical condition or injury is present. It may also be an old injury and not a medical emergency at the time.	
	o By passing a stimulus across both eyes, you can check to see if both eyes are tracking equally.	
	o If they don't (i.e.,if one eye tracks the stimulus, but the other fails to move, or lags behind the stimulus) there is the possibility of a neurological disorder.	Point out that this can occur because the suspect is blind (or nearly blind) in one eye. This can be checked by having the suspect cover one eye, and instructing the suspect to reach out and touch the tip of the stimulus.
	o If a person has sight in both eyes, but the eye fails to track together, there is a possibility that the person is suffering from an injury or illness affecting the brain.	Point out that unequal tracking is a condition that should alert the officer that a medical examination of the suspect may be necessary.

Aids	Lesson Plan	Instructor Notes
 **Display** III-2	o If the eyes track equally, but jerk while they are moving, then the possible presence of three categories of drugs should be noted. o The following categories of drugs enhance horizontal gaze nystagmus: - Central Nervous System (CNS) Depressants - Dissociative Anesthetics - Inhalants o The following categories or drugs do not cause HGN: - CNS Stimulants - Hallucinogens - Narcotic Analgesics - Cannabis d. Pupil Size will be affected by several categories of drugs, and also by some medical conditions or injuries: o If the two pupils are distinctly different in size, it is possible that the subject has a glass eye or is suffering from a head injury or a	Old head or eye injuries may cause different pupil size, however, this may not depict a medical emergency. Point out that it is sufficient to look at a suspect's pupils and estimate whether they look noticeably small, about normal, or noticeably large.

Aids	Lesson Plan	Instructor Notes
	neurological disorder.	
 **Display** III-3	o If the pupils are noticeably dilated, then the possibility exists that the subject is under the influence of certain types of drugs.	
	o Pupils may be considered dilated if the radius of the pupil is larger than half way to the outside of the iris.	Explain how to estimate dilation
	o Simply a small portion of the iris is visible.	
	- CNS stimulants usually cause dilation.	Examples: cocaine, methamphetamine, amphetamine sulfate, etc.
	- Hallucinogens usually cause dilation.	Examples: LSD, peyote, psilocybin, MDMA, etc.
	- Cannabis usually causes dilation.	Examples: marijuana, hashish, hash oil
 **Display** III-4	o If the pupils are noticeably constricted, then the possibility exists that the subject is under the influence of a narcotic analgesic.	Examples: Heroin, codeine, demerol, etc.
	o Generally the pupil is considered constricted if the pupil appears very small and a large portion of the iris is visible.	
 **Display** III-5	o CNS Depressants, Dissociative Anesthetics, and	Point out that the types of drugs that usually induce nystagmus usually don't affect

Aids	Lesson Plan	Instructor Notes
	Inhalants usually do not affect pupil size.	pupil size. Major Exception: Methaqualone and Soma, CNS Depressants, will cause pupils to dilate.
	3. The test of horizontal gaze nystagmus for subjects suspected of drug impairment is identical to the HGN test for alcohol impaired subjects.	
	a. First clue - lack of smooth pursuit.	Ask participants: (What are the 3 clues of HGN)
	b. Second clue - distinct and sustained jerkiness at maximum deviation.	
	c. Third clue - onset of nystagmus prior to 45 degrees.	
	4. The angle of onset becomes of special interest when a subject is under the influence of a Dissociative Anesthetic.	
 **Display** III-6	a. Dissociative Anesthetics, and high levels (for that individual) of depressants and inhalants can exhibit immediate on-set, i.e., the jerking begins as soon as the eyes start to move toward the side.	
	b. Sometimes, Dissociative Anesthetic-impaired subjects will exhibit resting nystagmus, both eyes jerk while they are looking straight ahead.	Write resting nystagmus on dry-erase board or flip chart

Aids	Lesson Plan	Instructor Notes
 **Display** III-7a & III-7b	5. The Vertical Nystagmus test is very simple to administer.	
	a. Position the stimulus horizontally, approximately 12 -15 inches in front of the subject's nose.	Point out that vertical nystagmus typically appears in higher levels (for that individual) from the same drug categories that induce HGN - Depressants, Dissociative Anesthetics, and Inhalants.
	b. Instruct the subject to hold the head still, and follow the stimulus with the eyes only.	
	c. Raise the stimulus until the subject's eyes are elevated as far as possible and hold in that position for approximately 4 seconds.	
	d. Watch closely for evidence of jerking.	Point out that vertical nystagmus was not examined in the research that led to the validation of the standardized field sobriety test battery which includes, the horizontal gaze nystagmus, walk and turn and one leg stand tests. Select a student or another instructor to serve as a subject and demonstrate the vertical nystagmus test.

35 Minutes

SESSION IV

METHODS OF INGESTION AND INJECTION

SESSION IV: METHODS OF INGESTION AND INJECTION

Upon successfully completing this session, the participant will be better able to:

- Describe the common methods of ingesting drugs.

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Methods of Ingestion and Injection	o Instructor-Led Presentation

Aids	Lesson Plan	Instructor Notes
 **35 Minutes**	METHODS OF INGESTION AND INJECTION A. Methods of Ingestion and Injection 1. Different drugs are taken into the body in different ways. 2. If the means of ingestion of a drug can be determined, that can be a significant clue as to the drug category involved.	
 **Display** IV-1	3. The following are common means of ingestion: a. Oral o Some drugs such as certain depressants, stimulants and narcotic analgesics are taken in pill or capsule form. o Other drugs, such as hallucinogens are eaten in their naturally occurring form. b. Nasal o Stimulant drugs such as cocaine and methamphetamine are snorted nasally. o Heroin, a narcotic analgesic, is also occasionally snorted.	Selectively review each item as discussed. Also known as insufflation.

Aids	Lesson Plan	Instructor Notes
	c. Smoking o A common means of ingesting cannabis is by smoking. o Stimulants such as crack cocaine and methamphetamine are also smoked. o Narcotic Analgesics may be smoked. d. Inhaling o The fumes of gasoline, paints, glue and other chemicals are typically inhaled. e. Injection o Certain drugs are commonly injected by their users, via hypodermic needles. o Heroin is probably most commonly associated with injection, but several other types of drugs such as cocaine and methamphetamine also are injected by many users. o Discovering injection sites on a suspect provides additional evidence that he or she may be under the influence of specific types of drugs.	Ask participants: What drug is most often associated with injection via hypodermic needle?

Aids	Lesson Plan	Instructor Notes
	4. The use of rubber gloves when examining any suspected drug abuser is strongly recommended.	Stress the importance of always wearing rubber gloves to reduce the likelihood of contracting infectious diseases such as, hepatitis or AIDS.

5 Minutes

SESSION V

MUSCLE TONE

SESSION V: MUSCLE TONE

Upon successfully completing this session, the participant will be better able to:

- Describe how various drug categories affect muscle tone.

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Muscle Tone	o Instructor-Led Presentations

Aids	Lesson Plan	Instructor Notes
 **5 Minutes**	MUSCLE TONE	
	A. Muscle Tone	
 Display V-1	1. Effects Muscle Tone	
	a. Certain categories of drugs can cause the users' muscles to become markedly rigid.	Typically Dissociative Anesthetics, Stimulants, and Hallucinogens cause this effect.
	b. Evidence of this muscle rigidity may come to light when the suspect attempts to perform the divided attention tests.	
	2. Muscle Tone - Flaccid	
	a. Certain categories of drugs can also cause the users muscles to become very relaxed, loose, or flaccid.	Typically Narcotic Analgesics and Depressants cause this effect.

3 hours 30 minutes

SESSION VI

DRUG CATEGORIES AND THEIR OBSERVABLE EFFECTS

SESSION VI: DRUG CATEGORIES AND THEIR OBSERVABLE EFFECTS

Upon successfully completing this session, the participant will be better able to:

- Identify the indicators of impairment associated with each category.
- Describe the expected results of roadside observations/indicators of impairment.
- Describe the general indicators that may be present for each drug category.

CONTENT SEGMENTS

A. CNS Depressants

B. CNS Stimulants

C. Hallucinogens

D. Dissociative Anesthetics

E. Narcotic Analgesics

F. Inhalants

G. Cannabis

H. Drug Combinations

I. Medically Impaired Person

LEARNING ACTIVITIES

- Instructor-Led Presentations

Aids	Lesson Plan	Instructor Notes
210 Minutes	DRUG CATEGORIES AND THEIR OBSERVABLE EFFECTS	
30 Minutes	A. CNS Depressants	THIS SESSION IS ON A VERY COMPACT TIME SCHEDULE. THEREFORE, IT IS IMPERATIVE THAT YOU DO NOT EMBELLISH THE MATERIAL PROVIDED.
 **Display** VI-1	CNS Depressants slow down the operation of the Central Nervous System, (i.e., the brain, brain stem and spinal cord).	Point out that alcohol remains the most familiar drug. In 2002, 51 percent of persons aged 12 or older were current drinkers.
	1. The most familiar CNS Depressant is alcohol. 2. Other CNS Depressants include: a. Barbiturates (Derivatives of barbituric acids) (GHB - Gama-Hydroxy Butarate) b. Anti anxiety tranquilizers (such as Valium, librium, and xanax) c. Rohypnol d. Many other drugs 3. In general, people under the influence of CNS Depressants look and act much like people under the influence of alcohol.	

Aids	Lesson Plan	Instructor Notes
 **Display** VI-2	4. Expected Results of Roadside Observations/Indicators of impairment. a. Psychophysical (1) Divided attention impairment. (2) Poor coordination and balance. (3) Slowed internal clock. b. Eye Indicators of CNS Depressant Influence: o HGN usually will be present. o Vertical nystagmus will be present (with high doses for that individual). o Pupil size usually will be normal. o Eye lids may be droopy and eyes watery. c. Methods of ingestion:	
 **Display** VI-3	(1) Oral (2) Injection	Point out that most depressants are taken in pill or capsule form. Barbiturates are sometimes injected.

