U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Summary of Fitness for Duty Program Performance Reports for Calendar Year 2011

Purpose

The U.S. Nuclear Regulatory Commission (NRC) provides the following fitness-for-duty (FFD) program performance summary to inform interested stakeholders on the drug and alcohol (D&A) testing performance of the commercial nuclear industry for Calendar Year (CY) 2011. Licensees and other affected entities submitted the information presented in this report as required by Section 26.717 of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 26, "Fitness for Duty Programs," (Part 26).

Contents

Background

On June 7, 1989, the NRC issued regulations to require licensees authorized to construct or operate nuclear power reactors to provide reasonable assurance that plant personnel are reliable, trustworthy, and not under the influence of any substance, legal or illegal, or mentally or physically impaired from any cause, which in any way affects their ability to safely and competently perform their duties. These regulations required licensees to establish D&A

Disclaimer
The information in this report is provided as a public service, is solely for informational purposes, and is not, nor should be deemed as, an official NRC position, opinion, guidance, or "a written interpretation by the General Counsel" under 10 CFR 26.7, "Interpretations," on any matter to which the information may relate. The opinions, representations, positions, interpretations, best practices, or recommendations that may be expressed by the NRC technical staff in this document are solely their own and do not necessarily represent those of the NRC. Accordingly, the fact that the information was obtained through the NRC technical staff will not have a precedential effect in any legal or regulatory proceeding. Stakeholders should take care in reaching conclusions based on individual interpretations of the illustrated or tabulated data, because the report may not provide site- or event-specific information to help inform a conclusion.

testing programs and report the results of these tests to the NRC. On March 31, 2008, the NRC amended these requirements to, in part, strengthen the D&A testing requirement and broaden the scope of D&A testing to other NRC licensees (e.g., owner operators of uranium fuel fabrication facilities) and to persons who perform safety- or security significant activities within the protected areas of these sites. Following issuance of the 2008 Final Rule, the NRC staff coordinated with representatives from affected licensees and other entities (heretofore "the industry") to implement an electronic reporting method to simplify the reporting of FFD data to the NRC and enable the reporting of voluntary information to aid in the evaluation of D&A testing performance. This report summarizes both hard copy and electronically reported FFD data.

Uses

Licensees and other affected entities may review the information contained in this report to make process improvements and/or take corrective actions, as appropriate, to enhance the effectiveness of its FFD program. Suggestions contained in this report are not NRC requirements and no specific action or written response is required.

This report also serves to inform members of the public on the commercial nuclear power industry's FFD performance in detecting and deterring illicit drug use and alcohol misuse at licensed facilities. This use is consistent with the Commission's Operational Excellence objective[1] to appropriately inform and involve stakeholders in the regulatory process.

The NRC staff uses this report to inform the inspection preparation process conducted pursuant to NRC Inspection Manual Chapter (IMC) 2201, "Security Inspection Program for Commercial Nuclear Power Reactors," IMC 2681, "Physical Protection and Transport of SNM and Irradiated Fuel Inspection of Fuel Facilities," and IMC 2504, "Construction Inspection Program – Inspection of Construction and Operational Programs."

Public Comment

The NRC welcomes comments on this report, which may be provided in written form through the NRC FFD Web site at:

http://www.nrc.gov/reactors/operating/ops-experience/fitness-for-duty-programs/contact-us.html.

Written comments may also be sent to the NRC at the following address:

U.S. Nuclear Regulatory Commission
ATTN: Melissa Ralph, Security Specialist
Mail Stop: T4F25M
Washington, DC 20555-0001

Licensees and Affected Entities

Part 26 prescribes requirements and standards for the establishment, implementation, and maintenance of FFD programs. These requirements apply to the licensees and other affected entities listed below:

[1] See NUREG-1614, Vol. 5, "Strategic Plan, Fiscal Years 2008–2013," NRC, February 2012 (Updated).

- holders of operating licenses for nuclear power reactors and licensees authorized to possess, use, or transport formula quantities of strategic special nuclear material (SSNM)

- current and potential applicants for a combined operating license, manufacturing license, standard design certification, or standard design approval for a nuclear power plant (NPP) under the provisions of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants"

- applicants for NPP construction permits and operating licenses under the provisions of 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"

- contractors/vendors (C/Vs) that implement FFD programs or program elements to the extent that the licensees and other affected entities implement C/V FFD programs or program elements

In CY 2011, the NRC received FFD program performance information from a total of 76 licensees and other affected entities listed below:

- 64 operating reactor sites

- 2 reactor construction sites (V. C. Summer Units 2 and 3; Vogtle Units 3 and 4)

- 1 formerly operating reactor site (Zion[2])

- 6 corporate FFD program offices (i.e., includes some utilities with multiple reactor sites that administer their FFD programs at locations other than the reactor sites and, therefore, report data for these administrative FFD personnel separately)

- 3 C/Vs and SSNM transporters (Babcock & Wilcox Nuclear Operations Group; Institute of Nuclear Power Operations (INPO); Nuclear Fuel Services (NFS), Inc.)

Description of Circumstances

On March 31, 2008, the Commission published a final rule for Part 26 in the *Federal Register* (FR) that updated FFD requirements and enhanced consistency with other relevant Federal rules and guidelines. This final rule (73 FR 16966) became effective on April 30, 2008; however, the NRC allowed licensees and other affected entities to defer implementation of the requirements related to D&A testing until March 31, 2009. Beginning in CY 2010, all licensees and other entities reported FFD performance information required by 10 CFR 26.717, "Fitness-for-Duty Program Performance Data."

The FFD program performance reports of affected licensees and other entities are available to the public through the NRC's Agencywide Documents Access and Management System (ADAMS) on the NRC Web site at http://www.nrc.gov/reading-rm.html. Prior year reports summarizing the FFD program performance of the industry can be viewed on the NRC's FFD

[2] The Zion facility is in SAFSTOR. SAFESTOR is a method of decommissioning in which a nuclear facility is placed and maintained in a condition that allows the facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use.

Web site at http://www.nrc.gov/reactors/operating/ops-experience/fitness-for-duty-programs/performance-reports.html.

In CY 2011, affected licensees and other entities either submitted a hardcopy performance report or used the NRC's FFD electronic performance reporting system to meet the annual information reporting requirement in 10 CFR 26.717. The FFD electronic performance reporting system is described on page 6 of this report.

Executive Summary

In CY 2011, 80 percent of affected facilities (61 of 76) used the FFD electronic performance reporting (e-reporting) system. By comparison, in CY 2010, 69 percent of facilities (51 of 74) used the system. Use of the voluntary e-reporting system is the result of industry effort to improve the information collected on FFD program performance. Support of the e-reporting system includes training personnel in use of the system, developing and updating procedures to collect data and use the e-reporting system, developing internal documentation processes to facilitate use of a paperless reporting system, participating in NRC Webinars on the e-reporting system, and working with the NRC staff to provide feedback and recommendations for system improvements (e.g., e-reporting form changes). The detailed observations beginning on page 8 of this report are possible only because of the NRC-industry initiative to electronically report FFD performance information. The NRC continues to work with industry representatives to enable use of the e-reporting system by all affected entities.

The Executive Summary summarizes the test results and reports submitted by licensees and other entities. The section, "Detailed Data Analysis" (page 8), contains detailed information on testing, results associated site- and event-specific descriptions, and data presentations in graphical and tabular formats.

In CY 2011, the industry conducted 178,586 D&A tests, resulting in an industry positive rate of 0.58 percent for illicit drug use, alcohol misuse, and testing refusals. By employment category, C/Vs tested positive at a rate of 0.73 percent and licensee employees at a rate of 0.23 percent; this 3-to-1 ratio has been consistent since 1993 and demonstrates the existence of two distinct populations of substance users.

The total number of tests conducted in CY 2011 is the largest since 1993. In comparison to CY 2010, pre-access tests increased by 8 percent (7,305), random tests by 6 percent (3,770), for-cause[3] tests by 56 percent (307), and followup tests by 10 percent (645).

Marijuana[4], alcohol, and cocaine[5] continued to be the abuse substances of choice (Table 1) and accounted for 90 percent of positive test results in CY 2011. Marijuana and alcohol positive rates have increased since NRC-required testing began in 1990, cocaine positives have decreased during the same time period.

[3] While the term "for cause" is not hyphenated in Part 26, hyphens have been added in this report for clarity and grammatical accuracy.

[4] Part 26 tests for marijuana metabolites for initial testing and delta-9-tetrahydrocannabinol-9-caboxylic acid (THCOOC) for confirmatory testing.

[5] Part 26 tests for cocaine metabolites for initial testing and the cocaine metabolite benzoylecgonine for confirmatory testing.

Table 1
Abuse Substances of Choice

Substance	1990	2011	Percent Change
Marijuana	47%	52%	+ 5%
Alcohol	19%	26%	+ 7%
Cocaine	29%	12%	- 17%
Total	95%	90%	-

A significant observation in CY 2011 was the increasing share of amphetamine[6] positive results. In CY 2011, amphetamines accounted for 7.56 percent of all positive test results, up from 5.28 percent in CY 2010, and 3.62 percent in CY 2009. Amphetamines were detected in each test category in CY 2011.

As for positive testing rates by test category, pre-access testing continued to account for a large percentage of positive results (69 percent of all positive test results in CY 2011). This trend is consistent with previous years.

The random testing positive rate for the industry was 0.31 percent. This is the same rate experienced in CY 2010. It is important to note the variability in the random testing positive rate for the industry during the past 20 years; the rate has ranged from 0.23 percent to 0.39 percent (Chart 3).

In CY 2011, the for-cause testing positive rate for the industry was 8.53 percent (i.e., approximately 1 in every 12 persons tested positive for an illicit drug or alcohol). This is consistent with the CY 2010 rate and is the lowest for-cause positive testing rate since the NRC initiated testing in 1990. The marked decrease in for-cause positive testing rates (Chart 7) can be partially attributed to the increased number of for-cause tests with negative results. From CY 2010 to CY 2011, the number of for-cause tests conducted increased by 56 percent (549 to 856). Two facilities, in particular, conducted significantly more for-cause tests in CY 2011. Joseph M. Farley conducted 188 for-cause tests in CY 2011, compared to 32 for-cause tests in CY 2010. E.I. Hatch conducted 174 for-cause tests in CY 2011, compared to 20 for-cause tests in CY 2010. Additionally, data collected from e-reporting (i.e., single positive test forms (SPTFs)) demonstrated that some facilities have incorrectly reported testing associated with subversion attempts as for-cause testing, which has likely increased the positive rates of for-cause testing. The NRC staff has provided guidance to the industry to improve the reporting of FFD performance information.

Regarding for-cause testing, the NRC staff acknowledges that human performance assessments are intrinsically very difficult and recognizes the uncertainty in assessing human behavior, noting that behavior can either be qualitatively assessed (such as by observation or information review) or quantitatively assessed (such as by expert analysis of drug or alcohol test results). The NRC staff notes that to achieve an effective for-cause testing program, the for-cause positive testing rate should not be:

[6] Part 26 tests for amphetamines on initial testing and amphetamines and methamphetamines for confirmatory testing.

- too low to result in the possibility of individual harassment or an adverse impact on the work environment (e.g., testing of individuals that do not exhibit signs of impairment or where credible information has not been received on current substance abuse), nor;

- too high, such that random and post-event tests are overly relied upon to identify persons unfit for duty, resulting in a reduction in the defense in depth afforded by the NRC's FFD requirements.

