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Fitness for Duty in the Nuclear Power Industry

Annual Summary of Program Performance Reports CY 1995

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Prepared for
U.S. Nuclear Regulatory Commission

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ABSTRACT

This report summarizes the data from the semiannual reports on fitness-for-duty programs submitted to the NRC by utilities for two reporting periods: January 1 through June 30, 1995, and July 1 through December 31, 1995. During 1995, licensees reported that they had conducted 150,121 tests for the presence of illegal drugs and alcohol. Of these tests, 1,476 (.98%) were confirmed positive.

Positive test results varied by category of test and category of worker. The majority of positive test results (1,122) were obtained through pre-access testing.

Of tests conducted on workers having access to the protected area, there were 180 positive tests from random testing and 139 positive tests from for-cause testing. Follow-up testing of workers who had previously tested positive resulted in 35 positive tests. For-cause testing resulted in the highest percentage of positive tests; about 18 percent of for-cause tests were positive. This compares with a positive test rate of 1.41 percent of pre-access tests and .27 percent of random tests. The positive test rate for workers with unescorted access (including only random, for-cause, and follow-up test results) was .50 percent.

Positive test rates also varied by category of worker. When all types of tests are combined (pre-access, random, for-cause, and follow-up testing), short-term contractor personnel had the highest positive test rate at 1.44 percent. Licensee employees and long-term contractors had lower combined positive test rates (.34% and .40%, respectively).

Of the substances tested, marijuana was responsible for the highest percentage of positive test results (53.08%), followed by cocaine (24.24%) and alcohol (17.17%).

The overall positive test rate for 1995 (.98%) was higher than in 1994 (.84%). Several factors had an impact on the positive test rate across test categories for 1994 and 1995 compared to previous years. These factors include the NRC's reduction in the mandatory random testing rate from 100 percent to 50 percent, effective in 1994, and initiatives by licensees such as lowered marijuana screening cutoff levels and reported improvements in licensees' ability to detect subversion of the testing process. The positive test rates across test categories for 1994 and 1995 reflect these changes. Consequently, the rates for these years should not be compared to positive test rates across test categories from previous years without taking these factors into account.

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EXECUTIVE SUMMARY

On June 7, 1989, the NRC published a final rule, 10 CFR Part 26: Fitness-for-Duty Programs, in the *Federal Register* (54 FR 24468). It required that each licensee authorized to operate or construct a nuclear power reactor implement a fitness-for-duty (FFD) program for all personnel having unescorted access to the protected area of its plant. This rule became effective for these licensees on July 7, 1989, with an implementation date of January 3, 1990.

Two changes to 10 CFR Part 26 became effective after the publication of Volume IV of the Summary Report. The first of these, as published in the June 3, 1993, *Federal Register* (58 FR 31467), expanded the scope of the FFD rule to include licensees authorized to possess or transport Strategic Special Nuclear Materials. Program performance data from these licensees are not included in this volume. The second change, published in the January 5, 1994 *Federal Register* (59 FR 502), reduced the requirement for random testing under 10 CFR Part 26 from 100 percent to 50 percent. As was true in 1994, Volume V, this change has had an impact on the program performances described in this report. It also has had an impact on the overall positive rate from all types of tests. Because random testing results in a low positive test rate, reducing the proportion of random tests in the total pool of tests increases the overall positive test rate. In addition to this change in NRC regulations regarding testing, initiatives by licensees such as lowered marijuana screening cutoff levels and improvements in their ability to detect subversion of the testing process may have had an impact on the positive test rate across test categories for 1995 (as in 1994). The positive test rate across test categories for 1994 and 1995 cannot be directly compared to the positive test rates from previous years without taking these factors into account.

A central element of the required FFD program is the drug and alcohol testing program. As required by 10 CFR 26.71(d), NRC licensees submit data every six months that summarize the results of their drug and alcohol testing programs. This report summarizes the data from the semiannual reports on FFD programs submitted to the NRC by utilities for two reporting periods: January 1, 1995, through June 30, 1995, and July 1, 1995, through December 31, 1995. During both reporting periods, 48 utilities with 81 reporting units provided data.

During the period January 1, 1995, through December 31, 1995, licensees reported that they had conducted 150,121 tests for the presence of illegal drugs and alcohol. Of these tests, 1,476 (.98%) were confirmed positive.

Positive test rates varied by the type of test conducted and the type of worker tested. The majority of positive test results (1,122) were obtained through pre-access testing.

Of tests conducted on workers having access to the protected area, there were 180 positive tests from random testing and 139 positive tests from for-cause testing. For-cause testing resulted in the highest percentage of positive tests; about 18 percent of for-cause tests were positive. The positive test rates for pre-access and random testing were 1.41 percent and .27 percent, respectively. Short-term contractor personnel had the highest overall positive test rate (1.44%) followed by long-term contractors (.40%) and licensee employees (.34%). The positive test rate for workers with unescorted access (including only random, for-cause, and follow-up test results) was .50 percent.

Positive test rates and substances identified varied by the four NRC administrative regions. Licensees in Region III had the lowest overall positive test rate (.90%), while licensees in other regions had positive test rates ranging from .97 percent to 1.11 percent. Marijuana accounted for the largest percentage of positive test results in all regions.

A comparison of positive test results from 1995 with those of 1994 showed that the pre-access and for-cause test rates for 1995 had increased somewhat. Follow-up test rates decreased and random positive test rates remained essentially the same.

In view of the various factors that affect the overall positive test rate and the specific focus of the other tests on particular populations within the FFD program, the positive random test rate may be the most appropriate indicator of the general fitness for duty of employees within the nuclear industry. Positive test rates for random testing of all employees covered by the rule declined from .37 percent in 1990 to .23 percent in 1993 and have remained steady at .28 percent in 1994 and .27 percent in 1995. Some of this decrease in positive test rates for random tests is due to the decrease in the number of contractors tested under the rule. Contractors have a higher random positive test rate than do licensee employees. Hence, a decrease in the number of contractors, relative to the number of licensee employees, causes a slight decrease in the overall positive random test rate.

Several licensees provided detailed accounts of lessons learned during both reporting periods. A brief summary of the reported lessons learned and management initiatives is presented in Section 6 of this report, and a complete compilation is provided in Appendix C.

The NRC welcomes suggestions concerning the content of this report. Comments should be forwarded to:

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INTRODUCTION

The U.S. Nuclear Regulatory Commission (NRC) continues to be concerned about the potential impact on the health and safety of the public from fitness-for-duty (FFD) problems among personnel with unescorted access to the protected areas of commercial nuclear power plants. In response to trends of increased drug use nationwide, and with the cooperation and support of the industry, the NRC published a final rule on June 7, 1989, 10 CFR Part 26: Fitness for Duty Programs, in the *Federal Register* (54 FR 24468). It requires each licensee authorized to operate or construct a nuclear power reactor to implement an FFD program for all personnel having unescorted access to the protected area of the plant. This rule became effective on July 7, 1989, with an implementation date of January 3, 1990. Two changes to 10 CFR Part 26 became effective since the publication of Volume 4 of this report. The first of these, as published in the June 3, 1993, *Federal Register* (58 FR 31467), expanded the scope of the FFD rule to include Strategic Special Nuclear Materials licensees. Program performance data from these licensees are not included in this volume. The second change, published in the January 5, 1994 *Federal Register* (59 FR 502), reduced the requirement for random testing under 10 CFR Part 26 from 100 percent to 50 percent. This change has had an impact on the programs described in this report.

A central element of the required FFD program is the drug testing program. This element is designed to deter and detect the use of illegal drugs and the misuse of alcohol and other legal drugs. Because of the importance of this element, the NRC requires that power reactor licensees provide semiannual reports on the results of their drug testing programs. These reports, which pertain to confirmed positive test results, provide the NRC with information on the effectiveness of individual licensee drug testing programs and of the NRC FFD program as a whole. The reports are also of use to the industry as it attempts to improve and refine FFD programs.

The reduction of the random test rate authorized by the NRC to begin on January 1, 1994, has had an impact on the overall positive rate from all types of tests. Because random testing results in a low positive test rate, reducing the proportion of random tests in the total pool of tests increases the overall positive test rate. Furthermore, initiatives by licensees to lower marijuana screening cutoff levels and improve their ability to detect subversion of the testing process may have resulted in increased positive test results in 1995.

This report compares rates for specific types of tests and drugs across years. However, the positive test rate across test categories for 1994 and 1995 cannot be directly compared to similar positive test rates from previous years without taking into account the change in the rate of random testing. When comparing the positive rates it is important to consider the effects of changes in some of the testing programs, such as increased use of lower cutoff levels for marijuana, the loss of screening sensitivity due to increased specificity in metabolite detection, and the increased attention to subversion detection.

In view of the various factors that affect the overall positive test rate and the specific focus of the other tests on particular populations within the FFD program, the positive random test rate may be the most appropriate indicator of the general fitness for duty of employees within the nuclear industry. The positive rate for random tests of employees in the nuclear industry has remained essentially the same for the past three years.

This is the sixth volume of NUREG/CR-5758 and is based on the semiannual program performance reports for the period of January 1 through December 31, 1995. Volumes 1, 2, 3, 4, and 5 of NUREG/CR-5758 were published in 1991, 1992, 1993, 1994, and 1995, respectively. The information contained in this report was supplied by all current commercial power reactor licensees in the United States. In 1995, 48 utilities submitted 81 reports, representing 72 nuclear power plant sites and 9 corporate offices.

This report presents overall test results (Section 1), test results for each worker category (Section 2), test results for drugs and alcohol (Section 3), test results by region (Section 4), trends during the first six years of rule implementation (Section 5), and a summary of lessons learned and management activities (Section 6). A detailed description of the technical background for the FFD program performance reports is provided in Appendix A. Appendix B contains detailed 1995 testing results by each category of test, worker, substance, and region. A compilation of lessons learned and management initiatives reported by licensees is provided in Appendix C and may be of particular use to the industry.

SECTION 1: OVERALL TEST RESULTS

This section contains information on drug and alcohol test results for each category of test required by 10 CFR Part 26. The results in this section and throughout this report were obtained during the January 1 through December 31, 1995, calendar year (CY). The test results are reported in four categories: pre-access, random, for-cause, and follow-up. The definitions of these categories are given in Table 1 and Appendix A of this report.

The number of tests performed, and the number of confirmed positive test results, are reported in Table 2. A total of 150,121 tests were reported in 81 Fitness-for-Duty (FFD) program performance reports provided by 48 utilities. The overall confirmed positive rate was .98 percent across all categories of tests that were required by 10 CFR Part 26 and administered during 1995*. In absolute numbers, 1,476 workers or applicants tested positive for drugs or alcohol or both.

Pre-access testing identified 1,122 applicants or workers as having positive test results, whereas only 354 tests of workers with unescorted access to the protected area were found to be positive for illegal drugs or alcohol. This number indicates a positive test rate of .50 percent for workers with unescorted access to the protected area. Of those workers, 180 were identified as having positive test results for drugs or alcohol based on random tests, and 139 were identified as positive based on for-cause tests. Follow-up testing resulted in 35 positive test results.

TEST CATEGORY	NUMBER OF TESTS	POSITIVE TESTS	PERCENT POSITIVE
Pre-Access	79,305	1,122	1.41%
Random	66,791	180	0.27%
For-Cause	763	139	18.22%
Follow-up	3,262	35	1.07%
TOTAL	150,121	1,476	0.98%

Table 2
Test results for each test category during 1995

Figure 1 provides a graphic representation of the numbers in Table 2. The majority of tests in 1995 were conducted for pre-access and random testing, which accounted for 79,305 and 66,791 tests, respectively. When combined, these two types of tests accounted for

TEST	DEFINITION†
Pre-Access	Pre-access testing is performed prior to granting unescorted access to the protected area of a nuclear power plant. In some cases, this category includes pre-employment tests in lieu of a pre-access test (see Appendix A).
Random	Random testing refers to a system of unannounced and unpredictable drug testing administered in a statistically random manner so that all persons within a group have an equal probability of selection.
For-Cause	For-cause testing combines the results of tests based on behavioral observation programs, credible information that an individual is abusing drugs or alcohol, or on a reasonable suspicion that drugs or alcohol may have been involved in a specific event (i.e., post-accident).
Follow-Up	Follow-up testing refers to chemical testing at unannounced intervals to ensure that a worker who has previously had a confirmed positive test result is maintaining abstinence from the abuse of drugs or alcohol.

Table 1
Definitions of test categories

* This overall positive test rate should not be directly compared to overall positive test rates in previous years (1990-1993) due to a number of factors, including the change in the requirements for random testing during 1994, an increase in the number of reporting units using lower screening cutoff levels for marijuana, and a loss of screening sensitivity due to increased specificity of screening tests. Because these intervening factors apply to both 1994 and 1995 program performance data, comparison between 1994 and 1995 overall positive test rates is more appropriate than comparison of overall positive rates for these two years with overall positive rates for the years 1990-1993.

† These definitions are based on the definitions given in Section 26.3 in 10 CFR Part 26 and on explanations of the FFD data form provided by the Nuclear Utilities Management and Research Council (NUMARC), now the Nuclear Energy Institute. In some cases, categories from the reporting form were combined to accurately reflect the categories covered in the rule. Categories of testing not included in 10 CFR Part 26 were combined as "Other." For a full discussion of the categories and separate results of all test categories reported, see Appendix A, Technical Background, and Appendix B, Supporting Data.

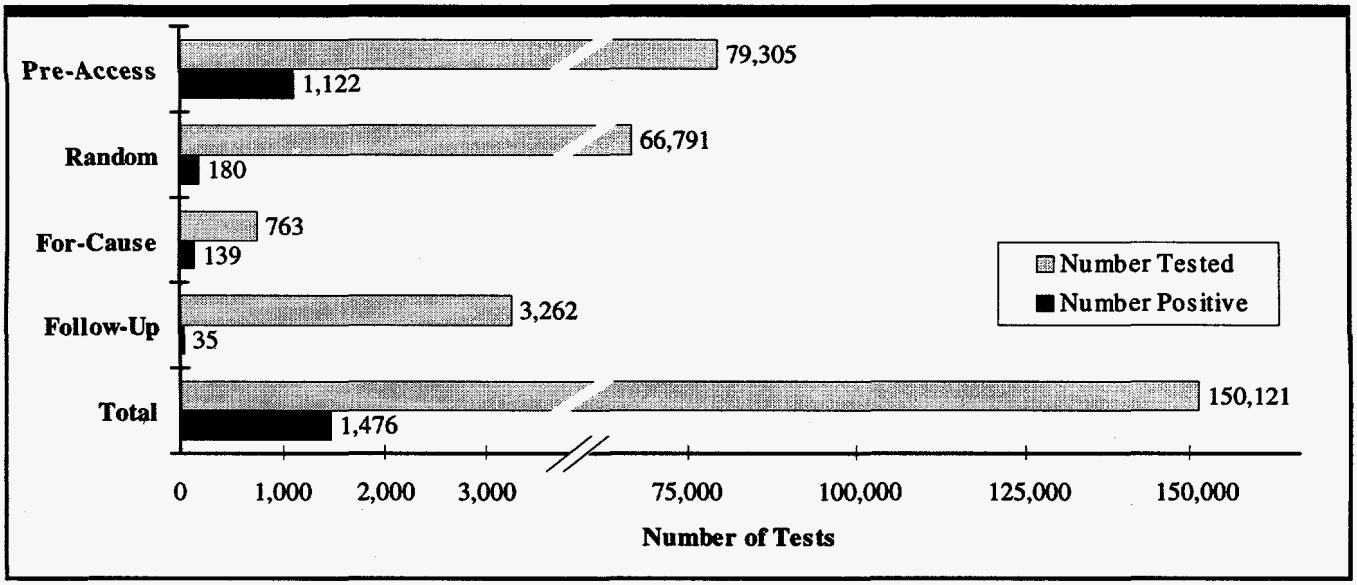

Figure 1
Comparison of results during 1995 for each test category

97.32 percent of all tests reported. With regard to positive test results, pre-access testing accounted for the majority of all positive tests (1,122 or 76.02%), followed by random testing (180 or 12.20%) and for-cause testing (139 or 9.42%).

Figure 2 shows the percentage of confirmed positive tests for each test category. The percentage for each category was calculated by summing the number of positive tests in each test category and dividing that sum by the total number of tests conducted in the category. For-cause testing resulted in the highest percentage of positive tests (18.22%). This category included two types of tests: observed behavior and post-accident tests. Observed behavior tests accounted for 576 tests and 138 positive test results, for a positive test rate of 23.96 percent. This result was expected because observed behavior tests as reported by licensees are based on referrals by supervisors or coworkers trained in behavioral observation techniques, or on credible information indicating inappropriate drug and alcohol use. Post-accident tests were also included in the for-cause testing category, accounting for 187 tests and 1 positive result for a positive test rate of .53 percent.

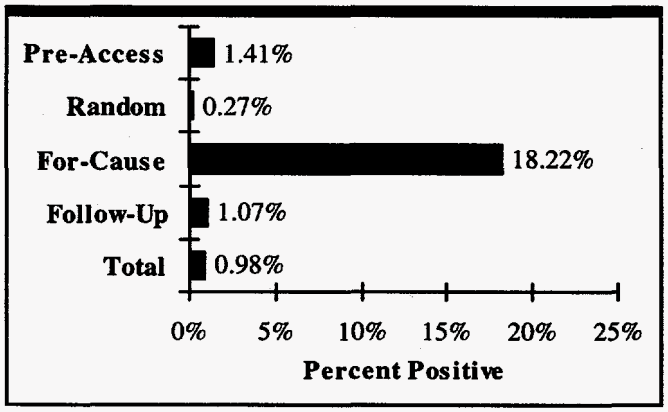

Figure 2
Percent of positive tests during 1995 for each test category

Of the pre-access tests, 1.41 percent were positive. Positive test rates for random and follow-up testing were .27 percent and 1.07 percent, respectively.

In addition to the four categories of tests that licensees are required to report under 10 CFR Part 26, some licensees also reported results from other types of tests under the category "other." Licensees varied in their use of other tests, but some examples of these types of tests included periodic tests, annual physical examinations, and submittals of recollected employee specimens for non-random testing at Medical Review Officer (MRO) request. During 1995, the "other" test category included a total of 2,778 tests and 55 positive test results (a 1.98% positive test rate). Because 10 CFR Part 26 does not require licensees to report results from other types of tests, these results are included only in Appendix B of this report and are not reflected in the test results described in the body of this report.

Summary of major findings

- Drug and alcohol use in violation of 10 CFR Part 26 was confirmed in .98 percent of the total number of tests administered in 1995.
- Most of the positive tests were among workers who never attained unescorted access to protected areas. Nonetheless, 354 tests on workers with unescorted access to protected areas (i.e, random, for-cause, and follow-up tests) were found to be positive for illegal drugs or alcohol, a .50 percent positive test rate.

SECTION 2: TEST RESULTS FOR EACH WORKER CATEGORY

This section examines CY 1995 test results for three categories of workers: licensee employees, long-term contractors, and short-term contractors*. The basis for the distinction among workers is provided in Appendix A. In 1995 there were an estimated 115,832 workers covered by Part 26 of the FFD rule. The majority of these were licensee employees (69.3% or 80,287). There were an estimated 4,489 (3.8%) long-term contractors and 31,056 (26.9%) short-term contractors covered by the rule.†

In 1995, a total of 58,801 tests of licensee employees were conducted under the FFD rule. Likewise, 3,536 tests of long-term contractors and 87,784 tests of short-term contractors were also conducted during this same time period. Table 3 provides test results for each test type and worker category. For licensee employees the majority (77.92%) of all tests were random; in contrast, for short-term contractors the majority (77.02%) were for pre-access tests. Long-term contractors were subject to roughly twice as many random tests (2,342) as pre-access tests (1,156). These differences indicate that licensee employees and many long-term contractors usually experience one pre-access test and then remain under a

TEST CATEGORY	LICENSEE EMPLOYEES	LONG-TERM CONTRACTORS	SHORT-TERM CONTRACTORS	TOTAL
Pre-Access				
Number Tested	10,534	1,156	67,615	**79,305**
Number Positive	60	7	1,055	**1,122**
Percent Positive	0.57%	0.61%	1.56%	**1.41%**
Random				
Number Tested	45,815	2,342	18,634	**66,791**
Number Positive	82	5	93	**180**
Percent Positive	0.18%	0.21%	0.50%	**0.27%**
For-Cause				
Number Tested	355	14	394	**763**
Number Positive	35	2	102	**139**
Percent Positive	9.86%	14.29%	25.89%	**18.22%**
Follow-Up				
Number Tested	2,097	24	1,141	**3,262**
Number Positive	20	0	15	**35**
Percent Positive	0.95%	0.00%	1.31%	**1.07%**
TOTAL‡				
Number Tested	**58,801**	**3,536**	**87,784**	**150,121**
Number Positive	**197**	**14**	**1,265**	**1,476**
Percent Positive	**0.34%**	**0.40%**	**1.44%**	**0.98%**

Table 3
Test results for each test category and worker category during 1995

* In previous volumes of the Summary Report the subsequent sections dealing with test results for specific substances, test results by region, and trends (Sections 3, 4, & 5) have discussed the test results of the three worker categories separately. In this volume of the Summary Report, however, Section 2 is the only section that makes the distinction between long-term and short-term contractor personnel. Subsequent sections will address the two general worker categories—licensee employees and contractors.

† Reporting units report the average number of workers (by worker category) covered by the rule during each of the six-month reporting periods. The estimates of worker totals discussed here represent an aggregation of the averages provided by the reporting units in 1995.

‡ Test results in the category "Other" are not included.

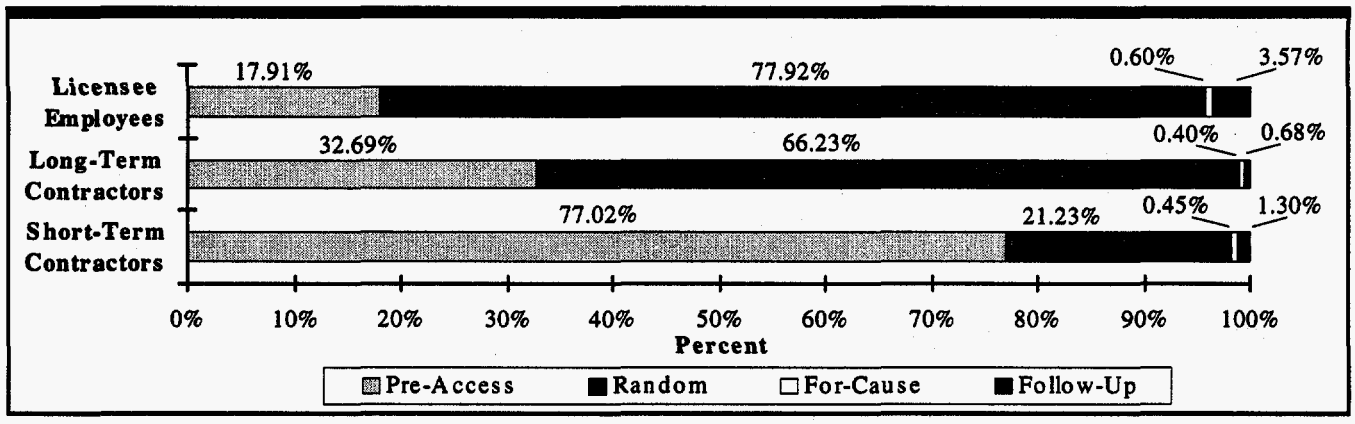

Figure 3
Distribution of tests conducted during 1995 for each worker category

random testing program. In contrast, short-term contractors, due to the nature of their work, may experience many pre-access tests at a number of sites but spend less time than licensee employees or long-term contractors under a random testing program. Figure 3 shows these differences in percentages.

For-cause testing and follow-up testing together account for 4.17 percent of the tests taken by licensee employees and nearly two percent (1.72%) of the tests taken by contractor personnel.

Figure 4 compares positive test results for licensee employees, long-term contractors, and short-term contractors across test types. The percentage of positive tests was highest among short-term contractors for all test types.

In pre-access testing, 1.56 percent of all pre-access tests performed on short-term contractors were positive, compared with .57 percent for licensee employees, and .61 percent for long-term contractors. Because of the large number of pre-access tests experienced by short-term contractors, and the relatively high percentage of positive test results they produced, positive pre-access test results of short-term contractors (1,055) accounted for more than 70 percent (71.48%) of the total number of positive test results (1,476) in all testing categories (see Table 3).

Random testing also produced different percentages of positive results across categories of workers. Although licensee employees were subject to nearly two and a half times as many random tests (45,815 tests) as were short-term contractors (18,634 tests), licensees had fewer positive test results than short-term contractors (82 positive random tests for licensee employees compared with 93 for short-term contractors). Thus, short-term contractors had nearly three times the rate of random positive test results found for licensee employees (.50% and .18% respectively; see Figure 4).

Short-term contractors also had the highest positive test rate for for-cause tests (a 25.89% positive test rate).

Follow-up testing was used primarily for licensee employees (2,097 tests) and less frequently for long-term and short-term contractors (24 and 1,141 tests, respectively). The use of follow-up testing for contractors indicates that some contractors are receiving an opportunity to participate in treatment and to return to

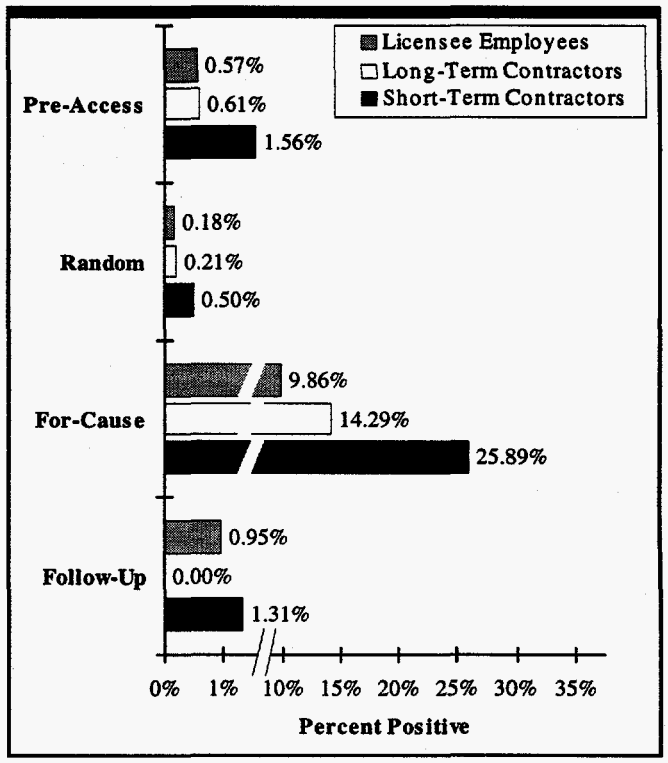

Figure 4
Comparison of positive test rates for each worker category during 1995

work in the nuclear power industry. In 1995, licensee employees had 20 positive tests, short-term contractors had 15 positive tests, and long-term contractors had no positive test results for follow-up testing. Short-term contractors had a higher average percent positive rate for follow-up testing compared to licensee employees and long-term contractors (1.31% compared to .95% and 0.0%, respectively).

Summary of major findings

- The majority of tests for licensee employees (approximately 78%) were performed under the random testing program.
- Licensee employees and long-term contractors had similar positive test rates for random testing. The positive random test rate for short-term contractors was higher (.18%, .21%, and .50% respectively).
- The majority of tests for short-term contractors (approximately 77%) were performed under the pre-access testing program.
- Positive pre-access test results of short-term contractors accounted for more than 70 percent of all positive test results in 1995.
- Short-term contractors had the highest positive test rates for all test types.
- Licensee employees and short-term contractors had similar positive test rates for follow-up testing. Long-term contractors had no positive follow-up tests in 1995.

SECTION 3: TEST RESULTS FOR DRUGS AND ALCOHOL

This section reports the number of confirmed positive test results for each type of substance. Section 3.1 examines the number of confirmed positive test results for each of the six substances specified by the rule: marijuana, cocaine, opiates, amphetamines, phencyclidine, and alcohol. Section 3.2 discusses the incidence of these substances by worker category. Section 3.3 discusses significant FFD events reported in accordance with 10 CFR 26.73. These events include confirmed positive tests for operators and supervisors with unescorted access as well as instances of substances found in the protected areas of nuclear power plants. Section 3.4 reports the results from tests using screening levels lower than those required by the rule. Section 3.5 reports the results for those licensees testing for additional drugs.

3.1 Positive test results for each substance type

This section describes positive test results during CY 1995 for the five illegal drugs specified in 10 CFR Part 26 and for alcohol. The total number of confirmed positive test results for specific substances (1,543) differs from the total number of confirmed positive results that were reported by test category in the previous sections (1,476). Three factors contribute to this difference: positive tests for drugs not specified in the rule are not included in this section; multiple-drug use by a person results in one positive test but more than one detected substance; and the number of refusals to test or attempts to subvert the testing process are recorded for statistical analysis as a positive test result but do not identify substances as positive.

Figure 5 shows the percentage of positive test results for each category of illegal drug and for alcohol. Of the total number of confirmed positive tests, the highest percentage was for marijuana, 53.08 percent, followed by cocaine, with 24.24 percent of the total, and alcohol, with 17.17 percent. Opiates, amphetamines, and phencyclidine combined accounted for 5.5 percent of all positive test results. Table B-4 of Appendix B provides more detailed results by substance.

3.2 Positive test results for each substance and worker category

This section reports on positive test results for each substance and worker category (licensee employee and contractor personnel).*

Figure 6 shows the proportions of positive test results for each type of substance by worker category. This figure shows that the proportion of positive test results for each category of illegal drug and alcohol within the contractor worker category is generally consistent with the proportion of positive test results for each substance (see Figure 5). This is not surprising, given that contractor personnel take the majority of the total number of tests. Similar to the confirmed positive test results for the entire population, marijuana accounted for over half (54.74%) of the positive test results for contractor employees. Licensee employees also experienced a high percentage of positive test results for marijuana (42.16%).

Again, as is true overall, positive tests rates for cocaine accounted for just under a quarter of the positive results for both contractor and licensee personnel (24.27% and 24.02%, respectively).

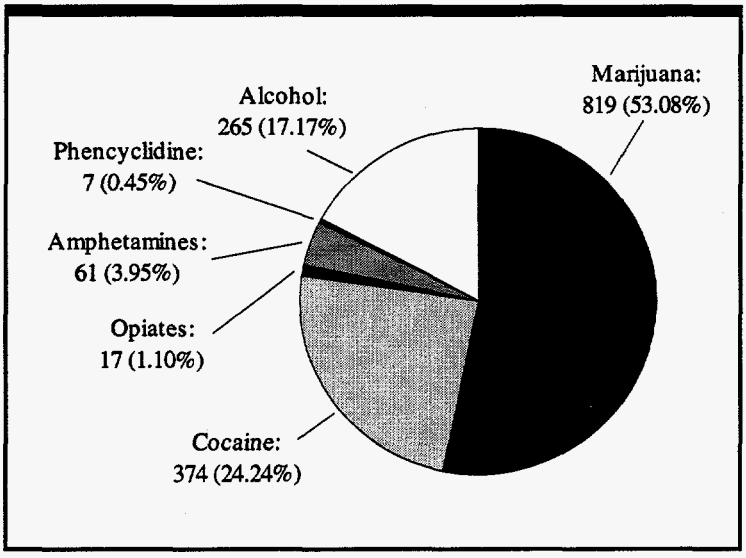

Figure 5
Confirmed positive test results during 1995 for each substance category (n=1543)

The most noticeable difference by worker category was for alcohol. Alcohol accounted for nearly a third (28.92%) of all confirmed positive test results for licensee employees and represented only 15.38% of the total contractor personnel positive tests.

The low overall incidence of positive test results for the remaining substances (opiates, amphetamines, and

* In previous volumes of the Summary Report comparisons were made between licensee, short-term contractor, and long-term contractor worker categories. Because such detailed analyses within the two contractor worker categories yield a small number of cases, interpretation of the results are difficult. For this reason, in this section of the report the long-term and short-term contractor worker categories are analyzed together as one category, contractor personnel. See Appendix A for further discussion.