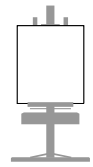
Aids	Lesson Plan	Instructor Notes
 **Display** VI-3A	d. General indicators that may be present: (1) Drowsy (2) Thick, slurred speech (3) Uncoordinated, fumbling (4) Flaccid muscle tone (5) Sluggish e. Other conditions that may cause similar symptoms: (1) Extreme fatigue (2) Head injury (3) Hypotension (4) Severe depression (5) Diabetic reaction (6) Inner ear disorders	Abnormally low blood pressure. Solicit students questions concerning indicators of CNS Depressant influence.
 **30 Minutes**	B. CNS Stimulants	
 **Display** VI-4	CNS Stimulants speed up the operation of the central nervous system, and of the various bodily functions controlled by the Central Nervous System. 1. The two most widely abused CNS Stimulants are cocaine and amphetamines. 2. Cocaine is made from the leaves of the coca plant. 3. Amphetamines are synthetically produced (manufactured) drugs. 4. People under the influence of CNS Stimulants tend to be hyperactive, indicated by	Amphetamines also include the unlawful production of methamphetamine or crank.

Aids	Lesson Plan	Instructor Notes
	nervousness, talkativeness, and inability to sit still. They also are usually unable to concentrate, or to think clearly for any length of time.	
 **Display** VI-5	5. Expected Results of Roadside Observations/Indicators of Impairment: a. Psychophysical: (1) Divided attention impairment (2) Starts test too soon (3) Accelerated internal clock (4) Completes test too quickly (5) Rapid and jerky movements	
 **Display** VI-6	b. Eye indicators of CNS Stimulants (1) Neither horizontal or vertical nystagmus will be present (2) Pupils usually noticeably dilated.	

Aids	Lesson Plan	Instructor Notes
 **Display** VI-7	c. Methods of ingestion:	Cocaine and Methamphetamine can be smoked - "crack cocaine" or "ice".
	(1) Smoking	
	(2) Snorting	
	(3) Injecting	Point out that all stimulants may be injected.
	(4) Orally	Typically amphetamines are taken in pill or capsule form.
 **Display** VI-7A	d. General indicators of CNS Stimulant influence that may be present: (1) Restlessness (2) Anxiety (3) Euphoria (4) Talkative (5) Excitation (6) Grinding teeth (bruxism) (7) Body tremors (8) Runny nose (if snorting) (9) Redness to nasal area (If snorting) (10) Exaggerated reflexes (11) Loss of appetite	
	e. Other conditions that may cause symptoms similar to stimulant influence: (1) Hyperactivity (2) Nervousness (3) Stress (4) Fear (5) Hypertension	Solicit students questions concerning indicators of CNS Stimulant influence

Aids	Lesson Plan	Instructor Notes
30 Minutes	C. Hallucinogens	
Display VI-8	Hallucinogens are drugs that cause hallucinations, i.e. they cause the user to perceive things differently from the way that they really are.	An hallucination is a sensory experience of something that does not exist outside the mind.
Display VI-9	1. One common type of hallucination caused by these drugs is called synesthesia, which means a transposition of sensory modes:	
	a. Sounds, for example, may be transposed into sights.	Example: The user may see a flash of color whenever the telephone rings.
	b. Sights, for example, may be transposed into odors.	Example: The user may smell a particular fragrance when he or she looks at something red.
Display VI-10	2. Some hallucinogenic drugs come from natural sources.	
	a. Peyote is a hallucinogen found in a particular specie of cactus.	
	b. Psilocybin is a hallucinogen found in a number of species of mushrooms.	
	3. Other hallucinogens are synthetically manufactured.	
	a. LSD (Lysergic Acid Diethylamide)	

Aids	Lesson Plan	Instructor Notes
	b. MDMA ("X" or ecstacy) c. many others 4. Persons under the influence of hallucinogens are usually extremely impaired and may exhibit bizarre behavior.	
 **Display** VI-11	5. Expected Results of Roadside Observations/Indicators of Impairment: a. Psychophysical - Uncoordinated - Severe divided attention impairment - Poor perception of time and distance - Poor balance - Distorted internal clock b. Eye Indicators of Hallucinogen influence: (1) Neither Horizontal or Vertical Nystagmus will be present (2) The pupils usually will be noticeably dilated.	Point out that the indicators of hallucinogenic influence are very similar to the indicators of CNS Stimulant influence.

Aids	Lesson Plan	Instructor Notes
 **Display** VI-12	c. Methods of Hallucinogen Ingestion (1) Orally (2) Smoked (3) Transdermal Absorption (4) Injected (5) Snorted	Absorbed through the skin.
 **Display VI-12A**	d. General Indicators of Hallucinogen Influence that may be present: (1) Dazed appearance (2) Body tremors (3) Perspiring (4) Paranoia (5) Disorientation (6) Nausea (7) Difficulty in speech (8) Piloerection (LSD) (9) Hallucinations	Explain that is a term to describe hair standing on end.
	e. Other Conditions that may cause symptoms similar to Hallucinogen influence: (1) Mental illness (2) High fever	Solicit students questions concerning indicators of hallucinogen influence.
 **30 Minutes**	D. Dissociative Anesthetics	
  **Display** VI-13	1. PCP - The chemical name for PCP is <u>P</u>henyl<u>C</u>yclohexyl <u>P</u>iperidine.	Write the chemical name on the dry-erase board or flip chart, underlining the first "P", the first "C" and the last "P". Point out that "Phencyclidine" is a contraction, or shortened form of the chemical name.

Aids	Lesson Plan	Instructor Notes
	2. Phencyclidine or PCP, is a drug that, along with its analogs, forms a distinct category.	Point out that an "analog" is a "chemical first cousin" of PCP. That is, an analog has a slightly different chemical structure from PCP, but produces the same effects as does PCP.
	3. Dissociative Anesthetics share some characteristics with each of the three categories of drugs previously covered in this training.	
	a. It produces some effects that are similar to the effects of CNS Depressants.	Examples of effects Dissociative Anesthetics share with Depressants: nystagmus, slurred speech, slowed responses.
	b. It produces some effects that are similar to those of CNS stimulants.	Examples of effects Dissociative Anesthetics share with Stimulants: elevated vital signs, frenzied behavior.
	c. In some respects it acts like an hallucinogen.	
	4. Analogs and Examples of Dissociative Anesthetics	
	a. Ketamine - continues to be manufactured and sold legitimately.	
	b. Common names for PCP are: Dust, Animal Tranquilizer, Peace Pill, Sherms, Super Kools and Kools.	
	c. Another drug in this category is Dextromethorphan. It is sometimes referred to	

Aids	Lesson Plan	Instructor Notes
	"DXM" and is an ingredient found in numerous over-the-counter cough and cold remedies. (1) DXM is a synthetically produced substance that is chemically related to Codeine, although it is not an opiate. (2) When ingested in recommended dosage levels, DXM generally is a safe and highly effective cough suppressant; however, when ingested in large amounts, it produces negative physiological effects. (3) Street names for Dextromethorphan include: "DXM", "robo tripping", "Skittles", "Triple C", "Robo dosing", "DM", "robo" (4) DXM abusers normally ingest the drug orally, although some snort the pure powdered form of the drug.	

Aids	Lesson Plan	Instructor Notes
 **Display** VI-14	5. Expected Results of Roadside Observations/Indicators of Impairment a. Psychophysical (1) Divided Attention Impairment (2) May take abnormally high and slow steps as though he or she were trying to step over obstacles. (3) Slowed internal clock. b. Eye Indicators of Dissociative Anesthetic Influence (1) HGN will be present. (2) Vertical nystagmus will be present. (3) Pupil size usually will be normal. (4) Suspect may have a blank stare.	Commonly referred to as "moon walking". Generally will a very early angle of onset and very distinct jerking.
 **Display** VI-15	c. Methods of ingestion (1) Smoked	Point out: Commercial cigarettes can be dipped in liquid PCP, allowed to dry and then smoked. Dark cigarettes are used to hide the PCP stains. The white paper cigarettes will be stained and usually wrapped in foil.

Aids	Lesson Plan	Instructor Notes
	(2) Inhaled or "snorted".	
	(3) Orally, in capsule or tablet form.	
	(4) Injected.	
	(5) Transdermal absorption.	Point out: Liquid PCP is especially dangerous because it can be absorbed through the skin. Extreme caution should be used when handling the suspect's possessions, because liquid PCP is frequently stored in eye dropper or perfume type bottles.
 **Display** VI-15A	d. General Indicators of Dissociative Anesthetic influence that may be present:	
	(1) Blank stare (2) Loss of memory (3) Perspiring (4) Warm to touch (5) Slow, slurred speech (6) Cyclic behavior (7) Easily agitated (8) Rigid muscle tone (9) Disorientation (10) Non-responsive (11) Chemical odor (12) Slow to respond to instructions	Suspect alternates between periods (or cycles) of intense agitation and relative calm.
	e. Other conditions that may cause similar symptoms.	
	(1) mental disorder	Solicit student questions concerning indicators of Dissociative Anesthetic influence.

Aids	Lesson Plan	Instructor Notes
30 Minutes	E. Narcotic Analgesic Narcotic Analgesic relieves pain, but also induces euphoria, alters mood and produces sedation. 1. The most familiar Narcotic Analgesic is heroin. 2. Other Narcotic Analgesics include: a. Opium b. Morphine c. Codeine d. Dilaudid e. Demerol f. Methadone g. Darvon h. Oxycontin 3. In general, people under the influence of Narcotic Analgesic tend to be very slow, with deliberate movements, unable to concentrate and slow to respond. 4. Expected Results of Roadside Observations/Indicators of Impairment a. Psychophysical (1) Divided attention impairment. (2) Poor coordination and balance. (3) Slowed internal clock.	
 **Display** VI-16		Used as a substitute for heroin addicts undergoing therapy and treatment.
 **Display** VI-17		

Aids	Lesson Plan	Instructor Notes
	b. Eye Indicators of Narcotic Analgesic Influence. o HGN will not be present o Vertical nystagmus will not be present. o Pupil size will be constricted. o Eyelids will be droopy.	Suspect may appear to be asleep, but he or she may hear everything that is said. This condition is commonly referred to as "on the nod".
 **Display** VI-18	c. Methods of ingestion. (1) Injected (2) Smoked (3) Snorted (4) Orally (5) Suppositories	
 **Display** VI-18A	d. General Indicators of Narcotic Analgesic influence that may be present: (1) "Track marks" (2) "On the nod" (3) Slowed reflexes (4) Slow, low, raspy speech (5) Facial itching (6) Dry mouth (7) Euphoria (8) Pupils constricted (9) Flaccid muscle tone	Solicit student questions concerning indicators of Narcotic Analgesic influence.