In all test categories, C/Vs continue to test positive at a much higher rate than licensee employees, as indicated in Charts 4, 5, and 7. C/V positive testing rates appear to be converging with the lower positive testing rates for licensee employees.

The FFD performance data on D&A testing cutoff levels indicate the following:

- Sixty-nine (69) of 76 facilities reported implementing the NRC's optional drug testing policy to conduct "limit-of-detection"[7] (LOD) testing of "dilute"[8] specimens.

- Ten (10) of the 76 facilities used more stringent cutoff levels for drugs, such as marijuana and cocaine, or expanded their drug testing panels to include other controlled substances, including barbiturates, benzodiazepines, hydrocodone, hydromorphone, methadone, oxycodone, and propoxyphene.

Licensees and other entities reported eight events associated with licensee testing facilities (LTFs) or U.S. Department of Health and Human Services (HHS)-certified laboratories (laboratories). These events involved equipment malfunctions, human errors, and issues associated with blind performance test samples (BPTS). Six of the eight events were associated with BPTSs.

Licensees and other entities also reported 37 events requiring a 24-hour event report to the NRC Operations Center under 10 CFR 26.719(b), as a result of individual employee violations of the FFD program (see Section 3). Twenty-four (24) of these events were associated with supervisors testing positive for an illicit drug or alcohol or otherwise subverting the FFD process (i.e., encouraging an employee to avoid testing, possessing a controlled substance); two events involved NRC-licensed operators.

Reporting of FFD Performance Information

The submission of annual FFD program performance reports is mandatory. These reports inform the NRC and the public of the commercial power reactor industry's FFD performance and demonstrate the industry's commitment to public health and safety and the common defense and security. The industry further demonstrates this commitment by exceeding the reporting requirements in the regulation and providing detailed descriptions of FFD-related events and issues affecting its programs. The industry also voluntarily uses the e-reporting system, which the NRC developed in coordination with the industry to meet the requirements of 10 CFR 26.11,

[7] "Limit of detection" is the lowest concentration of an analyte that a laboratory analytical procedure can reliably detect (see 10 CFR 26.5, "Definitions"). The LOD is dependent on specimen preparation, test equipment, procedures, and technician expertise.

[8] "Dilute," as used in this sentence, is a laboratory determination based on the creatinine and specific gravity (SG) concentrations that are lower than expected for human urine (see 10 CFR 26.5).

"Communications," and 10 CFR 26.717. This openness and transparency contributes to the common goal of enhancing safety and security by sharing lessons learned and implementing corrective actions. These outcomes help provide reasonable assurance that persons who perform safety- or security-significant activities, or have unescorted access to certain NRC-licensed facilities, information, or material, are fit for duty. The section, "Evaluation of E-Reported Data," reflects the quality of data and data evaluation that results from e-reporting.

The FFD electronic forms (e-forms) used by licensees and other entities subject to Part 26 to report FFD performance data to the NRC are publicly available at http://www.nrc.gov/reactors/operating/ops-experience/fitness-for-duty-programs/submit-ffd-reports.html. These e-forms use the Adobe Systems Incorporated (Adobe®) information technology architecture.[9]

In the NRC's "Summary of Fitness for Duty Program Performance Reports for CY 2009," available at the Web site listed above, the staff discussed the background of e-reporting. The "Summary of Fitness for Duty Program Performance Reports for CY 2010," available at the same Web site, summarizes FFD e-reporting improvements and observations that occurred in CY 2010. The following section in this report provides an overview of any changes and observations that occurred in CY 2011.

- CY 2011 marked the third year FFD e-reporting was available. Use of e-reporting has steadily increased from the first year the system was available (CY 2009). Table 2 displays the strong support and use of the system in CY 2011, with 80 percent of facilities participating.

Table 2
E-reporting System Use (CYs 2009–2011)

Calendar Year	2009	2010	2011
Number Tests	46,162	111,248	141,234
Number Positive	290	684	918
Percent of Facilities Using System	25%	69%	80%
Number of Facilities Using System	19	51	61

- The NRC updated the Annual Reporting Form (ARF) and SPTF based on feedback provided by licensees and other entities and revised the embedded instructions and logic architecture within the forms to simplify their use and reduce reporting errors.

- Significant improvements to the e-reporting forms for CY 2011 included:

  - The Subversion Attempts section of the SPTF was updated to include clearer checkbox options to characterize donor actions and improve the quality of information provided.

[9] Additional information about Adobe® and its permissions and trademark guidelines is available at http://www.adobe.com/misc/agreement.html.

- The question "What 26.103 BAC level was exceeded" was added to the SPTF to collect information on the particular blood alcohol concentration (BAC)[10] level that was exceeded.

- The NRC added a laboratory testing section to the ARF to collect information on LTF use, the HHS-certified laboratory(ies) used by the licensee or other entity, and the BPTS supplier.

Detailed Data Analysis

Table 3
Index of Detailed Data Analysis and Descriptions

Section 1 Detailed Data Analysis Summary

The following is a detailed summary of CY 2011 testing information contained in this report[11]. The referenced tables can be consulted for additional information.

- The industry performed a total of 178,586 D&A tests. The total number of tests performed has steadily increased each year since 2003. (Table 10)

- Approximately 69 percent of all positive test results occurred at pre-access testing (i.e., a significant percentage of illicit drug use and alcohol misuse is identified before a licensee ever allows a person unescorted access to an NRC-licensed facility).

- The industry positive rate for all tests conducted remained low at 0.60 percent. The industry positive rate has steadily declined since 2000 (a high of 1.09 percent). (Table 10)

[10] BAC is the mass of alcohol in a volume blood. As detailed in 10 CFR 26.103, a confirmed alcohol positive test is determined when an individual's BAC is equal to or greater than the 26.103 time-dependent BAC limits.

[11] In SECY 04 0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," issued October 2004, the NRC described guidance for designating sensitive unclassified non-Safeguards Information relating to nuclear power reactors. The NRC applied this guidance to information in this report, in part, to prevent persons from subverting the effectiveness of the D&A testing provisions in Part 26.

- The industry positive rate for random tests in CY 2011 was 0.31 percent. The random testing positive rate has remained low since required testing began in 1990 (fluctuating between a low of 0.23 percent as recently as 2008 and a high of 0.39 percent in 2000). (Table 10 and Table A-2)

- For-cause testing accounted for the highest industry positive test rate at 8.53 percent (Table 6), which is expected, because this test type is only conducted when signs of impairment are observed or information about illicit drug use or alcohol misuse is received. Data collected from e-reporting have indicated that some licensees and other entities have incorrectly reported tests associated with subversion attempts; this suggests that year-to-year trend analysis may not be entirely precise. However, the uniformity of data collected on for-cause testing positives is improving, based on increased use of the e-reporting system by licensees and other entities and the quality of information provided in SPTFs. (Table 7 and Chart 7)

- The industry positive rates for each employment category for all tests performed remained low. (Table 7)

    - Licensee employees: 0.23 percent
    - C/Vs: 0.77 percent

- C/Vs continued to have higher positive test rates than licensee employees. This pattern is consistent across testing years and for each test type. Since 1993, C/Vs have had an overall positive test rate that is, on average, 3.7 times greater than that of licensee employees. (Charts 5, 6, and 7; Tables A-4, A-5, and A-6)

- Table 12 presents the range of positive tests reported by facilities in CY 2011 by employment category for pre-access and random testing. The information indicates that the industry positive rates are low (less than 1 percent) for pre-access and random testing, but the range of percent positive per site is rather large (see below). Again, we see C/Vs testing positive at a much higher rate than licensee employees.

  Pre-access testing positive rates:

    - Licensee employees: 0.26 percent
      The positive-rate range[12] for the industry was from 0 to 1.76 percent.

    - C/Vs: 0.77 percent
      The positive-rate range for the industry was from 0 to 2.52 percent.

  Random testing positive rates:

    - Licensee employees: 0.16 percent
      The positive-rate range for the industry was from 0 to 0.77 percent.

[12] The positive-rate range is across all facilities and indicates the lowest and the highest positive rates reported in CY 2011. These values do not directly correlate to performance.

- C/Vs: 0.54 percent
  The positive-rate range for the industry was from 0 to 2.11 percent.

- Marijuana, alcohol, and cocaine accounted for a significant percentage of positive test results in each employment category. (Table 8)
  - Licensee employees: marijuana, 24 percent; alcohol, 54 percent; cocaine, 9 percent
  - C/Vs: marijuana, 50 percent; alcohol, 19 percent; cocaine, 12 percent

- Three substances (marijuana, alcohol, and cocaine) continued to account for more than 90 percent of substances identified in each testing year. (Table 11)
  - Marijuana, 47 percent of substances in 1990; 52 percent in 2011
  - Alcohol, 19 percent of substances in 1990; 26 percent in 2011
  - Cocaine, 29 percent of substances in 1990; 12 percent in 2011

Section 2 Certified Laboratories

This section summarizes reports of laboratory testing performance issues discovered in drug performance testing at LTFs and HHS-certified laboratories. The issues may involve errors in technique, methodologies, quality control, or urine specimen processing. Typically, LTFs or laboratories self-identify the errors that could adversely affect test integrity. To meet the reporting requirement of 10 CFR 26.719(c), the licensee or other entity submits a report to the NRC (called a "30-day report") describing the issue and corrective actions taken or planned. If applicable, the ADAMS accession number (ML) of the 30-day report is referenced in Table 4.

Ten of twelve errors reported in CY 2011 documented issues associated with BPTS preparation or laboratory testing of BPTSs.

Table 4
Laboratory Testing Performance Issues[13]

Facility	Issue	Performance Issue Summary	Cause(s) of Issue	Corrective Action
Diablo Canyon	BPTS: insufficient number submitted	An insufficient number of adulterated BPTSs were submitted to the HHS-certified laboratory in CYs 2010 and 2011. ML12060A199 (letter: 2/24/12)	The FFD program performance report did not describe the cause of the issue.	1. Two adulterated BPTSs were submitted during the third quarter of CY 2011 to compensate for the earlier shortage. 2. The licensee developed and implemented a checklist to improve tracking of BPTSs.
Duane Arnold	BPTS: incorrect result	A BPTS formulated by Elsohly Laboratories did not yield expected results. ML12059A153 (letter: 2/28/12)	The FFD program performance report did not describe the cause of the issue.	A replacement BPTS was submitted in the same quarter and expected results were received from the laboratory.

[13] The "Cause(s) of Issue" and "Corrective Actions" are determined by the affected licensee or entity; this report does not evaluate the effectiveness or accuracy of these licensee determinations.