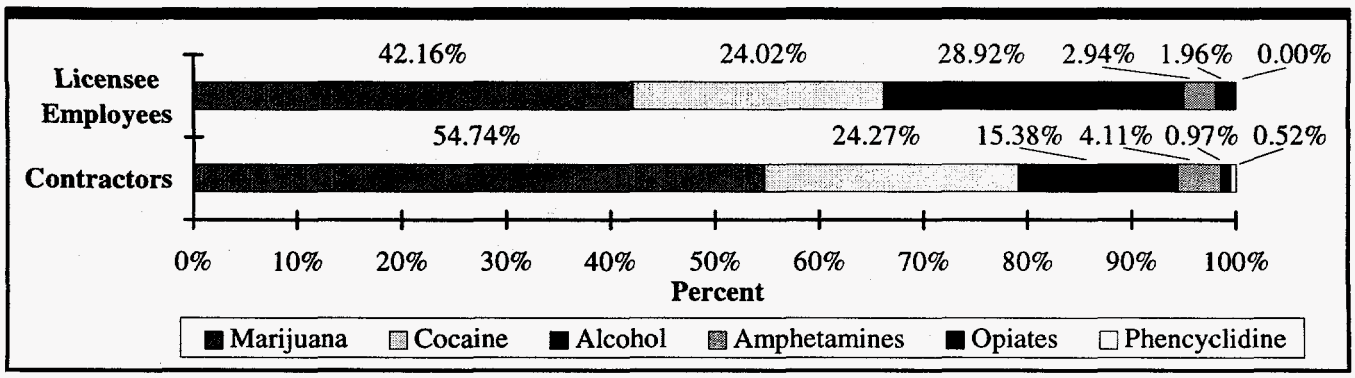

Figure 6
Distribution of positive test results for each substance by worker category

phencyclidine) does not allow for a reliable comparison by worker category.

Another way to examine differences among worker categories is to look at the incidence of positive tests for each substance. Figure 7 shows the incidence of particular substances for each worker category. For each of the substances, contractors have the highest number of positive test results. Of the 819 confirmed positive test results for marijuana, contractors were responsible for 733 positive tests (89.50%) compared with 86 positive tests for licensee employees (10.50%).

Licensees also report for statistical analysis instances of refusal to test and attempts to subvert the testing process as confirmed positive tests. There was a total of 44 instances of refusal to test in 1995. Because refusals to test do not involve positive tests for specific substances, their numbers have not been used in calculating the percentages of positive test results in this section. Nearly all of the refusals to test were made by contractor personnel, representing 42 of the total 44 refusals to test.

In conclusion, comparisons of worker categories show differences in the relative proportion of positive test results for specific substances. Licensee employees show a higher proportion of positive test results for alcohol than do contractor personnel and contractors have a higher proportion of positive test results for marijuana than do the licensees.

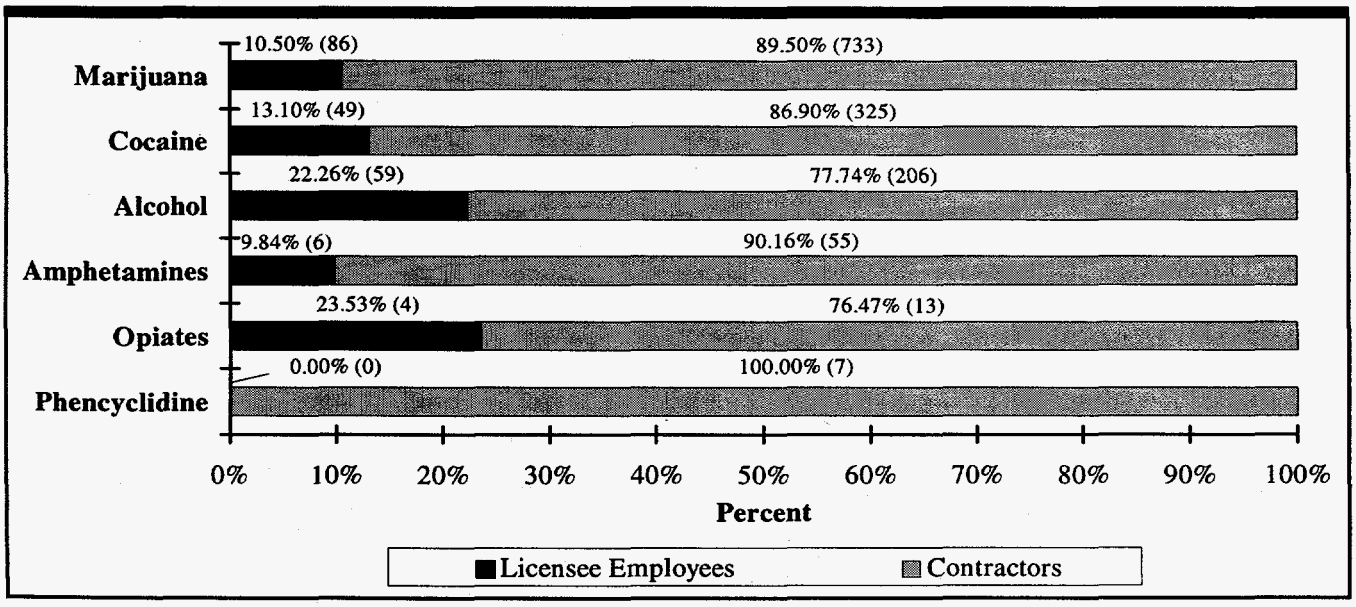

Figure 7
Distribution of positive test results for each worker category by substance

3.3 10 CFR 26.73 reports concerning licensed operators, supervisors, and substances found in protected areas

In addition to the data provided by licensees in the FFD program performance reports, subsection 73 of 10 CFR Part 26 requires reporting units to provide the NRC with information on significant FFD events, such as events involving licensed operators and supervisors, and on controlled substances found in the protected area of the plant. Reportable events may also include events that do not actually involve testing a collected specimen, such as some attempted subversion of the testing process, but are required to be reported by 10 CFR 26.73 because they are considered significant.

This section describes the results from these reports for 1995. During 1995 there were 8 reports involving licensed operators, 10 reports involving contractor supervisors, and 16 reports involving licensee employee supervisors, for a total of 34 events. Two of the events involving licensee employee supervisors did not involve drug tests. There were five reports of controlled substances found in protected areas.

3.3.1 Licensed operators and licensee and contractor supervisors

The reported events for licensed operators and supervisors include random, for-cause, and follow-up tests, but typically do not include pre-access tests. Because pre-access tests account for over half of the overall test results reported in 1995, the proportion of substances found for the positive test results reported in this section is not expected to be similar to the proportion of substances found for the overall test results. It is also important to note that the number of positive test results for these groups of workers is very small. Reportable events for licensed operators and licensee and contractor supervisors resulted in 32 (2.17%) out of all positive results (1,476) reported in Section 1 of this report, which were also reportable events under 26.73. Although this small number does not provide a representative sample of workers, it does provide a picture of the types of substances identified among two important types of workers with unescorted access across test types.

Table 4 shows positive test results for licensed operators. Of the approximately 5,000 licensed operators in the nuclear power industry in 1995, 8 tested positive for drugs or alcohol. Of these reported events, 6 (75%) were the result of random testing, 2 (25%) were the result of positive follow-up test results for licensed operators who had been returned to duty.

With regard to the type of substance identified, alcohol accounted for 50% (4) of the positive test results. Marijuana accounted for an additional 3 (37.5%) and there was one positive test result for prescription drugs.

Table 5 shows the events reported for licensee and contractor supervisors. Of the 26 reported events, 14 (53.85%) were from random testing, 9 (34.62%) resulted from for-cause testing, 1 (3.85%) was from follow-up testing and 2 (7.7%) involved allegations and admission of possession and use of a controlled substance.

	Type of Test				
	Random	**For-Cause**	**Follow-Up**	**Other**	**Total**
Marijuana	2		1		**3**
Cocaine					**0**
Alcohol	3		1		**4**
Prescription Drug	1				**1**
Total	**6**	**0**	**2**	**0**	**8**

Table 4
Positive test results for licensed operators

	Type of Test					
	Random	**For-Cause**	**Pre-Access**	**Follow-Up**	**Other**	**Total**
Licensee Supervisors						
Marijuana		1				**1**
Cocaine	2					**2**
Alcohol	6	5				**11**
Total	**8**	**6**	**0**	**0**	**0**	**14***
Contractor Supervisors						
Marijuana	5					**5**
Cocaine	1					**1**
Alcohol		3		1		**4**
Total	**6**	**3**	**0**	**1**	**0**	**10**
Total for All Supervisors	**14**	**9**	**0**	**1**	**0**	**24**

Table 5
Positive test results for supervisors

* Although 16 events involving licensee supervisors were reported, only 14 involved testing collected specimens.

Of the 24 events for which collected specimens resulted in positive tests, alcohol accounted for 15 (62.5%), marijuana accounted for 6 (25%), and cocaine accounted for 3 (12.5%). When the results for licensed operators and supervisors are combined, 13 (40.63%) of the positive test results were attributed to drugs and 19 (59.38%) were attributed to alcohol.

A comparison of these event reports with those of 1994 shows no essential change in the absolute numbers of positive test results for licensed operators (8 in 1995 compared with 7 in 1994).* Event reports for licensee supervisors increased from 11 events in 1994 to 16 in 1995. Event reports for contract supervisors decreased from 11 in 1994 to 10 in 1995. The number of reportable events is not large enough to allow determination of whether these decreases are the result of real changes or random variations. Table B-6 in Appendix B provides data for the past six years on the number of significant events that involved licensed operators, supervisors, and substances found in protected areas.

3.3.2 Other reportable events

In addition to the two allegations against licensee supervisors, there were 5 other event reports submitted in 1995 for incidents which did not involve positive test results. Licensees submitted event reports when drugs or alcohol were found in the protected area. Two incidents involved the presence of unopened containers of alcohol within protected areas. In one case, the alcohol was inadvertently brought into the protected area by a licensee management employee who had returned from a business trip and had failed to remove a 1 ounce sample liquor bottle from a brief case. One reporting unit found empty alcoholic containers in a protected area. Another reported the presence of an opened pint of vodka within a protected area. One licensee reported finding a plastic bag containing a small quantity of an unknown white substance, later identified as methamphetimine, in a protected area.

Because significant FFD events are not limited to the examples of events that are provided in 10 CFR 26.73, licensees are expected to report other unusual situations that may impact their FFD program. In previous years, many licensees, as intended by the rule, have provided information on FFD incidents that involve personnel who are responsible for administering the testing program. These events can include testing positive for drugs or alcohol, subverting the testing process, or any other actions that could compromise either the trustworthiness of FFD program personnel or the testing results.

In 1995, as was true in 1992 and 1993, no event reports concerning FFD program personnel were submitted. In 1994 and in 1990 there was one report of an event involving FFD personnel, and in 1991 there were five reports of this type of event. While the actual number of reported cases involving administrative personnel over the past six years is small, the potential consequences to the credibility of a FFD program from even one such case are substantial.

3.4 Lower screening levels

The FFD rule provides licensees with the flexibility to use lower, more stringent screening and confirmation cutoff levels than those specified in the rule. Table A-2 in Appendix A shows the current maximum screening and confirmation levels permitted by the rule.

As found in the previous five years of rule implementation, marijuana was the most common substance for which lower screening cutoff levels were used during 1995. A few licensees used lower cutoff levels for alcohol.

In the first six months of 1995, 51 of the 81 reporting units reported using THC screening levels lower than the NRC level of 100 nanograms per milliliter (ng/mL). As shown in Figure 8, 48 of these units tested at the 50 ng/mL screening level and 3 units tested at the 20 ng/mL screening level. In the second six-month reporting period, the number of reporting units using lower marijuana screening cutoff levels increased to 55. Fifty-two of these units tested at the 50 ng/mL level, and as in the first six-month reporting period, 3 reporting units tested at the 20 ng/mL screening level for marijuana.

Figure 8 compares the positive test rates found using these three different screening cutoff levels for marijuana. These rates were calculated by summing the number of positive test results for marijuana detected at each cutoff level and dividing the sum by the number of tests performed using that screening cutoff level. As shown in Figure 8, licensees using lower screening cutoff levels had a higher percentage of confirmed positive test results. At 20 ng/mL .70 percent of the tests screened positive for marijuana, while .57 percent screened positive at 50 ng/mL. At 100 ng/mL, that percentage was just over 4 tests out of 1,000, or .43 percent. In general, the number of reporting units using a lower screening level for marijuana has been increasing. In 1993 only 33 reporting units used the 50 ng/mL screening level for marijuana. By the end of 1995, 52 reporting units used this more restrictive level, an increase of 58 percent.

* After publication of the 1994 Summary Report (Volume 5), licensees submitted revised data on the number of random positive test results for licensed operators. These revisions indicated that, while the total number of random positives for licensed operators (7) had been reported correctly in Volume 5, the number of random positive tests by substance had not. In 1994, licensed operators had 2 marijuana positive test results (not 1) and 2 positive random tests for alcohol (not 3)

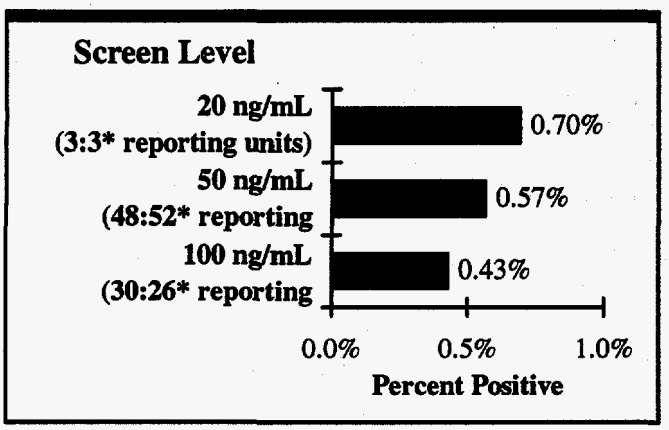

Figure 8
Confirmed positive test rates for marijuana by screen level (1995)

The increase in the number of reporting units using lower screening cutoff levels for marijuana may be explained in part by the change in the Department of Health and Human Services (HHS) guidelines (June 9, 1994; 59 FR 29908) and the demonstrated effectiveness of lower cutoff levels compared to using the NRC level of 100 ng/mL.

Another way to examine the effects of using lower screening cutoff levels for marijuana is to compare the number of positive test results for marijuana using lower levels with the number of positive test results that licensees reported they would have found using the NRC screening level of 100 ng/mL. All three of the reporting units using a screening level of 20 ng/mL reported the estimated results that would have been found using the NRC screening level. At 100 ng/mL, these reporting units estimated that 8 tests would have been positive, while 39 tests were positive at the more restrictive 20 ng/mL screening cutoff level, an increase of 388%.

Of the reporting units using a screening level of 50 ng/mL, 44 during the second six-month reporting period and 41 during the first also reported the estimated results that would have been found using the NRC screening level. For the entire year these reporting units had 492 positive test results for marijuana using a screening level of 50 ng/mL. This compares to an estimated 325 positive test results that would have been found at 100 ng/mL. The more restrictive level yielded roughly one and a half times (1.51) as many positive test results as the NRC level.

These data continue to support findings from previous years that the use of a screening cutoff level of 20 ng/mL or 50 ng/mL for marijuana, rather than 100 ng/mL, results in a higher percentage of confirmed positive test results for that drug. Hence, it is possible that some of the increase in the overall positive test rate over the past few years may be related to the increase in the number of reporting units that are using a lower marijuana screening cutoff level than the 100 ng/mL level required by the rule.

At the same time, it should be noted that recent changes in immunoassay and gas chromatography/mass spectrometry (GC/MS) technologies have lead to increased specificity in screening tests. Marilyn A. Huestis, John Mitchell, and Eduard J. Cone (Huestis, Mitchell, and Cone, 1995) report that the increased specificity of testing decreases the ability to detect marijuana over time, even at lower cutoff levels (see *MRO Alert* 5/8, October/November 1995 for a review and discussion of these changes).

3.5 Additional drugs

The number of reporting units that tested for a broader panel of drugs than the five required by the rule decreased between the first and second sixth-month reporting periods of 1995. Sixteen of the 81 reporting units in the first six months and 13 in the second six months tested for additional drugs. During the first six-month period, 16 of the reporting units tested for benzodiazepines and barbiturates, 9 tested for methaqualone, 7 tested for methadone, and 7 tested for propoxyphene. During the second six months, 12 reporting units tested for barbiturates, 13 tested for benzodiazepines†, 6 tested for methaqualone, 7 tested for methadone, and 7 tested for propoxyphene. The number of reporting units testing for each additional drug, the total number of such tests performed by all reporting units during the year, and the number of confirmed positive test results are listed in Table 6. A total of 11

* The number to the left of the colon represents the number of reporting units using the specified screening level for the first six-month reporting period. The number on the right represents the number of reporting units using that screening level during the second six-month reporting period. The number of reporting units that used the 50 ng/mL marijuana screening cutoff level increased from the first six-month reporting period, while the number of reporting units using the required screening cutoff level (100 ng/mL) decreased.

† During the second six-month reporting period one reporting unit performed two tests for benzodiazepines upon the request of the MRO. Both of these tests were positive. Although the test for this particular substance was not performed site-wide, the reporting unit is counted as one of the 13 units that tested for benzodiapines.

	NUMBER OF REPORTING UNITS*	NUMBER OF TESTS PERFORMED	NUMBER OF CONFIRMED POSITIVES
Barbiturates	16:12	29,048	4
Benzodiazepines	16:13	29,050	4
Methaqualone	9:6	15,596	2
Methadone	7:7	16,266	1
Propoxyphene	7:7	15,523	0

Table 6
Test results for additional drugs

confirmed positive test results for the additional drugs were reported, including 4 positive for barbiturates, 4 positives for benzodiazepines, 2 positives for methaqualone, and 1 positive for methadone.

Summary of major findings

- Marijuana was the drug most often detected, accounting for approximately 53 percent (53.08%) of all positive tests.
- Cocaine and alcohol accounted for significant proportions (24.24% and 17.17%, respectively) of all positive tests.
- Comparisons of positive test results for particular substances among the worker categories showed licensee employees to have a relatively higher proportion of positive test results for alcohol than did contractor personnel. In general, the proportion of confirmed positive tests for specific substances among contractors reflect positive test rates for the entire population of workers.
- The number of significant events reported by utilities under 10 CFR 26.73 showed an overall increase from 30 events in 1994 to 39 events in 1995 (see Table B-6 in Appendix B). The number of positive test results in event reports involving licensee supervisors increased from 11 events in 1994 to 14 events in 1995.† The number of positive test results for licensed operators also increased from from 1994 to 1995, though only by one event (from 7 to 8 events). Positive test results decreased from 11 to 10 from 1994 to 1995 for contractor supervisors.
- The number of licensees using a more restrictive screening level for marijuana than is required by the NRC continues to increase, and those licensees using a lower cutoff level for marijuana continue to show higher positive test rates for marijuana. Most notable, licensees using a 20 ng/mL screening cutoff reported a total of 39 positive test results, whereas only 8 tests would have resulted positive had those units used the 100 ng/mL screening cutoff level. Use of the more restrictive screening level resulted in a 388% increase in positive tests for marijuana.
- Benzodiazepines and barbiturates continue to be the most common additional drugs for which reporting units tested.

* The licensees that performed testing for additional drugs were different for the two reporting periods. Both the first and second six months' data are reflected in this table. The number to the left of the colon represents the number of reporting units that tested for the drug during the first six-month reporting period. The number on the right represents the number of reporting units that tested for the drug during the second six-month reporting period.

† Although 16 events involving licensee supervisors were reported, only 14 involved testing collected specimens.

SECTION 4: TEST RESULTS BY REGION

This section summarizes CY 1995 information on testing programs for licensees in each of the four NRC administrative regions (identified in Appendix A). This information includes overall positive rates by region and regional comparisons by type of substance. Prior to 1994, five administrative regions existed and testing program data were reported for each region. Region IV now combines licensees previously in Regions IV and V. Furthermore, in 1995, two reporting units were, for administrative purposes, moved to Region IV. One reporting unit moved from Region II and one moved from Region III.

4.1 Positive test results for each test category by region

This section discusses the positive test results by test category for each region. Table B-10 in Appendix B provides test results by test category and overall for licensees in each of the NRC regions. Region II had the highest overall positive test rate of 1.11 percent. Region III had the lowest overall positive test rate (.90%) of the four regions. Appendix B provides detailed results by region in Tables B-7 through B-10.*

Positive test rates by test type were also found to differ by region for some test categories. Figure 9 provides random test results by region. Licensees in Region III had the lowest random positive test rate at .22 percent, and Region I and Region IV had very similar results, at .25 percent and .26 percent, respectively. Licensees in Region II had the highest random positive test rate at .32 percent. Positive test rates for pre-access testing ranged from 1.07 percent in Region III to 1.82 percent in Region II. These results roughly correlate with overall test rates for each of the regions, with higher pre-access rates linked to higher overall positive test rates (see Table B-10). Follow-up positive test rates ranged from .48 percent in Region IV to 1.64 percent in Region III (this difference is not meaningful because of the low number of follow-up tests).

As in past years, the most marked regional differences occurred for for-cause testing. The regional differences for for-cause positive test rates do not vary as widely in 1995 as in previous years. In 1995, positive test rates range from 13.37 percent in Region I to 23.60 percent in Region III. In 1994 the positive test rate for for-cause tests ranged from 11.42 percent in Region I to 27.19 percent in Region IV. Because of the small number of positive tests in this testing category, variations in the for-cause positive test rate should be interpreted with care. However, these results may reflect differences among the four regions in the types of events and behavior that trigger for-cause testing.

4.2 Positive test results for each worker category by region

This section discusses, and Figure 10 shows, the 1995 positive test rates for licensee employees and contractor personnel by region.* Of the two worker categories, contractors had the highest positive test rate in every

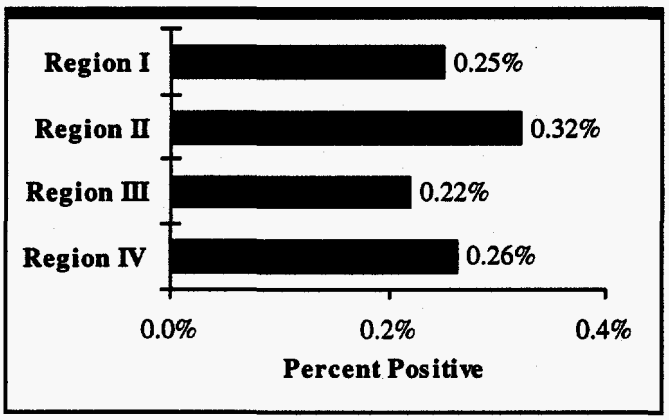

Figure 9
Random positive test rates by each NRC region during 1995

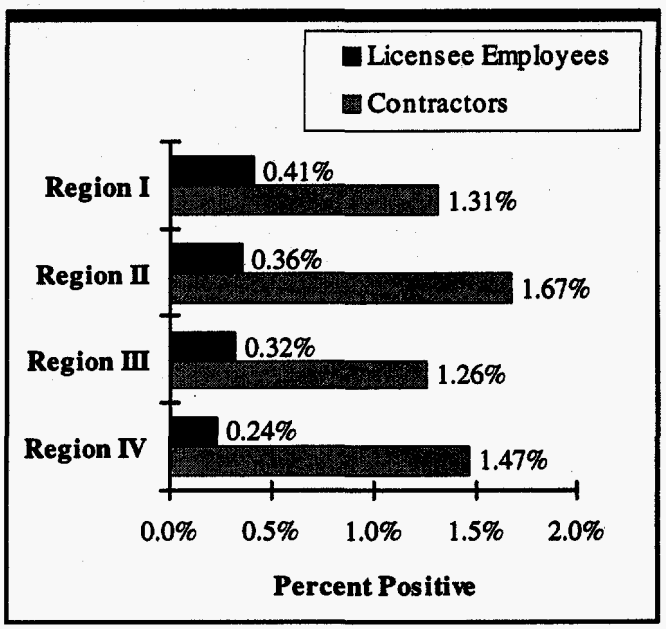

Figure 10
Confirmed positive test rates for each worker category by NRC region during 1995

* The analysis of positive test results by region are based on the regional data provided in Appendix B, which include positive test results from the "Other" test category.

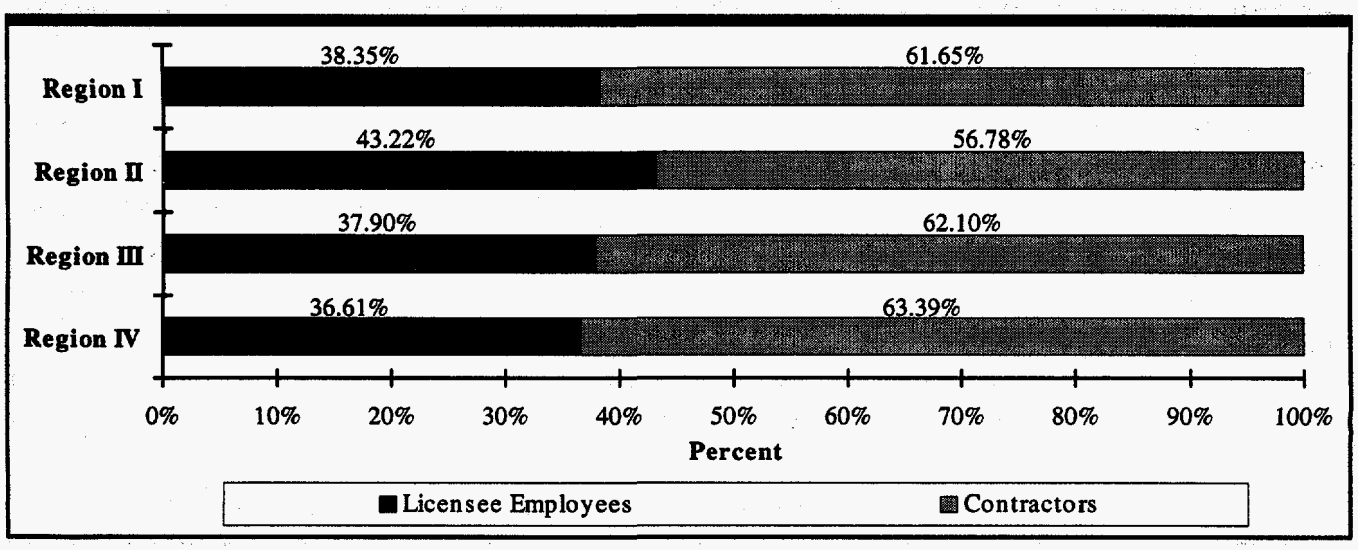

Figure 11
Distribution of tests conducted for each worker category by NRC region

region, with rates ranging from 1.26 percent in Region III to 1.67% in Region II.

Positive test rates for licensee employees remained low in 1995. The licensee employee positive test rate ranged from .24 percent in Region IV to .41 percent in Region I.

The overall regional positive test rates mirrored the results found for contractor positive test rates. As demonstrated in previous years, the region with the highest contractor positive test rate (Region II) also had the highest overall regional positive test rate (see Table B-10 of Appendix B). Likewise, the region with the second highest contractor positive test rate (Region IV) had the second highest overall regional positive test rate, and so on. This close relationship between contractor positive rates and overall regional positive rates is not surprising. Contractors accounted for between 57 and 63 percent of the total tests conducted in each region (see Figure 11).

Plant outages, which cause licensees to draw upon contractor personnel, and the resulting pre-access tests of short-term contractors in each region, is one possible explanation for at least part of the variation in the regional positive test rates. As reported in Volumes 1 and 2 of NUREG/CR-5758, it appears that positive test rates for contractors, and particularly for short-term contractors, are substantially higher during outage periods than during periods of normal operation. Although this report does not provide an evaluation of the effects of outages, regional variations in the number of outages during 1995 may have caused part of the variation among the regions' contractor positive test rates, which in turn would have resulted in part of the variance in the regional positive test rates. The regions with the lowest overall positive test rates (Regions I & III—see Table B-10) are also the regions with the smallest proportions of positive tests for contractors (see Table B-9).

4.3 Positive test results by substance for each region

The percentage of total positive test results accounted for by substance showed some variation by region. Figure 12 summarizes these data by region for each substance. Marijuana accounted for the highest percentage of confirmed positive test results in each region, ranging from 45.45 percent in Region III to 58.47 percent in Region IV.

Cocaine accounted for the second most frequently detected substance in three of the four regions (Regions I, II, and IV). In Region III alcohol was the second most frequently detected substance, followed by cocaine. Alcohol was the third most frequently detected substance in Regions I and II. In Region IV, amphetamines were the third most frequently detected substance.

The percentage of positive test results accounted for by cocaine ranged from 15.57 percent in Region IV to 28.45 percent in Region I. Alcohol-related positive test results ranged from 11.20 percent in Region IV to 27.62 percent in Region III.

Amphetamines represented a substantially smaller percentage of positive test results than did marijuana or cocaine except in Region IV. Prior to the consolidation of Regions IV & V in 1994, amphetamines accounted for a

* In previous volumes of the Summary Report comparisons were made between licensee, short-term contractor, and long-term contractor worker categories. Because such detailed analyses within the two contractor worker categories yield a small number of cases, interpretation of the results are difficult. For this reason, in this section of the report the long-term and short-term contractor worker categories are analyzed together as one category, contractor personnel. See Appendix A for further discussion.

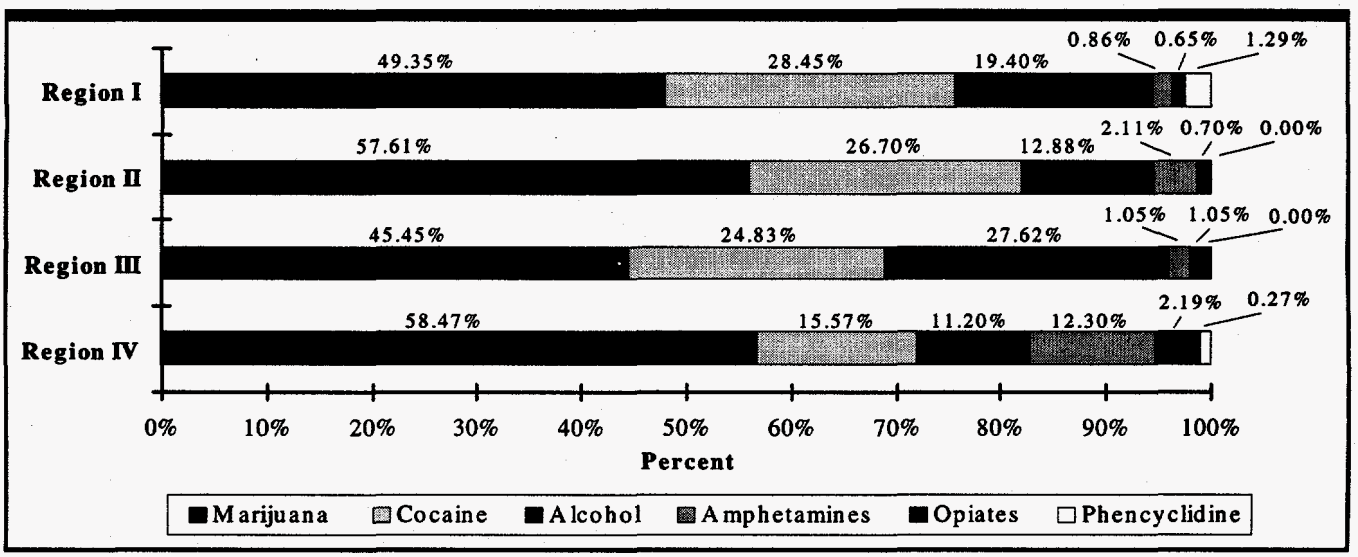

Figure 12
Distribution of positive test results by substance for each NRC region during 1995

larger percentage of test results in Region V than in any of the other regions. With the consolidation of Region IV and V licensees, the new Region IV produced the highest percentages of test results for amphetamines. This trend has continued in 1995. In fact, in Region IV, there were more positive tests for amphetamines than for alcohol, making amphetamines the third most frequently detected substance for that region. In general, opiates and phencyclidine account for very few positive test results in any region.

Summary of major findings

- The positive test rate for contractors strongly influences the overall positive test rate for each region in 1995. Higher contractor positive test rates are related to higher overall regional positive test rates.
- Marijuana accounted for the greatest percentage of positive test results in all regions.
- Cocaine and alcohol accounted for the second or third most frequently detected substance in three of the four regions.
- Amphetamines continued to account for a high percentage of positives in Region IV.

SECTION 5: TRENDS IN THE FIRST SIX YEARS OF RULE IMPLEMENTATION

Because 1995 was the NRC FFD rule's sixth year of implementation, overall trends in the program performance data are evident. In many instances, 1995 program performance results continue the trends found in the first five years of rule implementation. But in a few instances, noted below, those trends did not continue.

This section compares outcomes for 1995 with those of previous years by test type, worker category, region, and confirmed positive test results for specific substances. It also discusses trends over the six-year period of rule implementation.

5.1 Comparison of positive test rates overall and for each test type

This section compares the overall positive test rate, results for employees with unescorted access to protected areas, and results for each testing category over the six years of rule implementation (see Table B-11, Appendix B).