Aids	Lesson Plan	Instructor Notes
 **20 Minutes**	F. Inhalants 1. Inhalants are breathable chemicals that produce mind-altering results. a. Inhalants vary widely in terms of the chemicals involved and the specific affects produced. b. Depending on the nature of the particular inhalant, the effects produced may be similar to those of stimulants, depressants or hallucinogens.	
 **Display** VI-19	2. Inhalants category contains substances such as: a. gasoline b. glues (Toluene) c. paint d. hair spray e. anesthetic gases	
	3. In general, people under the influence of an Inhalant exhibits effects that are similar to alcohol intoxication.	
 **Display** VI-20	4. Expected Results of Observations/Indicators of Impairment a. Psychophysical (1) Divided attention impairment (2) Poor coordination and balance	

Aids	Lesson Plan	Instructor Notes
	b. Eye indicators of Inhalant Influence o HGN will generally be present o Vertical Nystagmus may be present (with high doses for that individual) o Pupil size may be normal or dilated depending on the inhalant used.	
 **Display VI-21**	c. Methods of Ingestion (1) Inhaling by breathing fumes (2) Some are ingested directly from source (3) Some inhalants are soaked into rags, handkerchiefs, twist lock beverage containers, plastic bags or balloons.	
 **Display VI-21a**	d. General Indicators of Inhalant influence may be present: The effects of inhalants vary somewhat from one substance to another and are fast acting.	

Aids	Lesson Plan	Instructor Notes
	(1) Odor of inhaled substance (2) Dizziness and numbness (3) Possible traces of substance around face and nose (4) Bloodshot, watery eyes (5) Distorted perceptions of time and space (6) Confused, disoriented appearance (7) Light headedness (8) Flushed face, possibly sweating (9) Intense headaches (10) Slow, thick, slurred speech (11) Nausea (12) Non-communicative (13) Floating sensations	Solicit student questions concerning indicators of inhalant influence.
 **30 Minutes**	G. Cannabis 1. The primary psychoactive ingredient in Cannabis is Delta-9 Tetrahydrocannabinol. a. THC is found principally in the leaves and flowers of the plant, rather than in the	

Aids	Lesson Plan	Instructor Notes
	stem or branches.	
	b. Different varieties of Cannabis have different concentrations of THC.	
Display VI-22	2. The types of Cannabis are:	
	a. Marijuana	- dried leaves of plant
	b. Hashish	- concentrated version of marijuana
	c. Hashish oil	- liquid extraction from hashish
	d. Marinol	- synthetic form of THC
	3. In general people under the influence of Cannabis have a difficult time paying attention.	
	4. Expected Roadside Observations Indicators of Impairment	
Display VI-23	a. Psychophysical	
	(1) Divided attention impairment	
	(2) Poor coordination and balance	
	(3) Problems with divided attention tasks, i.e., getting registration, license.	
	(4) Slowed internal clock	

Aids	Lesson Plan	Instructor Notes
	b. Eye indicators of Cannabis o HGN will not be present o Vertical nystagmus will not be present o Pupil size will be dilated or normal	
 **Display VI-24**	c. Methods of Ingestion (1) Smoking (2) Orally - baked and eaten in food.	
 **Display** VI-24A	d. General indicators of Cannabis influence that may be present: (1) Odor of marijuana (2) Impaired perception of time and distance (3) White (conjunctiva) of the eyes are markedly reddish (4) Eyelid and body tremors (5) Disorientation (6) Impairs attention (7) Diminished inhibitions	Solicit students questions concerning indicators of Cannabis influence.

Aids	Lesson Plan	Instructor Notes
 **10 Minutes**	H. Drug Combinations 1. The Prevalence of Polydrug Use. a. Polydrug use means ingesting drugs from two or more drug categories. b. It is actually more common to encounter polydrug users than single drug users.	
 **Display VI-25**	(1) In the Los Angeles Field Study (1985), 72% of the suspects had two or more drugs in them. **(**2) In that study alcohol was often found in combination with one or more other drugs.	
	(3) But even if we discount alcohol, nearly half (45%) of the Field Study suspects had two or more other drugs in them.	<u>Point out</u> that 81 of the 173 suspects (47%) in the Los Angeles Field Study had alcohol in combination with one or more other drugs.
 **Display VI-25A**	(4) During certification training in New York City, in early 1989, two-thirds (67%) of the suspects evaluated had two or more drugs other than alcohol in their urine.	

Aids	Lesson Plan	Instructor Notes
 **Display** VI-26	c. Common combinations of drugs. (1) Cocaine and cannabis (2) Cocaine and heroin (3) PCP and cannabis	Referred to as a "speedball".
	d. Many of the suspects you will see will be exhibiting the effects of two or more drugs acting together.	Point out that virtually any possible drug combinations will be found.
	e. When two or more drug categories are taken together, they tend to produce a combination of effects: null, overlapping, additive and antagonistic. (1) Null effect: the drugs have the same effect on the suspects body, e.g. pupil size. (2) Overlapping effect: one drug affects the function but the other does not. (3) Additive effect: action plus the same action reinforces the action. (4) Antagonistic effect: action versus the opposite action, can't predict the outcome.	Solicit students' comments and questions about the prevalence of polydrug use.
	2. Scenario Exercises	Assign the students to work in three-member teams.
	a. Scenarios	Direct the students' attention to the 8 scenarios in their student manuals. Instruct the students that they have 10

Aids	Lesson Plan	Instructor Notes
		minutes to read the scenarios and determine the category or categories that is applicable for each one.
	b. Discussion of Scenarios	Critique and correct the students' analysis of the categories, as appropriate.
	3. Cumulative Drug Matrix	The Matrix summarizes what we usually see but doesn't guarantee we will always see exactly that.
	a. The Matrix outlines the expected results of the roadside examination of the suspect.	
	I. Medically Impaired Person	
	1. Most agencies have policies and procedures to deal with the medically impaired person.	Segment I: Minutes Encourage students to review their agencies policies and procedures.

INDICATORS CONSISTENT WITH DRUG CATEGORIES							
	DEPRESSANT	**STIMULANTS**	**HALLUCINOGEN**	**DISSOCIATIVE ANESTHETICS**	**NARCOTIC**	**INHALANT**	**CANNABIS**
HGN	**PRESENT**	**NONE**	**NONE**	**PRESENT**	**NONE**	**PRESENT**	**NONE**
VERTICAL NYSTAGMUS	**PRESENT (HIGH DOSE)***	**NONE**	**NONE**	**PRESENT**	**NONE**	**PRESENT (HIGH DOSE)***	**NONE**
PUPIL SIZE	**NORMAL(1)**	**DILATED**	**DILATED**	**NORMAL**	**CONSTRICTED**	**NORMAL(2)**	**DILATED(3)**

*** high dose for that particular individual**

FOOTNOTE:

These indicators are those most consistent with the category, keep in mind that there may be variations due to individual reaction, dose taken and drug interactions.

1. **SOMA, Quaaludes usually dilate pupils.**
2. **Normal but may be dilated.**
3. **Pupil size possibly normal.**

MAJOR INDICATORS	CNS DEPRESSANTS	CNS STIMULANTS	HALLUCINOGENS	DISSOCIATIVE ANESTHETICS	NARCOTIC ANALGESICS	INHALANTS	CANNABIS
GENERAL INDICATORS	Uncoordinated Disoriented Sluggish Thick, slurred speech Drunk-like behavior Gait ataxia Drowsiness Droopy eyes Fumbling *NOTE: With Methaqualone, pulse will be elevated and body tremors will be evident. Alcohol and Quaaludes elevate pulse. Soma and Quaaludes dilate pupils.	Restlessness Body tremors Excited Euphoric Talkative Exaggerated reflexes Anxiety Grinding teeth (bruxism) Redness to nasal area Runny nose Loss of appetite Insomnia Increased alertness Dry mouth Irritability	Dazed appearance Body tremors Synesthesia Hallucinations Paranoia Uncoordinated Nausea Disoriented Difficulty in speech Perspiring Poor perception of time & distance Memory loss Disorientation Flashbacks NOTE: With LSD, piloerection may be observed (goose bumps, hair standing on end)	Perspiring Warm to the touch Blank stare Very early angle of HGN onset Difficulty in speech Incomplete verbal responses Repetitive speech Increased pain threshold Cyclic behavior Confused agitated Hallucinations Possibly violent & combative Chemical odor "Moon walking"	Droopy eyelids ("ptosis") "On the nod" Drowsiness Depressed reflexes Low, raspy, slow speech Dry mouth Facial itching Euphoria Fresh puncture marks Nausea Track marks NOTE: Tolerant users exhibit relatively little psychomotor impairment.	Residue of substance around nose & mouth Odor of substance Possible nausea Slurred speech Disorientation Confusion Bloodshot, watery eyes Lack of muscle control Flushed face Non-communicative Intense headaches **NOTE: Anesthetic gases cause below normal blood pressure; volatile solvents and aerosols cause above normal blood pressure.	Marked reddening of conjunctiva Odor of marijuana Marijuana debris in mouth Body tremors Eyelid tremors Relaxed inhibitions Increased appetite Impaired perception of time & distance Disorientation Possible paranoia

SCENARIO I

While checking an interstate rest area, you notice a vehicle parked, engine running, with the driver apparently sleeping. After awakening the driver, who claims she was not sleeping, you notice that her actions are very slow and lethargic. There is no odor of alcoholic beverage on this person's breath and she states she has not been drinking. As you administer the standardized field sobriety tests, you observe that there is no Horizontal Gaze Nystagmus and no Vertical Nystagmus. You also observe that her pupils are extremely small and the eyelids are droopy. As the driver is performing the walk and turn and one leg stand tests, her movements are slow. Administration of the Romberg test disclosed that the subject has a slow internal clock.