Facility	Issue	Performance Issue Summary	Cause(s) of Issue	Corrective Action
Limerick	LTF testing	The 8-hour time limit for an analytical run of specimen testing required by 10 CFR 26.137(b)(2)(i) was exceeded. Fifteen (15) specimens were initialized before the 8-hour time limit expired; however, the testing process was not completed for several of the specimens until after the 8-hour time limit had expired. Testing of the last specimen was completed 57 minutes over the 8-hour limit. ML112201465 (letter: 08/08/11)	A newly trained technician performed the testing.	1. Removed the technician from duties and performed retraining. 2. Required all LTF technicians to read and sign a document detailing the 8-hour time limit for an analytical run. 3. Revised LTF procedures to include additional guidance on running samples when the 8-hour time limit for an analytical run will be exceeded. 4. Planned to review and revise training materials, as needed, to ensure that the 8-hour time limit for an analytical run was appropriately detailed.
Palo Verde	BPTS: Incorrect result	BPTS formulated as “adulterated” by Professional Toxicology Services HHS-certified laboratory reported “invalid” result ML11269A027 (letter: 09/15/11)	HHS-certified laboratory pH testing equipment defaults to an “invalid” result when a test result falls outside the normal range, and it is the responsibility of the certifying scientist to interpret the test result. The correct pH value was reported as 1.10, but the certifying scientist failed to interpret the result correctly.	The HHS-certified laboratory developed a reference guide for certifying scientists to use to characterize specimens identified as "invalid."
Peach Bottom	LTF testing	After calibrating two reagents (amphetamines and THC-50), the LTF technician only ran the 25 percent below control test and failed to run the 25 percent above control test as required by 10 CFR 26.137(e)(6)(ii). ML111590887 (letter: 06/08/11)	The technician stated that he/she understood the requirement and made a mistake. During the investigation, a second issue was discovered. The two reagents placed in service by the same technician were not labeled according to the LTF procedure. No adverse trends in unsatisfactory performance of the LTF’s quality control tests had been previously identified.	1. The technician was immediately removed from duties until further training was completed. 2. Peach Bottom re-collected samples from the seven individuals in-processed on the date of the testing issue. 3. LTF technicians are now required to forward all calibration paperwork to the LTF supervising technician for review until decided otherwise. It is routine for the LTF supervisor to review the work of the technicians.

Facility	Issue	Performance Issue Summary	Cause(s) of Issue	Corrective Action
Prairie Island	BPTS: incorrect result	BPTS was formulated as dilute negative by Elsohly Laboratories. HHS-certified laboratory (Medtox) reported a negative result. ML12017A090 (letter: 01/13/12; BPTS result received 10/5/11)	The likely cause was the variable sample handling/ testing technique for specific gravity testing used by the laboratory technician. The investigation concluded that the laboratory technician that performed the specimen testing needed additional training.	The HHS-certified laboratory reviewed the specimen handling and testing procedures with technologists using J57 refractometers and performed competency assessments.
TVA	BPTS: incorrect results	BPTS was formulated as positive for propoxyphene and norpropoxyphene. HHS-certified laboratory (Clinical Reference Laboratory) reported a negative result. ML110610738 (letter: 02/25/11)	False negative resulted because the drug concentrations in the BPTS were too close to the initial drug test cutoff level. The investigation also identified an issue with TVA's internal process of preparing BPTSs for submission to the laboratory (i.e., a freezing and the subsequent thawing, mixing, and handling process).	Licensee revised its methods of preparing BPTSs.
TVA	BPTS: incorrect results	BPTS was formulated as positive for cocaine. HHS-certified laboratory (Clinical Reference Laboratory) reported a negative result. ML110610738 (letter: 02/25/11; BTPS result received on 12/10/10)	The HHS-certified laboratory did not process the licensee's request to investigate the test result error in a timely manner and the laboratory discarded the negative specimen. The false negative likely resulted because the drug concentration in the BPTS was too close to the initial drug test cutoff level. The failure also was likely the result of the specimen handling practices identified with the BPTS positive for propoxyphene also described in the same 30-day report.	1. The HHS-certified laboratory implemented a corrective action regarding processing of retests. When a request is received for a split sample retest that cannot be immediately processed, the specimen will be transferred to short-term storage so it will not be discarded. 2. Licensee revised its methods of preparing BPTSs.
TVA	BPTS: incorrect result	BPTS was formulated as positive for morphine, codeine, and 6-acetylmorphine (6-AM). HHS-certified laboratory (Clinical Reference Laboratory) reported a negative result. ML11186A864 (letter: 07/01/11)	The BPTS batch that was incorrectly prepared and was the cause of inaccurate test results described in TVA's 30-day report to the NRC, dated 02/25/11, was not discarded.	1. Previously frozen BPTSs were discarded and new BPTSs ordered. 2. BPTS preparation procedures were revised to add steps to be taken when a potential compromise of specimens is identified via unexpected blind specimen results, including handling of any remaining samples.

Facility	Issue	Performance Issue Summary	Cause(s) of Issue	Corrective Action
TVA	BPTS: incorrect result	An inconsistent BPTS test result was received in March 2010 but TVA did not report it to the NRC. The licensee identified this error when investigating the incident involving TVA's 30-day report to the NRC dated 07/01/11. BPTS was formulated as positive for morphine, codeine, and 6-AM. HHS-certified laboratory (Clinical Reference Laboratory) reported a negative result. ML11251A161 (letter: 09/02/11)	The investigation of the inaccurate test result confirmed that TVA's BPTS preparation process was likely the cause of the false negative result, as described in TVA's 30-day report to the NRC dated 02/25/11. TVA had a historical practice of processing multiple BPTSs simultaneously. The cause was the performance of BPTS preparation by a new employee who was still in training.	1. Trained the new employee on BPTS preparation process. 2. Revised the BPTS processing procedure to require the blind specimen package be completed before initiation of the next specimen package for testing.
TVA	BPTS: incorrect result	BPTS was formulated as positive for codeine, morphine, and 6-AM. HHS-certified laboratory (Clinical Reference Laboratory) reported a negative result. ML11272A037 (letter: 09/26/11)	The HHS-certified laboratory determined that the identification number printed on the chromatogram did not match the number provided by the bar code reader. The sample had been switched with another sample in the batch. Human error at the laboratory resulted in the sample being incorrectly placed in the sequence for gas chromatography/mass spectrometry (GC/MS) testing.	1. Conducted benchmarking of alternative HHS-certified laboratories. 2. Increased the number of BPTSs submitted to Clinical Reference Laboratory for an extended period of time or until such time as another primary laboratory is selected. 3. Provided the information to TVA quality assurance for consideration in future audits.
Turkey Point Units 3 and 4	BPTS: insufficient number submitted	Licensee inadvertently sent two adulterated specimens and no substituted specimens in the third quarter of CY 2011. ML12065A181 (letter: 2/21/12)	The FFD program performance report did not describe the cause of the issue.	The FFD program performance report did not describe any corrective actions taken.

Section 3 Reportable Events

Licensees or other entities reported 37 FFD-related events involving individual employee violations to the NRC Operations Center under 10 CFR 26.719, "Reporting Requirements," (i.e., 24-hour event reports). Information presented in this table was supplemented from FFD program performance reports (e.g., SPTFs, ARFs, and 30-day reports).

Table 5
Reportable Events due to Individual Employee Violations

Test Type	Facility	Employment Type	Labor Category	Substance
Pre-Access	E.I. Hatch	C/V	Supervisor	Alcohol
Random	Arkansas Nuclear One	C/V	Supervisor	Amphetamines
	Braidwood	Licensee Employee	Supervisor	Marijuana
	Byron	Licensee Employee	Supervisor	Alcohol
	Columbia	C/V	Supervisor	Refusal to Test
	Fermi 2	Licensee Employee	Licensed Operator	Cocaine
	Fort Calhoun	Licensee Employee	FFD Program Personnel	Alcohol
	Grand Gulf	Licensee Employee C/V	Supervisor Supervisor	Cocaine Alcohol
	Kewaunee	C/V	Supervisor	Cocaine
	LaSalle	Licensee Employee	Supervisor	Marijuana
	Monticello	Licensee Employee C/V	FFD Program Personnel Supervisor	Alcohol Alcohol
	Oconee	C/V C/V	Supervisor Technician	Alcohol Alcohol
	Prairie Island	Licensee Employee	Supervisor	Alcohol
	Salem/Hope Creek	Licensee Employee	Supervisor	Alcohol
	Sequoyah	Licensee Employee	Supervisor	Amphetamines
	St. Lucie	C/V	Supervisor	Alcohol
	Surry	Licensee Employee	Security	Alcohol
	Watts Bar	C/V	Supervisor	Marijuana
For Cause	Cooper	Licensee Employee	Supervisor	Alcohol
	Crystal River	Licensee Employee	Supervisor	Alcohol
	San Onofre	Licensee Employee	Supervisor	Alcohol
	Surry	Licensee Employee	Security	Alcohol
	Vogtle Units 1 and 2	Licensee Employee	Security	Alcohol
Followup	Nine Mile Point	C/V	Construction Manager	Alcohol
	Point Beach	C/V	Supervisor	Alcohol
	Surry	C/V	Supervisor	Alcohol
	V.C. Summer Unit 1	Licensee Employee	Licensed Operator	Benzodiazepines
	Vogtle Units 3 and 4	C/V	Supervisor	Alcohol
N/A	Babcock & Wilcox	Not specified	Not specified	Possession of alcohol in PA
	Fort Calhoun	C/V	Not specified	Self-reported use of illegal substance
	Joseph M. Farley	C/V	Supervisor	Subversion
	Kewaunee	Not specified	Nonsupervisory	Possession of prescription drug in PA
	McGuire	Not specified	Not specified	Failed to meet FFD criteria
	Watts Bar	Not specified	Supervisor	Possession of controlled substance with intent to distribute

PA Protected area. See 10 CFR 26.5 for the definition of a PA.
N/A Not applicable.

Section 4 Program and System Management

The drug testing cutoff levels are provided in 10 CFR 26.133 and 26.163, both entitled, "Cutoff Levels for Drugs and Drug Metabolites." The confirmatory BAC percentage considered a positive test result is provided in 10 CFR 26.103, "Determining a Confirmed Positive Test Result for Alcohol." Some licensees or other entities elected to use lower drug testing cutoff levels during the reporting period, as authorized by 10 CFR 26.31(d). The current rule also includes time-dependent alcohol cutoff levels and does not allow licensees or other entities to lower the cutoffs when conducting NRC-required alcohol tests or applying NRC-required sanctions under 10 CFR 26.75, "Sanctions"; however, for followup testing, licensees and other entities are required to determine whether the affected individual has abstained[14] from D&A use. Furthermore, some licensees or other entities have established "corporate" or "employment" D&A limits to screen applicants before employment or for use during followup testing. The lowering of D&A cutoff levels, LOD testing, or testing for additional substances are powerful means to identify illicit D&A use and enhance deterrence.

Alcohol Testing

In CY 2011, two facilities apparently used lower BAC cutoff levels than permitted by rule.

Drug Testing (lowering drug cutoff levels, LOD testing, and testing for additional substances)

Lowering Drug Cutoffs

In CY 2011, four facilities used lower marijuana cutoff levels and two facilities used lower opiate[15] cutoff levels.

LOD Testing, 10 CFR 26.163(a)(2)

In CY 2011, 90 percent of facilities (69 of 76) reported implementing the optional testing policy to conduct LOD testing, as permitted by 10 CFR 26.163(a)(2).

The NRC staff notes that there may be a data discrepancy in the total number of licensees and other reported as implementing an LOD Testing policy for CYs 2009 and 2010. Due to changes to the ARF e-report for CY 2011, information on LOD Testing is now collected in a more consistent and reliable manner.

LOD testing is a powerful method to identify illicit drug use in instances where an individual may be attempting to subvert the testing process through urine specimen dilution. Although many legitimate reasons may cause a donor to provide a urine specimen with a dilute validity test result, specimen dilution is a method that individuals may use to subvert the testing process by consuming large quantities of fluid prior to providing a specimen to decrease the concentration of drug(s)/drug metabolite(s) in their specimen. As a result, the concentration of a drug

[14] As described in 10 CFR 26.31(c)(4), a followup test verifies an individual's continued abstinence from substance abuse. This type of testing, required by 10 CFR 26.69, "Authorization with Potentially Disqualifying Fitness-for-Duty Information," is one of several criteria that licensees are required to use to determine whether to grant or maintain authorization.