The overall positive test rate in 1995 was the greatest it has been in the history of the NRC's FFD Program, with a positive test rate of .98 percent. As shown in Figure 13, following the first year of rule implementation, the overall positive rate from 1991-1993 was relatively stable. The overall random test rates from 1991 to 1993 were .66%, .68%, and .62%, respectively (see Appendix B, Table B-11). In 1994 and again in 1995, the overall positive test rate increased (.84% and .98%, respectively). A substantial portion of this increase (and increases in the overall test rate by worker category and region) can be explained by the reduced random testing rate requirement from 100 percent to 50 percent, which took effect in January, 1994 (59 FR 502, published in the January 5 *Federal Register).** Figure 14 compares the numbers of tests conducted for each test category in each of the six years. It illustrates that, due to the reduced mandatory random test rate, significantly fewer random tests were conducted in 1994 and 1995 than during the years prior to 1994.

In addition to the reduced random test rate, other factors also may account for some of the increase in the positive test rates in 1994 and 1995 when compared with previous years' rates. One related explanation may be that some of the deterrent effect that discourages people from using illegal substances was lost when the random test rate decreased from 100 percent to 50 percent. Other factors that may have had an impact on the positive rate were initiatives by licensees, such as lowered marijuana screening

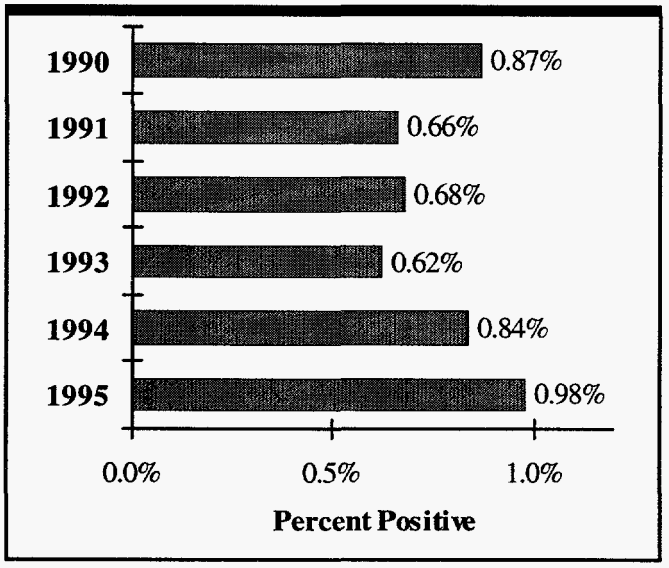

Figure 13
Overall positive test rates by year

cutoff levels below 100 ng/mL (see Section 3.4) and increased efforts to detect subversion of the testing process. These changes would have increased the program's effectiveness at detecting substance abuse. On the other hand, as discussed in Section 5.4, the increased specificity of immunoassay and GC/MS technologies has decreased the sensitivity of metabolite detection over time, which in turn would tend to decrease the positive rate.

Another factor that accounts for a substantial part of the increase in the overall positive test rate in 1994 is the pre-access positive test rate. As Figure 14 illustrates, pre-access tests accounted for a greater share of the total number of tests in 1994 and also in 1995 and were nearly equal in number to those conducted for random testing. Therefore, the overall positive test rate is heavily influenced by the percentage of pre-access positives, which increased from 1.04 percent in 1993 to 1.22 percent in 1994 and to 1.41 percent in 1995 (see Figure 15).

One way to assess the effect of the large number of pre-access positive test results on the overall positive test rate is to examine the positive test rate for just workers with unescorted access, which includes only random, for-cause, and follow-up tests. First of all, the positive test rate is substantially lower when pre-access test results are excluded (Table B-13 in Appendix B). The positive test rate for workers with unescorted access was .48 percent in

* The effect of the reduced number of random tests on the overall positive test rate was discussed in greater detail in Volume 5 of the Summary Report. The discussion is reproduced in Appendix A.

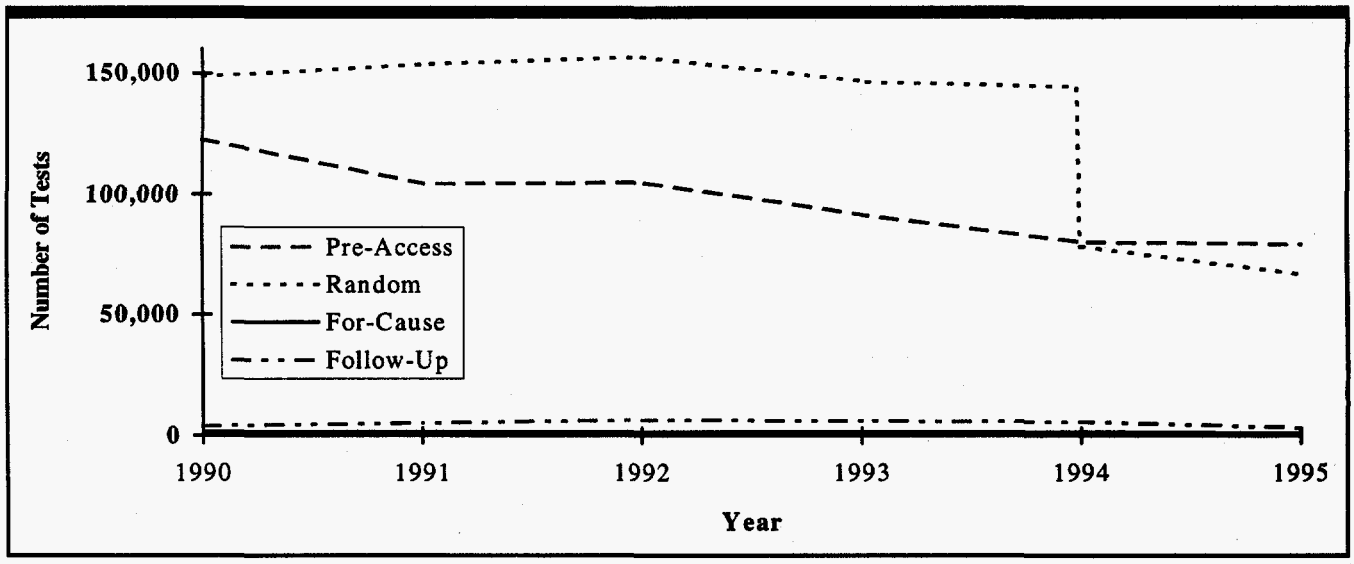

Figure 14
Comparison of tests conducted for each test category for 1990 through 1995

1994, and .50 percent in 1995 compared with .37 percent in 1993 when the random testing rate was approximately 100 percent. As with the overall positive test rate, the positive test rate for only workers with unescorted access increased from the 1993 level in part because of the reduction in the mandatory random test rate from 100 percent to 50 percent. While the positive test rate for workers with unescorted access did increase from 1994 to 1995 (.48% to .50%), the increase was not substantial. This supports the conclusion that a large part of the increase in the overall positive test rate from 1994 to 1995 can be accounted for by pre-access positive tests.

Figure 15 compares positive test rates by test category over the six-year period of rule implementation. As expected in light of the previous discussion, the 1995 pre-access positive test rate has increased from the 1994 rate and those of previous years. The 1995 pre-access positive rate was the highest since rule implementation. The percent of positive random tests was actually slightly lower than in 1994, though still greater than the 1993 rate. The 1994 and 1995 for-cause positive test rates, though still significantly lower than the rates experienced from 1990-1993, increased slightly in 1995 from 1994 (from 16.09% to 18.22%). This increase is not a cause for concern, given that for-cause tests are conducted when there is reason to believe that illicit substances have been consumed. Furthermore, the positive test rate for for-cause tests is still significantly lower than the rates experienced during the first few years of the FFD Program. As with declines in the positive rates in other test categories, this improved rate could be the result of a number of factors. For example, it could result from expanding

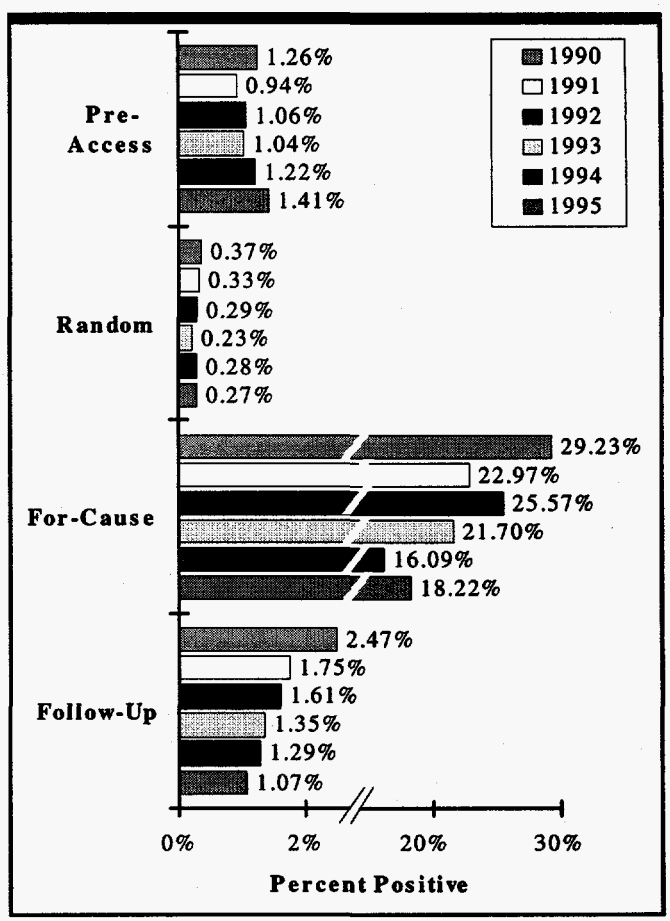

Figure 15
Comparison of confirmed positive test rates for each test category by year

Continual Behavior Observation Training programs and a greater sensitivity on the part of managers to FFD problems that are not related to illegal drug use or alcohol abuse (e.g., fatigue), or it could be the result of the use of "designer drugs" that are not identified by current testing practices. It could also be the result of a combination of these factors.

The positive test rate for follow-up testing continued its downward trend and was at its lowest since rule implementation. The 1995 positive test rate for follow-up testing was 1.07 percent, while it was 2.47 percent in 1990, 1.75 percent in 1991, 1.61 percent in 1992, 1.35 percent in 1993, and 1.29 percent in 1994.

The decline in the positive test rate for follow-up testing may be a good sign. In general, it indicates that employees previously testing positive for drugs or alcohol who later return to work are more successful at maintaining abstinence from drugs or alcohol. This may be partially due to the fact that some workers in the follow-up testing pool have been in the pool for a longer period of time and are less likely to relapse. A lower positive test rate for follow-up testing may also indicate that licensees have become more selective in the persons they refer to treatment and ultimately retain. Still another possible cause for this lower positive test rate is that those subject to follow-up testing in the program's early years were primarily chronic users who were not able to abstain from drug use and were eventually removed from the program. In subsequent years, FFD programs may be detecting occasional drug users who are more likely to be able to abstain from further drug use. However, another possible explanation for the decline in follow up testing may be that the subversion techniques used by those in the follow-up testing programs have been more successful than in previous years.

This discussion comparing the positive test rates overall and for each test type emphasizes the value of the random positive test rate compared to the other test type rates. The overall positive test rate provides a good summative account of industry trends. However, it is affected by several intervening factors, such as the reduced random test rate, that make interpretation of its true significance difficult. Follow-up and for-cause positive test rates, while informative, provide information on only a small sub-sample of the total industry population. Furthermore, by definition, these tests are likely to have high positive test rates. The random test rate, on the other hand, reflects a straightforward account of the information that is of most interest to the industry. It provides the positive test rate for all those individuals who have unescorted access to protected areas of plants, unlike the overall positive test rate.

5.2 Comparison of positive test rates for each worker category

This section compares positive test rates for each worker category in each of the six years of rule implementation*. As discussed in Section 5.1, comparison of 1994 and 1995 overall positive test rates with positive test rates from the first several years of the program, even by worker category, is misleading due to the change in the random test rate and its impact on the overall positive test rate. For this reason only random test rates are compared.

The 1995 random positive test rate for licensee employees has remained essentially unchanged since 1993 (see Figure 16). Up until 1994, the positive rate for contractor personnel had been steadily declining from .56% in 1990 to .36% in 1993. In 1994 the positive random test rate for contractors increased substantially to .49 percent, the highest rate since 1991. This upturn in the random positive test rate in 1994 could be the result of several factors. The increased random positive test rate in part reflects the increased number of licensees testing at 50 ng/mL (see Section 3.4). In addition, it may demonstrate that drug use and alcohol abuse among contractors in the nuclear power industry has grown or

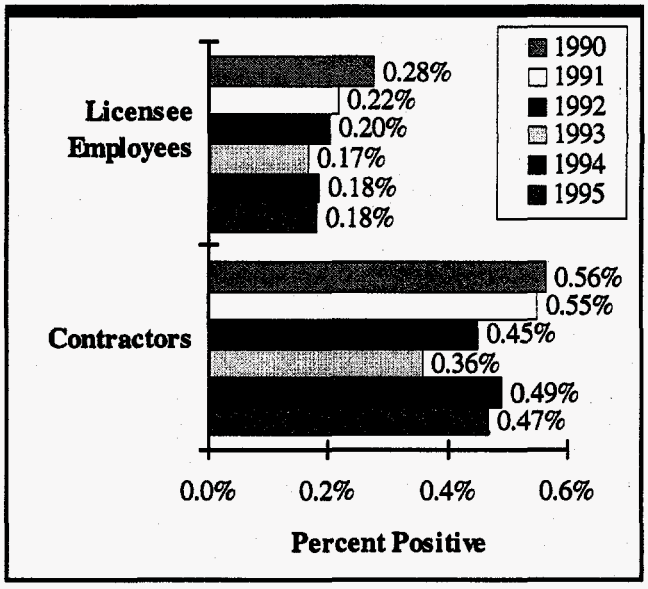

Figure 16
Comparison of random positive test rates by worker category by year

* In previous volumes of the Summary Report comparisons were made between licensee, short-term contractor and long-term contractor worker categories. Because such detailed analyses within the two contractor worker categories yield a small number of cases, interpretation of the results are difficult. For this reason, in this section of the report the long-term and short-term contractor worker categories are analyzed together as one category, contractor personnel. See Appendix A for further discussion.

that the nuclear power industry has become more effective in detecting and preventing attempts to subvert the testing process. However, comparison of the random positive test rates for contractors from 1990 to 1995 also suggests that 1993 might have been an "outlier" year. The random positive rates experienced by contractors in the last two years are more consistent with the pattern that was developing from 1990 to 1992. In 1992 the random positive test rate for contractors was .45% (compared to .49% and .47% in 1994 and 1995, respectively).

Thus, there are several possible explanations for the changes in contractor random positive test rates that have occurred over the past six years. Additional trend analyses are needed in the upcoming years before more definitive conclusions can be drawn about the reasons behind these changes.

5.3 Comparison of positive tests by substance

This section compares the confirmed positive test results attributable to each substance over the past six years of rule implementation.

From 1992 to 1994 the total number of positive tests for alcohol, marijuana, and cocaine had been decreasing steadily. This trend came to an end in 1995. In fact, the number of positive test results for all substances increased between 1994 and 1995 (see Table B-12 in Appendix B). However, because the total number of tests conducted over the past six years has varied, an analysis of the distribution of positive tests results for each substance provides a more useful understanding of the trends in positive test results across substances than does an examination of the total number of positives.

A comparison of the percentages reveals that the percentage of marijuana positive test results relative to all positive test results has been gradually increasing since rule inception (see Figure 17). In 1995, marijuana positive test results accounted for slightly more than half of the total positives (53.08%). As discussed in Section 3.4, some of the increase in positive test results for marijuana is due to the increase in the number of reporting units using lower screening cutoff levels. The percent of positive cocaine test results has declined slightly since 1991, when cocaine accounted for slightly less than a third (31.16%) of the total positives. In 1995, less then a quarter (24.24%) of the total positive tests were attributed to cocaine. Alcohol positives test rates have also been declining steadily for several years. The percent of positive tests resulting from alcohol in 1995 is the lowest since 1991 (17.17% compared to 22.76%). The percent of positive test results for amphetamines has increased from 2.84% in 1990 to 3.95% in 1995. Although amphetamines continue to be responsible for only a small percentage of positive

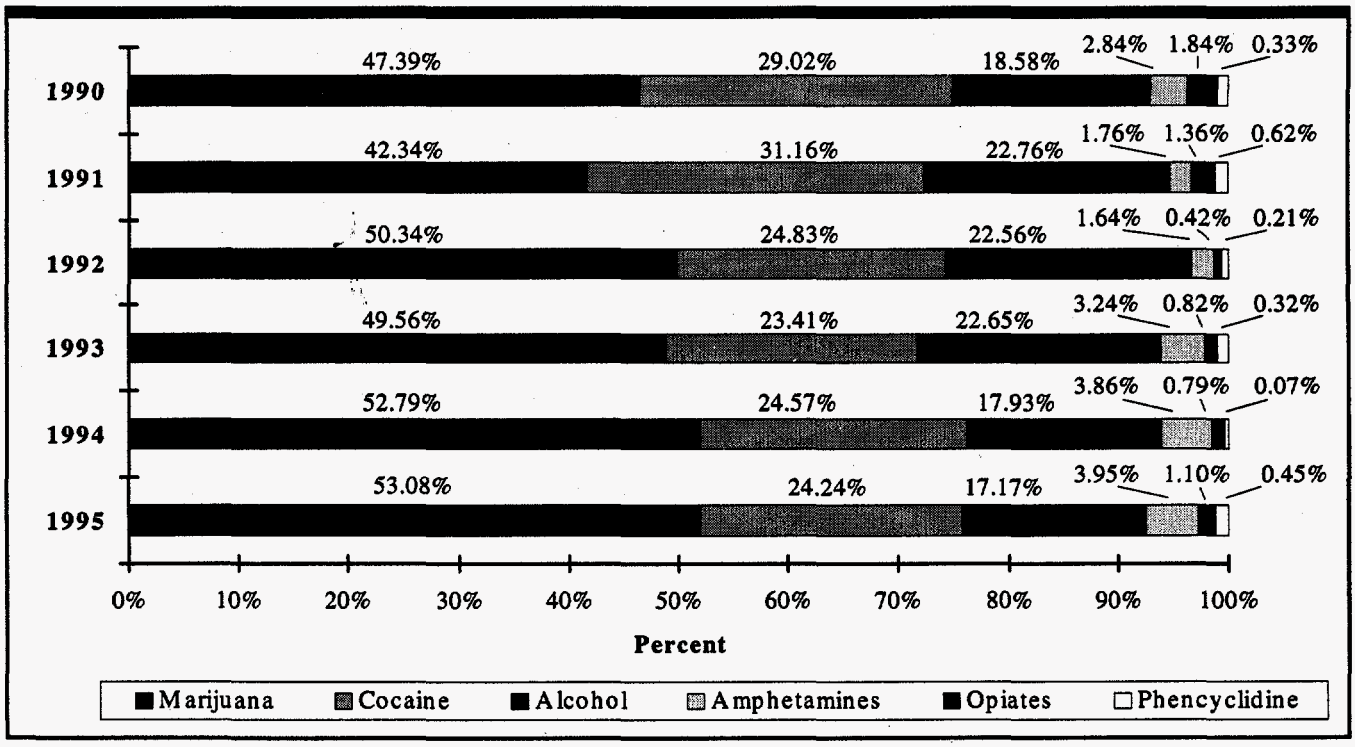

Figure 17
Distribution of positive test results for each substance for 1990 through 1995

test results, there is a steady increase in the detection of this substance.

Opiates and phencyclidine positives continue to make up a very small proportion of the total positive test results.

5.4 Comparisons of drug testing and positive test rates for additional drugs

Previous volumes of the Summary Report have not compared the confirmed positive test results for additional drugs across years. The small number of reporting units that test for additional drugs and the low incidence of positive tests do not allow for reliable comparison by substance type. However, after six years of rule implementation, the data reveal two noteworthy findings. First, the number of reporting units that test for additional drugs has declined steadily since 1990. In 1990, 39 reporting units reported testing for additional drugs. In 1995 only 16 units reported testing for additional drugs. The reason for this decrease, as cited by many licensees, is the low confirmed positive rate for the additional drugs. This raises the second point of interest. In 1990, 28 confirmed positive test results for additional drugs were reported. In 1994, only 3 confirmed positive test results were reported. However, in 1995 the number of confirmed positive test results for additional drugs increased to a total of 11.* Several reasons may explain this increase in the number of positives between 1994 and 1995. One reason may be that fewer reporting units tested for additional drugs in 1994 than in 1995 (14 compared to 16). Another reason for the increase in confirmed positives may be attributed to a specific MRO request for an additional drug test in 1995, which resulted in two positive test results (see footnote in Section 3.5). However, the increase in the number of confirmed positive test results for additional drugs between 1994 and 1995 may indicate that use of additional drugs among workers in the nuclear power industry has grown or that the industry has become more effective in detecting and preventing attempts to subvert the testing process. Additional data and trend analyses are needed in upcoming years before definitive conclusions that explain this increase in the number of confirmed positives for additional drugs can be drawn.

5.5 Comparison of positive random test rates for each region

This section compares 1995 random positive test results by region with those of previous years. To avoid the pitfalls of using the overall positive test rate for comparison purposes, and because it provides the information that is of most interest to the industry (as discussed in Section 5.1), the random positive test rate is used here to identify trends since 1991 by region. Because minor variations can be expected to occur from year to year, and because the positive test results are relatively small in absolute numbers, results discussed in this section should be interpreted with care.

Figure 18 compares random positive test rates by region for five of the six years of rule implementation (1990 random positive test result data by region are not available). Although Region IV and Region V were consolidated into a new, larger Region IV in 1994, Region V data are presented in Figure 18 for 1991-1993 for reference purposes.

In 1994, the random positive test rates increased from 1993 rates in every region. These increases were consistent with the overall increase in the random positive test rate for all licensees in 1994. This explicit correspondence in positive test rates did not persist in 1995. The overall positive random test rate remained essentially the same as the overall positive random test rate in 1994. However, a comparison of the 1994 and 1995 random positive test rates by region demonstrates no clear pattern. Region I experienced a substantial decrease in the the random positive test rate between the two years, from .37% to .25%, while Region II experienced an increase, from .27% to .32%. Positive random test rates in Regions III and IV increased just slightly, but remained essentially the same.

* Benzodiazepines and barbiturates are the most common additional drugs for which reporting units tested across all six years of rule implementation. They also constitute the majority of the confirmed positive test results for additional drugs across all years.

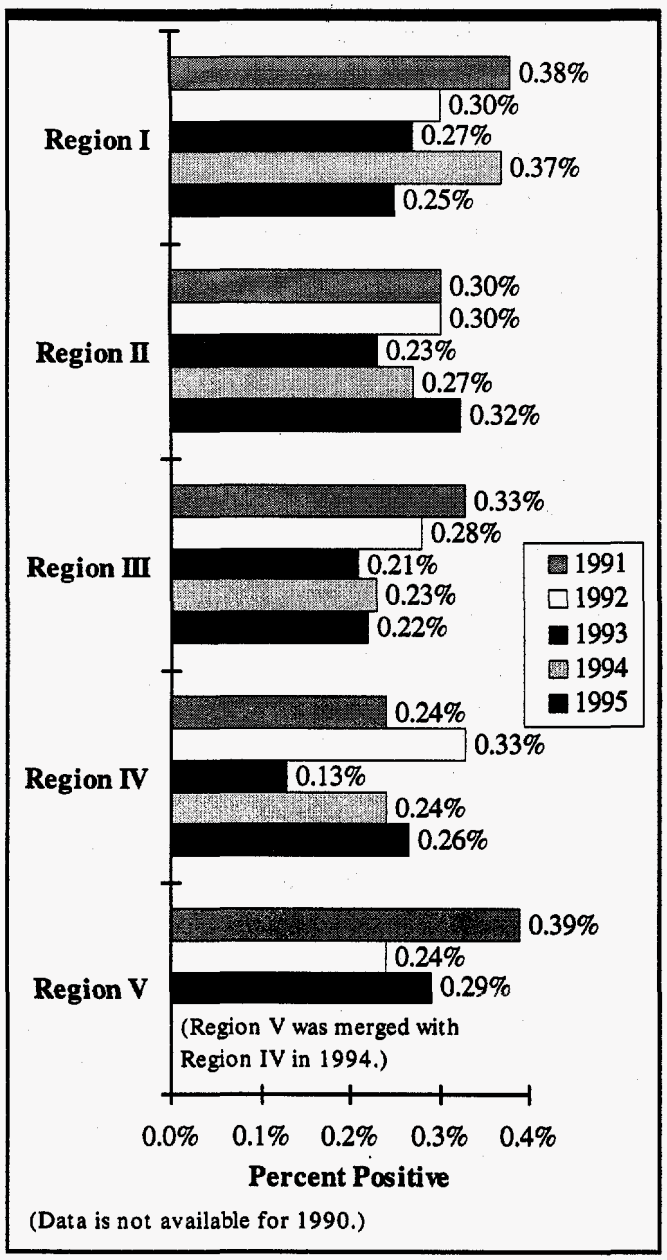

Figure 18
Comparison of random positive test rates for each NRC region for 1991 through 1995

Summary of major findings

- The overall positive test rate was .98 percent in 1995, a slight increase from the 1994 test rate and a substantial increase from the 1993 test rate. The increase from 1993 to 1995 is partially explained by the decrease in the required random test rate (as was the case from 1993 to 1994—see Appendix A). However, this does not account for the difference in positive rates between 1994 and 1995. As discussed in Section 3.4, some of this difference may be explained by the increasing number of reporting units that use lower screening cutoff levels for marijuana. In addition, the increase in the pre-access positive test rate also contributed to a substantial portion of the higher overall positive test rate.
- The reduction in the required random test rate makes comparison of positive test results between the earlier years of the FFD Program and the last two years difficult. However, now that the reduced random test rate has been in effect for two years, preliminary evaluative comparisons can be made. In general, the 1995 data indicate that there have been no significant changes in positive test rates for specific test types since 1994. Pre-access and for-cause positive test rates increased slightly in 1995 and the positive random rate is nearly the same as experienced in 1994. The positive follow-up test rate decreased, possibly the sign of an effective program.
- The number of reporting units testing for additional drugs has decreased steadily since 1990. However, the number of confirmed positive test results for additional drugs increased between 1994 and 1995.
- Positive random test rates for licensee and contractor worker categories remained essentially the same in 1995 as in 1994, which were higher than some previous years.
- Positive random test rates varied by region for 1994 and 1995, with Region I experiencing a decrease, Region II experiencing an increase, and Regions III and IV remaining essentially unchanged.

SECTION 6: LESSONS LEARNED AND MANAGEMENT INITIATIVES

As part of the FFD performance reports, many reporting units included information about lessons learned and program initiatives that occurred during 1995. Reported initiatives often addressed specific problems or, in some cases, were implemented as part of continuous improvement efforts.

In past volumes of the Summary Report this section has provided an overview of the problems noted, solutions suggested, and management initiatives that were identified in utility program performance reports. This volume of the Summary Report, however, provides just a brief summary of the most prevalent and interesting management initiatives and lessons learned. A recent survey of individuals who read the Summary Report revealed that they find the full compilation of lessons learned submitted by reporting units more helpful in their individual assessment of industry experiences. This compilation of events and initiatives is provided in Appendix C for those readers who may wish to review the many additional and useful suggestions provided by the licensees. In addition to the material presented in this section and in Appendix C, the NRC is aware of other actions by utilities that are either planned or in progress. These actions were not included in the 1995 program performance reports and thus were not assessed in this report.

This section is therefore not intended to be a full summary of the reports, but highlights some key points of interest. This information is provided to assist utilities but does not necessarily reflect the opinion of the NRC. Table A-3 in Appendix A contains a list of FFD contact names and phone numbers for each of the reporting units.

As was true in past years, the lessons learned and management initiatives can be characterized by the following categories:

- Certified laboratories;
- Random testing;
- Collection, screening, and on-site testing;
- Training;
- Policies and procedures;
- Program management and systems;
- Worker welfare and rehabilitation;
- Blind performance testing; and
- Subversion prevention techniques.

In general, utilities noted many of the same problems, solutions, and initiatives in 1995 as in past years. However, the most noteworthy experiences fall within the categories of random testing, procedures, and subversion prevention techniques.

6.1 Random testing

A number of utilities reported incidents in which workers with unescorted access were not included in the FFD random selection pool for drug and alcohol testing. The main reasons for the omissions were attributed to weaknesses in the software used in the random selection process and data input error. To ensure that such errors do not occur again, the utilities corrected their software programs and modified their data input processes. It should be noted that the employees excluded from the random test selection pool did not have knowledge that they could not be selected for random testing. Therefore, the deterrent for substance abuse remained.

Some utilities have elected to institute a 100 percent random test rate among populations within operations that had demonstrated higher positive rates. Contractors, in particular, fall into this category. The decision to use a higher random test rate than is required by the NRC (10 CFR 26 24(a)(2)) was prompted by the increased number of accidents that occur during outages and the inability to closely observe contractors for long periods of time.

6.2 Policies and procedures

Several utilities reported initiatives relating to the elimination of additional drugs from the testing panel. The drugs in question are methaqualone, barbiturates and benzodiazepines. The utilities report a low confirmed positive rate for these drugs and thus are considering testing for only the drugs required by 10 CFR 26.

There was one report of a management initiative to revise MRO contact and notification procedures when a presumptive positive has been obtained. The initiative was the result of an incident that involved the MRO's inability to contact an employee upon receipt of a positive THC determination. The individual was in the plant containment area when the MRO ultimately contacted the individual. In addition to the delay caused by the MRO's inability to reach the individual, management was not immediately notified of the the positive determination because of further miscommunication. In response to this incident, MRO guidelines were revised directing contact with individuals made either offsite or through the HR department only. A directory of FFD Administrators' work, home and pager numbers was provided to the MROs, and additional instructions for notification procedures were provided to MRO assistants.

Other procedure related initiatives involved the decision to impose sanctions on individuals who register a positive drug or alcohol test result for the first time.

6.3 Subversion prevention programs

The lessons learned and management initiatives submitted by reporting units also revealed that a number of utilities have become more aggressive in their efforts to detect attempts of subversion and specimen adulteration. In particular, utilities are more attentive and stringent in their surveillance of specimen temperatures and measurement of specific gravity and creatine levels during the sample collection and testing process. Some utilities are using more sensitive and precise measurement instruments. Also, additional measures have been adopted by some utilities to detect specimens that are suspicious due to hydration or substitution.

APPENDIX A: TECHNICAL BACKGROUND

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This appendix includes

- a description of the data used as the basis of this report;
- a list of the utilities and reporting units providing data for this report;
- additional detail on the definitions of test categories used in this report;
- names and telephone numbers of contacts who can provide additional information concerning semiannual program performance reports; and
- other relevant information (e.g., the substances required by 10 CFR Part 26).

Data Source

The data for this study are drawn from the semiannual reports on Fitness-for-Duty (FFD) program performance that were submitted in accordance with 10 CFR Part 26 by all NRC reporting units authorized to operate or construct a nuclear power reactor. During 1995, 48 utilities submitted 81 reports representing 72 nuclear power plant sites and 9 corporate offices.

Table A-1 lists each site reporting unit by NRC region. Each site reporting unit used a standardized data collection form developed by the Nuclear Management and Resources Council (NUMARC, now the Nuclear Energy Institute, or NEI) to fulfill 10 CFR 26.71(d) of the FFD rule. This part of the rule specifies that the data reported shall include the following:

- random testing rate;
- substances tested for and cutoff levels, including results of tests using lower cutoff levels and tests for other substances;
- workforce populations tested;
- numbers of tests and results by worker category and type of test (e.g., pre-access, random, for-cause, etc.);
- substances identified;
- summary of management actions; and
- a list of events reported.

The number of positive tests results and the number of specific substances identified are not expected to be equal. A total of 1,476 positive test results were reported, and a total of 1,543 substances were identified. There are several reasons for this difference:

- The number of refusals to test and some of the attempted subversions of the testing process are not included in the total of substances identified for the purposes of this report. A refusal to test is included on the reporting form as a positive test result but does not identify a substance as positive;
- Multiple-substance abuse is counted as one positive result for an individual but results in identifying more than one substance. A positive test for both marijuana and alcohol, for example, would be counted as two substances; and
- Positive tests for drugs not specified in the rule are not included in the total number for confirmed positives by substance, but are included in the total number of positive tests identified by worker category.

Testing Categories

The following testing categories were included in the analyses presented in this report. These definitions are based on the definitions given in 10 CFR 26.3 and on explanations of the FFD program performance data in the form provided to reporting units by NUMARC.

Pre-Access Testing

Pre-access testing is performed prior to granting unescorted access to the protected area of a nuclear power plant. In some cases, workers apply for access at the same time or shortly after beginning their employment. In such cases, a worker's pre-employment test is accepted in lieu of a pre-access test and is recorded as a pre-access test on the reporting form.

Random Testing

Random testing refers to a system of unannounced and unpredictable drug testing administered to a group in a statistically random manner so that all persons within that group have an equal probability of being selected for testing.