SCENARIO II

On a Saturday evening following a concert, you stop a vehicle for weaving down the street. During the initial conversation with the subject you notice that he is talking very rapidly, has extremely large pupils and is paranoid. The subject states that he was trying to avoid the large snails that were on the road. There is no odor of an alcoholic beverage on this person's breath. As you administer the standardized field sobriety tests, you observe that there is no Horizontal Gaze Nystagmus and no Vertical Nystagmus. As the driver is performing the walk and turn and one leg stand, his movements are fast, then slow, then fast again; and was having difficulty dividing attention. Administration of the Romberg test discloses that the subject has a fast internal clock and goosebumps. After the Romberg test the subject stated that he was confused by the loud noise coming from the Police Officer's raincoat.

SCENARIO III

It is August, you arrive on the scene of a serious traffic crash. You notice that the driver is wearing a long sleeve shirt and different smelling smoke escapes from the vehicle. He is not able to stay awake but is able to answer your questions. The sleeve of his shirt slides up and you notice red marks on his arms. He has no Horizontal Gaze Nystagmus and no Vertical Nystagmus. As the driver is performing the walk and turn and one leg stand tests, his movements are slow and deliberate. Administration of the Romberg test disclosed that the subject has a slow internal clock. His eyes are reddish and pupils appear to normal.

SCENARIO IV

On a Saturday evening following a concert, you stop a vehicle for speeding (70 in a 35). During the initial conversation with the subject you notice that she is talking very rapidly, has extremely large pupils and is anxious. There is no odor of an alcoholic beverage on this person's breath. As you administer the standardized field sobriety tests, you observe that there is no Horizontal Gaze Nystagmus and no Vertical Nystagmus. As the driver is performing the walk and turn and one leg stand, her movements are fast. Administration of the Romberg test discloses that the subject has a fast internal clock and muscle tremors.

SCENARIO V

You receive a call to back-up a fellow officer who has stopped a vehicle and is now wrestling with the operator. Upon arrival, you observe that the subject is naked (the temperature is thirty degrees). He appears to be somewhat cooperative but non-communicative. There is no odor of alcoholic beverage on this person's breath. As you administer the standardized field sobriety tests, you observe that there is Horizontal Gaze Nystagmus with immediate onset and Vertical Nystagmus. As the driver is performing the walk and turn and one leg stand tests, his movements are slow and rigid. He was having difficulty dividing attention. Administration of the Romberg test discloses that the subject has a slow internal clock. His skin is warm to the touch.

SCENARIO VI

You have responded to a one car property damage crash. In your initial conversation with the operator you observe him to be drowsy. There is no odor of alcoholic beverage on this person's breath. As you administer the standardized field sobriety tests, you observe that there is Horizontal Gaze Nystagmus and Vertical Nystagmus. As the driver is performing the walk and turn and one leg stand, his movements are slow and his muscle tone appears flaccid. Administration of the Romberg test discloses that the subject has a slow internal clock. The subject's pupils appeared normal in size.

SCENARIO VII

You receive a call to assist a local officer and he explains that he stopped the vehicle for obvious driving impairment. The driver displayed numerous clues and indicators of impairment during the SFSTs. However, he did not demonstrate any clues in Horizontal Gaze Nystagmus or Vertical Nystagmus. Larger than normal pupils and noticeable fluttering eyelids during the Romberg were detected. His internal clock was slowed to 60 seconds. The whites of his eyes appear reddish. He seems totally unconcerned with the thought of possibly being arrested.

SCENARIO VIII

You stop a vehicle for running a red light. As you observe the driver, he is slow to respond, perspiring, and is easily agitated. As the subject is performing the walk and turn and one leg stand, you observe that the subject is very rigid and is having a difficult time dividing attention. He has Horizontal Gaze Nystagmus and Vertical Nystagmus. His eyes are reddish and pupils are larger than normal. Administration of the Romberg test disclosed that the subject has a distorted internal clock.

SCENARIO ANSWER KEY

Scenario I	Narcotic Analgesics
Scenario II	Hallucinogens
Scenario III	Narcotic Analgesics and Cannabis
Scenario IV	Stimulants
Scenario V	Dissociative Anesthetics
Scenario VI	Depressants
Scenario VII	Cannabis
Scenario VIII	Dissociative Anesthetics and Cannabis

45 Minutes

SESSION VII

WRITTEN EXAMINATION AND PROGRAM CONCLUSION

SESSION VII WRITTEN EXAMINATION AND PROGRAM CONCLUSION

Upon successfully completing this session, the participant will be able to:

- Complete a written examination with a passing grade.
- Provide comments and suggestions to improve the course.

CONTENT SEGMENTS	LEARNING ACTIVITIES
A. Post Test and Critique	o Written Participant Exam
B. Certificates and Dismissal	

Aids	Lesson Plan	Instructor Notes
 **45 Minutes**	WRITTEN EXAMINATION AND PROGRAM CONCLUSION	
 **35 Minutes**	A. Post-Test and Critique	
	1. Post-test	Note: This is a "Closed Book" test. Hand out copies of the post-test. Allow 15 minutes to complete the test.
	2. Critique	Hand out copies of the Participant's Critique Form. Allow about 10 minutes to complete.
	3. Review of Post-test	Go over the post-test questions. Limit this review to 10 minutes.
 **10 Minutes**	B. Dismissal	
	1. Concluding remarks	
	a. Overall Goal	Remind participants of the enormous importance of DWI deterrence.
	b. Job performance objectives	Express the expectation that the participants will strive always to obtain and clearly convey all the evidence that is present in their DWI/DWI Drug contacts.

Aids	Lesson Plan	Instructor Notes
	c. Drug Evaluation and Classification (DEC) Program	Remind the participants that they are NOT DREs and if the subject shows signs of recent drug use, contact a DRE (if your State or area has a DRE program) as quickly as possible. Thank participant's for their time and attention.

NOTE: IF "DRUGS THAT IMPAIR DRIVING" IS TAUGHT AS PART OF A BASIC SFST COURSE, SESSION VII COULD BE INCORPORATED INTO THE NORMAL SFST CONCLUSION BY SIMPLY ADDING THE KNOWLEDGE EXAMINATION.

APPENDIX I

HORIZONTAL GAZE NYSTAGMUS (HGN)

This is the first of the three standardized field sobriety tests that you will administer to the suspect. Nystagmus is the involuntary jerking of the eyes. HGN is a very reliable field sobriety test by itself (77%). The test requires the suspect to follow a stimulus that is moved in front of the suspect's face.

Administrative Procedures

- Have the suspect remove their glasses if they are wearing them.
- Tell the suspect to put their feet together and place their hands at their sides.
- Tell the suspect to keep their head still during the test.
- Tell the suspect to look at the stimulus.
- Tell the suspect to follow the movement of the stimulus with their eyes only.
- Tell the suspect to continue looking at the stimulus until they are told that the test is over.
- Position the stimulus approximately 12 to 15 inches from the nose in and slightly above eye level to commence the test.
- Check for equal tracking of the eyes.
- Check for equal pupil size and resting nystagmus.
- Check the eyes for lack of smooth pursuit. Always starting with the suspect's left eye.
- Check the eyes for distinct and sustained nystagmus at maximum deviation. Start with the left eye.
- Check the eyes for the onset of nystagmus prior to 45 degrees. Start with the left eye.
- Total the clues.
- Check for Vertical Nystagmus.

DOCUMENTING THE TEST

Three validated clues of impairment have been established for the Horizontal Gaze Nystagmus test.

- o Lack of smooth pursuit
- o Distinct nystagmus at maximum deviation
- o Onset of nystagmus prior to 45 degrees

A minimum of four clues are needed to determine if the suspect's B.A.C. level is above 0.10 percent.

WALK AND TURN

This test should already be very familiar to you from your previous training. The test requires the suspect to stand in a heel-to-toe fashion with arms at the sides while a series of instructions are given. Then, the suspect must take nine heel-to-toe steps along a line, turn in a prescribed manner, and take another nine heel-to-toe steps along the line. All of this must be done while counting the steps out-loud and keeping the arms at the sides. The suspect should not stop walking until the test is completed.

Administrative Procedures

- o Tell the suspect to place their left foot on the line.

- o Tell the suspect to place the right foot on the line, in front of the left foot, with the heel of the right foot against the toe of the left foot. **DEMONSTRATE** the heel-to-toe stance.

- o Tell the suspect to put their arms down against their sides, and to keep them there throughout the entire test.

- o Tell the suspect that they are to maintain this position while you give the instructions. EMPHASIZE that the suspect must not start walking until you say to "begin".

- o Ask the suspect if they understand.

NOTE: If at any time while you are giving the rest of the instructions the suspect should break away from the heel-to-toe stance, stop giving instructions until he or she resumes the stance.

- o Tell the suspect that, when you say to "begin", they must take nine heel-to-toe steps down the line, turn around, and take nine heel-to-toe steps up the line.

- Tell the suspect that every time they take a step, the heel must be placed against the toe of the other foot. **DEMONSTRATE** several heel-to-toe steps.

- Tell the suspect that, when the ninth step has been taken, they must leave the front foot on the line, and turn around using a series of small steps with the other foot. **DEMONSTRATE** a proper turn.

- Remind the suspect that, after turning, they must take another nine heel-to-toe steps up the line.

- Tell the suspect that they must watch their feet at all times, must count the steps out loud, and must keep the arms down at the sides.

- Tell the suspect that, once they start walking, not to stop walking until the test has been completed.

- Ask the suspect if they understand.

- Tell the suspect to "begin".

NOTE: If the suspect fails to either look at their feet or count their steps out loud, remind the suspect to do so and note the occurrence on the evaluation form. These tasks are part of the validated clues and must be performed to properly evaluate divided attention.