[15] Part 26 tests for opiate metabolites on initial testing and tests for morphine, codeine, and 6-AM (a positive indicator of heroin use) for opiate confirmatory testing.

may be below the Part 26 cutoffs for the drug or drug metabolite—this would give a false negative drug test result and could be adverse to safety and security. However, if a specimen has been determined to be dilute and LOD testing is conducted, the ability to detect illicit drug use is markedly improved, because the LOD testing technique uses the lowest concentration of the target analyte that can be reliably detected. This concentration level is typically significantly lower than the cutoff level. A dilute positive test result would be a strong indicator that the individual may have attempted to subvert the test.

Although not required, the majority of licensees and other entities have implemented an LOD testing policy. This demonstrates a strong commitment to identifying illicit drug use, which, in turn, increases the likelihood that authorized personnel are fit for duty and that persons determined to be unfit for duty are subject to the sanctions and actions prescribed in 10 CFR 26.75, "Sanctions," and 10 CFR 26.77, "Management Actions Regarding Possible Impairment," respectively, and are afforded employee assistance, if applicable.

Testing for Additional Substances, 10 CFR 26.31(d)(1)(i)

Licensees and other entities may consult with local law enforcement authorities, hospitals, and drug counseling services to determine whether the local workforce is using drugs that are not included in the drug testing panel specified by NRC regulations. If so, licensees and other entities may add drugs to their drug testing panels and establish cutoff levels for these additional substances, based on established forensic toxicology science and review. Licensees and other entities are not required to test for additional drugs or drug metabolites; however, a number did voluntarily reach out to their communities to inform their programs.

In CY 2011, six facilities tested for additional drugs or drug metabolites. The additional substances included barbiturates, benzodiazepines, hydrocodone, hydromorphone, methadone, oxycodone, and propoxyphene.

Section 5 Other Program and System Management Issues[16]

- Three facilities (Beaver Valley, Davis-Besse, and Perry) included FFD procedure updates to explain that the ingestion of certain food groups may have an adverse effect on the accuracy of the drug testing results.

- Cooper reported four management actions. First, security procedures were updated to enhance the random testing program (e.g., the updates increased the frequency of generating random select lists and included guidance on how to generate and verify the accuracy of the random testing pool). Second, Cooper increased the frequency that BPTSs are to be submitted to the laboratory for testing. Third, Cooper completed refresher training with access authorization staff that included first-line supervisor training and MARC (Managers Action Response Checklist) training. Fourth, the licensee included FFD communications as part of the site's monthly newsletter.

[16] In this section, the NRC staff used the descriptive terminology provided by the licensee in its report; however, in some cases, the staff clarified the description to aid understanding.

- Dominion Corporate and Kewaunee revised the prescription drug portion of the FFD procedure to enhance self-reporting (i.e., allowing personnel to report prescription drugs to FFD program personnel without disclosing the specific medication). Proposals to expand the standard drug testing panel also were made to local unions in response to a prescription drug incident at the Kewaunee plant pertaining to use of prescription drugs inside the PA.

- Fermi 2 reported that a self-assessment identified four deficiencies. None of the deficiencies were determined by the licensee to have violated 10 CFR Part 26 requirements. The deficiencies were: (1) supervisor observation report not completed as required, (2) random pool database not maintained as required, (3) collection procedure possibly conflicted with 10 CFR Part 26, and (4) individual selected for random test not tested within 30 days. These deficiencies were entered into the licensee's Corrective Action Program (CAP) for resolution.

- Fort Calhoun reported enhancing collector training to address a number of collector errors that had occurred. The licensee reported that while the errors did not result in any tests being cancelled, the number of the errors was noteworthy. A new initial collector training program was developed and all collectors were required to complete the training. Semiannual competencies and monthly communications also were created.

- Indian Point reported that an internal audit identified two deficiencies. First, the time a supervisor/designee notified a donor to proceed for random testing was not consistently recorded. The electronic fleet form was modified to provide a specific space to record the notification time and training was conducted on the requirements to track and document the time of notification. Second, while random tests were conducted throughout the 24-hour workday, the distribution of the tests could indicate a perceived weakness in the randomness of the random testing program. Coordinators are now utilizing shift-work schedules to identify a donor's testing availability to ensure that all shifts are targeted for random collections.

- Palo Verde reported that it developed a briefing item for urine specimen collectors that included a tool to display various urine colorations and explanations about what the colors could mean.

- Salem/Hope Creek reported that it had concerns that the positive random rate at the facility was higher than the industry average. It increased the random testing rate by 25 percent above the NRC-minimum testing rate of 50 percent to a minimum of 62.5 percent. The facility positive rate dropped from 0.40 percent in December 2010 to 0.23 percent in December 2011.

- Southern Nuclear Company (SNC) Corporate reported two problems with the SNC random pool. Weekly quality control checks for the FFD random testing pool identified one problem. The second problem was a logic/coding error in the random selection generator that was discovered by the SNC's FFD database vendor. Both instances were evaluated, investigated, and reported to the NRC in a 24-hour report. SNC made apparent cause determinations and documented each in its CAP.

- St. Lucie reported that six specimens were lost in transit between the collection location and the laboratory. The specimens were re-collected and all were returned with negative results.

- Susquehanna reported two programmatic deficiencies. First, the vendor contract with the Employee Assistance Program to provide counseling and treatment for self referrals did not require appropriate reporting to the licensee as required by Part 26. The licensee obtained an agreement from the vendor to report appropriate information until the contract could be amended. Second, the medical review officer (who was also a substance abuse expert) was not included in the random drug testing program or the behavior observation program. The deficiency had existed since December of the previous year and was identified during a routine audit. An event report was made to the NRC for each deficiency (Event Notification (EN) nos. 47221 and 47234).

- Vogtle Units 3 and 4 reported conducting two FFD program audits, one by Shaw Quality Assurance (Shaw) and one by SNC. Shaw and SNC identified several deficiencies primarily related to Shaw FFD procedures. The deficiencies were addressed with corrective actions managed through the CAPs. Of particular note, Shaw implemented corrective actions to improve its procedures for Subpart C requirements for granting access (e.g., self-disclosure and suitable inquiry reviews).

- Vogtle Units 3 and 4 reported that the Employee Plant Access Control Tracking (EmPACT) software used to generate random testing selection lists had a logic flaw in the number generator. The flaw did not permit multiple selections of individuals during a single iteration of the random pool selection. Immediate corrective actions were taken, which included running the random pool daily until the software logic was corrected and tested. Corrective actions were managed through the CAP. EmPACT is currently being redesigned and updated. The new version, EmPACT 3.0 is intended to provide easier retrieval of FFD and access data and will have greater search and reporting capabilities. EmPACT 3.0 will convert many processes that are currently being managed manually to an electronic data-entry process for FFD and access authorization. SNC considered this a significant programmatic issue and submitted a 30-day report to the NRC on November 9, 2011.

- Vogtle Units 3 and 4 reported an FFD program vulnerability that resulted in contractor personnel being granted unescorted access to the Vogtle Units 3 and 4 construction site without meeting all the requirements of the FFD program. An event report was made to the NRC (EN 46558).

- Wolf Creek reported that it reverted to split specimen collections in October 2011 to improve consistency with U.S. Department of Transportation collections and to strengthen the appeal process when an individual requests a retest.

Section 6 Tables and Charts

The significant regulatory changes that affected FFD performance data were as follows:

- In 1994, the NRC reduced the minimum annual random testing rate from 100 percent to 50 percent of the subject population.

- In 2009, the NRC's final rule on FFD became fully effective, changing the reporting requirements for licensees and other entities.

Index of Tables and Charts

Table 6
Test Results by Test Category

Test Category*	Number Tested	Number Tested Positive	Percent Positive
Pre-Access	103,848	741	0.71%
Random	65,778	202	0.31%
For Cause	856	73	8.53%
Post-Event	802	7	0.87%
Followup	7,302	57	0.78%
Total	178,586	1080	0.60%

* "Test Category" corresponds to the conditions requiring testing listed in 10 CFR 26.31(c).

Table 7
Test Results by Test and Employment Categories

Test Category	Licensee Employees			C/Vs		
	Number Tested	Number Positive	Percent Positive	Number Tested	Number Positive	Percent Positive
Pre-Access	10,729	28	0.26%	93,119	713	0.77%
Random	39,817	63	0.16%	25,961	139	0.54%
For Cause	350	22	6.29%	506	51	10.08%
Post-Event	333	3	0.90%	469	4	0.85%
Followup	2,974	11	0.37%	4,328	46	1.06%
Total	**54,203**	**127**	**0.23%**	**124,383**	**953**	**0.77%**

Table 8
Positive Test Results by Substance and Employment Category
(All Test Types, including Testing Refusals)

Positive Test Result	Licensee Employees		C/Vs		Total	
	Number	Percent	Number	Percent	Number	Percent
Marijuana	31	23.85%	499	50.15%	530	47.11%
Alcohol	70	53.85%	192	19.30%	262	23.29%
Cocaine	12	9.23%	115	11.56%	127	11.29%
Refusal to Test*	6	4.62%	92	9.25%	98	8.71%
Amphetamines	8	6.15%	77	7.74%	85	7.56%
Opiates	2	1.54%	16	1.61%	18	1.60%
Phencyclidine	0	0.00%	3	0.30%	3	0.27%
Other ‡	1	0.77%	1	0.10%	2	0.18%
Total†	**130**	**100.00%**	**995**	**100.00%**	**1,125**	100.00%

* This category includes adulterated and substituted specimen validity test results and refusal-to-test actions (only those events where a specimen was not provided). Charts 23 through 26 present additional information on a subset of testing refusals (i.e., subversion attempts where the initial specimen was out of temperature range and the second specimen, collected under direct observation, tested positive). Table 8 does include positive test results in this table for each of these events.

‡ In CY 2011, six facilities tested for drugs in addition to the NRC-minimum testing panel. Two tests yielded positive results (one for benzodiazepines and one for methadone).

† The totals in this table may be higher than those reported in Tables 6 and 7, where individuals tested positive for more than one substance.

Chart 1
2011 Positive Test Results by Substance
Licensee Employees

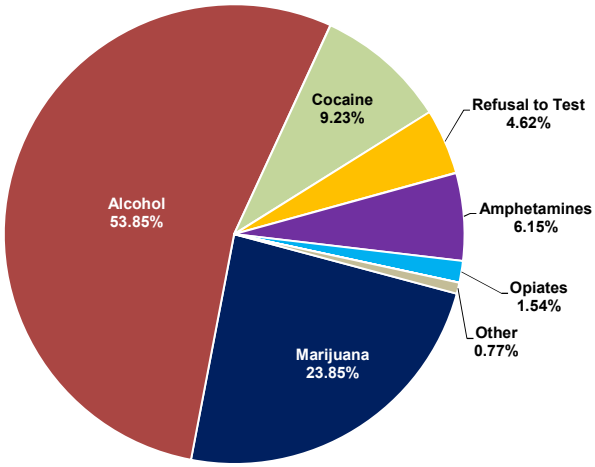


Chart 2
2011 Positive Test Results by Substance
Contractors/Vendors

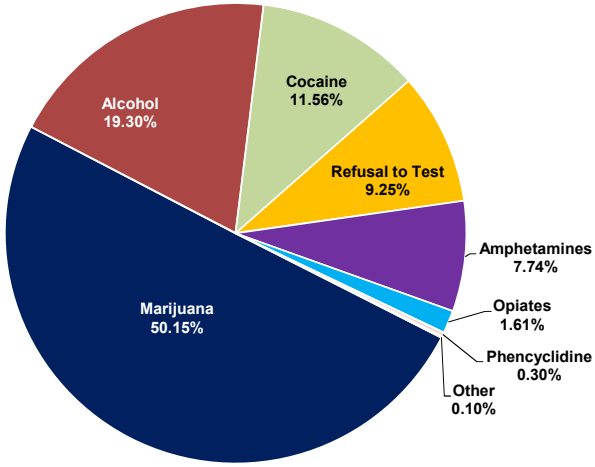


Table 9
Significant Fitness-for-Duty Events*

Year	Reactor Operators	Licensee Supervisors	C/V Supervisors	FFD Program Personnel	Substances Found	Total
2002	3	3	12	3	1	**22**
2003	6	3	8	0	2	**19**
2004	9	7	4	0	9	**29**
2005	5	13	14	1	9	**42**
2006	3	6	6	0	2	**17**
2007	3	7	1	1	0	**12**
2008	2	8	6	1	0	**17**
2009	1	5	4	1	2	**13**
2010	4	7	3	2	3	**19**
2011‡	2	10	14	2	3	**31**

* Table 9 presents 24-hour reportable events per section (§) 26.719(b). Refer to Table A-1 in the report appendix for data from 1990 through 2001.