For-Cause Testing

For-cause testing includes tests based on behavioral observation programs, on credible information that a person is abusing drugs or alcohol, or on a reasonable suspicion that drugs or alcohol may have been involved in a specific event (i.e., post-accident).

Follow-Up Testing

Follow-up testing refers to chemical testing at unannounced intervals to ensure that a worker who previously had a confirmed positive test result is maintaining abstinence from the abuse of drugs or alcohol.

REGION I	REGION II	REGION III	REGION IV
Beaver Valley Duquesne Light Company	Bellefonte Tennessee Valley Authority	Big Rock Point Consumers Power Company	Arkansas Nuclear One Entergy Operations, Inc.
Calvert Cliffs Baltimore Gas & Electric Company	Browns Ferry Tennessee Valley Authority	Braidwood Commonwealth Edison Company	Callaway* Union Electric Company
FitzPatrick Power Authority of the State of New York	Brunswick Carolina Power & Light Company	Byron Commonwealth Edison Company	Comanche Peak Texas Utilities Electric Company
Ginna Rochester Gas & Electric Corporation	Catawba Duke Power Company	Clinton Illinois Power Company	Cooper Nebraska Public Power District
Haddam Neck Northeast Nuclear Energy Company	Crystal River Florida Power Corporation	Cook Indiana Michigan Electric Company	Diablo Canyon Pacific Gas & Electric Company
Indian Point 1 & 2 Consolidated Edison Company of New York	Farley Southern Nuclear Operating Company	Davis Besse Toledo Edison Company	Fort Calhoun Omaha Public Power District
Indian Point 3 Power Authority of the State of New York	Harris Carolina Power & Light Company	Dresden Commonwealth Edison Company	Grand Gulf* Entergy Operations, Inc.
Limerick PECO Energy Company	Hatch Georgia Power Company	Duane Arnold IES Utilities, Inc.	Palo Verde Arizona Public Service Company
Maine Yankee Maine Yankee Atomic Power Company	McGuire Duke Power Company	Fermi Detroit Edison	River Bend Entergy Operations, Inc.
Millstone Northeast Nuclear Energy Company	North Anna Virginia Electric & Power Company	Kewaunee Wisconsin Public Service Corporation	San Onofre Southern California Edison Company
Nine Mile Point Niagara Mohawk Power Corporation	Oconee Duke Power Company	LaSalle Commonwealth Edison Company	South Texas Houston Lighting & Power Company
Oyster Creek GPU Nuclear Corporation	Robinson Carolina Power & Light Company	Monticello Northern States Power Company	Trojan Portland General Electric Company
Peach Bottom PECO Energy Company	Sequoyah Tennessee Valley Authority	Palisades Consumers Power Company	WNP-2 Washington Public Power Supply System
Pilgrim Boston Edison Company	St. Lucie Florida Power & Light Company	Perry Cleveland Electric Illuminating Company	Waterford Entergy Operations, Inc.
Salem/Hope Creek Public Service Electric & Gas Company	Summer South Carolina Electric & Gas Company	Point Beach Wisconsin Electric Power Company	Wolf Creek Wolf Creek Nuclear Operating Company
Seabrook North Atlantic Energy	Surry Virginia Electric & Power Company	Prairie Island Northern States Power Company	
Susquehanna Pennsylvania Power & Light Company	Turkey Point Florida Power & Light Company	Quad Cities Commonwealth Edison Company	
Three Mile Island GPU Nuclear Corporation	Vogtle Georgia Power Company	Zion Commonwealth Edison Company	
Vermont Yankee Vermont Yankee	Watts Bar Tennessee Valley Authority		
Yankee-Rowe Yankee Atomic Electric Company			

* These two sites were transferred to Region IV for administrative purposes.

Table A-1
Reporting units and operating utilities by NRC region

Tables B-1, B-2, and B-3 in Appendix B present the number of tests, the number of positive tests, and average percent positive for each of the test categories requested on the NUMARC form. Also included are test results for the "other" category. This category includes, for example, results from the periodic testing conducted by some reporting units coincident with annual physicals or similar periodic events. Results reported in the NUMARC form's "other" category are not included in all sections of this report. Instructions accompanying the NUMARC form do not define what testing should be included in this category. Although some reporting units specified the exact nature of the "other" tests (e.g., return to work), most reporting units did not provide this information.

Worker Categories

Results were requested for three categories of workers in the NUMARC forms. The following categories were used:

Licensee employees

Licensee employees work for the utility and are covered by the FFD rule. This category includes both nuclear power plant workers and corporate or support staff. Utilities are permitted to report the results for corporate or support staff separately. Including corporate staff, there were an average of 1,023 licensee employees covered by the rule during 1995 at each reporting unit.

Long- and short-term contractors

The instructions accompanying the NUMARC form suggest that any contractor working for six months or less be considered short-term. Reporting units were not required by the rule to distinguish between long- and short-term contractors in the program performance reports, however. Reporting units that did not divide contractors into short- and long-term were instructed to report test results for all contractors under the short-term category. As a result, some long-term contractor test results may have been reported under the short-term contractor category; however, no short-term contractor results should be recorded under the long-term category. Licensees reported an average of 487 contractors covered by the rule during 1995 at each reporting unit.

Tables B-2 and B-3 in Appendix B present the number of tests, the number of positive tests, and average percent positive by each test category included in the NUMARC form for licensee employees and contractor employees (B-2) and for long- and short-term contractors (B-3) separately.

These tables present the data which are discussed in Section 2, Test Results for Each Worker Category. Section 2 is the only section in the 1995 Summary Report that distinguishes between long-term and short-term contractors in the analyses of test results. Subsequent sections of the report discuss contractors as one worker category. Previous volumes of the Summary Report discussed short-term and long-term contractors as separate worker categories throughout the entire report. However, the lack of standardized data reporting procedures, as discussed above, for the contractor worker category results in inconsistent reporting across licensees and makes data interpretation difficult when trying to define and explain the difference between short-term and long-term contractor worker test rates. Furthermore, due to the substantial decrease in the number of tests of long-term contractor personnel over the past six years (e.g., there were 18,804 long-term contractor tests conducted in 1990 compared to 3,536 in 1995), a separate analysis of long-term contractor test results yields a small number of test cases. Consequently, reliable interpretation of the data is difficult. The slightest fluctuation in numbers creates an exaggerated effect on the positive rates. In previous years, when there were more contractor personnel, analyses that distinguished between short-term and long-term contractors were interpreted with caution.

Drug Categories

The FFD rule requires testing for six substances: alcohol, marijuana, cocaine, amphetamines, opiates, and phencyclidine. Table A-2 shows the maximum screening levels and confirmation levels required by the rule; except for marijuana, these levels are consistent with those currently set by the Department of Health and Human Services (HHS).

Tables B-4 and B-5 in Appendix B present the number of positive test results and percent of all positives associated with each of these drug categories.

Reporting units are permitted to set cutoff levels lower than those specified in the NRC rule. Many reporting units

DRUG	SCREENING LEVEL	CONFIRMATION LEVEL
Marijuana	100 ng/mL	15 ng/mL
Cocaine	300 ng/mL	150 ng/mL
Opiates	300 ng/mL	300 ng/mL
Phencyclidine	25 ng/mL	25 ng/mL
Amphetamine	1,000 ng/mL	500 ng/mL
Alcohol	0.04% BAC	0.04% BAC

Table A-2
Maximum screening and confirmation levels required by 10 CFR Part 26

chose to do so for at least one category of drug, as indicated by their program performance reports. Several reporting units using lower cutoff levels provided an estimate to the NRC of the number of positive test results that would have occurred under HHS guidelines in addition to reporting results for their own cutoff levels.

Significant Fitness for Duty Events

Subsection 73 of 10 CFR Part 26 requires reporting units to provide the NRC with information on significant FFD events, such as events involving licensed operators and supervisors, and on controlled substances found in the protected area of the plant. Reportable events include positive test results for licensed operators, licensee supervisors, and contractor supervisors. They may also include events that do not actually involve testing a collected specimen, such as some attempted subversions of the testing process, but that are required to be reported by 10 CFR 26.73 because they are considered significant. Table B-6 reports these events for each year of rule implementation (1990-1995).

Additional Drugs

Some reporting units also tested for drugs other than the six substances required by the rule. Information on the number of reporting units testing for additional drugs is presented in Table B-7 by NRC region (see the next section for a discussion of NRC regions). The table indicates that the additional drugs most often included in testing were barbiturates and benzodiazepines.

NRC Regions

The NRC has four administrative regions, which are shown in Figure A-1. Prior to 1994 five regions existed, but in 1994 Region V was consolidated into Region IV. Tables B-8, B-9, and and B-10 show the results of testing for the specific substances, for worker category, and for test category by NRC region.

Random Test Rate Reduction

Effective January 1, 1994, the required random test rate was reduced from 100 percent to 50 percent (59 FR 502). This reduction had an impact on the overall positive rate. Volume 5 of the Summary Report (NUREG/CR-5758) presents an analysis of this effect. The analysis is provided in Figure A-2 as well for comparison purposes.

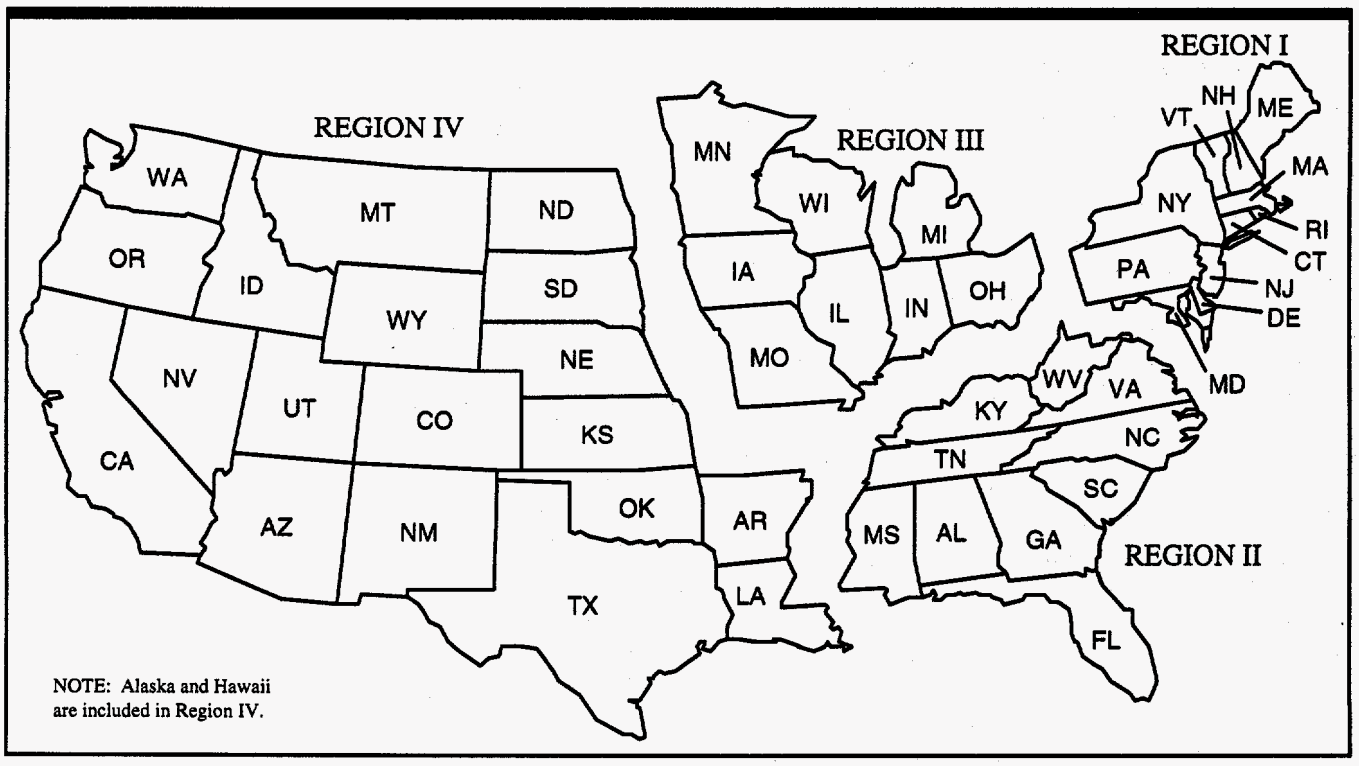


Figure A-1
Geographic location of NRC regions I-IV

The effect of the number of random tests on the overall positive test rate

The overall positive test rate in 1994 was .84 percent, an increase from the 1993, 1992 and 1991 positive test rates (.62%, .68%, and .66%, respectively) yet lower than the 1990 rate of .87 percent. A substantial part of this increase and increases by worker category and region can be accounted for by the reduction in the mandatory random test rate from 100 percent to 50 percent. An analysis of the data for seventy-plus reporting units that provided information on random test rates indicates that the average random testing rate across all worker categories was approximately 60 percent in 1994, resulting in 68,214 fewer random tests when compared to 1993.* While random tests historically make up the majority of all tests, random test positives make up a much smaller proportion of all positives. Therefore, a significant reduction in the number of random tests, as experienced in 1994, would be expected to result in a smaller number of total tests, but a smaller proportionate reduction in the number of total positive test results. As a result, the ratio of positive test results to total tests would be expected to increase, as it has in 1994.

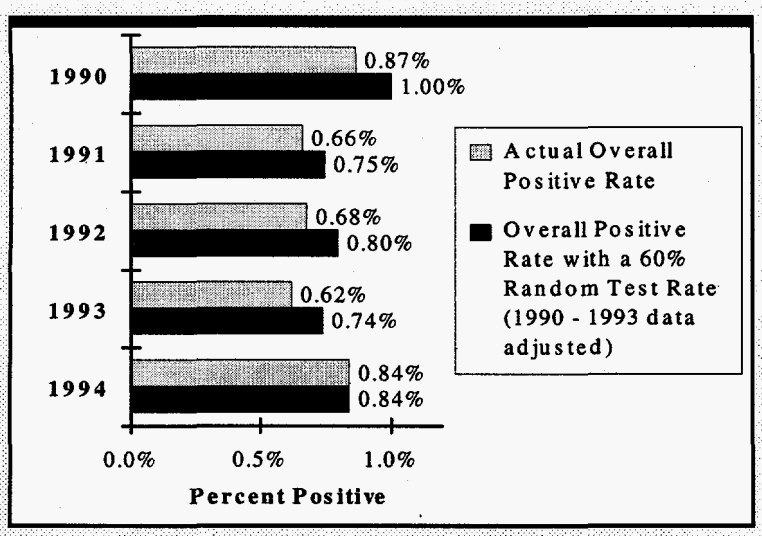


Figure A-2
Comparison of actual and adjusted overall positive test rates for 1990 through 1994

To further illustrate how a substantially reduced number of random tests results in a higher overall positive test rate, estimated positive test rates were computed for 1990 through 1993 assuming application of a 60 percent random test rate.† The 60 percent random test rate was used to provide a means of comparison to 1994 results. As the graph illustrates, had an overall random test rate of 60 percent been applied in previous years as it was in 1994, the resulting fewer random tests would have produced noticeably higher overall positive test rates every year since rule implementation. The same effect would be evident if the overall positive test rate was examined by worker category and by region.

Reproduced from NUREG/CR-5758, Vol. 5, 1994, p. 20.

* Most licensees exceeded the 50% minimum rate by a small amount to ensure compliance (as they did when the minimum rate was 100%) and several have continued to test all workers or just short-term contractors at 100%.

† The estimated overall positive test rates were computed with the assumption that during 1990-1993 reporting units had performed random testing at a 100 percent rate. Therefore, the number of random tests were reduced to 60 percent of previous levels to approximate a 60 percent random test rate, and the number of random test positives were computed by applying the original random positive test rate to the new random test total. The recomputed number of random tests and test positives were added to the totals for other test categories, and the estimated overall positive test rates were computed for each year.

Trends

The NRC FFD rule has been in effect for six years. Overall trends in the program performance data are evident, although several factors, such as the reduction in the random test rate in 1994 (59 FR 502), use of lower marijuana screening cutoff levels by some licensees, and advancement in anti-subversion techniques, affect the ability to make direct comparisons between the different years. Tables B-11 and B-12 in Appendix B show trends in testing by test type and by substance. Table B-13 shows the positive test rates over the last six years for workers with unescorted access to protected areas over the last six years.

Reporting Unit Contacts

Table A-3 provides a list of contact persons and phone numbers for each reporting unit by NRC region. This information is provided to allow reporting units to contact other sites to share information about lessons learned or other items that may be of interest in this report. The names of the contact persons listed in Table A-3 were obtained from the semiannual program performance reports submitted in the second six-month period of CY 1995. It is important to note that the persons listed in this table are not necessarily in a position to be responsible for the accuracy of the data submitted or the overall testing results that occurred at their site.

REGION I		REGION II		REGION III		REGION IV	
Beaver Valley		Bellefonte		Big Rock Point		Arkansas Nuclear One	
Eugene P. Edwards	(412) 393-5238	Becky Stanfield	(615) 751-2024	J.A. Smith	(517) 788-7072	Kenneth D. Jeffrey	(501) 858-3253
Calvert Cliffs		Browns Ferry		Braidwood		Callaway	
F. Bruce Martenis	(410) 234-6162	Becky Stanfield	(615) 751-2024	G.J. Toleski	(708) 663-7545	Patricia Davis	(314) 676-4300
FitzPatrick		Brunswick		Byron		Comanche Peak	
Carol A. Soucy	(315) 349-6412	Fred Underwood	(919) 546-6180	G.J. Toleski	(708) 663-7545	James E. Brown	(817) 897-8912
Ginna		Catawba		Clinton		Cooper	
Lynn I. Hauck	(716) 771-2232	Lisa Stewart-Wright	(803) 831-3881	Gary S. Kephart	(217) 935-8881	Jannette Harrington	(402) 825-5429
Haddam Neck		Crystal River		Cook		Diablo Canyon	
Gordon Hallberg	(203) 665-3384	Jeffrey Kessler, MD	(352) 563-4355	Scott R. Gane	(616) 466-3339	William F. Ryan	(805) 545-3329
Indian Point 1 & 2		Farley		Davis Besse		Fort Calhoun	
J. Mark Drexel	(914) 271-7418	Elizabeth McDougal	(205) 868-5707	J.L. Freels	(419) 249-2366	Darrell D. Roberts	(402) 636-3039
Indian Point 3		Harris		Dresden		Grand Gulf	
Dale Plumer	(914) 736-8195	Fred Underwood	(919) 546-6180	G.J. Toleski	(708) 663-7545	Donna Williams	(601) 437-2481
Limerick		Hatch		Duane Arnold		Palo Verde	
David M. Sarley	(215) 841-5703	Dianne A. Coley	(205) 877-7231	Diane Engelhardt	(319) 851-7280	Mary Maddix	(602) 393-7465
Maine Yankee		McGuire		Fermi		River Bend	
Edward T. O'Neil	(207) 798-4136	Deana A. DeLoach	(704) 875-5781	Joseph H. Korte	(313) 586-1095	Harold Reed	(601) 437-2481
Millstone		North Anna		Kewaunee		San Onofre	
Gordon R. Hollberg	(203) 665-3384	W.R. Runner, Jr.	(804) 273-2735	Richard P. Pulec	(414) 388-2560	S.L. Blue	(714) 368-2482
Nine Mile Point		Oconee		LaSalle		South Texas	
Beth Menikheim	(315) 349-4410	Pauline D. Beatty	(803) 885-3317	G.J. Toleski	(708) 663-7545	Diana L. Brown	(512) 972-8444
Oyster Creek		Robinson		Monticello		Trojan	
J. Troebliger	(717) 948-8188	Fred Underwood	(919) 546-6180	Craig S. Johnson	(612) 330-7999	Richard A. Magnuson	(503) 556-7221
Peach Bottom		Sequoyah		Palisades		WNP-2	
D.M. Sarley	(215) 841-5703	Becky Stanfield	(615) 751-2024	J.A. Smith	(517) 788-7072	J.A. Gloyn	(509) 377-8320
Pilgrim		St. Lucie		Perry		Waterford	
Paul Keefe, MD	(617) 424-2372	Arthur Cummings	(407) 694-3573	Joseph R. Slike	(216) 280-5843	Joan O. Kieff	(504) 739-6308
Salem/Hope Creek		Summer		Point Beach		Wolf Creek	
Ronald J. Mack	(609) 339-5600	Harry O'Quinn	(803) 345-4153	B.K. Kopetsky	(414) 755-6588	Gary D. Burchart	(316) 364-8831
Seabrook		Surry		Prairie Island			
Bruce R. Seymour	(603) 474-9521	W.R. Runner, Jr.	(804) 273-2735	Craig S. Johnson	(612) 330-7999		
Susquehanna		Turkey Point		Quad Cities			
Lisa M. Yupco	(717) 542-3201	Arthur Cummings	(407) 694-3573	G.J. Toleski	(708) 663-7545		
Three Mile Island		Vogtle		Zion			
J. Troebliger	(717) 948-8188	Vince Agro	(205) 868-5094	G.J. Toleski	(708) 663-7545		
Vermont Yankee		Watts Bar					
Greg Morgan	(802) 258-5800	Becky Stanfield	(615) 751-2024				
Yankee-Rowe							
Peter R. Fowler	(508) 779-6711						

Table A-3
Reporting unit contacts by NRC region

APPENDIX B: SUPPORTING DATA

Table B-1
Test results by NUMARC form test category
(January through December 1995)

TEST CATEGORY	FIRST SIX MONTHS	SECOND SIX MONTHS	YEAR
Pre-Access			
Number Tested	42,602	36,703	79,305
Number Positive	580	542	1,122
Percent Positive	1.36%	1.48%	1.41%
Random			
Number Tested	35,269	31,522	66,791
Number Positive	87	93	180
Percent Positive	0.25%	0.30%	0.27%
For-Cause			
Observed Behavior			
Number Tested	276	300	576
Number Positive	68	70	138
Percent Positive	24.64%	23.33%	23.96%
Post-Accident			
Number Tested	86	101	187
Number Positive	0	1	1
Percent Positive	0.00%	0.99%	0.53%
Follow-Up			
Number Tested	1,602	1,660	3,262
Number Positive	14	21	35
Percent Positive	0.87%	1.27%	1.07%
Other			
Number Tested	1,940	838	2,778
Number Positive	36	19	55
Percent Positive	1.86%	2.27%	1.98%
TOTAL*			
Number Tested	**81,775**	**71,124**	**152,899**
Number Positive	**785**	**746**	**1,531**
Percent Positive	**0.96%**	**1.05%**	**1.00%**

* These totals have been calculated using the category "Other"; however, in most cases this category has been purposely omitted from calculations for the totals and percentages throughout the body of this report.

Table B-2
Test results for licensee employees and contractor personnel
(January through December 1995)

TEST CATEGORY	LICENSEE EMPLOYEES			CONTRACTORS (Long-Term/Short-Term)		
	First Six Months	Second Six Months	Year	First Six Months	Second Six Months	Year
Pre-Access						
Number Tested	5,526	5,008	10,534	37,076	31,695	68,771
Number Positive	26	34	60	554	508	1,062
Percent Positive	0.47%	0.68%	0.57%	1.49%	1.60%	1.54%
Random						
Number Tested	23,439	22,376	45,815	11,830	9,146	20,976
Number Positive	33	49	82	54	44	98
Percent Positive	0.14%	0.22%	0.18%	0.46%	0.48%	0.47%
For-Cause						
Observed Behavior						
Number Tested	115	120	235	161	180	341
Number Positive	15	20	35	53	50	103
Percent Positive	13.04%	16.67%	14.89%	32.92%	27.78%	30.21%
Post-Accident						
Number Tested	62	58	120	24	43	67
Number Positive	0	0	0	0	1	1
Percent Positive	0.00%	0.00%	0.00%	0.00%	2.33%	1.49%
Follow-Up						
Number Tested	1,059	1,038	2,097	543	622	1,165
Number Positive	9	11	20	5	10	15
Percent Positive	0.85%	1.06%	0.95%	0.92%	1.61%	1.29%
Other						
Number Tested	512	433	945	1,428	405	1,833
Number Positive	3	3	6	33	16	49
Percent Positive	0.59%	0.69%	0.63%	2.31%	3.95%	2.67%
TOTAL*						
Number Tested	**30,713**	**29,033**	**59,746**	**51,062**	**42,091**	**93,153**
Number Positive	**86**	**117**	**203**	**699**	**629**	**1,328**
Percent Positive	**0.28%**	**0.40%**	**0.34%**	**1.37%**	**1.49%**	**1.43%**

* These totals have been calculated using the category "Other"; however, in most cases this category has been purposely omitted from calculations for the totals and percentages throughout the body of this report.

Table B-3
Test results for long-term and short-term contractor personnel
(January through December 1995)

TEST CATEGORY	LONG-TERM CONTRACTORS			SHORT-TERM CONTRACTORS		
	First Six Months	Second Six Months	Year	First Six Months	Second Six Months	Year
Pre-Access						
Number Tested	522	634	1,156	36,554	31,061	67,615
Number Positive	6	1	7	548	507	1,055
Percent Positive	1.15%	0.16%	0.61%	1.50%	1.63%	1.56%
Random						
Number Tested	1,258	1,084	2,342	10,572	8,062	18,634
Number Positive	4	1	5	50	43	93
Percent Positive	0.32%	0.09%	0.21%	0.47%	0.53%	0.50%
For-Cause						
Observed Behavior						
Number Tested	4	8	12	157	172	329
Number Positive	1	1	2	52	49	101
Percent Positive	25.00%	12.50%	16.67%	33.12%	28.49%	30.70%
Post-Accident						
Number Tested	0	2	2	24	41	65
Number Positive	0	0	0	0	1	1
Percent Positive	N/A	0.00%	0.00%	0.00%	2.44%	1.54%
Follow-Up						
Number Tested	11	13	24	532	609	1,141
Number Positive	0	0	0	5	10	15
Percent Positive	0.00%	0.00%	0.00%	0.94%	1.64%	1.31%
Other						
Number Tested	20	19	39	1,408	386	1,794
Number Positive	0	0	0	33	16	49
Percent Positive	0.00%	0.00%	0.00%	2.34%	4.15%	2.73%
TOTAL*						
Number Tested	**1,815**	**1,760**	**3,575**	**49,247**	**40,331**	**89,578**
Number Positive	**11**	**3**	**14**	**688**	**626**	**1,314**
Percent Positive	**0.61%**	**0.17%**	**0.39%**	**1.40%**	**1.55%**	**1.47%**

* These totals have been calculated using the category "Other"; however, in most cases this category has been purposely omitted from calculations for the totals and percentages throughout the body of this report.

Table B-4
Number of confirmed positives by substance
(January through December 1995)

TYPE OF SUBSTANCE	FIRST SIX MONTHS		SECOND SIX MONTHS		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Marijuana	419	53.38%	400	52.77%	**819**	**53.08%**
Cocaine	186	23.69%	188	24.80%	**374**	**24.24%**
Opiates	4	0.51%	13	1.72%	**17**	**1.10%**
Amphetamines	37	4.71%	24	3.17%	**61**	**3.95%**
Phencyclidine	1	0.13%	6	0.79%	**7**	**0.45%**
Alcohol	138	17.58%	127	16.75%	**265**	**17.17%**
TOTAL*	**785**		**758**		**1543**	

Table B-5
Confirmed positive test results by substance for each worker category
(January through December 1995)

TYPE OF SUBSTANCE	LICENSEE EMPLOYEES		CONTRACTORS (Long-Term/Short-Term)	
	Number	Percent	Number	Percent
Marijuana	86	42.16%	733	54.74%
Cocaine	49	24.02%	325	24.27%
Opiates	4	1.96%	13	0.97%
Amphetamines	6	2.94%	55	4.11%
Phencyclidine	0	0.00%	7	0.52%
Alcohol	59	28.92%	206	15.38%
TOTAL*	**204**		**1339**	

* The NUMARC form that utilities use to record the breakdown of confirmed positive tests for specific substances also includes a category for "Refusal to Test." Table B-4 and Table B-5 do not include refusal to test data; however, there was a total of 44 refusals to test during 1995. Forty-one of these were attributed to short-term contractors, 1 was attributed to a long-term contractor, and 2 were attributed to licensee employees.

Note: These numbers include positive test results from the "Other" test category.

Table B-6
Trends in significant fitness-for-duty events

Type of Event	1990	1991	1992	1993	1994	1995	Total
Reactor Operators	19	16	18	8	7	8	**76**
Licensee Supervisors	26	16	22	25	11	16	**116**
Contract Supervisors	12	24	28	16	11	10	**101**
FFD Program Personnel	1	5			1		**7**
Substances Found	6	8	6	2		5	**27**
Total	**64**	**69**	**74**	**51**	**30**	**39**	**327**

Table B-7
Test results for additional drugs by NRC region*
(January through December 1995)

TYPE OF SUBSTANCE	REGION I	REGION II	REGION III	REGION IV	TOTAL
Barbiturates					
Number of Licensees Testing	1:1	9:6	0:0	6:5	16:12
Number of Tests Performed	2,443	12,256	0	14,349	29,048
Number of Positive Test Results	0	1	0	3	4
Percent Positive	0.00%	0.01%	N/A	0.02%	0.01%
Benzodiazepines					
Number of Licensees Testing	1:1	9:6	0:1	6:5	16:13
Number of Tests Performed	2,443	12,256	2	14,349	29,050
Number of Positive Test Results	1	0	2	1	4
Percent Positive	0.04%	0.00%	100.00%	0.01%	0.01%
Propoxyphene					
Number of Licensees Testing	0:0	5:5	0:0	2:2	7:7
Number of Tests Performed	0	8,818	0	6,705	15,523
Number of Positive Test Results	0	0	0	0	0
Percent Positive	N/A	0.00%	N/A	0.00%	0.00%
Methadone					
Number of Licensees Testing	1:1	5:5	0:0	1:1	7:7
Number of Tests Performed	2,443	8,818	0	5,005	16,266
Number of Positive Test Results	1	0	0	0	1
Percent Positive	0.04%	0.00%	N/A	0.00%	0.01%
Methaqualone					
Number of Licensees Testing	0:0	8:5	0:0	1:1	9:6
Number of Tests Performed	0	11,553	0	4,043	15,596
Number of Positive Test Results	0	0	0	2	2
Percent Positive	N/A	0.00%	N/A	0.05%	0.01%

* The numbers of licensees that performed testing for additional drugs were different for the two reporting periods. Both the first and second six months' data are reflected in the table. The number to the left of the colon represents the number of reporting units that tested for the drug during the first six-month reporting period. The number to the right represents the number of units that tested for that drug during the second six months.

Table B-8
Confirmed positive test results by NRC region and by substance
(January through December 1995)

TYPE OF SUBSTANCE	REGION I N = 23*		REGION II N = 22		REGION III N = 21		REGION IV N = 15	
	No.	%	No.	%	No.	%	No.	%
Marijuana	229	49.35%	246	57.61%	130	45.45%	214	58.47%
Cocaine	132	28.45%	114	26.70%	71	24.83%	57	15.57%
Opiates	3	0.65%	3	0.70%	3	1.05%	8	2.19%
Amphetamines	4	0.86%	9	2.11%	3	1.05%	45	12.30%
Phencyclidine	6	1.29%	0	0.00%	0	0.00%	1	0.27%
Alcohol	90	19.40%	55	12.88%	79	27.62%	41	11.20%
TOTAL†	**464**		**427**		**286**		**366**	

Table B-9
Test results by NRC region and by worker category
(January through December 1995)

WORKER CATEGORY	REGION I N = 23*	REGION II N = 22	REGION III N = 21	REGION IV N = 15
Licensee Employees				
Number Tested	17,672	16,771	11,877	13,426
Number Positive	73	60	38	32
Percent Positive	0.41%	0.36%	0.32%	0.24%
Long-Term Contractors				
Number Tested	1,143	735	841	856
Number Positive	3	2	4	5
Percent Positive	0.26%	0.27%	0.48%	0.58%
Short-Term Contractors				
Number Tested	27,268	21,299	18,623	22,388
Number Positive	369	367	241	337
Percent Positive	1.35%	1.72%	1.29%	1.51%
All Contractors				
Number Tested	28,411	22,034	19,464	23,244
Number Positive	372	369	245	342
Percent Positive	1.31%	1.67%	1.26%	1.47%
TOTAL‡				
Number Tested	**46,083**	**38,805**	**31,341**	**36,670**
Number Positive	**445**	**429**	**283**	**374**
Percent Positive	**0.97%**	**1.11%**	**0.90%**	**1.02%**

* N = number of reporting units.

† These numbers include positive results from the "Other" test category.

‡ Total positive test results for specific substances are not expected to be the same as these numbers. In addition, these numbers include positive results from the "Other" test category.