DOCUMENTING THE TEST

Eight validated clues of impairment have been identified for the Walk and Turn test. Two clues apply while the suspect is standing heel-to-toe and listening to the instructions:

- Can not keep balance (i.e., suspect breaks away from the heel-to-toe stance)
- Starts too soon (i.e., suspect starts walking before you say "begin")

At the top of the checklist portion of the Walk and Turn segment of the standardized note guide, you will record the number of times these two clues were observed while you were giving the instructions. For example, if the suspect breaks away from the heel-to-toe stance twice, put two check marks in the "Cannot keep balance" block.

The other **six** validated clues apply during the walking stage of the test. They are:

- Stops walking
- Misses heel-to-toe
- Steps off the line

- o Raises the arms while walking
- o Takes the wrong number of steps
- o Turns improperly

In the checklist area, you will record the first five of those, separately for the first nine steps and the second nine steps. Below the checklist area, you will describe how the suspect turned. If he or she turned in the appropriate fashion, simply write "proper" in that space.

If the suspect "staggered to the left" or executed an "about face" turn, write that description in the space.

If the suspect was unable to begin or complete the test, explain why. Usually, this will be due either to a physical infirmity that precludes the test entirely (e.g., "suspect has an artificial left leg") or to your decision to stop the test (e.g., "suspect is in danger of being injured due to the lack of balance"). Whatever the case might be, some reason must be documented for a test that wasn't given or completed.

ONE LEG STAND

This test requires the suspect to stand on one leg. The other leg is to be extended in front of the suspect in a stiff-leg manner, with the foot held approximately six inches above and parallel with the ground. The suspect is to stare at the elevated foot, and count out loud until told to stop, in this fashion: "one thousand and one, one thousand and two, one thousand and three, ...".

Administrative Procedures

- o Tell the suspect to stand with the feet together and the arms down at the sides.

- o Tell the suspect to maintain that position while you give the instructions; emphasize that they should not try to perform the test until you say to "begin".

- o Ask the suspect if they understand.

- o Tell the suspect that, when you say to "begin", they must raise their leg in a stiff-leg manner, and hold the foot approximately six inches off the ground, with the toe pointed forward so that the foot is parallel with the ground.

- o **DEMONSTRATE** the proper one-legged stance.

- o Tell the suspect that they must keep the arms at the sides and must keep looking directly at the elevated foot, while counting in the following fashion: "one thousand and one, one thousand and two, one thousand and three", and so on until told to stop.

- Ask the suspect if he or she understands.

- Tell the suspect to "begin".

NOTE: It is important that this test last for thirty seconds. You must keep track of the time. If the suspect counts slowly, you will tell him or her to stop when thirty actual seconds have gone by, even if, for example, the suspect has only counted to "one thousand and twenty". Indicate/record the suspects actual internal clock time.

DOCUMENTING THE TEST

Four validated clues of impairment have been identified for the One Leg Stand:

- Sways while balancing
- Uses arms to balance
- Hopping
- Puts foot down

You will place check marks in or near the small boxes to indicate how many times you observed each of the clue.

You must pay attention to the suspects general appearance and behavior while he or she is performing this test. Take note of any body tremors or muscle tension that may be apparent. Listen for any unusual or "interesting" sounds or statements the suspect might make while the test is in progress. Make sure that any such information is documented on a SFST Field Note Sheet or in your narrative report.

ROMBERG BALANCE

This test requires the suspect to stand with both feet together, the head tilted slighted back, the eyes closed and estimate the passage of thirty seconds. When the suspect believes that the thirty seconds have passed, he or she is to tilt the head forward, open the eyes and say "stop".

Administrative Procedures

- Tell the suspect to stand with the feet together and the arms down at the sides.

- Tell the suspect to maintain that position while you give the instructions. Emphasize that they must not start the test until you say "begin".

- Ask the suspect if they understand so far.

- Tell the suspect that, when you tell them to, they must tilt their head back slightly and close their eyes. **DEMONSTRATE** how the head should be tilted back, but **DO NOT CLOSE YOUR EYES** while demonstrating.

- Tell the suspect that when you say "start", they must keep their head tilted back with the eyes closed until they think that thirty seconds have gone by. DO NOT tell the suspect to "count to thirty seconds" or to use any other specific procedure to keep track of time. But on the other hand, DO NOT tell the suspect that they are not allowed to count to thirty seconds. SIMPLY SAY, "keep your head tilted back with your eyes closed until you think that thirty seconds have gone by".

- Tell the suspect that, when they think the thirty seconds have gone by, they must bring the head forward, open the eyes, and say "stop".

- Ask the suspect if they understand.

- Glance at your watch and pick a convenient time to start the test.

- Tell the suspect to tilt their head back and close their eyes.

- Tell the suspect to begin.

- Keep track of the time while the suspect performs the test.

- When the suspect opens their eyes, ask them "how much time was that?"

- If ninety seconds elapse before the suspect opens their eyes, stop the test.

Look and listen for the following:

- suspect unable to stand still or steady with the feet together
- body tremors
- eyelid tremors
- muscle tone (either more rigid or more flaccid than normal)
- any statements or unusual sounds made by the suspect when performing the test

DOCUMENTING THE TEST

Record the estimated number of inches of sway exhibited by the suspect. You should estimate the approximate extent of swaying for both front to back and side to side.

To indicate impairment of the suspects' "internal clock", record the actual number of seconds the suspect stood with the eyes closed.

Document any of the above, or any other noteworthy observations and explain as necessary in the narrative section of your report.

APPENDIX II

SUGGESTED ADDITIONAL REFERENCES AND RESOURCES

ABC'S OF THE HUMAN BODY. The Reader's Digest Association, INC., Pleasantville, New York, 1987.

THE BRAIN. Richard Restak, M.D., Bantam Books, Toronto, 1984.

CHOCOLATE TO MORPHINE: UNDERSTANDING MIND-ACTIVE DRUGS. Andrew Weil, M.D. and Winifred Rosen, Houghton Mifflin Company, Boston, 1983.

COCAINE: THE MYSTIQUE AND THE REALITY. Joel L. Phillips and Ronald D. Wynne, Ph.D., Avon Books, New York, 1980.

COMPLETE GUIDE TO PRESCRIPTION & NON-PRESCRIPTION DRUGS. H. Winter Griffith, M.D. HP Books, Inc., Tucson, AZ, 1985.

COMPLETE GUIDE TO SYMPTOMS, ILLNESS & SURGERY. H. Winter Griffith, M.D. HP Books, Los Angeles, 1985.

DESIGNER DRUGS. M.M Kirsch. CompCare Publications, Minneapolis, 1986.

DRUGS AND LAW FOR THE STREET COP. Gary J. Miller, Miller Publications, Gilroy, CA 1986.

DRUGS AND SOCIETY. Weldon L. Witters PH.D & Peter J. Ventucelli Ph.D. Jones & Bartlett Publishers, Boston, 1988.

HEROIN USE: LEGAL AND MEDICAL ASPECTS. Paul R. Edholm, Jr., Richard P. Neidorf. Heroin Information Publications, Beverly Hills, CA, 1978.

LICIT AND ILLICIT DRUGS: THE CONSUMER UNION REPORT. Edward M. Brecher. Little, Brown, and company, Boston, 1972.

THE LITTLE BLACK PILL BOOK. Bantam Books, Toronto, 1985.

MARIJUANA ALERT. Peggy Mann. McGraw-Hill Paperbacks, 1985.

MEDICAL DICTIONARY FOR THE NON PROFESSIONAL. Charles F. Chapman. Barron's Educational Series, Woodbury, New York.

THE PHYSICIAN'S GUIDE TO PSYCHOACTIVE DRUGS. Richard Seymour, M.A. and David Smith, M.D. The Haworth Press, New York, 1987.

PLANTS OF THE GODS: ORIGINS OF HALLUCINOGENIC USE. Richard Evans Schultes & Albert Hogmann, Alfred van der Marck Editions, New York, 1979.

A PRIMER OF DRUG ACTION. Robert M. Julien. W.H. Freeman and Company, New York, 1985.

PRIMER ON NEUROCHEMISTRY OF DRUG DEPENDENCE. Forrest S. Tennant Jr., M.D. Dr. P.H., Veract, Inc., West Covina, CA, 1985.

PSYCHEDELICS ENCYCLOPEDIA Peter Stafford. J.P. Tarcher, Inc., Los Angeles, 1983.

PSYCHIATRIC DICTIONARY Leland E. Hinsie, M.D. & Robert J. Campbell, M.D. Oxford University Press, New York, 1970.

SIGNS AND SYMPTOMS HANDBOOK. Clinical Director Barbara McVan, R.N. Springhouse Corporation, Springhouse, PA 1986.

STEAL THIS URINE TEST: FIGHTING DRUG HYSTERIA IN AMERICA. Abbie Hoffman, Penguin Books, New York, 1987.

THE SUBSTANCE ABUSE PROBLEMS. VOLUMES ONE AND TWO. Sidney Cohen, M.D. The Haworth Press, New York, 1985.

USE AND ABUSE OF AMPHETAMINE AND ITS SUBSTITUTES. Research Issue 25. National Institute on Drug Abuse, Rockville, Maryland, 1980.

SOURCES OF DRUG INFORMATION

1. National Institute of Drug Abuse
   5600 Fishers Lane
   Rockville, Maryland 20857

   Ask for: Research *26-Guide to Drug Abuse Terminology
   Research *27-Guide to Drug Use Research Literature

2. Vista Hill Foundation
   Drug Abuse/Alcoholism Newsletter
   3420 Camino del Rio North, Suite 100
   San Diego, California 92108

This is a newsletter which is published ten times a year and mailed about once a month. Topics deal with alcohol and drugs.

3. National Clearinghouse for Drug Abuse Info (NCDAI)
   P.O. Box 416
   Kensington, Maryland 20795

The above sources will furnish, free of charge information on drugs. Simply write to them requesting the information with a return address. Information will be mailed in about six to eight weeks.

APPENDIX III

OVERVIEW OF STANDARDIZED FIELD SOBRIETY TESTING
RESEARCH AND DEVELOPMENT
DWI DETECTION AND STANDARDIZED FIELD SOBRIETY TESTING

1. First Phase: The Developmental Research

   A. What were the research objectives?

      - To evaluate currently used physical coordination test to determine their relationship to intoxication and driving impairment.