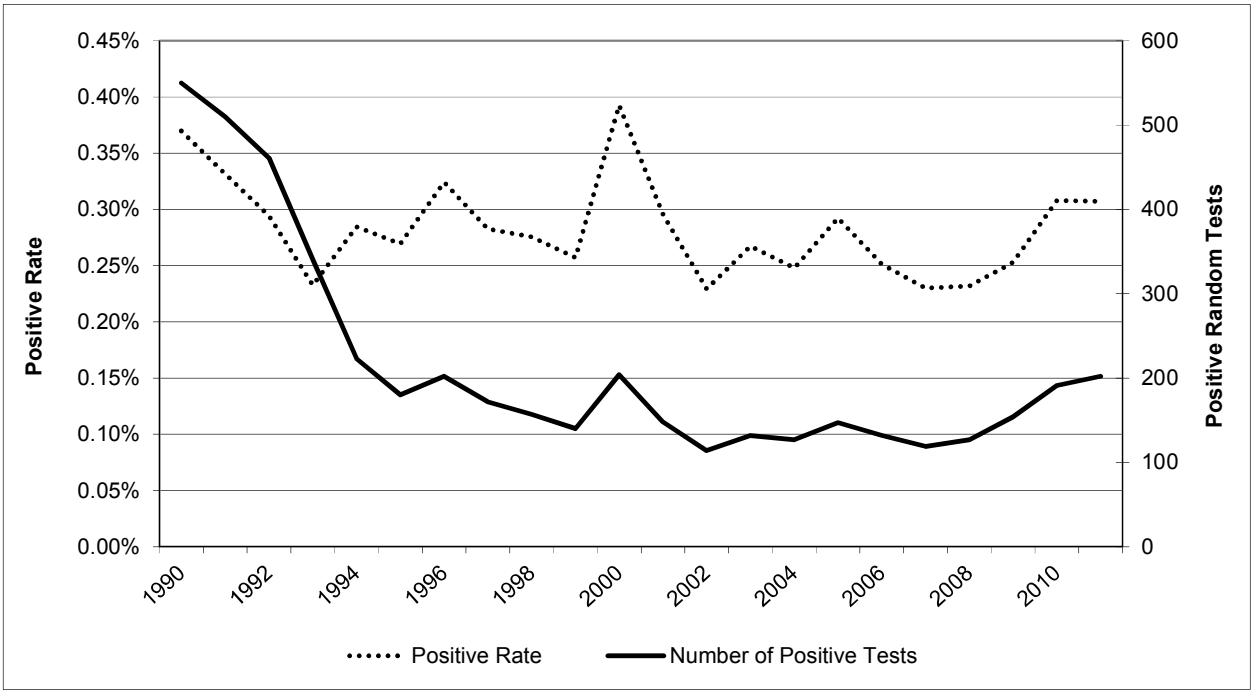
‡ An additional six 24-hour reports were made in CY 2011, but insufficient information was provided by the licensee or other entity to categorize the event in Table 4. Although those six occurrences are not presented in Table 4, descriptions of all 37 reportable events are presented in Table 5 of this report.

Table 10
Trends in Testing by Test Type

Type of Test	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*	2010	2011
Pre-Access												
Number Tested	68,333	63,744	73,155	72,988	76,119	79,005	79,980	81,932	87,468	95,878	96,543	103,848
Number Positive	965	720	805	757	737	648	747	668	664	677	677	741
Percent Positive	1.41%	1.13%	1.10%	1.04%	0.97%	0.82%	0.93%	0.82%	0.76%	0.71%	0.70%	0.71%
Random												
Number Tested	51,955	50,080	49,741	49,402	51,239	50,286	52,557	51,665	54,759	60,877	62,008	65,778
Number Positive	204	148	114	132	127	147	132	117	127	154	191	202
Percent Positive	0.39%	0.30%	0.23%	0.27%	0.25%	0.29%	0.25%	0.23%	0.23%	0.25%	0.31%	0.31%
For Cause												
Number Tested	609	506	617	637	701	671	716	720	797	547	549	856
Number Positive	132	99	110	123	134	105	104	81	94	108	47	73
Percent Positive	21.67%	19.57%	17.83%	19.31%	19.12%	15.65%	14.53%	11.25%	11.79%	19.74%	8.56%	8.53%
Post-Event												
Number Tested	274	224	455	415	458	490	905	895	986	893	884	802
Number Positive	6	2	2	3	5	1	5	10	7	1	6	7
Percent Positive	2.19%	0.89%	0.44%	0.72%	1.09%	0.20%	0.55%	1.12%	0.71%	0.11%	0.68%	0.87%
Followup												
Number Tested	2,861	2,649	2,892	3,142	3,752	4,057	4,766	4,991	5,756	6,252	6,657	7,302
Number Positive	49	35	21	42	31	31	37	31	44	53	60	57
Percent Positive	1.71%	1.32%	0.73%	1.34%	0.83%	0.76%	0.78%	0.62%	0.76%	0.85%	0.90%	0.78%
TOTAL												
Number Tested	**124,032**	**117,203**	**126,860**	**126,584**	**132,269**	**134,509**	**138,924**	**140,203**	**149,766**	**164,447**	**166,641**	**178,586**
Number Positive	**1,356**	**1,004**	**1,052**	**1,057**	**1,034**	**932**	**1,025**	**907**	**936**	**993**	**981**	**1080**
Percent Positive	**1.09%**	**0.86%**	**0.83%**	**0.84%**	**0.78%**	**0.69%**	**0.74%**	**0.65%**	**0.62%**	**0.60%**	**0.59%**	**0.60%**

* On March 31, 2009, the NRC required all licensees and affected entities to implement the March 31, 2008, final rule. Refer to Table A-2 in the report appendix for data from 1990 through 1999.

Chart 3
Trends in Positive Random Testing Rates*



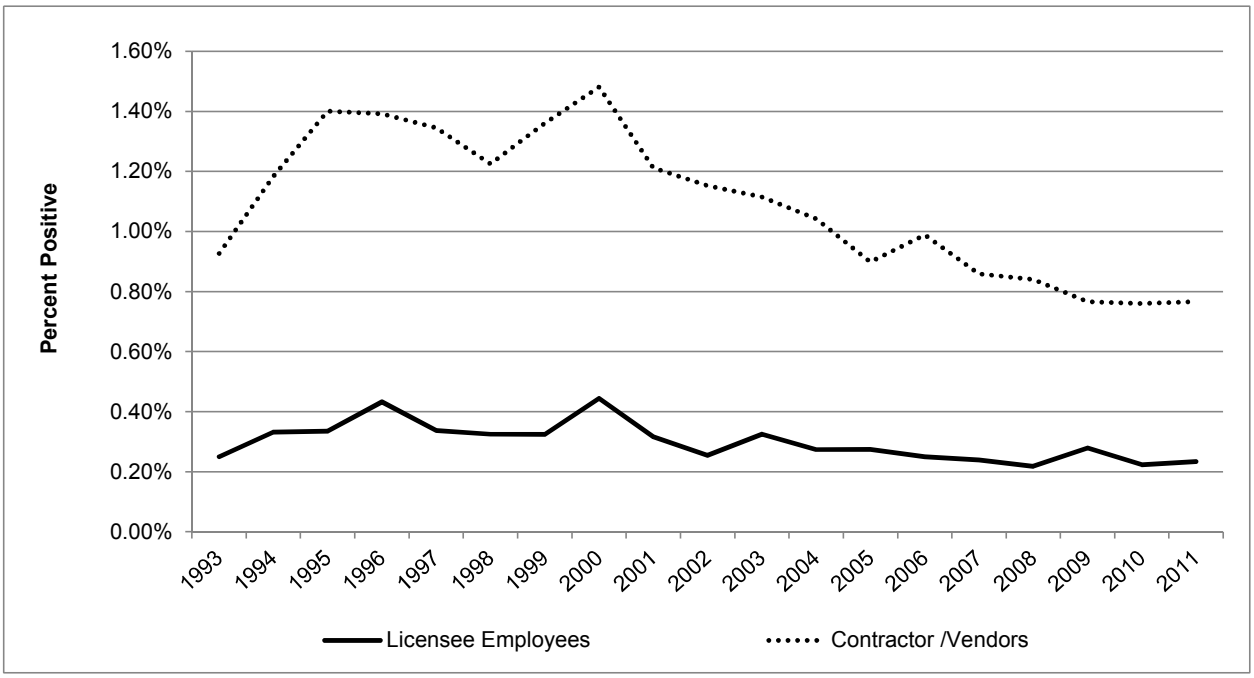
* Beginning in 1994, the NRC reduced the minimum annual random testing rate from 100 percent to 50 percent of the subject population.

Table 11
Trends in Substances* Identified

Year	Marijuana	Cocaine	Alcohol	Amphetamines	Opiates	Phencyclidine	Total
1990	1,153	706	452	69	45	8	**2,433**
1991	746	549	401	31	24	11	**1,762**
1992	953	470	427	31	8	4	**1,893**
1993	781	369	357	51	13	5	**1,576**
1994	739	344	251	54	11	1	**1,400**
1995	819	374	265	61	17	7	**1,543**
1996	868	352	281	53	14	2	**1,570**
1997	842	336	262	49	39	0	**1,528**
1998	606	269	212	46	19	1	**1,153**
1999	672	273	230	40	16	2	**1,233**
2000	620	251	211	50	32	1	**1,165**
2001	523	225	212	50	17	2	**1,029**
2002	560	228	214	47	21	3	**1,073**
2003	518	228	199	64	17	0	**1,026**
2004	514	247	222	60	14	1	**1,058**
2005	432	246	196	59	16	2	**951**
2006	446	307	206	53	14	1	**1,027**
2007	386	232	189	29	22	5	**863**
2008	506	184	177	35	16	1	**919**
2009	500	157	261	38	10	1	**967**
2010	534	125	222	54	15	1	**951**
2011	530	127	262	85	18	3	**1,025**