Table B-10
Test results by NRC region and by test category
(January through December 1995)

TEST CATEGORY	REGION I N = 23*	REGION II N = 22	REGION III N = 21	REGION IV N = 15
Pre-Access				
Number Tested	24,415	17,063	17,357	20,470
Number Positive	330	310	185	297
Percent Positive	1.35%	1.82%	1.07%	1.45%
Random				
Number Tested	19,868	19,472	12,717	14,734
Number Positive	50	63	28	39
Percent Positive	0.25%	0.32%	0.22%	0.26%
For-Cause				
Number Tested	344	119	161	139
Number Positive	46	27	38	28
Percent Positive	13.37%	22.69%	23.60%	20.14%
Follow-Up				
Number Tested	977	727	731	827
Number Positive	13	6	12	4
Percent Positive	1.33%	0.83%	1.64%	0.48%
Other				
Number Tested	479	1,424	375	500
Number Positive	6	23	20	6
Percent Positive	1.25%	1.62%	5.33%	1.20%
TOTAL†				
Number Tested	**46,083**	**38,805**	**31,341**	**36,670**
Number Positive	**445**	**429**	**283**	**374**
Percent Positive	**0.97%**	**1.11%**	**0.90%**	**1.02%**

* N = number of reporting units.

† These totals have been calculated using the category "Other"; however, in most cases this category has been purposely omitted from calculations for the totals and percentages throughout the body of this report.

Table B-11
Trends in testing by test type

Type of Test	1990	1991	1992	1993	1994	1995	Total
Pre-Access							
Number Tested	122,491	104,508	104,842	91,471	80,217	79,305	582,834
Number Positive	1,548	983	1,110	952	977	1,122	6,692
Percent Positive	1.26%	0.94%	1.06%	1.04%	1.22%	1.41%	1.15%
Random							
Number Tested	148,743	153,818	156,730	146,605	78,391	66,791	751,078
Number Positive	550	510	461	341	223	180	2,265
Percent Positive	0.37%	0.33%	0.29%	0.23%	0.28%	0.27%	0.30%
For-Cause							
Number Tested	732	727	696	751	758	763	4,427
Number Positive	214	167	178	163	122	139	983
Percent Positive	29.23%	22.97%	25.57%	21.70%	16.09%	18.22%	22.20%
Follow-up							
Number Tested	2,633	3,544	4,283	4,139	3,875	3,262	21,736
Number Positive	65	62	69	56	50	35	337
Percent Positive	2.47%	1.75%	1.61%	1.35%	1.29%	1.07%	1.55%
Total							
Number Tested	274,599	262,597	266,551	242,966	163,241	150,121	1,360,075
Number Positive	2,377	1,722	1,818	1,512	1,372	1,476	10,277
Percent Positive	0.87%	0.66%	0.68%	0.62%	0.84%	0.98%	0.76%

Table B-12
Trends in positive test results for substances identified

Substance	1990	1991	1992	1993	1994	1995
Marijuana	1,153	746	953	781	739	819
Cocaine	706	549	470	369	344	374
Alcohol	452	401	427	357	251	265
Amphetamines	69	31	31	51	54	61
Opiates	45	24	8	13	11	17
Phencyclidine	8	11	4	5	1	7
Total*	2,433	1,762	1,893	1,576	1,400	1,543

* Total positive test results by test category are not expected to be the same as these numbers. In addition, these numbers include positive results from the "Other" test category.

Table B-13
Positive test rates for workers with unescorted access*

	Positive Test Rate
1990	0.54%
1991	0.47%
1992	0.44%
1993	0.37%
1994	0.48%
1995	0.50%

* Includes random, for-cause, and follow-up testing results. The reduction in random test rate from 100% to 50% was in effect in both 1994 and 1995.

APPENDIX C: COMPILATION OF LESSONS LEARNED

APPENDIX C: COMPILATION OF LESSONS LEARNED

In addition to providing numeric testing results in their semiannual program performance reports, a number of reporting units included information on lessons learned and program initiatives. This appendix presents this information as submitted by the licensees. This information is intended to serve as a reference to other utilities who wish to improve their program or avoid common difficulties.

Of the 48 utilities that submitted FFD program performance reports, 29 provided summaries of lessons learned and/or program initiatives implemented during the two 1995 reporting periods.

Arizona Public Service Company

APS is continuing to improve its Fitness for Duty (FFD) program through specific program revisions and enhanced computer program management.

During the first six-month reporting period ending June 30, APS made several revisions to the FFD program: marijuana screening levels were changed from 20 ng/mL to 50 ng/mL, sanctions are to be imposed on individuals registering a positive drug or alcohol test result for the first time, and benzodiazepines and barbiturates have been deleted from the APS drug panel. These revisions were made in response to APS' low positive testing rates. APS has closely monitored the revisions and no adverse consequences have been observed.

Also, during the first six months of the 1995 reporting period, the Health Services Department completed a re-engineering process. A Health Services Team Leader was selected to supervise the day-to-day departmental functions. A new position, the Drug and Alcohol Administrator, was developed. The purpose of the new position is to maintain and evaluate program compliance and to coordinate the implementation of the overall FFD/Drug Screening Program within APS.

Since September, 1994, the APS FFD department has been processing random selections utilizing the Auto-ACAD System. The system has proved to be accurate and no individuals have been excluded from the random pool. However, the process is time-consuming and cumbersome. APS Security and FFD are currently in the process of updating and enhancing computer systems. FFD has purchased the Health Evaluation and Information System for Drug Abuse in the Industry (HEIDI). HEIDI is a comprehensive drug management tool designed to facilitate the drug testing process, interface with the employee assistance program, track the follow-up program, and develop monthly, bi-annual, and annual reports. APS anticipates that HEIDI will reduce data entry time and the potential for human error. Installation and implementation began on August 1, 1995.

Boston Edison Company

During the first six months of 1995 ending June 30, forty-two specimens were found on integrity check to have creatinines less than 200 nanograms per liter. Thirty-seven of the forty-two individuals were called for unannounced repeat testing. Five were not repeated, nor were they badged. Seven of the thirty-seven repeated tests were tested a third time, unannounced, and an observed sample was obtained. Of these, one was positive for marijuana.

During the last six months of 1995, twenty-one specimens were found on integrity check to have creatinines less than 200 nanograms per liter. Twenty of these individuals were retested. One of these unannounced repeats was positive for marijuana. Two of the twenty repeats were tested a third time. The test was unannounced and an observed sample was obtained.

Carolina Power & Light Company

On February 21, 1995, a contract worker who was badged for unescorted access at a CP&L nuclear plant was being processed to obtain unescorted access at a second CP&L plant. In processing the worker at the second plant, it was discovered that the worker was not included in the FFD random selection pool for chemical testing. The subsequent investigation determined that there was a software weakness in the Brunswick security computer system. To obtain the names of workers for the random selection pool, the names of badged persons and their company prefix is downloaded to a disk for uploading to the mainframe; however, the security computer system excluded the workers who had a badge prefix of "V" which was intended to be the code for visitors. Visitors are excluded from the random testing pool.

To correct the system flaw, all badges with the "V" prefix were changed to another letter so they would not be excluded from the random selection pool. A software change was not initiated immediately because the Brunswick security computer system was due to be changed in July, 1995. The new computer system was implemented August 4, 1995. A new internal access tracking system, Computer Access Tracking System (CATS), was also implemented in March, 1995. As a precaution, a check was made of the other two plant security computer systems to ensure that the same weakness did not exist at those locations. It was verified that the weakness did not exist at the other two CP&L Plants.

On April 26, 1995, the Manager-Access Authorization Controls received a letter from a temporary worker, assigned to support outage in-processing, alleging a FFD violation had occurred internal to the Work Group. The allegation indicated that one temporary worker had provided a prescription diet pill to another temporary worker. After taking the pill, the second worker made the statement that she was "wired." As part of the investigation, both temporary workers were requested to submit to announced investigatory chemical tests, which provided negative test results. Additional investigation indicated that the diet pill was an over-the-counter medication and the statement made by the temporary worker about being "wired" was an inappropriate statement implying that she felt she had more energy as a result of taking the over-the-counter diet pill.

There was no FFD violation; however, poor judgement was exhibited by both of these temporary workers who, as part of the Access Authorization organization, are expected to set an example of exemplary behavior because of the nature and issues of the business of in-processing and screening workers for unescorted access.

In preparing the July – December, 1995 NRC FFD Performance Data Report, two categories were identified that were under-reported for the previous reporting period (January 1, 1995 – June 30, 1995).

In one case, twelve drug tests were excluded from the January – June, 1995 NRC Performance Data Reporting period. The omission occurred because the summary testing data report (for the reporting period January – June, 1995) was generated on July 6, 1995, prior to incorporating the evaluation data for these twelve drug tests into the FFD database. The revised pages of the January – June, 1995 NRC Performance Data Report were resubmitted to the NRC with the July 1, 1995 – December 31, 1995 NRC Performance Data Report. To prevent future similar omissions, the summary testing data for the NRC semi-annual report will not be run until 15 days after the end of the reporting period to allow sufficient time to complete the evaluation of any outstanding test results. This instruction will be included in the Access Authorization Program documents.

In the second case of under-reporting, 156 individuals with unescorted access were not included in the average population in the January – June, 1995 NRC Performance Data Report. These individuals were included in the random drug testing population. The omission is attributable to a computer program change that was implemented on June 27, 1995, resulting in a miscalculation of the average number of persons with unescorted access. The revised pages of the January – June, 1995 Performance Data report were submitted to the NRC with the July 1, 1995 – December 31, 1995 NRC Performance Data Report. The summary testing data reports have been rerun twice for the January – June, 1995 NRC Performance Data Reporting period to verify that the program has been corrected and that the average number of persons with unescorted access is calculated correctly. From now on, upon notification of computer program changes with the potential to affect FFD data tracking and calculations, a Quality Control Check (QCC) will be conducted to ensure the integrity of the information. The QCC report will be reviewed by the Manager – Access Authorization Controls prior to submitting the next semiannual report.

Consolidated Edison Co.

During the period from January 1, 1995 to June 30, 1995, the station was subject to a routine refueling and maintenance outage, which greatly increased the normal plant population to an average of 1,884 individuals under unescorted access. A total of 1,675 drug and alcohol tests were conducted during this reporting period. 1,249 were initial or pre-access tests and 425 were random tests. One person was tested "for cause." There were 12 confirmed positive drug and alcohol tests involving six licensee and six contractor employees.

A comparison was made with the last six-month period involving a refueling and maintenance outage (1993). The average plant population was then 2,047, with 18 individuals testing positive to 2,500 drug and alcohol tests. This was a test positive ratio of 0.72%. The 12 individuals who tested positive during the reporting period January 1 – June 30, 1995 also reflected a 0.72% test positive ratio against a total of 1675 drug and alcohol tests taken.

These statistics also show the reduced number of tests taken as a result of the 1994 rule change reducing random drug testing frequency from 100% to 50% of the average annual plant population. The 1005 random tests taken during the 1993 outage period compared to the 425 random tests taken during the reporting period January 1 – June 30, 1995 reflect 580 fewer tests taken. The fact that the Indian Point Station, Units 1 and 2, test positive ratio has remained exactly the same is an indication that the reduction of required random tests has not reduced the effectiveness of the FFD program.

A recent FFD audit conducted by Con Edison revealed that the statistical report sent to the NRC covering the period January 1 – June 30, 1995 incorrectly reported the breakdown of confirmed positive tests for specific substances. A revised "Breakdown of Confirmed Positive Tests for Specific Substances" for the period January 1 – June 30, 1995 was resubmitted.

Consumers Power Company

During Palisades' scheduled refueling outage, which occurred in the first six-month reporting period, a vial containing an unknown white powdery substance was found in the Radiological Controlled area. The substance was forwarded to the company's NIDA lab for analysis, resulting in negative results. Although all actions were well thought out and followed through, the company's internal procedures did not address this type of situation. This incident initiated procedural improvements to assure future occurrences would be handled by the appropriate staff and to assure proper notification(s) are made in a timely manner. Ultimately three job aids were created to direct actions upon (1) Firearm Discovery, (2) Unknown Substance Discover, and (3) The Discovery of Alcohol in the Protected Area.

Action was initiated as required under 10 CFR 26, Appendix A, Section 2.8(e) following an unsatisfactory performance test result. The incident involved Consumer Power Company's primary laboratory, South Bend Medical Foundation (SBMF), and was reported to Region III who in turn notified NRR. The incident was identified as "Failure of Lab – Part 26, Appendix A 2.8(e) (4) and (5) – False negative on blind test specimen, false positive on employee specimen reported to the Medical Review Officer (MRO) by SBMF." The cause of the problem was found to be human error during the laboratory accession process, at which time the external and internal chain of custody numbers were incorrectly paired. This error was continued through the laboratory analysis since once the sample is accessioned and given an internal chain of custody number, all further tests and verifications are made using this number. When CPCo's MRO received the drug test results, he detected an error and immediately contacted SBMF. The error was identified and resolved without consequence to the employee.

CPC's Nuclear Performance Assessment Department then conducted a surveillance at SBMF to review the laboratory's internal investigation, which did not identify similar deficiencies. Verification was made of corrective actions and records of past positives. The surveillance reported that thorough review and attention to detail was attributed to the MRO's and SBMF's investigation. Corrective actions were found to be thorough and comprehensive, and appropriate corrective actions to prevent recurrence were implemented. The likelihood of a similar deficiency in other previously identified positive specimens was examined and determined to be minimal.

In addition, processes involving the MRO contact of an individual having a presumptive positive test result and final notification to management have been altered following an incident which occurred at the Palisades Plant.

MRO requirements in 10 CFR 26, Appendix A, state the MRO shall discuss a potential positive test result with an individual prior to management notification. Upon receipt of a positive THC determination on a contract employee, the MRO's three attempts to contact the individual at his residence failed. Ultimately, the MRO was able to reach the individual, who was in the plant containment area, and discussed the THC result. Further miscommunication inadvertently prevented Consumers Power Company management from immediate knowledge of the positive determination, however the individual's on-site supervisor did take action to revoke the individual's access.

MRO Guidelines were revised directing contact with individuals made either off-site or through the HR department only. A listing of Consumers Power Company FFD Administrators was provided to the MROs with work, home, and pager numbers. Additional instructions for notifications were provided to the MRO assistants to prevent a recurrence of this situation.

Entergy Operations

During the first six-month reporting period (January 1 – June 30, 1995) a new computer software program "HEIDI" was implemented. HEIDI is a drug program manager that has allowed Entergy to standardize and consolidate the four site databases into one system, making data entry more efficient and effective. While the new database has to be updated to correct problems for particular sites on a day-to-day basis, it has been meeting the licensees' immediate needs. FFD coordinators at the four Entergy sites meet with computer personnel periodically to discuss improvements to the system. Management has endorsed the development of a new FFD computer program. The new program, which will be designed to work in conjunction with other Entergy Operations specific applications, will eventually replace the HEIDI software. The new software will allow more timely access to information, simplify processes, reduce redundant data entry and will operate on a local area network. Implementation is scheduled for June, 1996.

During the second six-month reporting period (July 1 – December 31, 1995) Entergy's FFD procedure was revised to strengthen program requirements to ensure that Entergy Operations employees not requiring unescorted access adhere to all provisions of the FFD program with the exception of random drug/alcohol testing. Contractors and vendor personnel not requiring unescorted access are subject to for cause testing, including post-accident drug/alcohol testing in accordance with the provisions of this procedure. While random testing is not required for non-keycarded personnel, the company procedure continues to provide the desired deterrent.

Arkansas Nuclear One

On December 30, 1994, a blind sample test specimen spiked with amphetamine was submitted to the ANO off-site certified laboratory. This sample which had previously screened positive at the ANO on-site laboratory was reported as negative on January 2, 1995. On January 3, 1995, a second aliquot of the original sample was submitted to the off-site certified laboratory for testing. This sample was subsequently reported as positive. An investigation by the off-site certified laboratory was performed to determine the root cause of the difference in test results between the two samples. The investigation results were submitted to the NRC on April 26, 1995.

On February 8, 1995, a negative urine sample from a batch test run performed at the on-site laboratory, for a pre-access drug test, was submitted to the off-site certified laboratory as required by 10 CFR 26 Appendix A Section 2.8(b). An aliquot of this sample had screened below the 50 ng/mL cutoff for marijuana. The off-site certified laboratory screening and subsequent GC/MS was positive for marijuana. As a result of the certified off-site laboratory conclusion and subsequent interview with the individual who provided the test specimen, the test was confirmed positive by the ANO MRO and the individual was denied access to ANO. The variance in the test results between the ANO laboratory and the certified off-site laboratory was due to differences in test equipment, specimen storage methods, and calibration of the test instrumentation. Prior to the confirmed positive determination, this individual had been granted unescorted access but did not enter the ANO protected area.

On February 28, 1995, ANO screened a pre-access urine sample as positive. This sample was submitted to the off-site certified laboratory for confirmation. On March 2, 1995, the certified off-site laboratory screened the sample as positive but erroneously reported it as negative (the sample was not submitted for gas chromatography/mass spectrometry). An investigation to determine the root cause of the error was performed by the certified laboratory. As a result of the investigation, the certified laboratory implemented enhancements in their test review process. The individual who provided the sample was subsequently confirmed positive and denied access to ANO. Prior to the confirmed positive determination, this individual had been granted unescorted access to ANO but had not entered the protected area.

On May 23, 1995, an individual was observed by a co-worker to be exhibiting aberrant behavior (i.e., short attention span, difficulty verbalizing thought processes, difficulty pronouncing multisyllable words and slurred speech) within the ANO protected area. The aberrant behavior was not reported to the individual's supervisor at the time of the observation as required, therefore an assessment of the behavior was not performed which could have required a for-cause drug test. An investigation into the root cause of the condition has been completed and corrective actions are currently being implemented. Management referred the individual who exhibited the aberrant behavior to the Employee Assistance Program (EAP). The individual's psychological evaluation resulted in the denial of the individual's unescorted access for a minimum of one year.

On July 7, 1995, it was discovered that a June 28, 1995, software upgrade to the random number generator contained an error in the software code. The error caused the software program to fail to activate into the selection pool all individuals with unescorted access to the ANO protected area. Upon discovery of the error, the individuals granted unescorted access to the ANO protected area were manually placed into the random selection pool. The software vendor was contacted and corrections were made to the software code.

On July 26, 1995, an ANO maintenance worker was called out to work by his supervisor during the evening shift. During the callout conversation the maintenance worker informed the supervisor that he had consumed alcohol within the preceding five hours and the supervisor requested that he report to work, if possible. Upon arrival at ANO, the maintenance worker did not notify ANO security that he had consumed alcohol within the past five hours as required, and was issued his security badge. However, prior to the individual entering the protected area, an alert security officer detected the odor of alcohol and blocked his entry. The maintenance worker stated that he did not need to enter the plant if he could make a telephone call. While discussing options for corrective action, the maintenance worker left the site before a breath test was performed. A condition report identifying the incident was issued, a root cause evaluation was performed and corrective actions were implemented. As part of the corrective actions, Quality Assurance performed a surveillance and determined that the overall knowledge level of supervisors of FFD program requirements was adequate, the maintenance worker and supervisor involved in the incident received counseling, and enhancements to the FFD program were completed to provide assurance that this type incident does not recur.

It was discovered on December 7 and 12, 1995, that two individuals with unescorted access to the protected area had not been included in the random drug testing selection pool. An investigation revealed that due to a personnel error, two contract employees had not been entered into the Security Qualification and Tracking System (SQTS). SQTS is the population vehicle used for random drug testing selection. Corrective actions included immediately adding the individuals to the SQTS database

and counseling the personnel involved to follow established procedures.

On September 15, 1995, ANO reported via telephone to the NRC Operations Center that a contract employee had been granted unescorted access to the ANO protected area with a screened positive drug test that had not been reviewed by the ANO MRO. Upon discovery of the error, the contract employee was escorted off-site and the employee's unescorted assess was temporarily suspended. The MRO determined that the screened positive drug test was due to legally prescribed medications and ruled that the drug test was negative. The contract employee's unescorted access was subsequently reinstated.

Waterford Generating Station

During the first six-month reporting period, one individual was suspected of adulterating their sample. The temperature of the sample collected was below the established acceptable range for temperatures. A second sample was collected under direct observation. The second sample returned different results than the first specimen. Access was denied for this employee and the other employees that tested positive during pre-access and random testing. Management was notified and the individuals' files were annotated of the positive results and management's actions.

On October 18, 1995, a report was filed with the NRC based on a contractor gaining access with a positive pre-access test. An investigation into the facts of the event determined that due to an administrative misapplication of the FFD rule, the result had been confirmed positive when, in fact, it should have been ruled negative. Accordingly, Waterford 3 retracted this notification on October 31, 1995.

Two incidents occurred during the second six-month reporting period which called into questioned the accuracy of the random pool.

Two individuals granted unescorted access to the protected area were not entered into the random pool for a period of one week. Random lists were pulled on three dates during this time frame in which these two individuals did not have a probability of being selected and tested. An investigation into the cause determined that a recent upgrade of the software included a 'bug' that caused certain individuals selected for the pool not to be activated into the pool. The software is currently functioning and meets the requirements of the Fitness for Duty rule. No further updates from the vendor will be installed.

In the second incident, individuals were granted access but not put into the random pool in a timely manner. The delay was realized prior to a list being pulled for collection. The department responsible for issuing access badges and data input into the database from which the random pool is drawn was contacted. Prior to a badge being issued and available for an individual to ingress the plant, the individual will be added to the database populating the random pool.

River Bend Station

The River Bend Station site-specific FFD procedure was revised to streamline administrative processes. As a result, a series of shorter, more specific implementing instructions and guidelines were developed and issued for implementation.

The FFD facility was remodeled to improve personnel processing and to provide additional administrative workspace for the FFD staff. Additional upgrades are being planned to enhance processing of personnel during plant outages.

Florida Power Corporation

Turkey Point Plant

On September 26, 1995 11 individuals obtained access authorization but were not entered into the FFD/ Access Authorization data system to be made available for random chemical testing. All individuals were temporary workers and when all errors were identified the individuals had left the plant due to the completion of the outage.

The cause of the omission was human error on the part of the individual responsible for data input. The immediate corrective action was to have each individual's supervisor provide a written behavioral observation review. No behavioral observation concerns were identified. Additionally, the data input process was modified to require the first access authorization entry be made in the FFD/Access Authorization system prior to activating the individual's authorized site access.

Crystal River

Although observed practices were acceptable and personnel were knowledgeable of the requirements, procedures and training documents used by the SmithKline Beecham Crystal River, Florida collection site did not sufficiently address all requirements of 10 CFR 26.20(c). As confirmed by onsite surveillance conducted by FPC Quality Assurance personnel, SmithKline Beecham has since developed the necessary administrative instructions relative to security of the laboratory; sample collection procedures; actions to be taken in the event of substitution or adulteration of samples; and actions to be taken in the event the donor fails to arrive at the collection site at the scheduled time.

Georgia Power Company

In September, 1994, a Supplemental Random Testing Pool (SRTP) was instituted for Plant Hatch Operations department personnel. SRTP, which requires Hatch department personnel to be tested at a rate of 100% yearly of the total population, was originally implemented because of an increase in licensee employee-confirmed positive test results requiring notification to the NRC during the previous (1993) reporting period. The SRTP was reviewed in May, 1995.

No positive tests resulted from this supplemental pool; therefore, it was discontinued. The SRTP was re-instituted in October, 1995 for the same employee population. The decision to re-institute this pool was made subsequent to the termination of a licensed operator.

This operator was referred for evaluation of long-term prescription medication use which included controlled analgesics, barbiturates, and benzodiazepines, successfully completed inpatient rehabilitation, was certified fit for duty, and returned to work with follow-up pool participation. All later FFD tests, including random, follow-up, and SRTP were negative. However, the individual was terminated when further investigation revealed a positive drug screen (unconfirmed) that was taken by law enforcement because of a DUI arrest. The results of the investigation revealed that the employee was of questionable reliability and trustworthiness.

As a result of this incidence, it was determined that the SRTP pool serves as an additional deterrent to substance abuse within this employee population. There have been no positives within the SRTP population since its re-institution in October, 1995. The SRTP may be re-evaluated in the future to determine its contribution to the deterrent program.

GPU Nuclear Corporation

On July 26, 1995, Oyster Creek Human Resources, upon reviewing computer records, discovered a potential violation of the FFD program. During a rebadging process, a long-term GPU System employee continued to be granted unescorted access but was not subject to the random testing program from May 2 to July 27, 1995. The cause of the deficiency was due to a clerical error in the rebadging process. The individual was denied unescorted access on July 27. On July 28, the individual was required to complete a drug/alcohol screening, reinstated in the random testing program, and granted unescorted access.

Corrective actions were taken to prevent a reoccurrence of this type in the future. GPU Nuclear Access Control Coordinators implemented standard operating practices for issuance of new badges that reduced opportunities for clerical errors. In addition, site Access Control verifications comparing badged personnel with active personnel available for random testing were implemented.

IES Utilities, Inc.

During the first six-month reporting period the substances in positive tests were either THC or alcohol. This is in line with the long-term trend at Duane Arnold Energy Center (DAEC). Results positive for cocaine are a very distant third and tests confirmed positive for the other substances are almost non-existent. IES Utilities Inc. has adopted extra measures to detect specimens that may be suspicious due to hydration or substitution. Electronic digital refractometers are used for precise specific gravity measurements at the collection site, and creatinine levels are measured by the testing laboratory. During this reporting period, twenty (20) individuals were required to immediately provide second specimens after temperature and/or specific gravity checks revealed that the first specimen provided fell below the specified range. Each specimen was packaged and shipped separately. There were no positive test results in this group. IES Utilities does not believe that these individuals were trying to subvert the system, based on examination of each testing situation and establishing reasonable explanation for the measurements. The required retesting is higher than in the past but that is attributed to using more sensitive and precise instruments to check specific gravity.

During the second six-month reporting period there were no positive tests. IES continues to see value in taking extra efforts to detect any attempt to subvert testing by hydration. Refueling outages continue to be the greatest challenge for DAEC's FFD program in terms of the number of positive tests.

Illinois Power Company

In March, 1995 a single anomaly in a lot of blind samples from a vendor resulted in a request for surveillance and corrective action. Specific cause of the anomaly was indeterminate; several potential contributors were identified and commensurate process improvements were implemented.

The Nuclear Program Position Rotation Program was established by management earlier this year to provide career development opportunities for employees selected to participate in the program.

On October 24, 1995, a Condition Report was initiated when it was discovered that the specific opiate metabolite test for 6-monoacetylmorphine (6-AM) was not being performed by the station's NIDA-Certified

Laboratory in accordance with 10 CFR 26, Appendix A. Section 2.7(t) (5). No requests for the specific 6-AM analysis had been made by the supporting MROs. In reviewing records with the MRO, all FFD decisions involving presumptive positive codeine and/or morphine results had been sufficiently supported by codeine-to-morphine ratios and/or prescription medications. However, it is evident that supporting MROs were more familiar with DOT FFD requirements (which treat the 6-AM tests as optional/investigative/informational) and unaware of the 10 CFR 26 mandate for this analysis. Corrective actions taken included provision of a detailed scope of work within the laboratory services purchase agreement (which now explicitly requires 6-AM confirmatory testing), and briefing of the MRO regarding the differences between DOT and NRC FFD requirements.

On November 29, 1995, a specimen was reported out to the CPS MRO by the off-site laboratory as negative. A subsequent re-analysis was requested by the MRO on the basis of an onsite laboratory result. The re-analysis by GC/MS quantified 362 ng/mL of carboxyl-THC. The specimen tested greater than the 100 ng/mL cutoff and based on the MRO determination the test result was considered positive. Personnel actions and notifications were completed in accordance with NSS 1.16. A discussion was held with the vendor Lab Director regarding the discrepant results. The subject specimen was transferred to a third party laboratory, for additional tests resulting in a positive screen at the 100 ng/mL cutoff level for marijuana and confirmed positive by GC/MS. A spiked blind sample was submitted to the onsite and off-site laboratory; both identified cannabinoids appropriately.

Maine Yankee Atomic Power Company

An annual audit completed by independent auditors which included an FFD Technical Specialist from another utility was conducted during the first six-month reporting period. As a result of the audit, an enhancement to the call-in procedure for unscheduled work was made. Maine Yankee Atomic Power Company has found that the effectiveness of FFD audits is enhanced by the inclusion of an FFD technical specialist on the audit team.

New York Power Authority

James Fitzpatrick

Over the course of the two six-month reporting periods in 1995, the James A. FitzPatrick Nuclear Power Plant reported three false-negative blind quality control test samples. One false negative occurred in the first six-month reporting period and the other two occurred during the second six-month reporting period. In all three cases, investigations were conducted by Corning/Metpath Laboratory, Bensinger Dupont Associates, and Forensic Control Company (the company that supplied the test samples). All three investigations revealed that the false negatives were the result of an interfering factor in the analytical process at Metpath Laboratory.

The Authority is concerned with the failure by both the blind test supplier and the Health and Human Services (HHS) laboratory to provide a quality explanation as to the reason for the presence of the interfering agent in the blind test specimens. As a result, the Authority has established a new contract with an alternate blind test specimen supplier, and pending a pre-award audit, a new HHS laboratory.

Niagara Mohawk Power Corporation

From January, 1990 to February, 1994, Niagara Mohawk Power Corporation (NMPC) selected individuals at a 100% random testing rate. Since February, 1994, the Corporation has reduced the rate of random testing to 50% (for employees) pursuant to amended NRC regulations governing FFD Programs (10 CFR 26). This has resulted in significant cost reductions and increased efficiency, while maintaining a deterrent against drug use. Senior management felt it was necessary to reinstate a testing rate equal to approximately 100% for contractors. This decision was based on the increased number of accidents during the recent back-to-back outages and the inability to continually observe contractors for long periods of time. Contractors, for the majority, are required to work at Nine Mile Point for only a short time. Therefore, it is very difficult to determine if someone is acting aberrantly, when a "norm" cannot be established in such a short time. Contract supervision was informed of this change in random selection rate.

During the first six-month reporting period the Corporation experienced two audits. Quality Assurance conducted an internal FFD audit and shortly after, the NRC conducted their audit. All findings were minor and corrective actions were satisfactorily implemented.

The first six-month reporting period also brought two successful back-to-back outages. Prior to the outages, alternates were trained to facilitate the pre-access qualification process. Due to pre-planning, the time outage personnel were required to wait to be drug and alcohol tested was minimal.

One of the Corporation's goals during this reporting period was to promote education awareness and assist individuals with drug and alcohol problems. For example, following each positive drug or alcohol test, FFD personnel and the individual discuss the ramifications of the results and more importantly the individual is recommended and

encouraged to obtain a substance abuse evaluation and to follow any and all of the substance abuse specialist recommendations. In addition, the FFD staff provides drug and alcohol reading material (subscriptions), statistics, and resource data in the FFD waiting area. The MRO stays up to date on the latest regulatory changes and industrial trends by subscribing to the MRO ALERT.

To increase FFD Awareness and expedite drug and alcohol testing, For Cause/Post Incident Wallet cards were distributed to all supervision prior to the outage. The cards were a handy reference and reinforced compliance with FFD procedures.

A member of the FFD staff was asked to participate in an internal FFD audit at a neighboring plant. Niagara Mohawk's presence was requested to provide a source of technical expertise. It provided Niagara Mohawk staff with a better understanding of the scope and responsibilities of an audit team and gave an opportunity to observe the day-to-day operations of another FFD Program.

FFD representatives were fortunate to attend a Region I bi-annual meeting. Potential future regulatory modifications were discussed, along with onsite screening, blind performance testing and general FFD practices.

During the second six-month reporting period, the Corporation completely revised its main administrative procedures. The changes were implemented to provide a more user friendly format and to satisfy minor audit findings. The FFD program re-established a back-up For Cause/Post Incident collection procedure (with the area hospital) for employees who require medical attention and who are required by procedure to comply with our For Cause/Post Incident testing policy.

All utilities have experienced strong competition over the past year. As a result, Senior Management has authorized and encouraged all departments to investigate mutually beneficial initiatives with the neighboring plant. NMPC FFD representatives worked many hours proposing and discussing the possibility of conducting initial drug testing for the neighboring plant. While the proposal was not accepted, other beneficial options were implemented. NMPC will continue to investigate future mutually beneficial initiatives.

The NMPC FFD program continued to promote drug and alcohol awareness and to assist individuals with drug and alcohol problems during the second six-month reporting period of 1995. FFD staff visited a local substance abuse treatment center to learn the process of patient referral, and the center's treatment policies and goals.

An FFD representative was fortunate to attend a Region I bi-annual meeting. The guest speaker lectured on the effects of drugs and alcohol and how they are detected using current testing methods. Also discussed were the prevalent drugs in use and others making a come back.