      - To develop more sensitive tests that would provide more reliable evidence of impairment.

      - To standardize the tests and observation.

   B. Who conducted the research?

      Southern California Research Institute (SCRI)

      The final report:

      Burns, Marcelline and Moskowitz, Herbert Psychophysical Tests for DWI: June, 1977 NHTSA Report Number DOT HS-802 424 (available for National Technical Information Service, Springfield, Virginia 22161)

   C. Who were the test subjects?

      There were 238 volunteers, of whom 168 were males and 70 females. They were paid $3.00 per hour, and they each participated in one testing session.

      The volunteers were interviewed by SCRI staff, and on the basis of the interview they were classified as either light, moderate or heavy drinkers. They were randomly assigned to "target BAC" levels appropriate to their classifications. The following shows the distribution of BACs achieved by volunteers:

	Light Drinkers	Moderate Drinkers	Heavy Drinkers	Totals
No Alcohol (0.00%)	26	27	26	79
Approximately 0.05%	36	16	3	55
Approximately 0.075%	--	6	7	13
Approximately 0.10%	--	37	13	50
Approximately 0.15%	--	--	41	41

D. Who tested the subjects?

Ten police officers, representing four agencies in the vicinity of Los Angeles, did all of the testing. Each officer examined an average of 23-24 volunteers. While the officer was conducting the examinations, a member of the SCRI staff observed the examinations.

NOTE: Neither the volunteer, the officer, nor the observer knew the volunteer's BAC. Separate members of the SCRI staff handled the dosing and breath testing of volunteers.

E. What tests were administered?

Each volunteer was subjected to six tests:

- o One Leg Stand
- o Finger-to-Nose
- o Finger Count
- o Walk-and-turn
- o Tracing (a paper-and-pencil exercise)
- o Nystagmus (called "alcohol gaze nystagmus" in the final report)

Each officer was given one day's training in the administration and scoring of these tests prior to conducting the experiment. NOTE: Only two of the ten officers had any prior experience with nystagmus.

F. In general, how were the tests "scored"?

Each of the six tests were "scored"on a scale from 0 to 10; for the nystagmus test, each eye was "scored" independently, so that a subject's total nystagmus "score" could range from 0 to 20.

The higher the "score," the more impaired the subject appeared to be.

Whenever a volunteer was tested, the officer administering the test and the SCRI researcher observing the test independently scored the subject's performance.

G. What were the nystagmus administration and "scoring" procedures?

The volunteer was seated, with his or her chin in a chin rest, and faced a small light bulb mounted on a swing arm that could be moved to precise angles on either side.

The volunteer was instructed to cover the left eye and follow the movement of the light bulb with the right eye. The officer slowly moved the swing arm to the 30-degree mark, and left it there for several seconds, while observing the volunteer's eye for jerking. "Points" were scored as follows:

no jerking	0 point
minimal jerking	2 points
moderate jerking	3 points
distinct, easily observed jerking	5 points

Next, the officer slowly moved the swing arm to the 40-degree mark and left it there to observe the eye once again. The same scoring system was used. Then, the score for the right eye was determined by adding the scores at the 30-degree and 40-degree marks. For example, if the eye showed minimal jerking at 30- degrees (2 points) but moderate jerking at 40-degrees (3 points), the score for the eye would be 5 points.

Finally, the volunteer was instructed to uncover the left eye and cover the right eye, and the entire procedure was repeated to determine the left eye's "score." NOTE: The scores for the two eyes often were different, by a point or two.

H. What were the administration and "scoring" procedures for walk-and-turn?

The volunteer was told to stand facing the examiner (not in a heel-to-toe posture) and to "watch what I do so you will be able to do it the same way. I want you to put one foot here on the line, and then take exactly nine steps along the line, touching your heel to your toe each step."

(The examiner then demonstrated the heel-to-toe step.)

"Then, turn and take 9 steps back along the line, touching heel-toe. (NOTE: Apparently the examiner did not demonstrate the turn.) Do you understand? Come here to the line and begin."

The officer and observer independently "scored" the volunteer's performance, using the following scheme:

no problem	0 point
falls, won't attempt test, or discontinues test	10 points
slow or minor problem in performing test	1-1 points (examiner's judgment)

Or, the examiner could assign 1 or 2 points for each of the following cues (up to a maximum of 10 points, total, for the test):

- o loses balance while walking
- o loses balance while turning
- o cannot stay on line
- o extreme use of arms and/or body to maintain balance
- o does not touch heel-toe
- o incorrect number of steps
- o stops to steady self
- o requires repeat of demonstration

I. What were the administration and "scoring" procedures for One-Leg-Stand?

The volunteer was told to "watch what I do but don't begin until I tell you. Stand with your feet together, arms at your side, and hold one leg straight forward, like this."

(At this point, the examiner demonstrated the one-legged stance, holding his or her foot 8-12 inches off the floor.

"Do you understand? Ready? Being. Don't put your foot down until I tell you to."

NOTE: The subject was not required to count aloud for 30 seconds. Instead, the examiner simply terminated the test after 30 seconds.

The officer and the observer independently "scored" the volunteer's performance, using the following scheme:

no problem	0 point
slightly unsteady	2 points
moderately unsteady	4 points
extremely unsteady	6 points

And, 1 point was added for each of the following, if observed:

- o required a repeat of the instructions
- o put the foot down
- o used arms for balance

If the volunteer fell, or made no attempt to perform the test, or discontinued the test, he or she was "scored" 10 points.

J. What did the researchers learn?

The researchers analyzed their data and found that, using the scores for all six tests, they could correctly classify a volunteer's BAC as being either above or below 0.10% about 83 percent of the time.

Further, the researchers found that this same level of reliability could be achieved just by considering the scores on nystagmus, walk and turn, and one leg stand. In other words, those three tests constituted an 83% reliable battery for distinguishing BACs of 0.10% or more from BACs below 0.10%. What about the 17% of volunteers whose BACs were misclassified? How did the researchers account for them?

First, half of the volunteers who were misclassified had BACs between 0.08% and 0.12%, a "borderline" range in which it can be very hard to distinguish among slight differences in impairment. Secondly, almost all of the remaining misclassified volunteers were either light drinkers with BACs of at least 0.05% (who may well have appeared and been very impaired at that level), or heavy drinkers with BACs below 0.15% (whose experience with alcohol may have helped them mask the signs of impairment).

K. What was the overall conclusion?

The three-test battery made up of nystagmus, walk and turn, and one leg stand clearly appeared to offer a very reliable field sobriety testing procedure. But these tests were not yet standardized in their final form. That standardization was achieved in the next phase of research.

2. The Second Phase: Initial Validation Research

A. What were the research objectives?

- To complete the development and validation of the sobriety test battery.

- To assess in the field the battery's feasibility, and its effectiveness for estimating BAC and facilitating identification of persons with BACs above 0.10%.

B. Who conducted the research?

Southern California Research Institute (SCR).

The final report:

Tharp, V., Burns, M. and Moskowitz, H. Development and Field Test of Psychophysical Tests for DWI Arrest, March 1981. NHTSA Report Number DOT HS-805 864 (available from NTIS, Springfield, Virginia 22161).

C. Who were the test subjects?

During the first (laboratory) portion of this research effort, the test subjects were 296 volunteers, of whom 202 were males and 94 females. In the second (field) portion, the "subjects" were 3,128 drivers stopped by participating police officers (or traffic law violations and either routine causes. Of these, the officers at least initially suspected 396 might be under the influence of alcohol or other drugs; 215 ultimately were arrested for DWI.

The 296 laboratory subjects each participated in at least one testing session. And, 145 of them returned for a second session, for a total of 441 subject-days of testing. The following table shows the distribution of these subjects by drinker classification and "target BAC;" the numbers in parenthesis refer to the subjects who returned for a second session.

	Light Drinkers	Moderate Drinkers	Heavy Drinkers	Totals
No Alcohol (0.00%)	30(18)	32(16)	35(16)	97(50)
Approximately 0.05%	33(15)	33(16)	36(17)	102(48)
Approximately 0.11%	--	30(15)	34(14)	64(20)
Approximately 0.15%	--	--	33(18)	33(18)

D. Who tested the subjects?

For the laboratory portion of the study, ten police officers from three agencies in the metropolitan Los Angeles area did the testing. Each officer examined an average of 44 subjects (including returnees). While the officer conducted the examinations, a member of the SCRI staff observed. Neither the volunteer, the officer, nor the observer knew the volunteer's BAC.

For the field portion of the study, participating officers were drawn from four stations of the Los Angeles County Sheriff's Office. They included a group called the "experimentals" (who received training in the SFSTs), and a group of "controls" (who were not trained until the final stage of the study). Both groups were instructed to complete data forms for all of their traffic stops during the study period: in addition, SCRI researchers periodically rode with every officer to monitor their performance.

E. What tests were administered?

In both the laboratory and field portion of the study, participating officers (except the "controls") administered Horizontal Gaze Nystagmus, Walk and Turn, and One Leg Stand. Some of the officers had some prior experience with these tests, but all received one half day's training in test administration and scoring.

In addition to recording subjects' performance on the SFSTs, the officers attempted to estimate each subject's BAC.

F. How did the officers do in their estimation of subjects' BAC?

In both the laboratory and field portion of the study, the average absolute value in the difference between officers' estimates and subjects' actual BACs (as measured on a breath testing instrument) was 0.03%. The error in the officers' estimates appeared to be random, i.e., their estimates were high about half the time and low about half the time. It should be observed that a laboratory study provides a relatively "easy" context in which to estimate BACs. All participants know (or quickly learn that the research team will not expose the subjects to very elevated levels (e.g., 0.20% or more), and since the study design is based on fairly precise "target BACs" the subjects tend to "cluster" in the BACs they actually achieve. In other words, it would not be too difficult to make a fairly good educated guess of a subject's BAC if the officer has a reasonable amount of experience in DWI enforcement. Despite the favorable context, the officers' estimates were off by more than 0.03% about half the time.

In the study's field portion, the researchers concluded that most of the officers' estimates of subjects' BACs were invalid. Apparently, most of the participating officers filled out their data forms at the end of their shift, when they already knew the BACs of most arrestees.