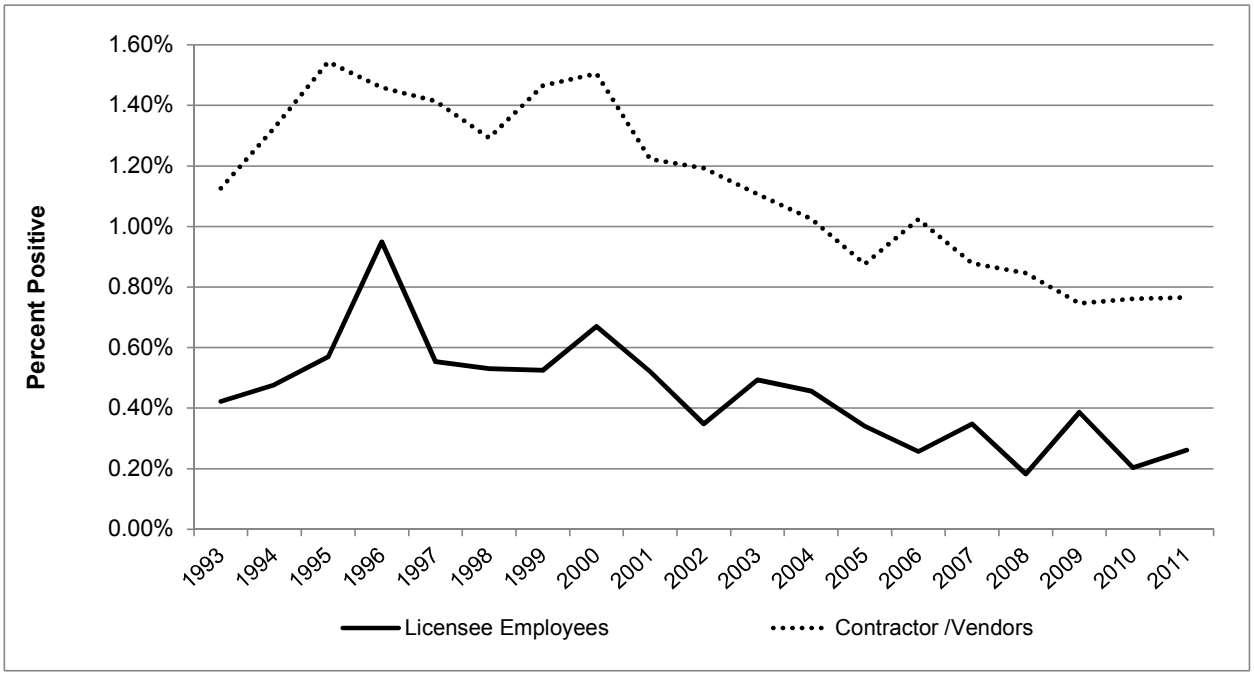
* Table 11 only includes positive test results for the substances that licensees and other entities are required to test for per 10 CFR 26.31(d).

Chart 4
Trends in Positive Test Rates (All Test Types)* by Employment Category



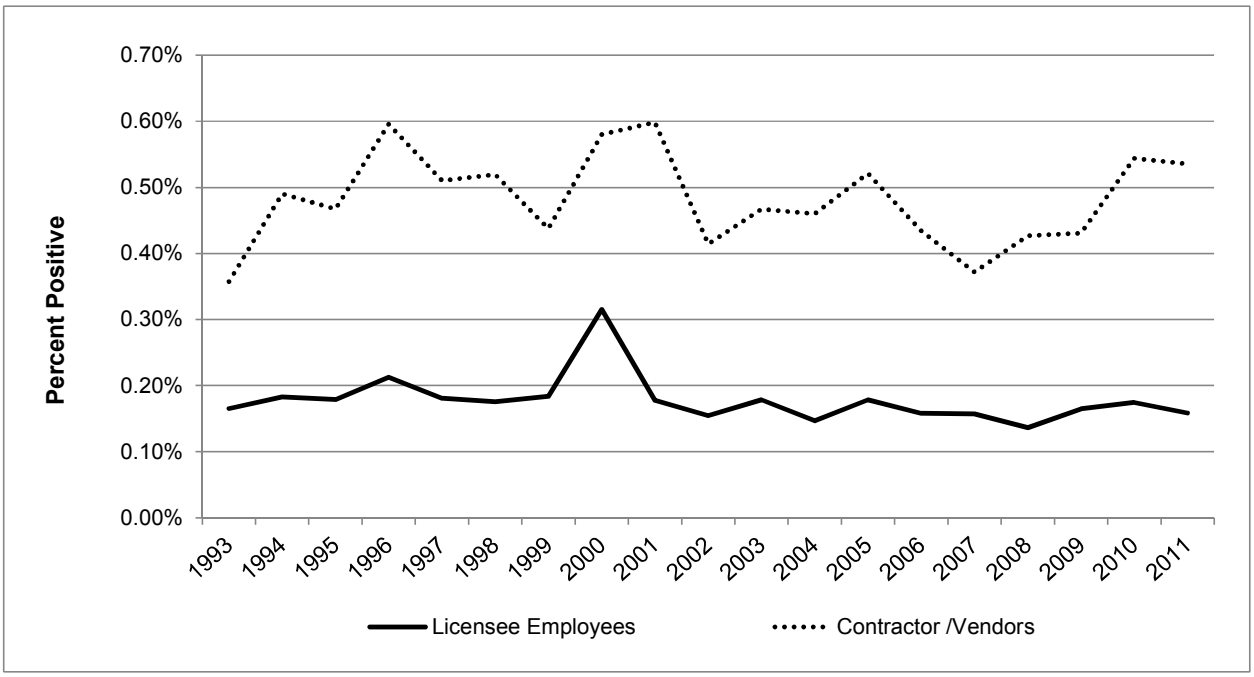
* Chart 4 includes all test categories except the "Other" category. Refer to Table A-3 in the report appendix for the data used to create this chart.

Chart 5
Trends in Positive Pre-Access Testing Rates by Employment Category*



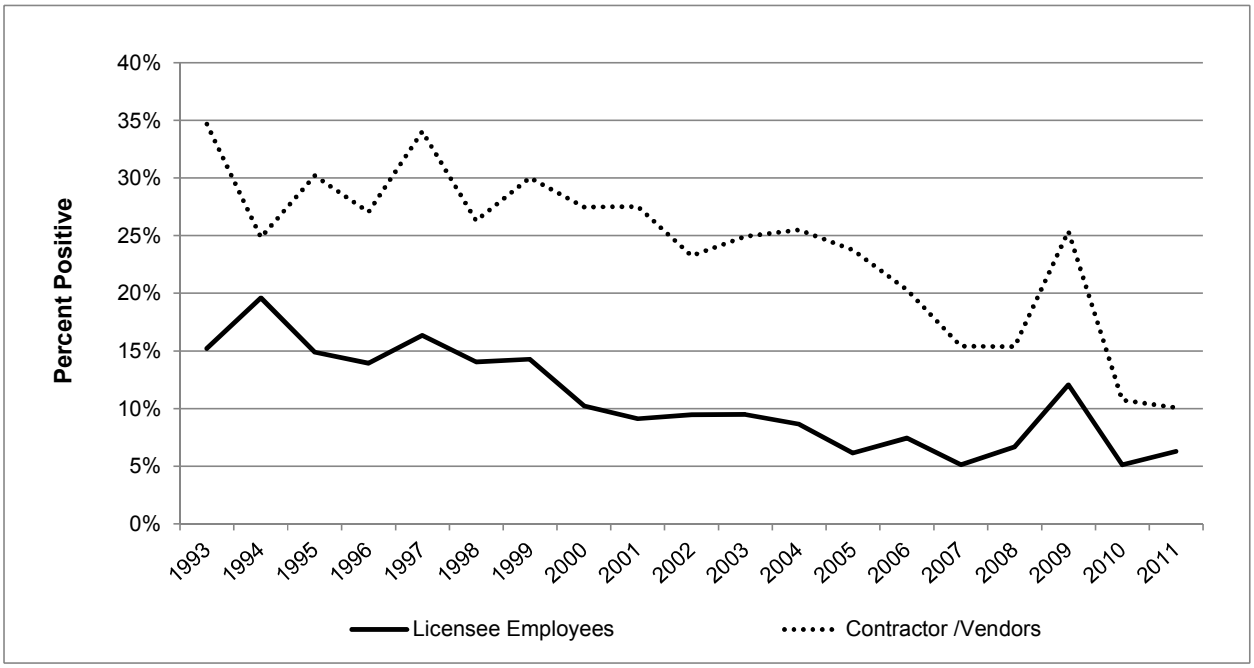
* Refer to Table A-4 in the report appendix for the data used to create this chart.

Chart 6
Trends in Positive Random Test Rates by Employment Category*



* Refer to Table A-5 in the report appendix for the data used to create this chart.

Chart 7
Trends in Positive For-Cause Testing Rates by Employment Category*



* Refer to Table A-6 in the report appendix for the data used to create this chart. The peak in 2009 was probably due to the initial use electronic reporting.

FFD Performance Testing Results by Positive Rate Ranges and Number of Sites

This section presents distributional information by site for pre-access, random, and for-cause testing to provide licensees and other entities with additional information to evaluate their FFD program performance against the industry rate.

Table 12
Industry Positive Test Results for Pre-Access, Random, and For Cause Testing by Employment Category

Pre-Access Testing		
Employment Category	**Industry % Positive**	**Range of % Positive (by Site)**
Licensee Employees	0.26	0–1.76
Contractors/Vendors	0.77	0–2.52

Random Testing		
Employment Category	**Industry % Positive**	**Range of % Positive (by Site)**
Licensee Employees	0.16	0–0.77
Contractors/Vendors	0.54	0–2.11

For Cause Testing		
Employment Category	**Industry % Positive**	**Range of % Positive (by Site)**
Licensee Employees	6.29	0–100
Contractors/Vendors	10.08	0–100

Table 13
Distribution of Pre-Access Testing Positive Rate Ranges
by Employment Category and Number of Sites

Positive Rate Range (%)	Licensee Employees	Contractors/Vendors
0	57	8
>0–0.5	5	17
>0.5–1	10	33
>1–1.5	2	8
>1.5–2	2	6
>2–2.5	0	2
>2.5–3	0	1
Total Sites*	**76**	**75**

* Total site counts may differ if a site did not test any individuals in an employment category.