North Atlantic Energy Service Corporation

North Atlantic Energy Service Corporation implemented several procedural changes during 1995. All second FFD screening failures now result in termination of employment for licensees or permanent denial of access to Seabrook Station and properties controlled by NAESCO for contractors. Previously, after two alcohol failures a licensee could return to work and continue in a follow-up program, and a contractor could reapply for access after three years. There is also a new process for entering the Protected Area (i.e., hand geometry).

In addition, the FFD program instituted a number of other initiatives to improve the program: office instructions regarding key control and blind specimen handling procedures were clarified, a new background music system was installed to improve employee privacy during drug and alcohol testing, and all FFD personnel attended a stress management class.

Also, Northeast Utilities and North Atlantic Energy Service Corporation continue their efforts to integrate their FFD programs. They have agreed to use the same blind specimen provider (effective date January 1, 1996) and to use the same SAMHSA-certified laboratory (target implementation date April 1, 1996).

Northeast Nuclear Energy Company

During the second six-month reporting period, three significant events occurred. An NRC licensed operator tested positive for alcohol. This event was reported to the NRC and further information was provided upon request. On October 31, a contractor supervisor of persons with unescorted access were arrested for possession of a controlled substance and drug paraphernalia. Although the incident was reported to the Commission as a Significant Event at the time, all charges against the individual involved were subsequently dropped.

Also during the second six-month reporting period, one false negative blind proficiency test result was reported by the testing laboratory, and in accordance with 10 CFR 26, Appendix A, Section 2.8, the NRC Staff was notified of this occurrence.

In the event, several urine specimens were unable to be tested due to a mismatch of the identification numbers on the specimen and the requisition.

Also, several specimens leaked in transit to the collection sites. These specimens were replaced by the provider, the problem was corrected and has not recurred.

These incidents were investigated and the resulting documentation is on file in the Corporate office.

Omaha Public Power District

Due to an administrative deficiency, the test screening cutoff for marijuana was the 10 CFR 26 limit of 100 ng/mL from March 14, 1995 through July 24, 1995. Subsequent testing has used the OPPD 50 ng/mL administrative cutoff point. Based on statistical analysis of historical data, it is unlikely that any positive results would have been revealed by testing to the lower cutoff point during this period. Personnel associated with administration of the OPPD FFD Program have been made aware of this condition, and further actions to prevent recurrence have been established.

Pacific Gas and Electric Company

On June 28, 1995, a plant employee discovered a plastic bag containing a small quantity of an unknown white substance in the Diablo Canyon Power Plant (DCPP) protected area. The substance was discovered at the 85 foot elevation access control point. PG&E site security personnel took possession of the substance and performed preliminary event investigation. Subsequently, the substance and investigation were turned over to PG&E corporate security personnel.

On June 28, 1995, the NRC Operations Center was notified, in accordance with 10 CFR 26.73(b), of the discovery of the suspected controlled substance within the DCPP plant protected area. On July 7, 1995, a biomedical laboratory identified the substance as methamphetamine. On July 12, 1995, the DCPP Vice President and Plant Manager issued a memorandum to all DCPP personnel regarding illegal drugs in the workplace. Company policies and sanctions related to the possession of illegal drugs were reviewed and the company's commitment to maintaining a drug-free workplace was affirmed. In addition, the symptoms and behavior of a methamphetamine user were discussed.

All workers who were in the area before or at the time the methamphetamine was discovered and all related supervisory personnel were interviewed. Evidence does not exist to link a specific individual to the methamphetamine. PG&E plans to perform selected follow up employee interviews. In addition, PG&E has determined that the substance was not manufactured at DCPP, and that the small quantity of substance discovered implies it was for personal use and not for sale.

On August 22, 1995, a PG&E non-licensed supervisor tested positive during a random alcohol screening. The non-licensed supervisor's plant access was immediately suspended. The non-licensed supervisor was referred to the employee assistance program counselor. Work performed by the non-licensed supervisor on August 22, 1995, was reviewed with satisfactory results. After being cleared by the MRO to return to duty, the non-licensed supervisor's unescorted access authorization was restored.

The NRC Operation Center was notified of the incident on August 23, in accordance with 10 CFR 26.73(b). The non-licensed supervisor is actively involved in an alcohol treatment program. In addition, the non-licensed supervisor is subject to increased alcohol and drug testing. The non-licensed supervisor has satisfactorily completed six alcohol and drug tests since the event date.

On November 27, 1995, a temporary outage worker reported to security personnel that three weeks earlier, while vacuuming a radiologically controlled area (RCA) within the plant, he saw what he suspected were two marijuana cigarette butts. PG&E Corporate Security personnel performed an investigation into the event. Since the worker reported the event three weeks after the event occurred, it was difficult to locate the vacuum waste. The temporary outage worker did not open the cigarette butts prior to vacuuming the area to verify the material to be marijuana. A search of uncompacted vacuum waste stored in the RCA was performed and no marijuana cigarette butts were found.

The General Employee Training Program has been revised to include instructions for employees to immediately report any suspicious material found within the plant boundaries. In addition, a newsletter was distributed to plant employees reiterating management's expectations to immediately report material suspected of containing controlled substances. This event and management's expectations to immediately report suspicious material was discussed with the temporary outage worker.

PECO Energy Company

Limerick

During the first six-month reporting period one significant FFD event was reported which involved allegations and admissions of three supervisory personnel taking part in the off-site use and possession of a controlled substance. The supervisors involved were denied access to PECO Energy nuclear facilities and records documented as such for employment inquiries from other nuclear licensees subject to 91-03 data transfer. Two of the supervisors subsequently resigned from employment, the third was discharged.

Non-supervisory personnel identified during the course of this investigation who did not resign were referred to the Employee Assistance Program for treatment. Following satisfactory completion of treatment, the employees' unescorted access was reinstated.

The investigation also identified two non-supervisory contractor personnel who were involved in off-site drug use. The contractor personnel were denied access. The denial of access was communicated by telephone to the nuclear licensees where the contractor personnel were then working. All personnel identified during the investigation submitted to for-cause drug and alcohol testing. None tested positive.

The NRC Region I conducted a reactive FFD inspection in response to the significant FFD event reported above. The inspection was primarily conducted at LGS, but also examined aspects of the program across the Nuclear Group.

The inspection identified that PECO Energy had in place a FFD program which continued to be implemented for the protection of the public health and safety. The report commended PECO Energy's efforts in identifying the noncompliance of certain employees with the FFD program, and for taking prompt, appropriate action. The inspector reported an 'apparent' violation in that supervisors with behavioral observation responsibilities failed to require for cause testing of individuals following observed behavior indicating substance abuse. The report identified issues involving implementation of program changes, documentation of procedures for the notification of personnel selected for testing, and individuals excused from testing. The issues have been reviewed and corrective actions are in progress.

Peach Bottom Atomic Power Station

On September 20, 1995, a specimen collected for pre-access screening was reported as negative by the onsite testing facility. The specimen was included in the group of 10% negative quality control specimens forwarded to the HHS-certified for testing.

Late on Friday, September 22, 1995, the HHS-certified laboratory reported the specimen as "positive for marijuana metabolites." The positive report was retrieved from the printer at approximately 8 am on Monday, September 25, 1995, the discrepancy noted, and the Manager, FFD was notified.

After determining that the individual had not been granted access, an investigation into the testing of the specimen was initiated. The HHS-certified laboratory was directed to rerun the specimen. All other specimens collected and screened at the onsite screening facility on the 20th were transported to the HHS-certified laboratory for screening. The results indicated no other discrepancies. An aliquot of the original sample was also sent back to the onsite facility for reanalysis. The results of the re-analysis by the onsite facility were positive for cannabinoids.

Inspection of the specimen by personnel at the HHS-certified laboratory identified a large amount of sediment in the specimen container which had appeared to clump at the bottom. Microscopic evaluation of a sample of the sediment indicated "red/amber crystals consistent in morphology with uric acid."

It is believed that during the initial onsite screening, a large amount of the sediment was injected into the analyzer probe causing the inaccurate readings.

A review of the onsite screening records indicated all controls and calibrators were within the designated tolerances. The onsite Syva ETS report for the specimen in question revealed values greater than 20% lower than the negative controls for all substances. An extensive study of results from the onsite facility showed that greater than 95% of all negative specimens have values within 10% of the negative control.

As a result of these findings the procedures have been revised to direct that any specimen with values greater than 10% lower than the negative control for any of the five substances will be centrifuged and reanalyzed. If the value for any of the five substances continues to be greater than 10% lower than the negative control, the specimen will be sent to the HHS-certified laboratory for analysis.

During the second six-month reporting period, an annual FFD audit was conducted by Nuclear Quality Assurance personnel during the period. The audit found that the FFD program is being effectively implemented.

One Deviation-level Corrective Action Request was issued as a result of the Audit. The Deviation concerned an overdue background investigation and an overdue psychological evaluation for two sample collection personnel. The FFD rule requires that background checks and psychological evaluations be completed every three years for persons who administer the FFD program, including collection site personnel. Immediate corrective actions were initiated, and both conditions were resolved before completion of the audit.

Pennsylvania Power & Light Company

Pennsylvania Power and Light Company reduced its FFD testing protocol down to the five NRC required drugs effective January 1, 1995. The decision to stop testing for additional drugs was made by management after careful review of testing data for the previous five-year testing period.

Public Service Electric & Gas Company of New Jersey

Trends: 1990 to Present

- Opiates: There were no MRO positives since the FFD rule went into effect.

- PCP: There were no positives for the fourth consecutive year.
- The program performance report for the first six-month reporting period is the first non-outage FFD 6 month report. Decreased numbers of short-term contractors has resulted in the lowest positive rate in the pre-access category since the FFD rule went into effect.
- The challenges to the accuracy and validity of HHS laboratory test results were rare.
- For a brief period of time, due to high level management concern, almost all individuals involved in work related accidents or incidents were referred to the Medical Department for "For-cause" and/or "Post-accident" testing. After considerable deliberation, guidelines were developed by the management protocol group. This program was put into effect on December 18, 1995. It is anticipated that future numbers will be more consistent with past performance.

Recommendations:

- Eliminate the second breath alcohol test when the first test is negative. After greater than 84,000 breath tests, equipment sensitivity of 100% has been demonstrated (second breath test has never been positive after the first breath test was negative). Cost savings over months to years would be considerable.
- Continue to permit/encourage onsite pre-screening.
- Consider moving toward "interchangeability" and mutual acceptance among regulated FFD programs (NRC, DOT, RSPA).

Rochester Gas & Electric Corporation

An internal audit assessment was conducted on October 9-13, 1995. Two action items were identified.

- Appropriate background investigations were not being conducted on a three year frequency for FFD personnel involved in administering the drug and alcohol testing program.
- The FFD procedure manual was not up to date.

Both of the action items are in the process of being resolved.

Southern Nuclear Operating Company

Monthly quality control checks of the FFD random pool revealed no major discrepancies from July through October. A computer programming error caused all badged contractors at Farley Nuclear Plant to be dropped from the FFD random testing pool for up to six weeks from November 6 to December 11, 1995. The situation was discovered on December 15, 1995, and thoroughly investigated. It should be noted that the Continual Behavior Observation Program activities were still active during this time. The contractors who were not in the random pool for this period did not have the knowledge that they could not be selected; therefore, the deterrent for substance abuse remained. The programming error was corrected and new procedures put into place to prevent recurrence. As a courtesy, Farley management notified the NRC resident inspector of the error on December 29, 1995.

Southern California Edison

On January 31, an individual (non-utility, non-licensed) was allowed to enter the protected area (PA) before all portions of Edison's unescorted access screening process had been completed (drug test results had not been evaluated). The individual's supervisor was notified that a meeting between this individual and the MRO was required. The supervisor accompanied the individual out of the PA at 0844. At 0955, the MRO evaluated the individual's initial drug screening test results and concluded the individual failed the drug screening test. Edison deactivated this individual's security badge at 1000.

As a result of this event, Edison initiated a selective review of access clearance records. On February 7, 1995, it was discovered that a second individual had been granted unescorted access (granted on January 26, 1995) prior to drug test results being evaluated. Edison deactivated the second individual's security badge. A records review determined that the second individual did not enter the PA. The MRO declared a drug screening test failure on February 8, 1995.

Upon discovery of the second incident (on February 7, 1995), Edison initiated a 100% validation of documentation for all personnel requesting unescorted access submitted from November 28, 1994 (start of outage badging) through January 31, 1995. The results of this validation revealed a third instance of premature access authorization (granted on January 9, 1995). Records indicating that the third individual did not enter the PA, and there was no drug screening failure declared in this third incident.

The cause of the event was personnel inattention to detail by the clerk processing the access authorization documents, and a failure to exercise due diligence in follow-up processing by the supervisor.

Upon discovery of the first event (January 31, 1995), Edison re-emphasized to the clerk and supervisor the

importance of attention to detail. Edison clarified the access authorization worksheet and initiated a 25% validation audit of documentation for all personnel requesting unescorted access submitted from 1/3/95 through 1/31/95 to ensure that the records documented a passing drug test result.

Upon discovery of the second and third events (February 7, 1995), Edison expanded its records audit to include 100% of all personnel requests for unescorted access submitted from November 28, 1994 through January 31, 1995. In addition, the clerk was replaced, and additional counseling to the supervisor and access authorization staff was performed.

There is no safety significance to these events as the individual involved with the first incident was with his supervisor at all times while in the PA (except for an approximate 10 minute rest room break) and no vital areas were entered.

As discussed above, the two individuals from the second and third incidents did not enter the PA.

A review of access authorization records indicate that these 3 failures occurred during the pre-outage period (November 28, 1994 through January 31, 1995) when approximately 778 authorizations were being processed.

South Carolina Electric and Gas Company

During the January – June reporting period, seven direct observation collections were performed. All of these were conducted at the request of the MRO due to abnormal specific gravity and creatinine levels. One test resulted in a confirmed positive for drugs. This confirmed positive test involved an SCE&G employee who was a student temporary working for the summer and did not require unescorted access. Appropriate management personnel were notified, and the donor will not be eligible for consideration of employment or unescorted access authorization by SCE&G in the future.

Due to the low confirmed positive rate of benzodiazepines and barbiturates, SCE&G management is considering dropping these two additional drugs from testing, and test only for what 10 CFR 26 requires.

Tennessee Valley Authority

During the first six-month reporting period of 1995, two significant events occurred. On January 11, 1995, an investigation was initiated as a result of a false negative result on a blind proficiency specimen which was reported to TVA by the DHHS certified laboratory used by TVA. This issue was reported to the NRC in accordance with 10 CFR 26, Appendix A, 2.8(e). The investigation determined that the cause of the false negative result was clerical error, and was an isolated event. The laboratory installed a computer system enhancement to eliminate the possibility of this type of error occurring in the future.

On May 3, 1995, a level III NDE (nondestructive evaluation) Specialist self-referred to the EAP for use of drugs. The individual was in a non-work status following his self-referral. On May 30, 1995 his special medical clearance was denied based on his heavy use of crack cocaine. His security clearance was subsequently denied. TVA denied the individual nuclear plant access. A review of his work prior to the self-referral is in progress. He is currently undergoing an appeal of TVA's decision to deny access.

During the second six-month reporting period, TVA experienced some problems with its NIDA-certified contract laboratory. On July 21, 1995, the contract laboratory reported a drug screen on an individual as positive for marijuana. The MRO interviewed the individual and sent him to the Human Resources office. Later that morning, the laboratory called to state that the original report was erroneous and that the individual was also positive for cocaine. The individual was then reinterviewed. On July 24, 1995, the results of a blind proficiency sample guaranteed as positive were reported by the lab as negative. Both problems were caused by a computer error. Also on July 24, 1995, five boxes of specimens were sent to the laboratory. When the results were not received the next day, it was discovered that through a clerical error, the lab had opened the outer seal on the shipping box. Rather than unloading the box for testing, the specimens were shipped back to the site.

For the first two issues, corrected reports were sent by the lab to TVA. For the third issue, the specimens were sent back to the lab for testing, and new specimens were collected for each individual involved. There were no positive tests on the initial screens or the repeat collections. Based on these recent experiences, TVA is working to contract with another NIDA laboratory.

In September, 1995, BLN (a TVA nuclear construction site) had a reduction in personnel which reduced the onsite population to approximately 80 employees. A decision was made to reduce the program from the standard TVA Nuclear FFD program to minimum requirements for a nuclear construction facility. The new BLN program was implemented on October 1, 1995. The random testing population still includes everyone onsite, is designed to test at 52 percent annually, and testing will be randomly conducted between 10-15 times per year.

Virginia Electric and Power Company

The FFD module of the Nuclear Human Resource System (NHRS) at Virginia Electric and Power Company was implemented in January of the first six-month reporting period. NHRS is an integrated computer system that provides a working interface between Centralized In-Processing, Nuclear Training, Nuclear Security, FFD, and Employee Health Services. The system maintains complete data files for control of the FFD process from scheduling of testing appointments through the entry of final test results. The system also provides generation of the reports required by management and regulatory agencies.

Effective July 1, 1995, Virginia Electric and Power Company implemented changes to its drug testing panel. The company no longer tests for three additional substances: methaqualone, benzodiazepines, and barbiturates. The revised panel of drug test substances complies directly with the requirements of 10 CFR 26, Appendix A, Subpart B, Section 2.1 (a). In addition, confirmatory test cutoff levels were moderated within the limitations of 10 CFR 26, Appendix A, Subpart B, Section 2.7(f)(2) for marijuana, opiates, and phencyclidine. Cutoff levels for opiates and phencyclidine were changed from more restrictive levels to reflect the actual requirements of 10 CFR 26. The initial screening level for marijuana remains at 50 ng/mL, a more restrictive level than required by 10 CFR 26. However, the confirmatory level for marijuana was changed from 10 ng/mL to 15 ng/mL, the actual level required by 10 CFR 26.

Washington Public Power Supply System

During the first six-month reporting period there were four cases of confirmed urine sample tampering by substitution. These attempts of subversion occurred during pre-access testing and it was concluded that there was sufficient grounds to believe that other individuals may have tampered with drug tests by substituting urine specimen samples as well. These four cases occurred during the weeks of March 6 to March 29, 1995 and R-10 outage in-processing. All of these cases have been denied access for a minimum of three years in accordance with Supply System policy. Following the fourth substitution attempt, FFD implemented a policy of requiring all personnel to remove their shoes, empty their pockets, and rabbit ear their pockets prior to entering the collection room.

Additionally, consideration was given to temperatures as the primary indicator of possible tampering by substitution. The Supply System decided to narrow the allowable temperature range for acceptable urine specimens. The regulatory lower limit of 90.5° F was changed to a more stringent standard of 94° F as the lowest acceptable temperature at the Supply System. This is allowable within the guidelines of 10 CFR 26 and is in line with other nuclear utilities. This change became effective April 29, 1995.

To remove the potential of possible tampering by substitution and to increase assurance of having individuals inside the protected area of WNP-2 that were not impaired by drugs, the Supply System decided to conduct FFD testing of individuals who had, during the in-processing period, provided a urine specimen that fell below the new temperature cutoff.

The pre-access chemical test files of 929 individuals in-processing between March 6 and March 29, 1995 were reviewed. A group of 70 individuals were identified as providing specimens with temperatures below 94° F, the new Supply System guideline, but above the 90.5° F, acceptable under the rule and the old Supply System guideline. Beginning May 1, 1995, testing of this target group of individuals was initiated. The chemical tests were classified as other for sample verification purposes and were reported as other tests.

From the initial target group of 70 individuals, one individual was disqualified from the testing by review of the original records and review of the temperature which was in range. Three individuals were identified as no longer employed due to end of assignment or termination of employment for other work. One individual was terminated as a result of a medical emergency. One individual quit as a result of the other FFD testing. The remaining 63 individuals were chemically tested with limited notification.

Of this remaining group, there were two attempts at substitution and two confirmed positive test results. One attempt at substitution resulted in a high out-of-range specimen temperature of 104° F on presentation with an oral temperature of 99.2° F. That individual did not provide another specimen under observation but did acknowledge that the specimen presented had been a substitute. This was recorded as removal for cause. Access was denied to the individual for three years in accordance with Supply System policy and employment was terminated.

The other attempt at substitution resulted in a specimen temperature of 92° F on presentation with an oral temperature of 97.8° F. The individual did remain to provide another specimen under observation. This second specimen obtained under observation differed not only in temperature but also specific gravity. The variations were significant enough for the MRO to conclude that he

suspected tampering. Based on the MRO's medical opinion that this individual had provided two different samples, the individual's access was suspended pending the laboratory results. The HHS-certified laboratory reports resulted in a MRO-verified tampering by substitution. This was recorded as removal for cause. That individual was denied access for three years in accordance with Supply System policy and employment was terminated.

The two MRO-confirmed positive test results in the "other" category were for marijuana. Both individuals were denied access for 14 days and referred to treatment. One was a temporary licensee employee, the other a short-term contractor. During the fourteen day denial period both did seek treatment and because of the time required for treatment and the length of the temporary assignment remaining, both terminated employment.

The discovery of sample substitutions and the aggressive actions taken in response to this discovery are viewed as a positive indication of how well the FFD collection process works.

An assessment of the FFD was performed by a peer group from Entergy Operations during the week of March 6 to 10, 1995. The scope of the assessment included a review of the FFD program with an emphasis on the Continued Behavior Observation Program (CBOP), management expectations, employee knowledge, and the overall drug screening process utilized by the Supply System. Among the strengths found were: site management exhibited a heightened awareness of CBOP elements, training handouts provided thorough guidance and examples of CBOP elements, supplemental reference materials provided to employees and management regarding substance identification and signs of abuse were excellent, and laboratory testing techniques, reviews, and proficiency participation enhance the program.

In an effort to improve the overall effectiveness of the program, effective March 1, the Supply System FFD policy was revised to lower the level for marijuana from the regulatory requirement of 100 ng/mL to 50 ng/mL. This proactive change was made to facilitate laboratory testing. The federal laboratory standards were changed in 1994. During the first six-month reporting period, one random test result was positive for marijuana, screening at the more stringent cutoff level of 50 ng/mL. However, based on less than six months of screening at 50 ng/mL for THC an accuracy rate of 85% could not be established. In this case the administrative action to suspend access for a presumptive positive marijuana pending confirmatory results was not taken.

In addition, equipment and instrumentation changes were made to enhance the collection process. FFD purchased and is using the digital urinometer for measuring specific gravity. Several "state of the art" infrared non-contact thermometers, called the determinator, have been added to enhance temperature readings. New breath alcohol analyzers, the AlcoSensor IV, were put into service at the first of the year.

More stringent collection procedures were adopted in response to several attempts to substitute samples. These procedures included narrowing of the acceptable specimen temperature range using 94° F as the lowest acceptable temperature reading. Medically and physiologically, it is established that the variance in urine temperature is always plus (+) or minus (-) one-half a degree (1/2° F) from 98.6° F or normal body temperature. This change in the acceptable urine specimen temperature range is viewed as a positive, as it is an aggressive step to deter substitution and adulteration. This is also consistent with the 94° F floor used by several other utilities.

FFD adopted a policy allowing temporary access suspension for presumptive test results for marijuana and cocaine following rule guidelines.

During the second six-month reporting period, Supply System identified another attempt at subversion during pre-access testing. The MRO verified that a short-term contractor had tampered with the test sample by adulteration. The first sample given by the individual was suspect and a second sample was obtained. The first sample was determined to be unsuitable for testing by the HHS-certified laboratory. The MRO subsequently ordered the sample be analyzed for adulterants. A colorimetric test, specifically for anionic surfactant (also known as Mary Jane's SUPER CLEAN 13), was performed and confirmed positive for the adulterant. The second sample proved not to be adulterated and was confirmed positive for marijuana. The individual was verified as testing positive and with tampering with the chemical test. In accordance with Supply System policy, the individual was denied access to the Protected Area and may not apply for employment for a period of three years.

Quality Assurance performed an audit of the FFD program November 27 to December 14, 1995. The FFD Coordinator and MRO from Comanche Peak Steam Electric Station assisted in the audit. The team had no findings but did make several procedural enhancement recommendations. The team had positive comments on the competency level of the technicians in both the collection facility and the EMIT laboratory as well as the aggressive and timely actions taken by the FFD staff in addressing previous audit findings. In addition, the team noted the FFD staff had made significant improvements in the offsite collection facility.

Wolf Creek Nuclear Operating Company

On September 19, 1995, during condenser maintenance, a used marijuana pipe was discovered. The pipe was made out of stainless steel pipe fittings and was hidden in the web of an "I" beam. It was found in the vicinity of the upper level water boxes on the east side of the condenser at approximately the 2050 level.

Due to the location and lack of odor on the pipe, it was probably last used during the construction era. Remnants of marijuana were found in the pipe. A phone call was made to the NRC Operations Center per 10 CFR 26.73 (a) (1) which requires the possession of illegal drugs within the protected area to be reported within 24 hours.