G. What were the nystagmus administration and "scoring" procedures?

In the laboratory portion, two kinds of nystagmus measurements were made on each subject. First, the officer examined the subject to: estimate the angle of onset; check for lack of smooth pursuit; and, check for distinct jerking at maximum lateral deviation. These checks were performed in both eyes. Second, the subject was seated at the light bulb/swing arm device used in the previous study, and a measurement of the angle of onset was obtained for each eye. In their previous research, and in their review of studies conducted by other researchers, the SCRI staff found evidence that "a strong correlation exists between the BAC and the angle of onset..." They found that the mathematical expressions of the correlation are slightly different for the left and right eyes, but in either eye an angle of 41 degrees would correspond to a BAC of about 0.10%. They wanted to learn whether officers could estimate onset angles with reasonable precision, and whether the estimate can accurately distinguish subjects above 0.10% from those below that level.

The SCRI researchers did not report the actual data that would compare the officers' onset angle estimates with the swing arm device measurements of onset angle. Instead, they furnished a list of Pearson Product Moment Correlation Coefficients, for each officer and observer, that express how each officer's estimates "track" with the device measurements. A bit of explanation is needed in order to understand these coefficients.

In general terms, a correlation coefficient expresses the "closeness" of two sets of data. If a change in the value of one item is always associated with a systematic change in the value of the other item, then we can say that the two items are closely correlated. For example, in the summer months, there is probably a pretty close correlation between the highest daytime temperature and the number of people visiting beaches: the higher the temperature (i.e., the hotter it gets), the more people you'll find at beaches (trying to cool down). But if a change in one variable has nothing to do with changes in the other item, then we say that the two items are uncorrelated.

For example, the number of people visiting beaches in America on any given day probably has nothing to do with the number of loaves of bread sold in Russia on that same day. Some days, lots of bread will get sold in Russian, and lots of Americans will go swimming. But other days, just as many Russians will buy bread, but quite a different number of Americans will be at the beach. The two items just aren't related. Another common situation occurs when two items are related, but the relationship is not exact. For example, the number of runs a baseball team scores in a game in general probably is related to the number of hits the team makes in the game: in other words, the more hits you get, the more likely you are to score runs.

But this relationship is far from perfect: it is quite possible to get very few hits and still score lots of runs, if the other team makes lots of errors or gives up lots of walks. Runs and hits in a game probably are correlated, but the correlation may be weak.

The correlation coefficient gives an indication of the strength or weakness in the relationship between two items. The highest absolute value that the correlation coefficient can have is 1.00, and that occurs when the two items are perfectly correlated. That would mean that, if you know the value of one item you could exactly predict the value of the other item. The lowest absolute value of the correlation coefficient is 0. That occurs when the two items have absolutely nothing in common, i.e., when knowledge of the value of one is of no help at all in predicting the value of the other.

It is important to understand that two items could have a very high correlation without having equal values. Consider the comparison between an officer's onset angle estimations and the device-measured angles. If an officer consistently underestimated the device's angle by 10 degrees, we would not think that the officer was very accurate. That is, if the officer said "35" when the device indicated "45," and said "40" when it indicated "50," and so on, we would consider those to be bad estimates. But the correlation between the officer's estimates and the device's would be perfect, and the correlation coefficient would be 1.00, simply because the relationship between the two variables would be perfectly predictable.

In reporting only the correlation coefficients for the officers' estimates the SCRI researchers are not describing the officers' accuracy, but only are indicating whether there is some systematic relationship between the measured angles and each officer's estimates of them.

With all that preamble now accomplished, the correlation coefficients for the ten officers' angle estimates ranged from a low of 0.234 to a high of 0.719. Most of these correlations (at least) probably are statistically significant (although the report does not state that), but in practical terms the correlations would be considered weak to moderate. This can be quantified: when the correlation coefficient is squared (i.e., multiplied by itself), the resulting number expresses the percentage of variability in one item that can be related to variability in the other item. In loose terms, it tells us how useful one item is in predicting the value of the other. For example, suppose the correlation coefficient for two items were 0.500. The square of that would be 0.250. That would mean that 25 percent of the variability in one item could be related to the variability of the other, or that one item would be about 25 percent useful in predicting the other.

The best of the ten officers had a correlation coefficient for angle estimations of 0.719. The square of that is .517. That officer's estimates are about 50% useful in predicting the "true" onset angle. The worst estimating officer had a coefficient of 0.234, which means that his or her estimates are about 5% useful. The average correlation coefficient for the ten officers was 0.475, indicating an average utility of a bit less than 23 percent.

Of course, the ability of officers to estimate onset angle is only part of the story. We also have to consider how well the "true" onset angle can predict BAC. The SCRI researchers report two different correlation coefficients for onset versus BAC, one for the left eye (absolute value of 0.780) and one for the right (absolute value of 0.740). If the higher value is accepted, then the device-measured onset angle is about 60% useful in predicting BAC.

These are not encouraging words for anyone who would claim the ability to use horizontal gaze nystagmus to "predict" BAC. The so-called "true" onset angle is only about 60% useful in predicting BAC. The average officer's estimates are less than 25% useful in predicting onset angle, and even this says nothing about any systematic inaccuracy that may exist in the officer's estimates. At best, one can expect only a 25% chance of reaching something that has a 60% chance of being useful, or overall a 15% chance of getting to anything at all. Given this, it is not surprising that these officer's were off in their estimates of subjects' BACs by an average of 0.03%, despite the favorable estimation conditions of a controlled drinking experiment.

In both the laboratory and field portions of this study, officers were instructed to record the following nystagmus data, for each eye:

- Whether onset occurred within 45 degrees, with at least 10% of the white of the eye showing;
- The estimated angle of onset;
- Whether the eye was unable to follow smoothly;
- Whether the nystagmus at maximum deviation was absent minimal, moderate or heavy.

One "point" was "scored" for each eye if onset occurred within 45 degrees; if the eye was unable to follow smoothly; and if the nystagmus at maximum deviation was moderate or heavy.

H. What were the administration and "scoring" procedures for Walk and Turn?

Based on a review of previous research, the SCRI staff decided to modify the Walk and Turn test to incorporate a divided attention feature. Thus, the subject was instructed at the outset to "assume a heel-to-toe position on the line with your arms at your sides." The officer gave no further instructions until the subject assumed the proper stance. Then, the rest of the instructions were issued, in the same manner that they were given during the previous phase of research.

Walk and Turn "scoring" procedures also were modified, and they were slightly different for the laboratory versus field portions of this study. In the laboratory tests, officers and observers were told to "score" one "point" for each of the following behaviors.

- cannot keep balance while listening to instructions
- starts before instructions are finished
- keeps balance but does not remember instructions
- stops while walking to steady self
- does not touch heel-to-toe while walking
- loses balance while walking (i.e., steps off line)
- uses arms for balance
- loses balance while turning
- incorrect number of steps

If the laboratory subject was "unable to do the test," the officers and observers were instructed to "score" ten points."

For the field portion of the study, the item marked above with an asterisk ("keeps balance but does not remember instruction") was dropped, and nine "points" were given for being unable to perform the test. Thus, by the time the field study began, administration and "scoring" procedures for Walk and Turn had evolved to essentially their present state.

I. What were the administration and "scoring" procedures for One Leg Stand?

SCRI researchers decided to add a divided attention feature to this test as well. The subject now was to be instructed to count aloud, "One thousand and one, one thousand and two....one thousand and thirty." Also, the instructions were modified to call for raising the foot about six inches off the ground, rather than the 8-12 inches specified during the previous research phase.

One Leg Stand "scoring" differed slightly from the laboratory to the field portions of this study. Laboratory subjects were assessed one "point" for each of the following behaviors:

- o Swaying while balancing
- o Uses arms to balance
- o Slightly unsteady
- o Quite unsteady
- o Starts before instructions are finished
- o Puts foot down.

If a laboratory subject was unable to do the test or discontinued the test, he or she was to be assessed seven "points."

By the beginning of the field study, SCRI researchers had dropped the two items marked with asterisks, and were assessing five "points" for being unable to perform. Thus, One Leg Stand had evolved very nearly to its present state. Subsequently, NHTSA staff recognized that the scoring factor "quite unsteady" was subjective; based on a re-analysis of the SCRI data, that factor was changed to "hops."

J. What did the researchers learn?

1. The Laboratory Phase

   Results of the laboratory study demonstrated that the battery of three tests could be used reliably to distinguish subjects with BACs of 0.10% or more from those with lower BACs. Collectively, the ten officers and two observers were correct in classifying subjects' BACs (above or below 0.10%) about 82% of the time. Subsequent to publication of the SCRI report, NHTSA re-analyzed the laboratory test data and found that the nystagmus test, by itself, could have produced 77% accurate classifications. Similarly, Walk and Turn was capable of 68% unaided accuracy, and One Leg Stand of 65%. NHTSA also found that it would be possible to combine the results of nystagmus and Walk and Turn in a "decision matrix," and achieve 80% accuracy.

2. The Field Phase

   SCRI reported a number of problems that plagued the field study, chief among which was a lack of consistency by participating officers in submitting data forms. SCRI concluded that the field test data would not support in-depth statistical analysis, but nevertheless disclosed some favorable trends:

   - o after training on the test battery, officers tended to make more DWI arrests; and,

- o trained officers were more accurate in identifying suspects whose BACs are above 0.10%.

The overall conclusion of this study was that the test battery works well. But it remained necessary to conduct a rigorous field test.

3. The Third Phase: Large Scale Field Validation

   a. What were the research objectives?

      - o To develop standardized, practical and effective procedures for police officers to use in reaching arrest/no arrest decisions;

      - o To secure data to determine if the tests will discriminate as well in the field as in the laboratory.

      In support of the first of the objectives, the NHTSA research staff began by re-analyzing the SCRI data with a view toward systematizing the administrative and "scoring" procedures for the three tests. The intent was to ensure that the tests would be quick and easy to use; that they could each be used independently of one another, i.e., if the officer elected to use only one or two of the tests; and, that they would maximize the detection of drivers at BACs of 0.10% or more while minimizing the continued investigation of persons below that level.

   b. Who conducted the research?