Chart 8
Comparison of Pre-Access Testing Positive Rate Ranges
by Employment Category and Number of Sites

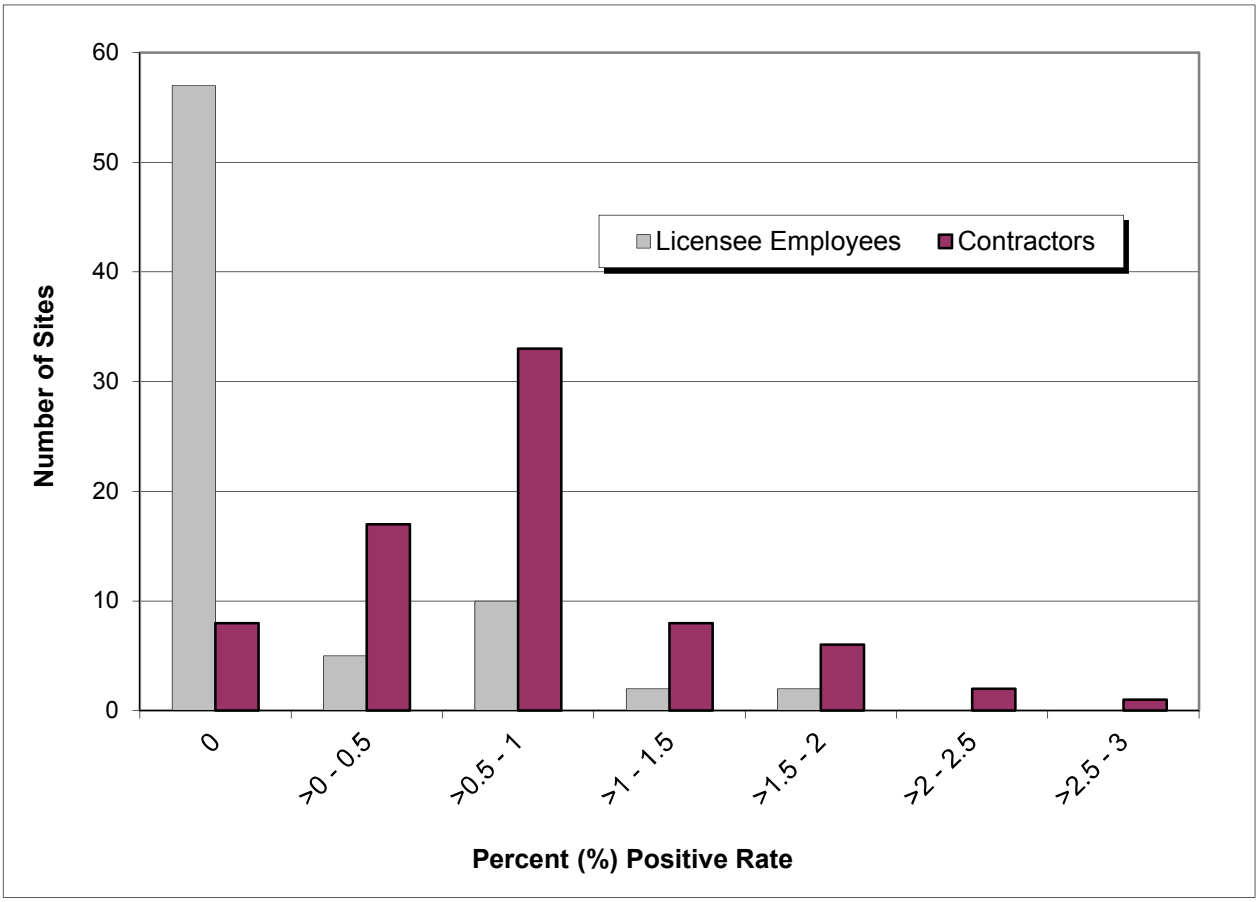


Table 14
Distribution of Random Testing Positive Rate Ranges
by Employment Category and Number of Sites

Positive Rate Range (%)	Licensee Employees	Contractors/Vendors
0	35	25
>0–0.25	21	5
>0.25–0.5	17	19
>0.5–0.75	2	5
>0.75–1.0	1	9
>1.0–1.25	0	4
>1.25–1.5	0	4
>1.5–1.75	0	3
>1.75–2.0	0	1
>2.0–2.25	0	1
Total Sites*	**76**	**76**

* Total site counts may differ if a site did not test any individuals in an employment category.

Chart 9
Comparison of Random Testing Positive Rate Ranges
by Employment Category and Number of Sites

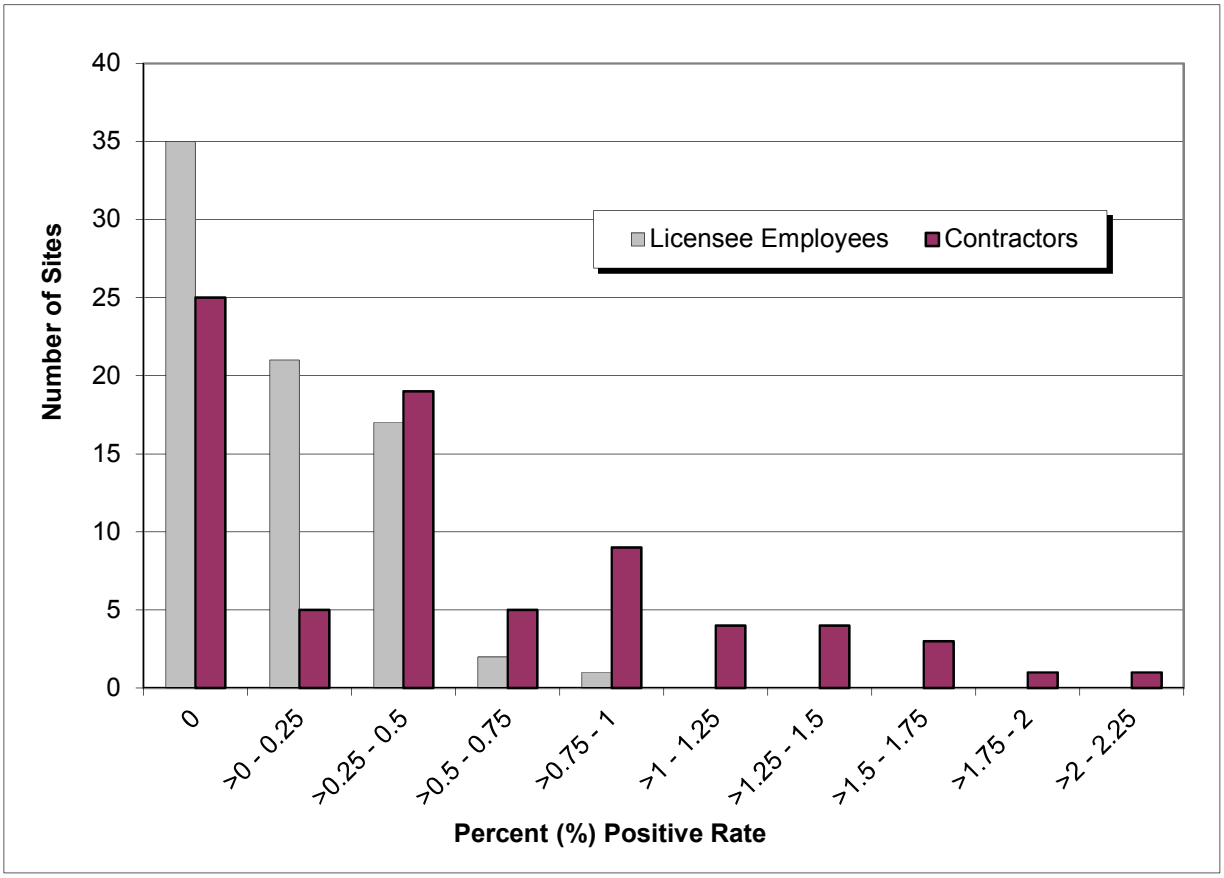
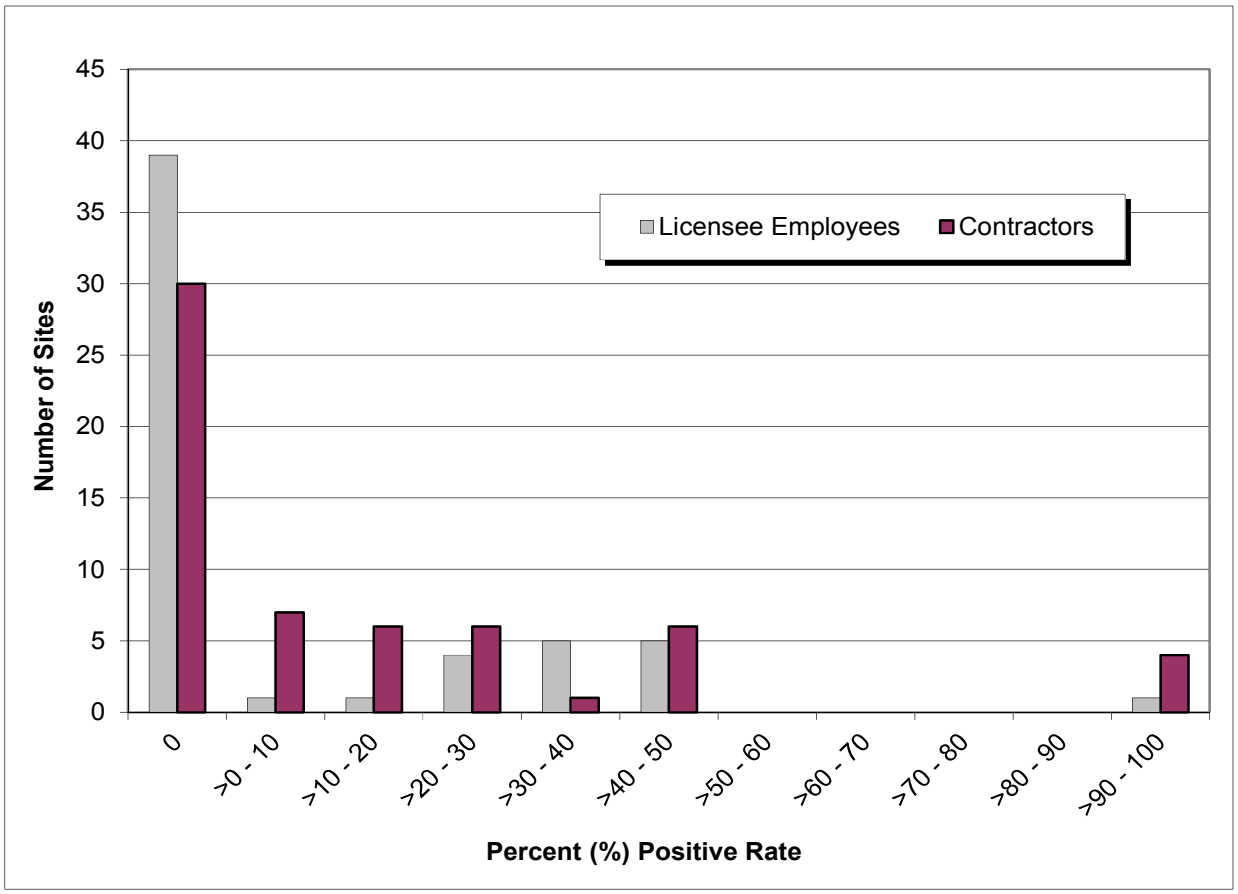


Table 15
Distribution of For Cause Testing Positive Rate Ranges
by Employment Category and Number of Sites

Positive Rate Range (%)	Licensee Employees	Contractors/Vendors
0	39	30
>0–10	1	7
>10–20	1	6
>20–30	4	6
>30–40	5	1
>40–50	5	6
>50–60	0	0
>60–70	0	0
>70–80	0	0
>80–90	0	0
>90–100	1	4
Total Sites*	**56**	**60**

* Total site counts may differ if a site did not test any individuals in an employment category.

Chart 10
Comparison of Site For-Cause Testing Positive Rate Ranges
by Employment Category and Number of Sites



Section 7 Evaluation of E-Reported Data

This section provides a more detailed analysis of FFD program performance data provided by licensees and other entities that chose to use the voluntary e-reporting system. As full industry use of the e-reporting system is implemented, trends analyses across years will be possible and new exhibits will be included to further enhance the communication of FFD program performance.

The FFD e-reporting system for D&A consists of two reporting forms: an ARF and an SPTF. Both forms must be used to satisfy the 10 CFR 26.717 reporting requirement.

- Annual Reporting Form—An e-form used to report information on an annual basis. The information reported is analogous to that which industry has historically provided in hardcopy paper reports; however, the ARF significantly improves the clarity, consistency, and accuracy of information reported.

- Single Positive Test Form—An e-form used to report information on a positive test result or subversion attempt (e.g., refusal to test, adulterated or substituted specimen test results). One SPTF is submitted for each positive result or subversion attempt. Information provided in the SPTFs allows the NRC to conduct a more sophisticated analysis of FFD policy violations and enables the industry to target corrective actions at specific areas of concern (e.g., pre-access testing or testing of certain substances).