APPENDIX D: ENLARGED FIGURES

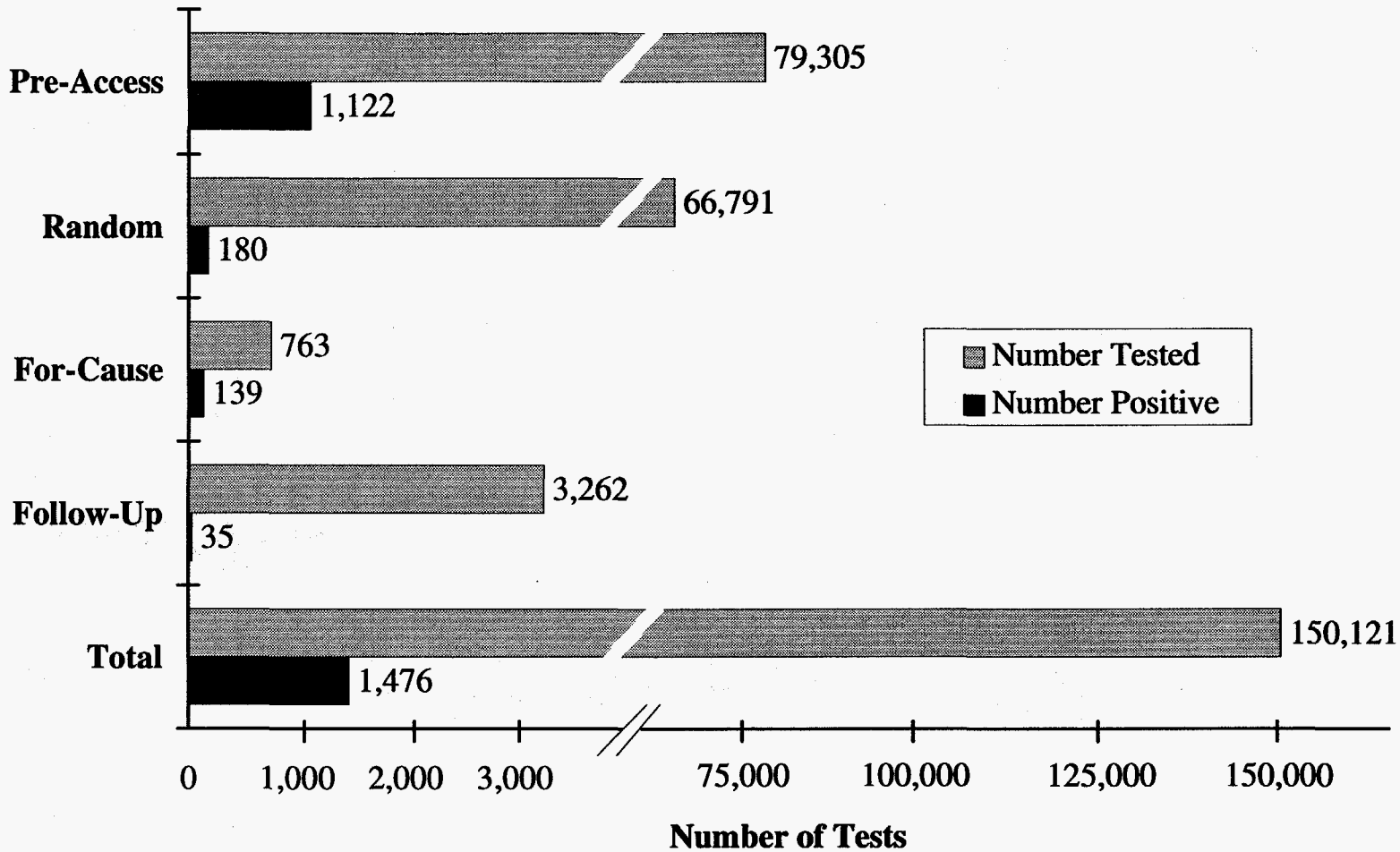


Figure 1
Comparison of results during 1995 for each test category

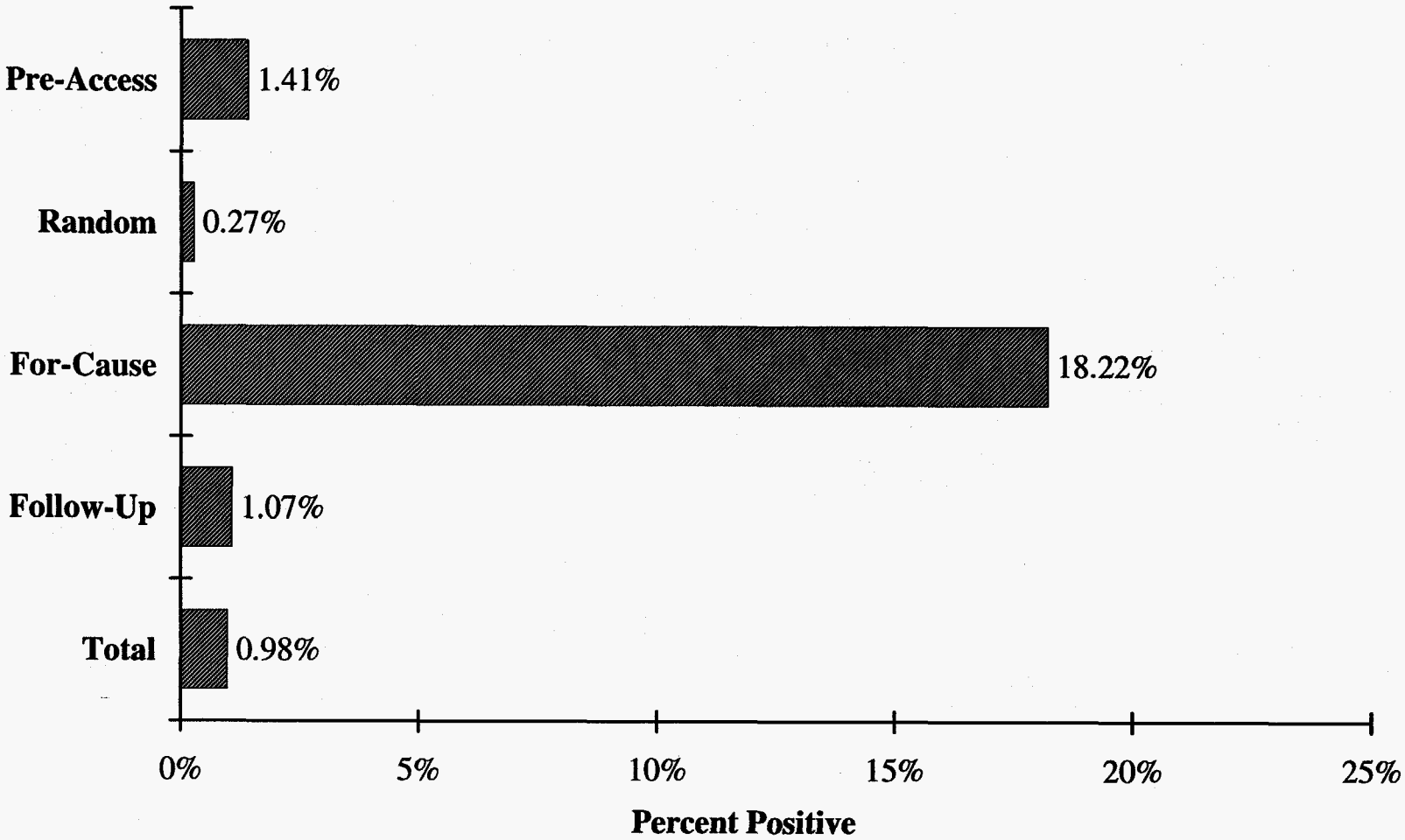


Figure 2
Percent of positive tests during 1995 for each test category

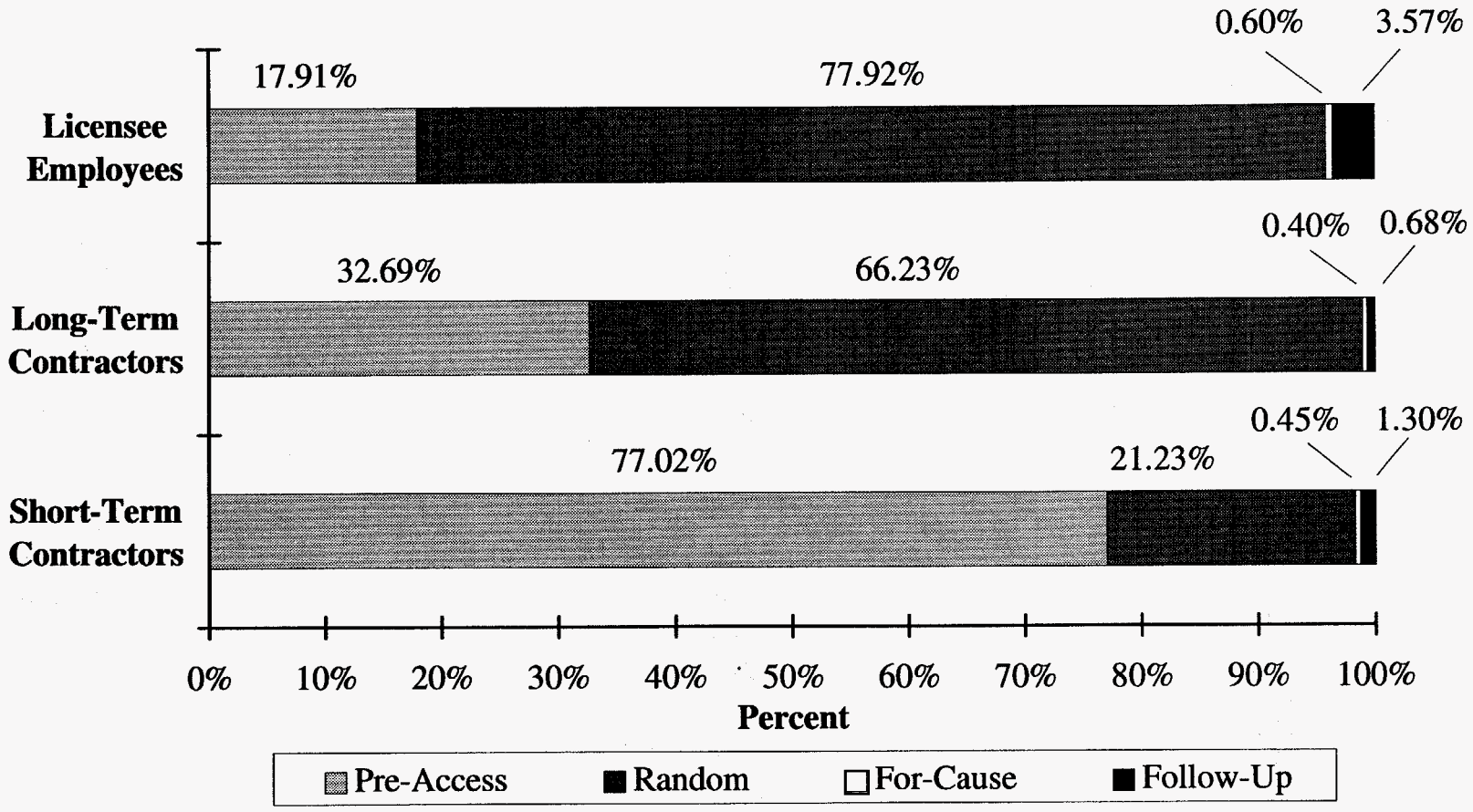


Figure 3
Distribution of tests conducted during 1995 for each worker category

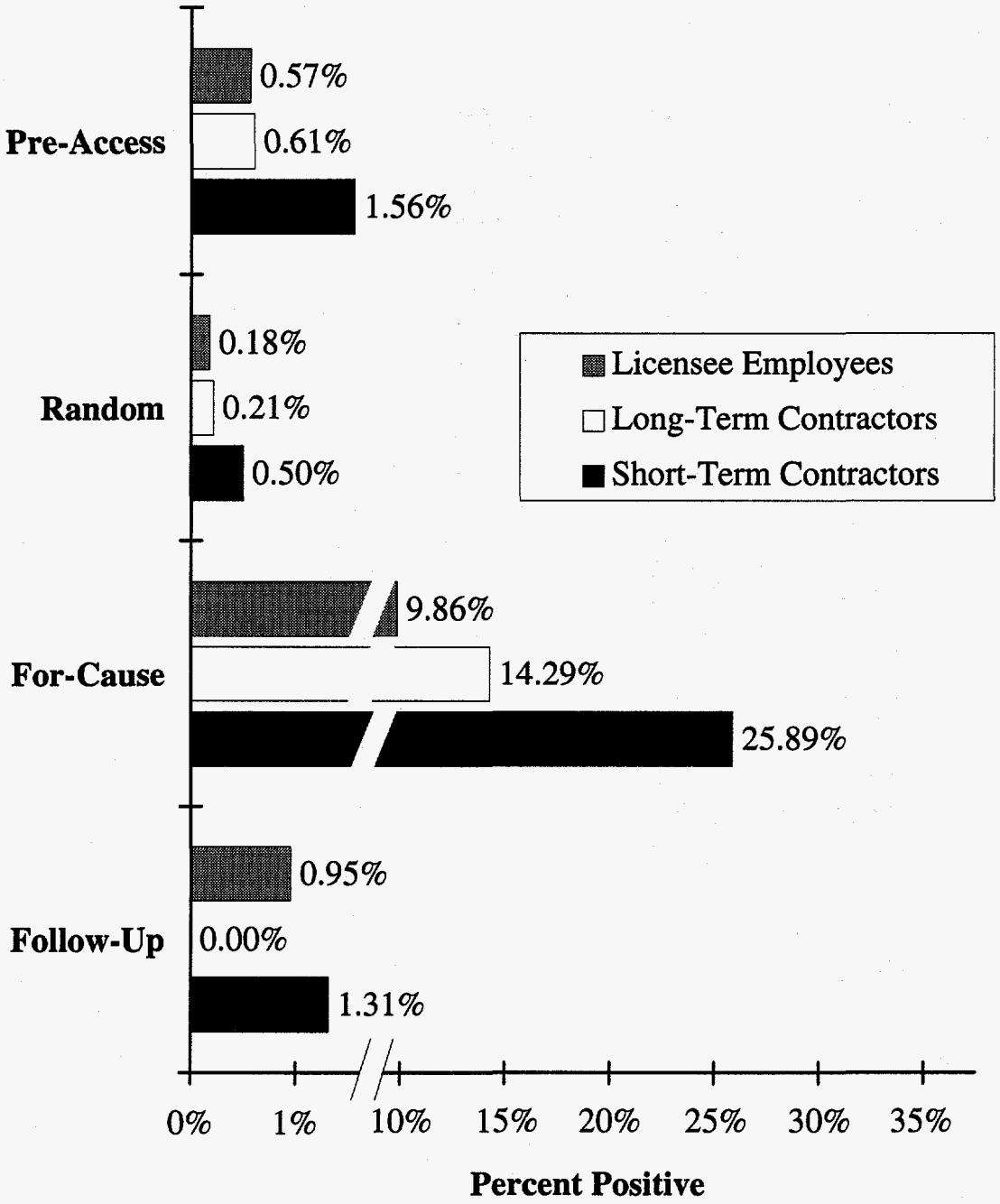


Figure 4
Comparison of positive test rates for each worker category during 1995

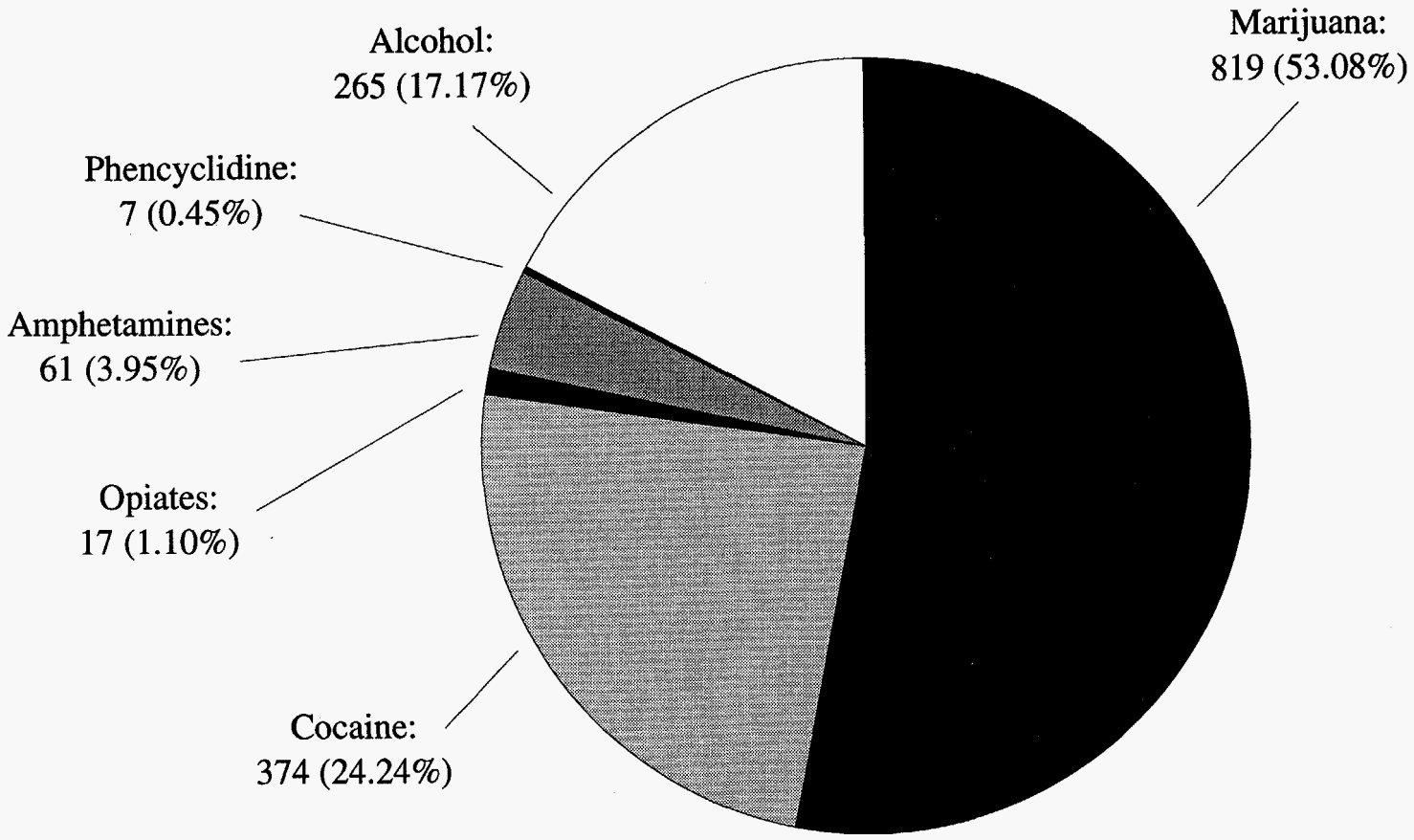


Figure 5
Confirmed positive test results during 1995 for each substance category (n=1543)

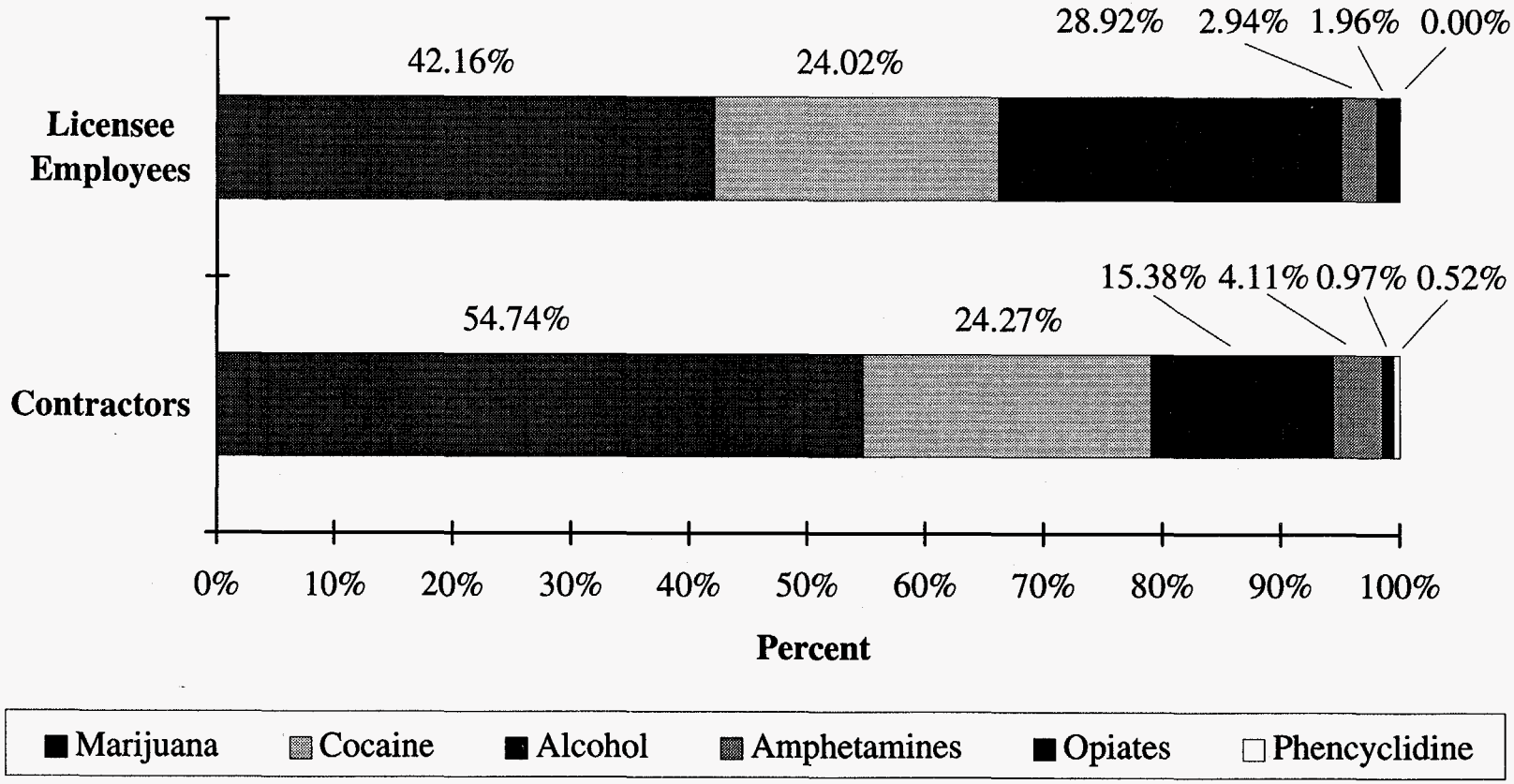


Figure 6
Distribution of positive test results for each substance by worker category

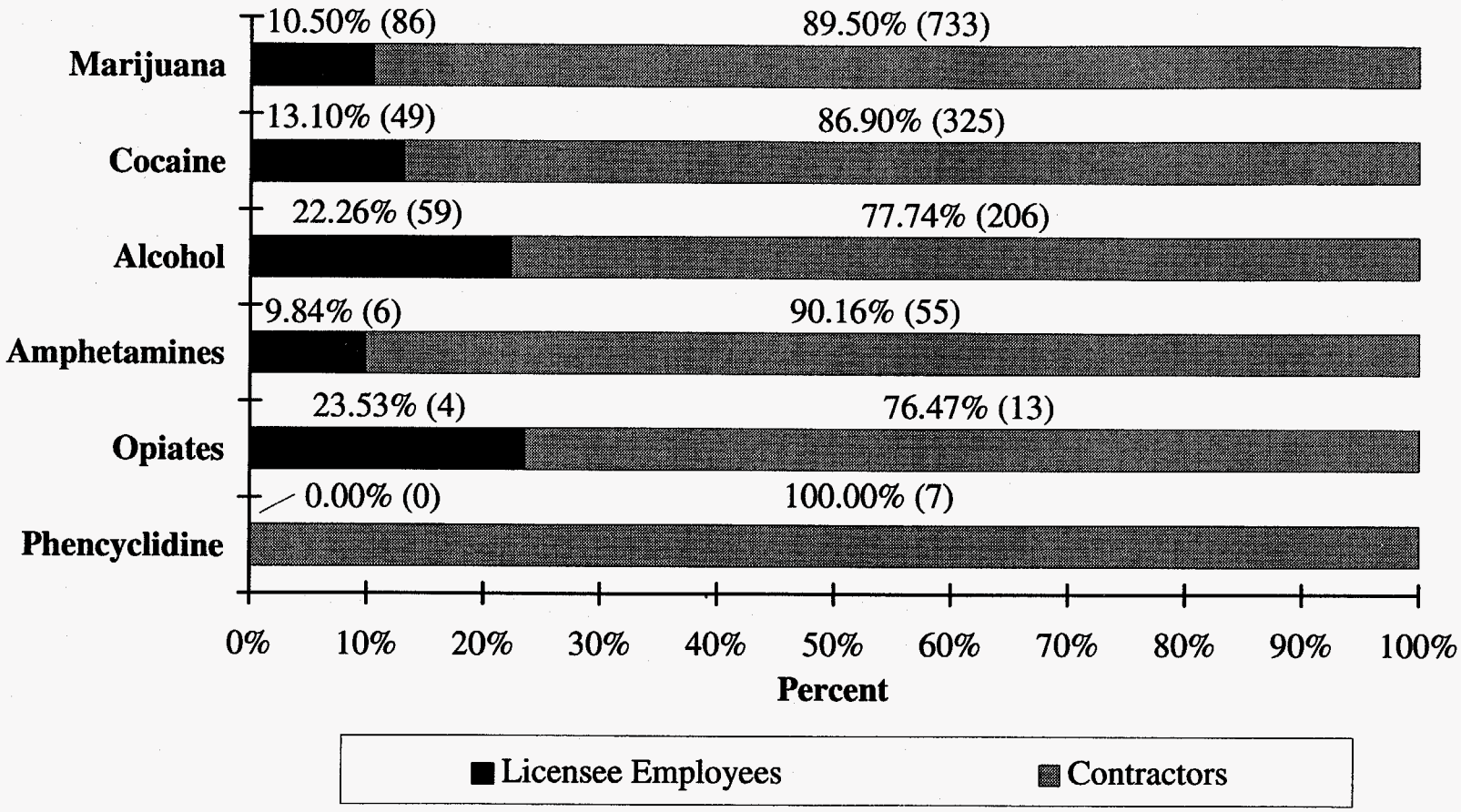
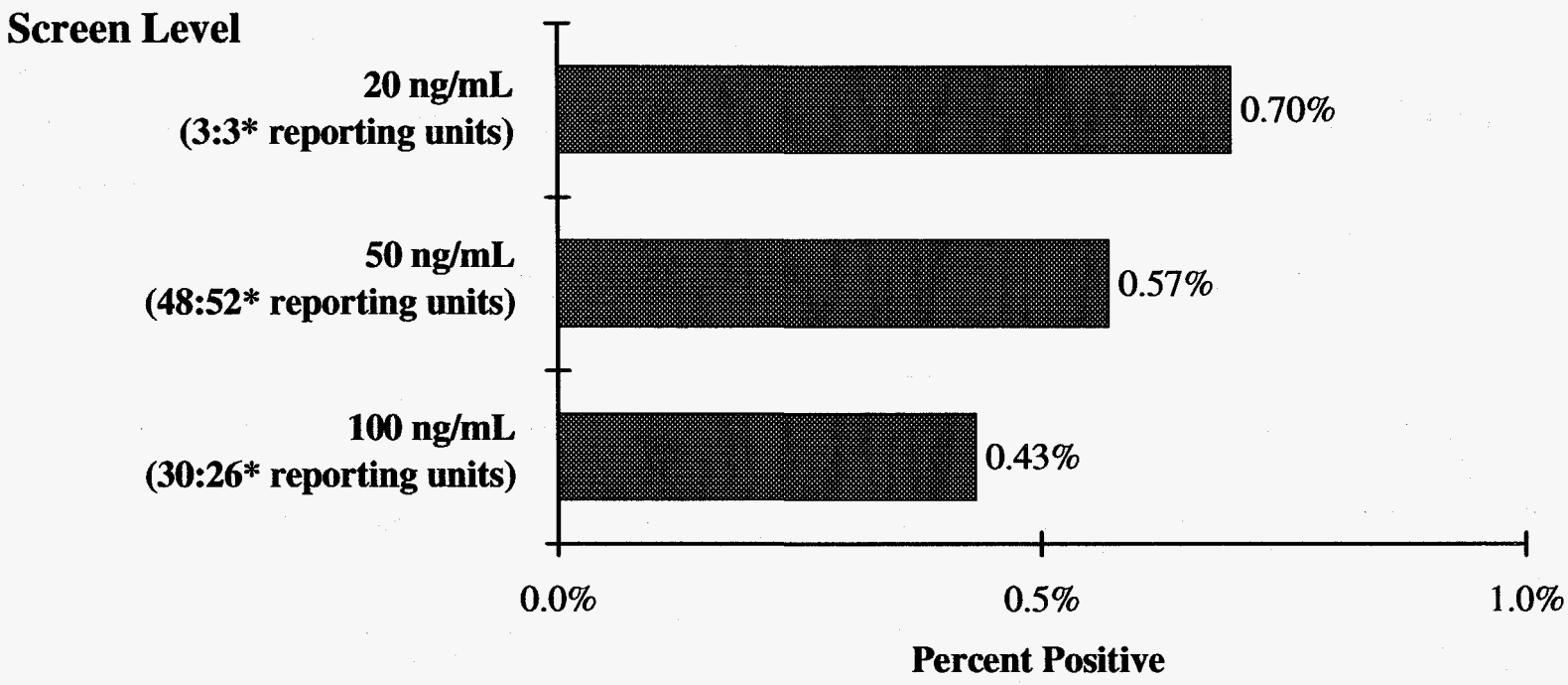


Figure 7
Distribution of positive test results for each worker category by substance



* The numbers to the left and right of the colon represent the number of reporting units using the specified screening levels for the first six-month and second six-month reporting periods respectively. The number of units using a medium screening level (50 ng/mL) increased from the first to the second six months while the number of units using the maximum level (100 ng/mL) decreased.

Figure 8
Confirmed positive test rates for marijuana by screen level (1995)

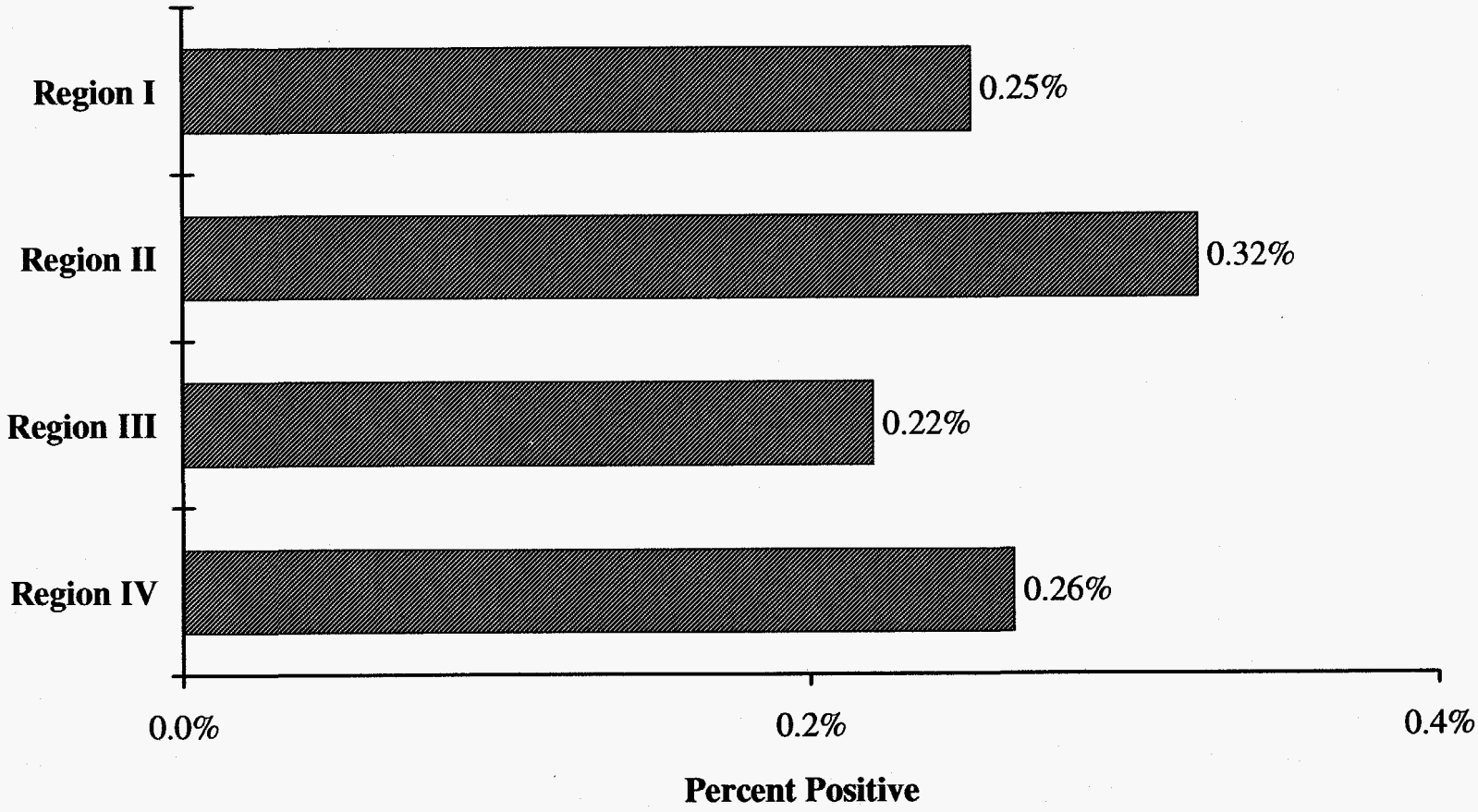


Figure 9
Random positive test rates by each NRC region during 1995

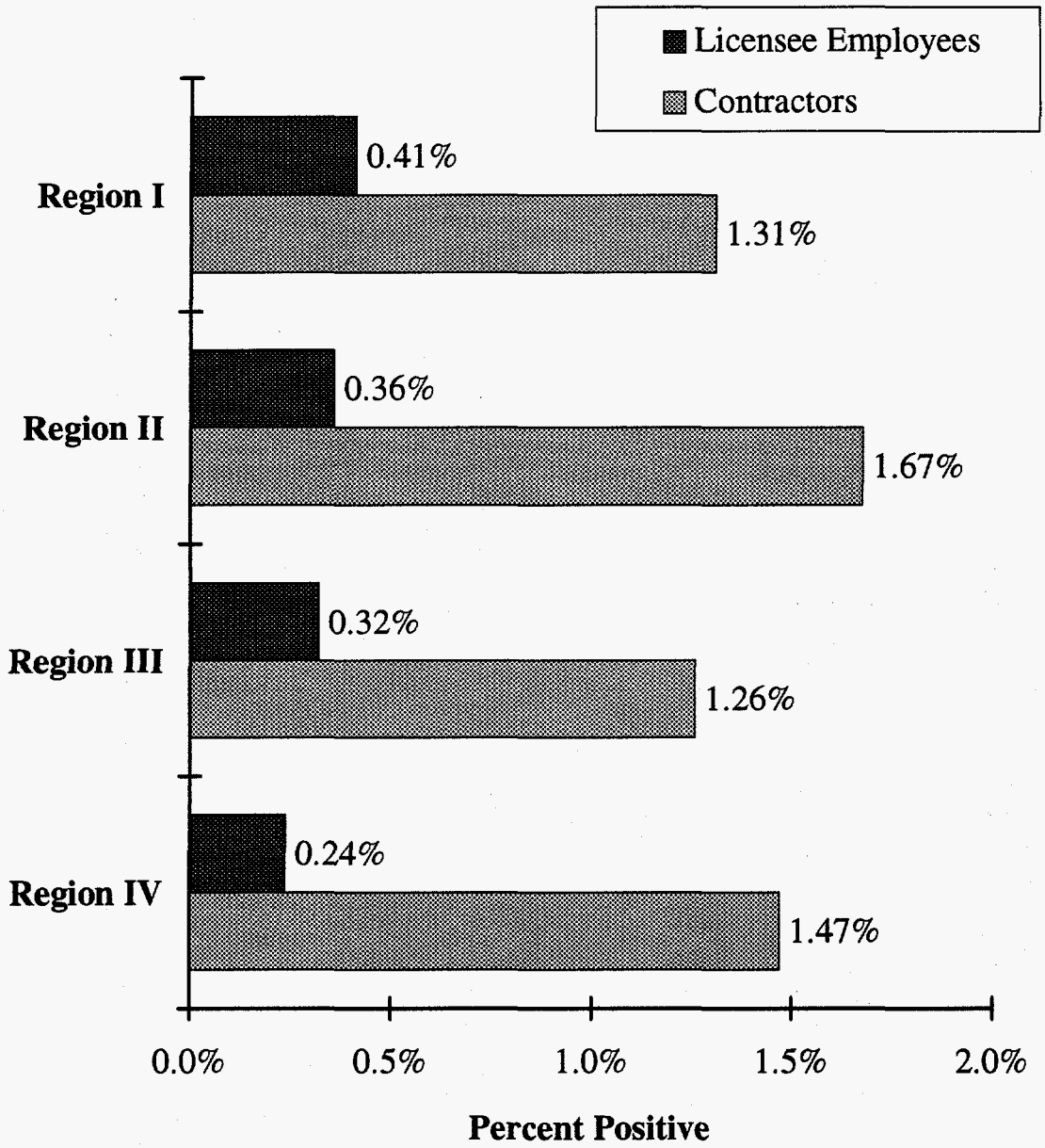


Figure 10
Confirmed positive test rates for each worker category by NRC region during 1995