      The National Highway Traffic Safety Administration (NHTSA)

      The final report:

      Anderson, T., Schweitz, R., and Snyder, M. Field Evaluation of a Behavioral Test Battery for DWI September 1983, NHTSA Report Number DOT HS-806 475 (available from NTIS, Springfield, Virginia 22161).

   c. Who were the test subjects?

      There were 1,506 drivers stopped for suspicion of DWI during a three-month period during late 1982/early 1983. Of these, approximately 80% were examined using all three tests.

d. Who tested the subjects?

Police officers representing four large agencies in the eastern portion of the country did the testing. All participating officers completed a one day training session prior to the beginning of the study. The training included practice in administering the tests to volunteer drinkers.

e. What tests were administered?

The officers used the three tests that make-up the Standardized Field Sobriety Testing battery. As previously noted, not all subjects were exposed to all three tests, primarily because circumstances of the stop location and/or the subject sometimes precluded use of one or two of the tests. But 89% of subjects were examined using the nystagmus test, 84% on Walk and Turn and 82% on One Leg Stand.

f. What were the test administrative and "scoring" procedures?

The procedures followed in using and interpreting the tests were essentially those spelled out in the current NHTSA training program DWI Detection and Standardized Field Sobriety Testing (1987 Update). The tests are "standardized" in the sense that:

- o they are always administered in the same way;
- o the officer administering the tests always looks for a specific set of clues on each test; and,
- o the officer always assesses a subject's performance relative to a specific criterion for each test.

g. What are the "standardized" elements of the Horizontal Gaze Nystagmus test?

(1) Standardized Administrative Procedures

- o Hold the stimulus approximately 12-15 inches in front of the subject's face.
- o Keep the tip of the stimulus slightly above the subject's eyes.
- o Always move the stimulus smoothly.
- o Always check for all three clues in both eyes.

NOTE: It does not matter whether you check for the three clues in one eye and then check the other eye, or check the first clue in both eyes, then the second clue in both eyes, etc. Either approach is acceptable as long as you always examine all clues in both eyes.

- o Check the clues in this sequence: lack of smooth pursuit; distinct jerking at maximum deviation; onset within 45 degrees.

- o Always check for each clue at least twice in each eye.

(2) Standardized Clues

- o Lack of smooth pursuit.
- o Distinct jerking at maximum deviation.
- o Onset of jerking within 45 degrees.

No other "clues" are recognized by NHTSA as valid indicators of horizontal gaze nystagmus. In particular, NHTSA does not support the allegation that onset angle can reliably be used to estimate BAC, and considers any such estimation to be misuse of the horizontal gaze nystagmus test.

(3) Standardized Criterion

The maximum number of clues of horizontal gaze nystagmus that a subject can exhibit is six. That would occur when all three clues are observed in both eyes. If a subject exhibits four or more clues that should be considered evidence that he or she is under the influence.

h. What are the "standardized" elements of Walk and Turn?

(1) Standardized Administrative Procedures

- o Always begin by having the subject assume the heel-toe stance.

- o Verify that the subject understand that the stance is to be maintained while the instructions are given.

- o If the subject breaks away from the stance as the instructions are given, cease giving instructions until the stance is resumed.

- o Demonstrate several heel-toe steps.

- o Demonstrate the turn.

- o Tell the subject to keep the arms at the sides, to watch the feet, to count the steps aloud, and not to stop walking until the test is completed.

- o Ask the subject whether he or she understands; if not, re-explain whatever the subject does not understand.

- o Tell the subject to begin.

- o If the subject staggers or stops, allow him or her to resume from the point of interruption: do not require the subject to start over from the beginning.

(2) Standardized Clues

- o Loses balance during the instructions (i.e., breaks away from the heel-toe stance).

- o Starts walking too soon.

- o Stops while walking.

- o Misses heel-to-toe while walking (i.e., misses by at least one-half inch).

- o Raises arms from side while walking (by six inches or more).

- o Steps off the line.

- o Turns improperly.

- o Takes the wrong number of steps.

These eight are the only validated clues of Walk and Turn. However, officers may see or hear other noteworthy evidence while the subject is performing this test, and officers should include any such observations in their reports.

Officers should note in their reports how many times each of the eight clues appears. However, for purposes of applying the standardized criterion (discussed below), a clue should be "counted" only once, even if it appears more than once.

If the subject cannot perform or complete the test, (it should be considered that he or she has exhibited nine clues. One situation that would warrant this is if the subject steps off the line three or more times.

(3) Standardized Criterion

If a subject exhibits at least two clues on Walk and Turn, it should be considered evidence that he or she is under the influence.

i. What are the "standardized" elements of One-Leg Stand?

(1) Standardized Administration Procedures

- o Tell the subject to stand with heels together, and arms at sides.
- o Tell the subject not to start the test until you say to do so.
- o Ask the subject whether he or she understands.
- o Tell the subject he or she will have to stand on one foot, with the other foot about six inches off the ground.
- o Demonstrate the stance.
- o Tell the subject to count from 1 to 30, by thousands.
- o Demonstrate the count, for several seconds.
- o Ask the subject whether he or she understands: if not, re-explain whatever is not understood.
- o Tell the subject to begin.
- o If the subject stops or puts the foot down, allow him or her to resume at the point of interruption; do not require the count to begin again at "one thousand and one."

(2) Standardized Clues

- o Sways
- o Puts foot down
- o Hops
- o Raises arms from side (six inches or more)

These are the only four validated clues of One Leg Stand. However, officers may see or hear other noteworthy evidence while this test is being performed, and should include any such evidence in their reports.

If the subject cannot perform or complete the test, it should be considered that he or she has exhibited five clues. One event that would warrant this is if the subject puts the foot down three or more times.

(3) Standardized Criterion

If the subject exhibits two or more clues on One Leg Stand, it should be considered evidence that he or she is under the influence. As with Walk and Turn, clues should be counted only once in applying this criterion.

j. What did the researchers learn?

The three standardized tests were found to be highly reliable in identifying subjects whose BACs were 0.10% or more. Considered individually, the nystagmus test was the most accurate of the three: among subjects who exhibited four or more clues, 82% had BACs of 0.10% or higher; but the other two tests were nearly as accurate (80% for Walk and Turn, 78% for One Leg Stand). When the nystagmus and Walk and Turn results were jointly interpreted using the decision table, they proved capable of correctly classifying 83% of subjects.

The importance of this large scale (field validation study deserves to be emphasized. It was the first significant assessment of the "workability" of the standardized tests under actual enforcement conditions, and it was the first time that completely objective clues and scoring criteria had been defined for the tests. The results of the study unmistakably validated the SFSTs.

But it is also necessary to emphasize one final and major point: this validation applies only when the tests are administered in the prescribed, standardized fashion; and only when the standardized clues are used to assess the subject's performance; and, only when the standardized criteria are employed to interpret that performance. If any of the standardized elements of the tests is changed, their validity will be threatened.

000116

Course Location _____ Date _____

DRUGS THAT IMPAIR DRIVING
Participant's Critique

A. Workshop Objectives

Please indicate whether you feel that you personally achieved the following course objectives.

		Yes	No	Not Sure
1.	Define the term "drug" in the context of DWI Enforcement.	____	____	_____
2.	Name the seven categories of drugs.	____	____	_____
3.	Describe the observable signs generally associated with the seven drug categories.	____	____	_____
4.	Improve your ability to recognize and interpret evidence of DWI/Drug violations.	____	____	_____
5.	Enable you to administer and interpret validated psychophysical tests to DWI/Drug suspects.	____	____	_____
6.	Describe medical conditions and other situations that can produce similar signs.	____	____	_____

B. Workshop Sessions and Quality of Instruction

Please rate how helpful each workshop session was for you personally. Also, please rate the quality of instruction (subject knowledge, instructional techniques and learning activities). Use a scale from 1 to 5 where: 5=Excellent, 4=Very Good, 3=Good, 2=Fair, 1=Poor.

	Session/Activity	Quality
Legal Issues	_____	_____
Overview of Major Indicators of Impairment	_____	_____
Romberg Balance Test Procedures	_____	_____
Eye Examinations	_____	_____
Signs of Injection and Ingestion	_____	_____
Drug categories and their observable effects	_____	_____

C. Course Design

Please circle the appropriate word to indicate your agreement or disagreement with each of the following statements:

1. The program contains some information that is not needed and that should be deleted.

   Agree Disagree Not Sure

2. There are some important topics missing from the programs that should be added.

   Agree Disagree Not Sure

3. The program is too short.

   Agree Disagree Not Sure

4. I feel this program has improved my own ability to enforce DWI/ Drug laws.

   Agree Disagree Not Sure

5. The instructors did a good job.

   Agree Disagree Not Sure

6. I am very glad I attended the program.

   Agree Disagree Not Sure

7. The program is too long.

   Agree Disagree Not Sure

8. The instructors should have been better prepared.

   Agree Disagree Not Sure

9. I feel fully qualified to use the eye exam test now.

   Agree Disagree Not Sure

10. I feel fully qualified to use the Romberg Balance test now.

    Agree Disagree Not Sure

11. I already knew most of this information.

Agree Disagree Not Sure

12. This "Drug that Impair Driving" Session definitely will improve my ability to identify drug impaired drivers.

Agree Disagree Not Sure

13. This training will assist me in identifying and arresting the drug impaired driver.

Agree Disagree Not Sure

D. If you absolutely had to delete one session or topic from this course, what would it be?

_____

E. If you could add one new topic or session to this course, what would it be?

_____

F. Overall Course Rating

Please rate the overall quality of the seminar on a scale from 1 to 5 where: 5=Excellent, 4=Very Good, 3=Good, 2=Fair, 1=Poor.

Overall course Rating: _____

G. Quality of Instruction

Please rate each instructor on a scale from 1 to 5 where: 5=Excellent, 4=Very Good, 3=Good, 2=Fair, 1=Poor.

Instructor	Rating
Instructor	Rating
Instructor	Rating
Instructor	Rating

H. Please provide any final comments or suggestions that you feel are appropriate.