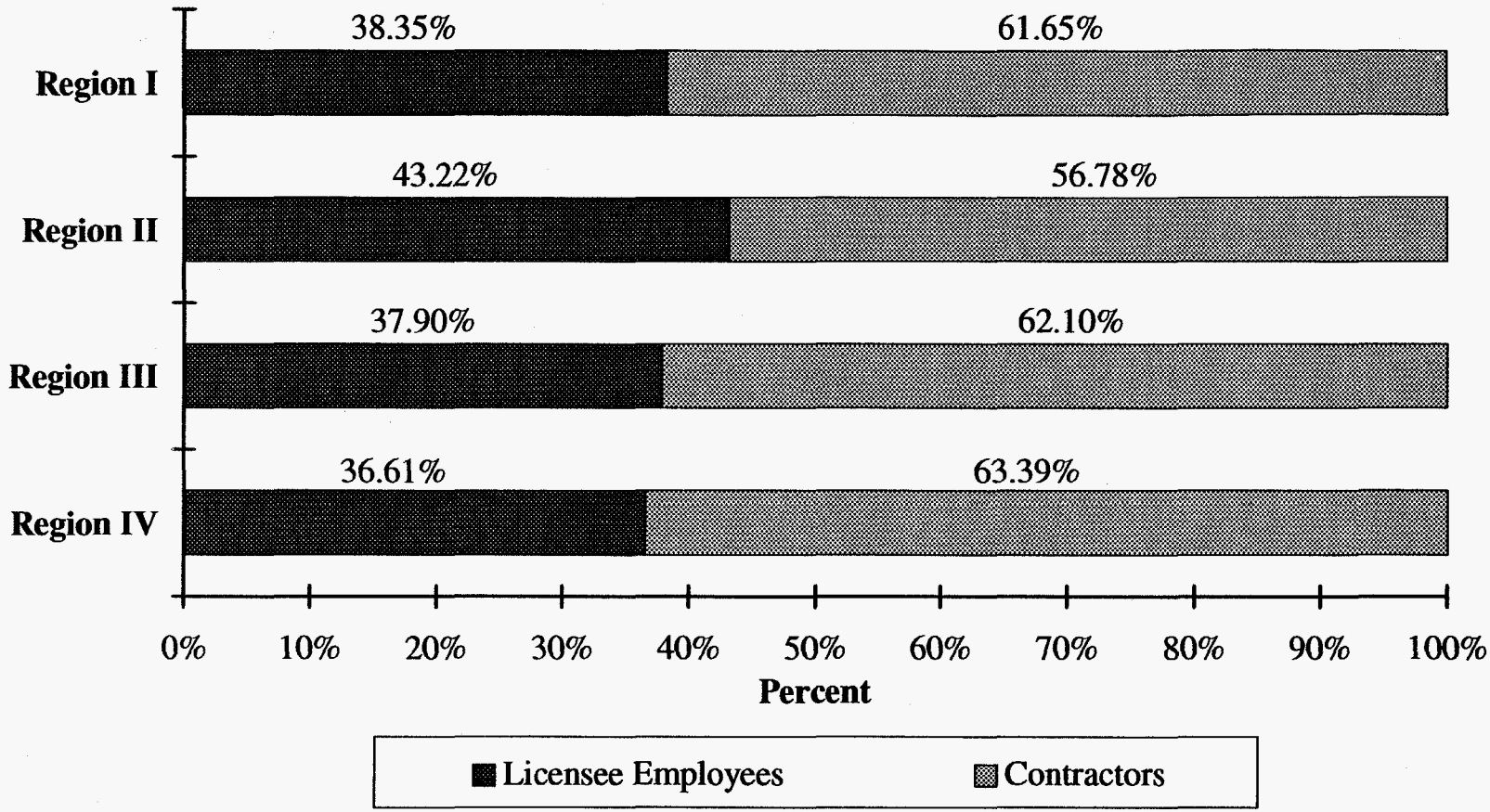


Figure 11
Distribution of tests conducted for each worker category by NRC region

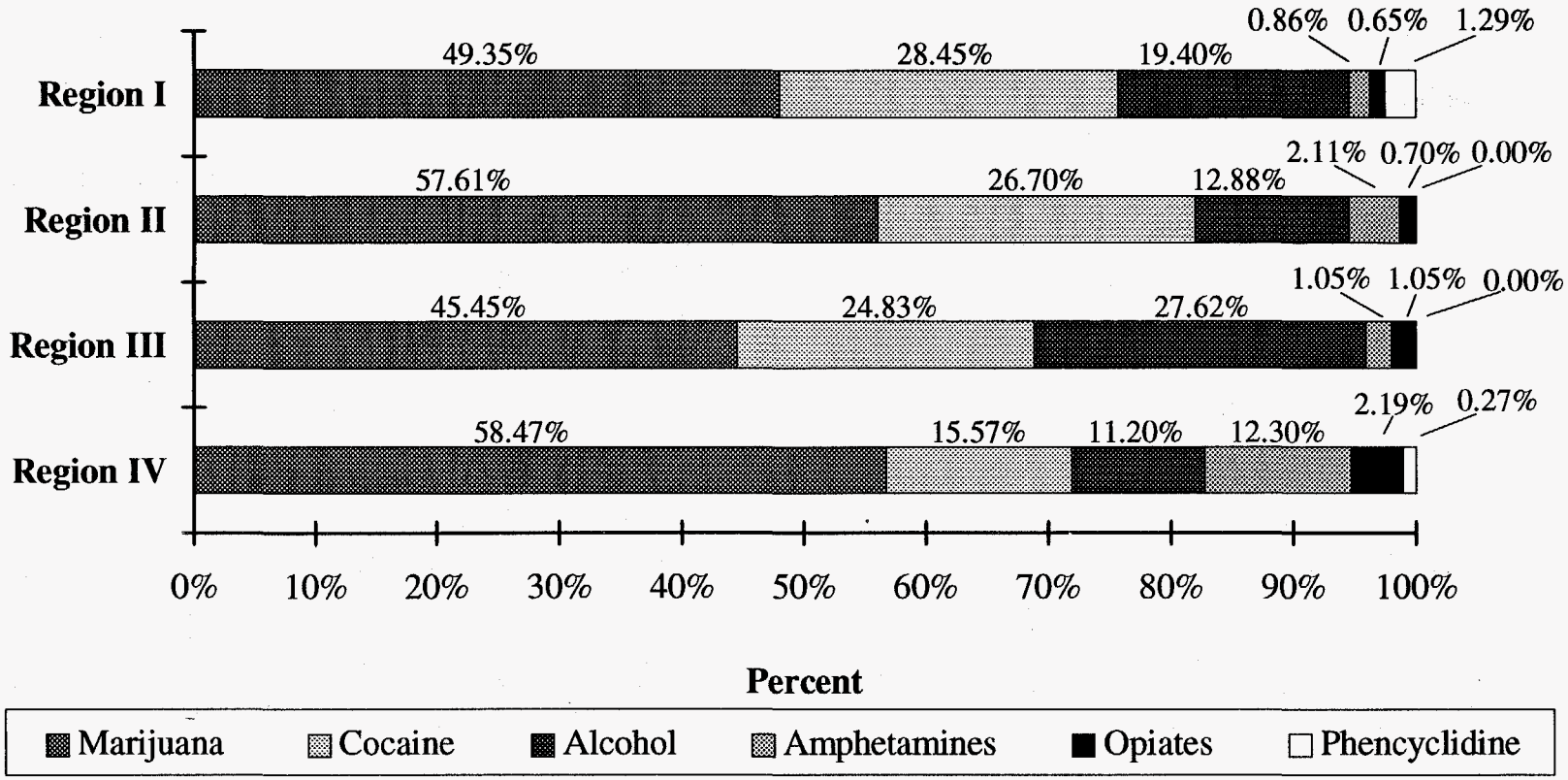


Figure 12
Distribution of positive test results by substance for each NRC region during 1995

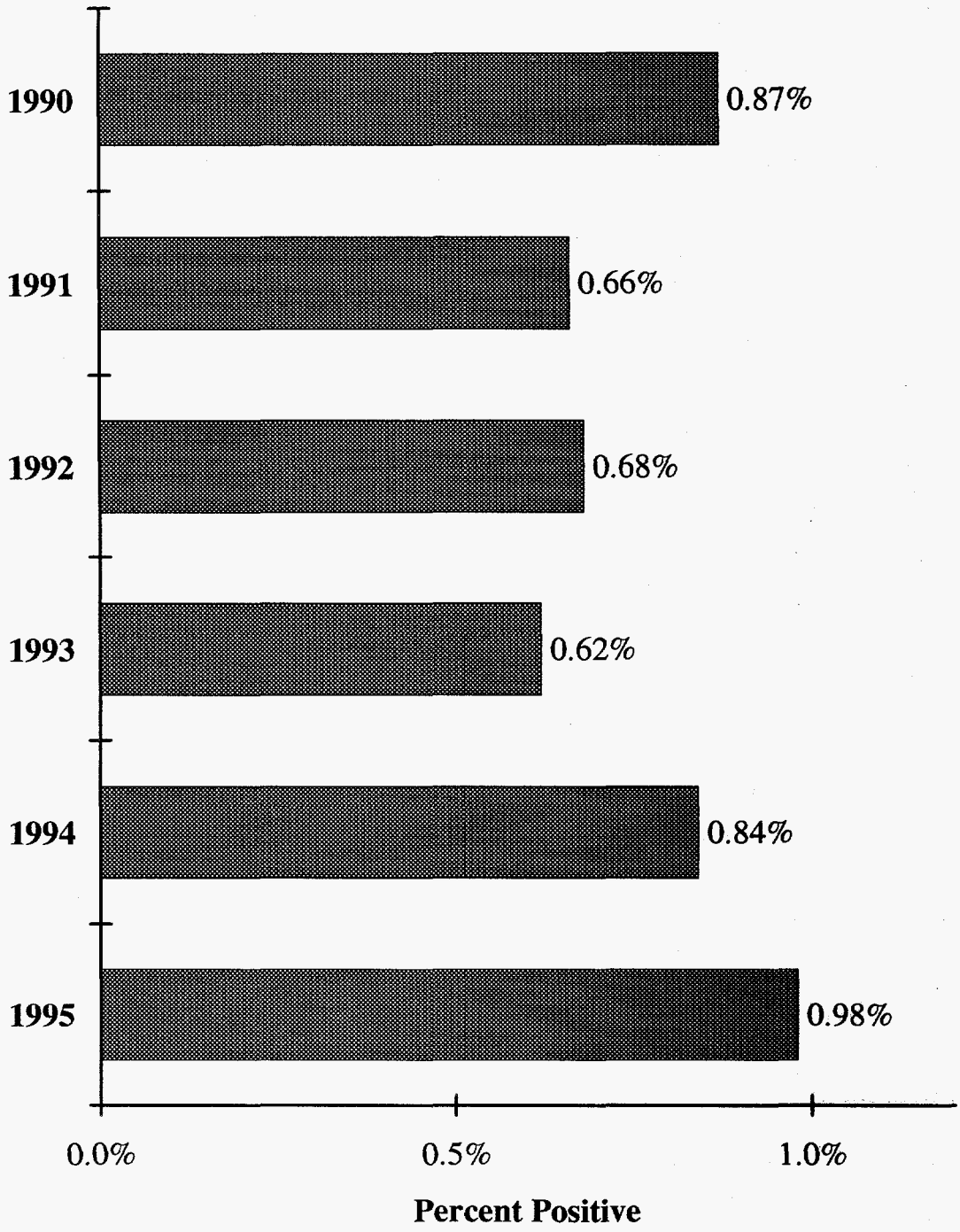


Figure 13
Overall positive test rates by year

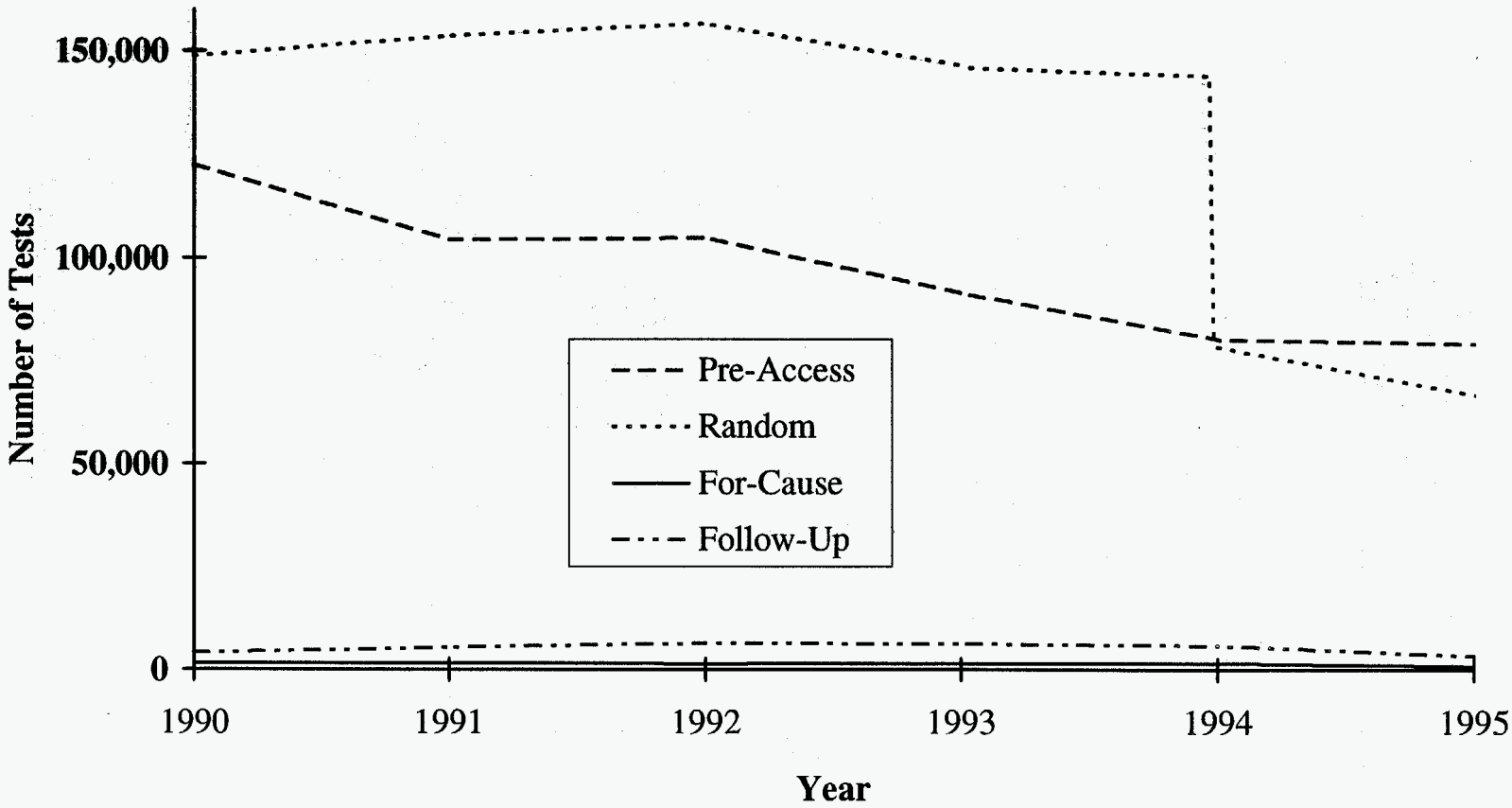


Figure 14
Comparison of tests conducted for each test category for 1990 through 1995

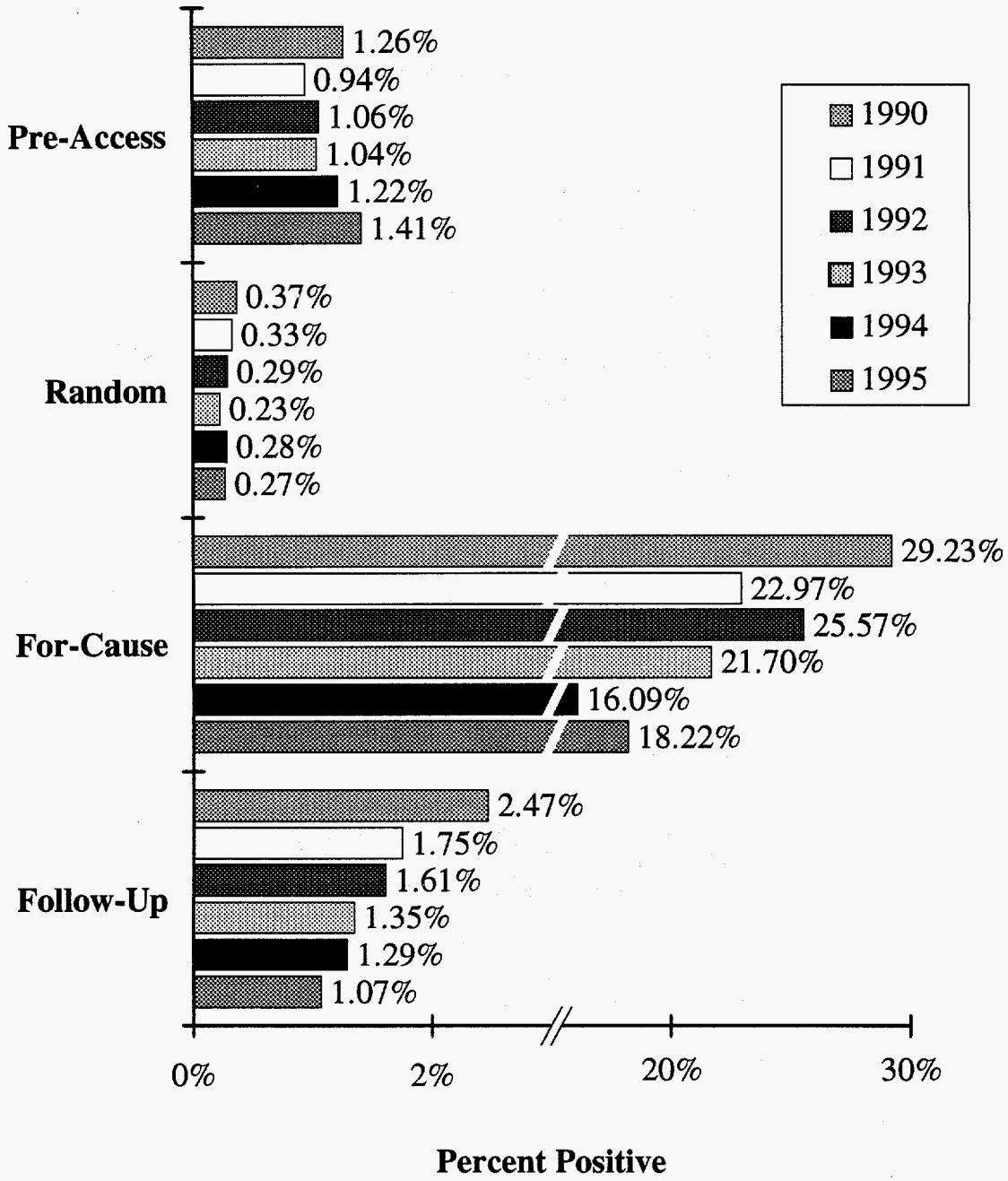


Figure 15
Comparison of confirmed positive test rates for each test category by year

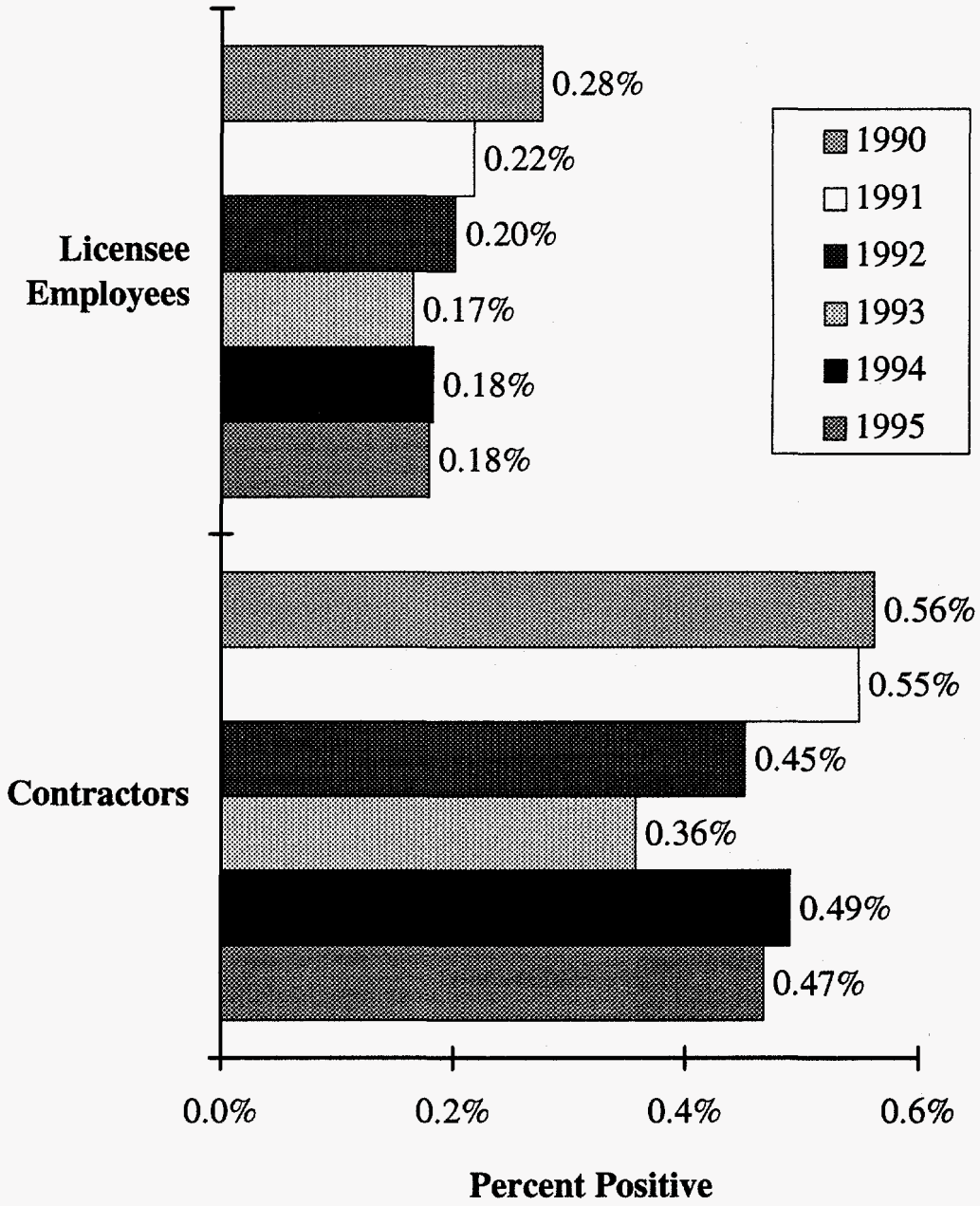


Figure 16
Comparison of random positive test rates by worker category by year

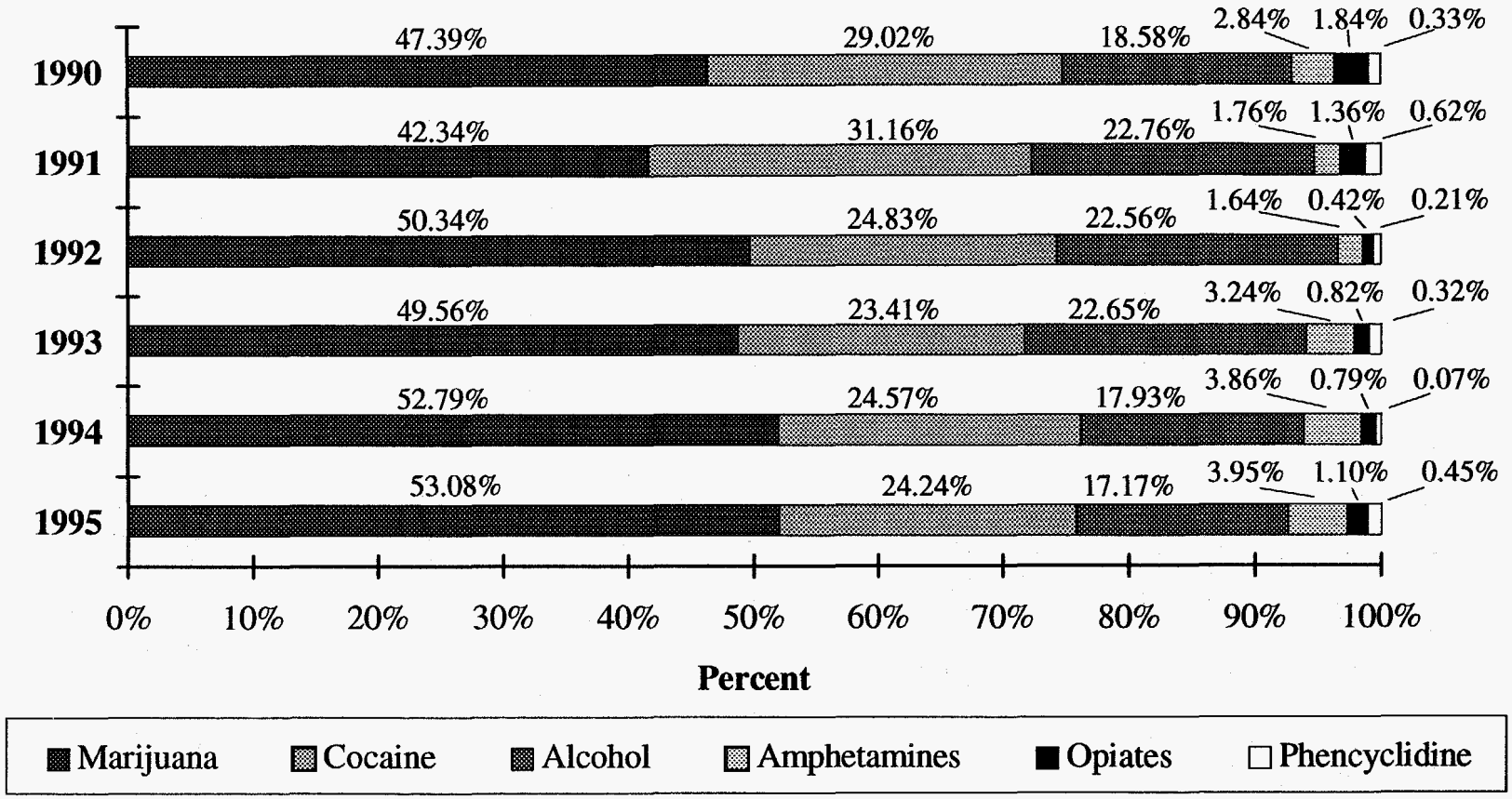
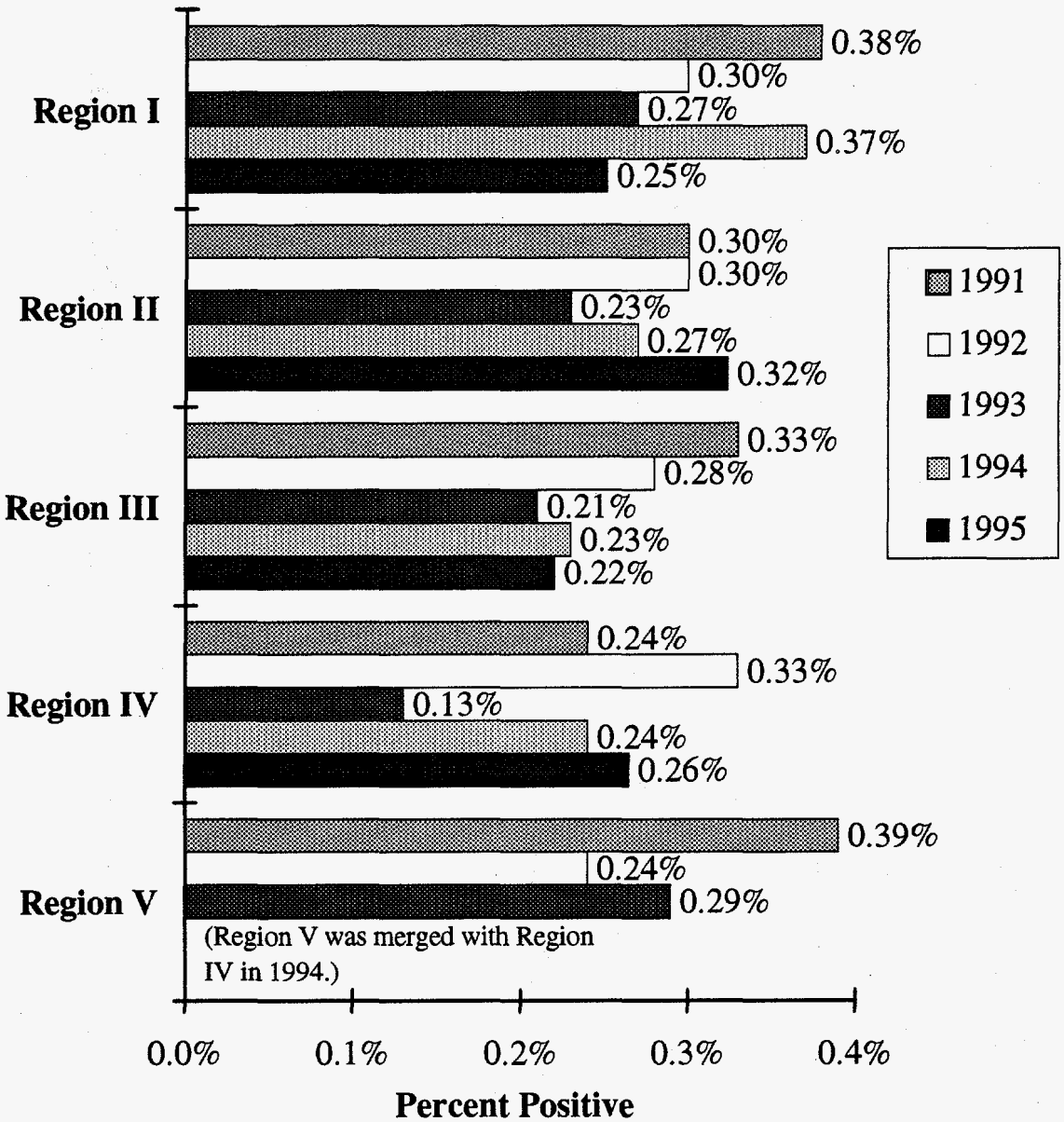


Figure 17
Distribution of positive test results for each substance for 1990 through 1995



(Data is not available for 1990.)

Figure 18
Comparison of random positive test rates for each NRC region for 1991 through 1995

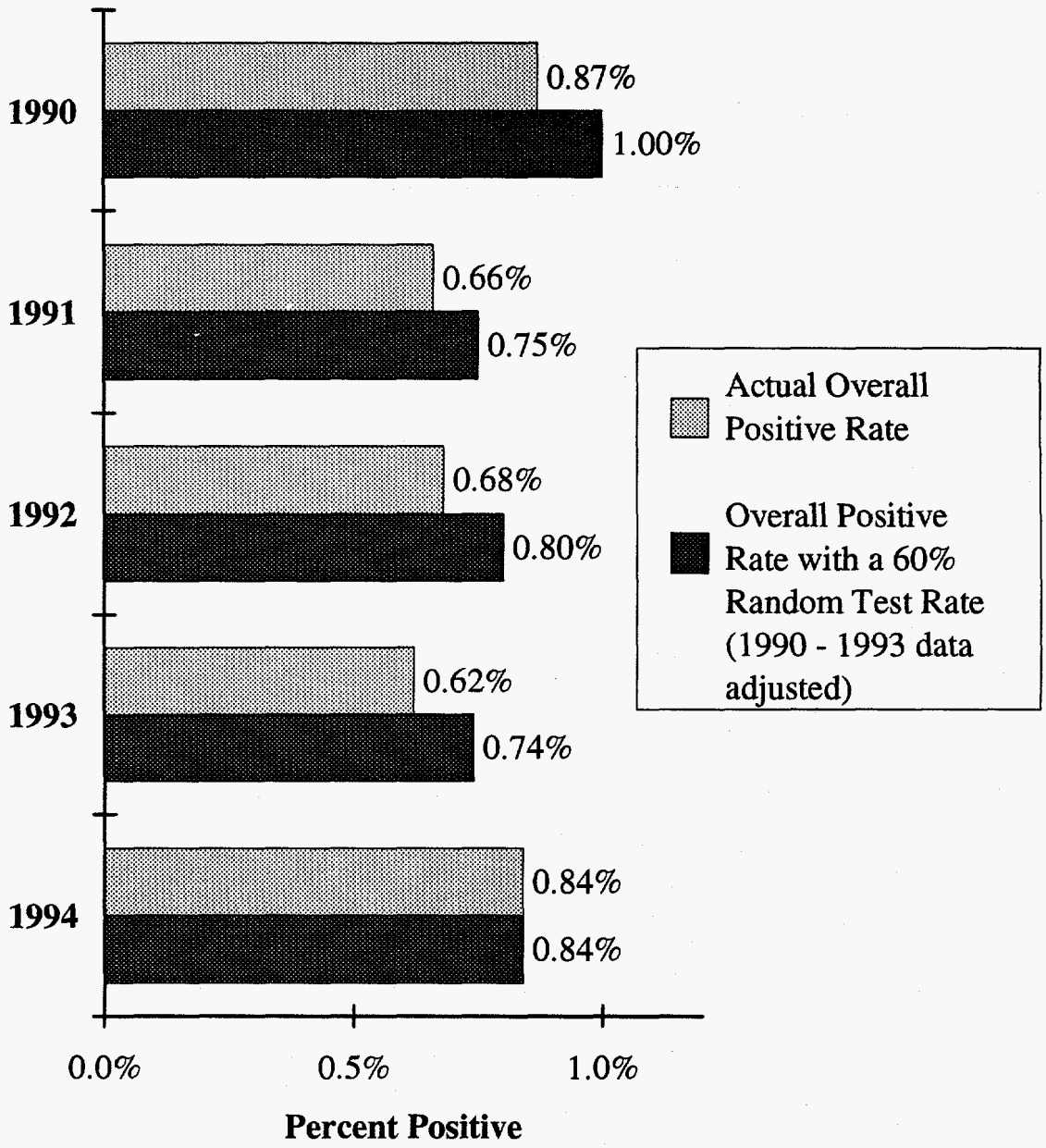


Figure A-2
Comparison of actual and adjusted overall positive test rates for 1990 through 1994

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U.S. Nuclear Regulatory Commission
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10. SUPPLEMENTARY NOTES

11. ABSTRACT *(200 words or less)*

This report summarizes the data from the semiannual reports of fitness-for-duty programs submitted to the NRC by utilities for two reporting periods: January 1 through June 30, 1995, and July 1 through December 31, 1995. During 1995, licensees reported that they conducted 150,121 tests for the presence of illegal drugs and alcohol. Of these tests, 1,476 (.98%) were confirmed positive. Positive test results varied by category of test and category of worker. The majority of positive test results (1,122) were obtained through pre-access testing. Of tests conducted on workers having access to the protected area, 180 were positive from random testing and 139 were positive from for-cause testing. Follow-up testing of workers who had previously tested positive resulted in 35 positive tests. For-cause testing resulted in the highest percentage of positive tests; about 18% of for-cause tests were positive. In comparison, 1.41% of pre-access tests and .27% of random tests were positive. Positive test rates also varied by category of worker. When all types of tests are combined (pre-access, random, for-cause and follow-up testing), short-term contractor personnel had the highest positive test rate at 1.44%. Licensee employees and long-term contractors had lower combined positive test rates (.34% and .40%, respectively). Of the substances tested, marijuana was responsible for the highest percentage of positive test results (53.08%), followed by cocaine (24.24%) and alcohol (17.17%).

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