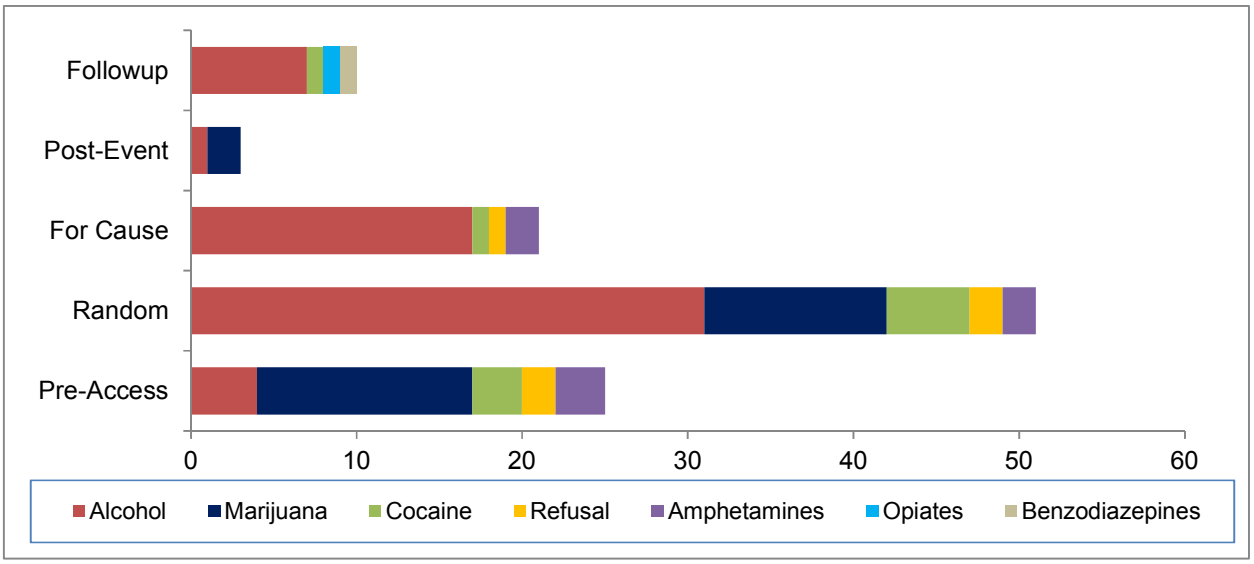
Table 16
Test Results for Each Test Category (Electronic Information Exchange (EIE) results)

Test Category	Number of Tests	Positive Tests	Percent Positive
Pre-Access	82,858	632	0.76%
Random	50,889	162	0.32%
For Cause	770	66	8.57%
Post-Event	662	7	1.06%
Followup	6,055	51	0.84%
TOTAL	**141,234**	**918**	**0.65%**

Observations on Table 16

- Licensees and other entities using the e-reporting system reported information on 141,234 D&A tests. The e-reported data covers a significant percentage (approximately 79 percent) of the 178,586 total D&A tests conducted by industry in CY 2011. (Table 6)
- The analysis includes 918 positive results, including testing refusals. The data cover 85 percent of the 1,080 total positives and testing refusal results in CY 2011. (Table 6)
- Reporting summary:
  - In CY 2009, 25 percent of industry e-reported (13 licensees and other entities with 19 facilities).
  - In CY 2010, 69 percent of industry e-reported (20 licensees and other entities with 51 facilities).
  - In CY 2011, 80 percent of industry e-reported (25 licensees and other entities with 61 facilities).

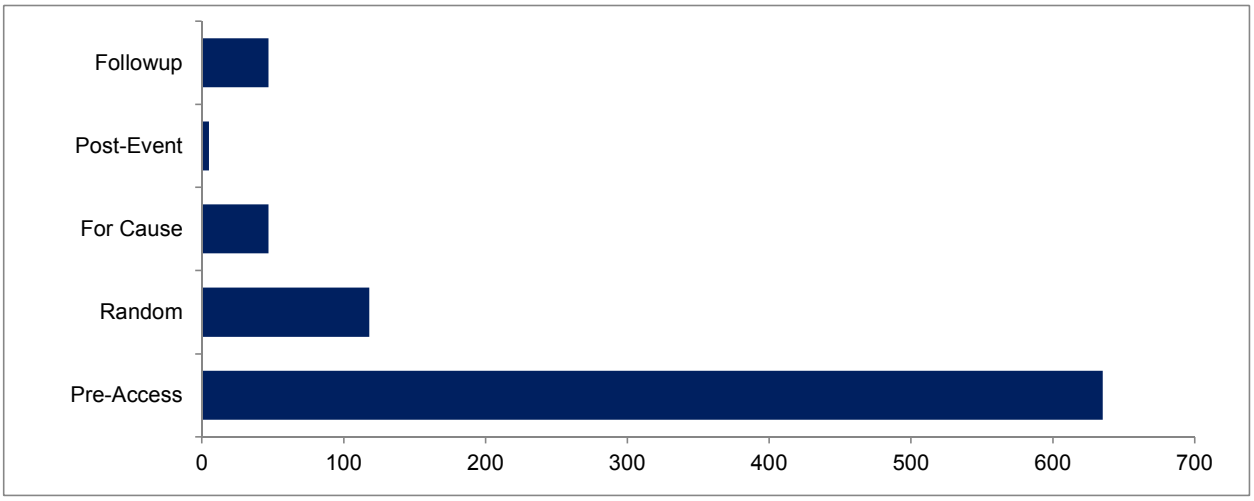
Chart 11
Licensee Employees, Positive Results by Substance and Reason for Test
(EIE results)



Observations on Chart 11

- The number of positive results (110), including testing refusals, for licensee employees was lower than for C/Vs (852). (Chart 12)
- Six substances were detected (alcohol, marijuana, cocaine, amphetamines, opiates, and benzodiazepines).
  - alcohol (60—detected in all testing categories and the predominant substance in random, for-cause, and followup testing
  - marijuana (26)—detected in pre-access, random, and post-event testing
  - cocaine (10—detected in pre-access, random, for-cause, and followup testing
  - amphetamines (7)—detected in pre-access, random, and for-cause testing
  - opiates (1)—only detected in followup testing
  - benzodiazepines (1) —only detected in followup testing
- Testing refusals were reported for pre-access, random, and for-cause testing.
- Of the five test categories, post-event testing resulted in the fewest positive test results.
- For licensee employees, random tests accounted for the largest number of positive test results (46 percent); for comparison, pre-access tests for C/Vs accounted for the majority of positive test results. (Chart 12)

Chart 12
Contractors/Vendors, Substances Detected (including Testing Refusals)
by Reason for Test (EIE results)



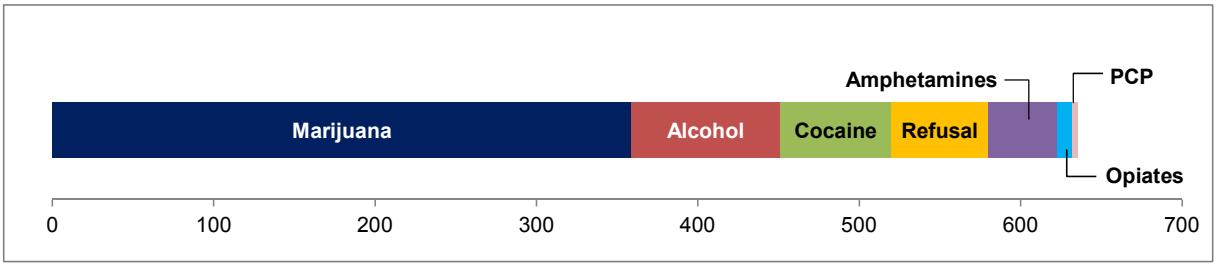
Observations on Chart 12

- Testing of C/Vs yielded 852 positive test results, including testing refusals. This is significantly higher than the number of positive test results for licensee employees (110). (Chart 11)
- Approximately 75 percent of positive test results occurred during pre-access testing (635).
- A smaller number of positive results were reported for random (118), for-cause (47), post-event (5), and followup (47) testing.

[See next page for substance breakout by reason for test]

The breakout of substances for C/Vs by the reason for the test is divided into two separate charts (Charts 13 and 14), because the vast majority of positive test results are associated with pre-access testing (as seen in Chart 12). To improve the clarity of this illustration, pre-access testing results are reported separately.

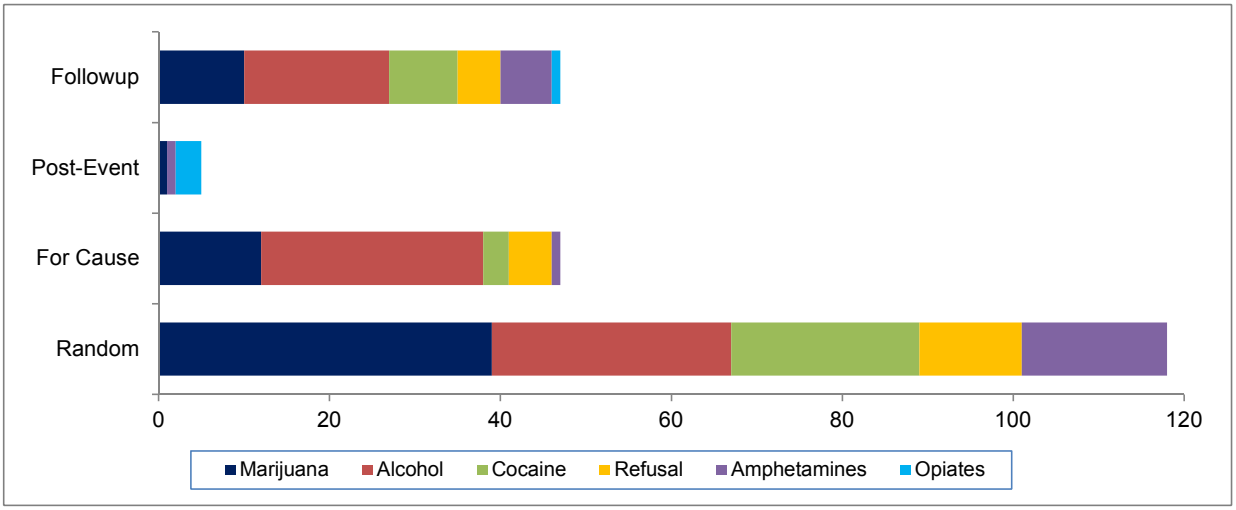
Chart 13
Contractors/Vendors, Pre-Access Positive Results by Substance (EIE results)



Observations on Chart 13

- Eighty-two percent of the pre-access testing positives were associated with three substances: marijuana (359), alcohol (92), and cocaine (69).
- A smaller number of positive tests were reported for amphetamines (43), opiates (9), testing refusals (60), and PCP (3).

Chart 14
Contractors/Vendors, Positive Results by Substance and Reason for Test (EIE results)*



* Chart 14 includes all test categories, except for "Pre-Access" testing. (Chart 13)

Observations on Chart 14

- Tests detected five substances (marijuana, alcohol, cocaine, amphetamines, and opiates).
  - marijuana (62) and alcohol (71)—predominant substances in each testing category, except for post-event testing
  - cocaine (33)—detected in random, for-cause, and followup testing (also detected in pre-access testing, Chart 13)
  - amphetamines (25)—detected in random, for-cause, post-event, and followup testing (also detected in pre-access testing, Chart 13)
- As with licensee employees, alcohol was the most detected substance in for-cause and followup testing for C/Vs.
- Testing refusals were reported for random, for-cause, and followup testing (also pre-acces testing, Chart 13).

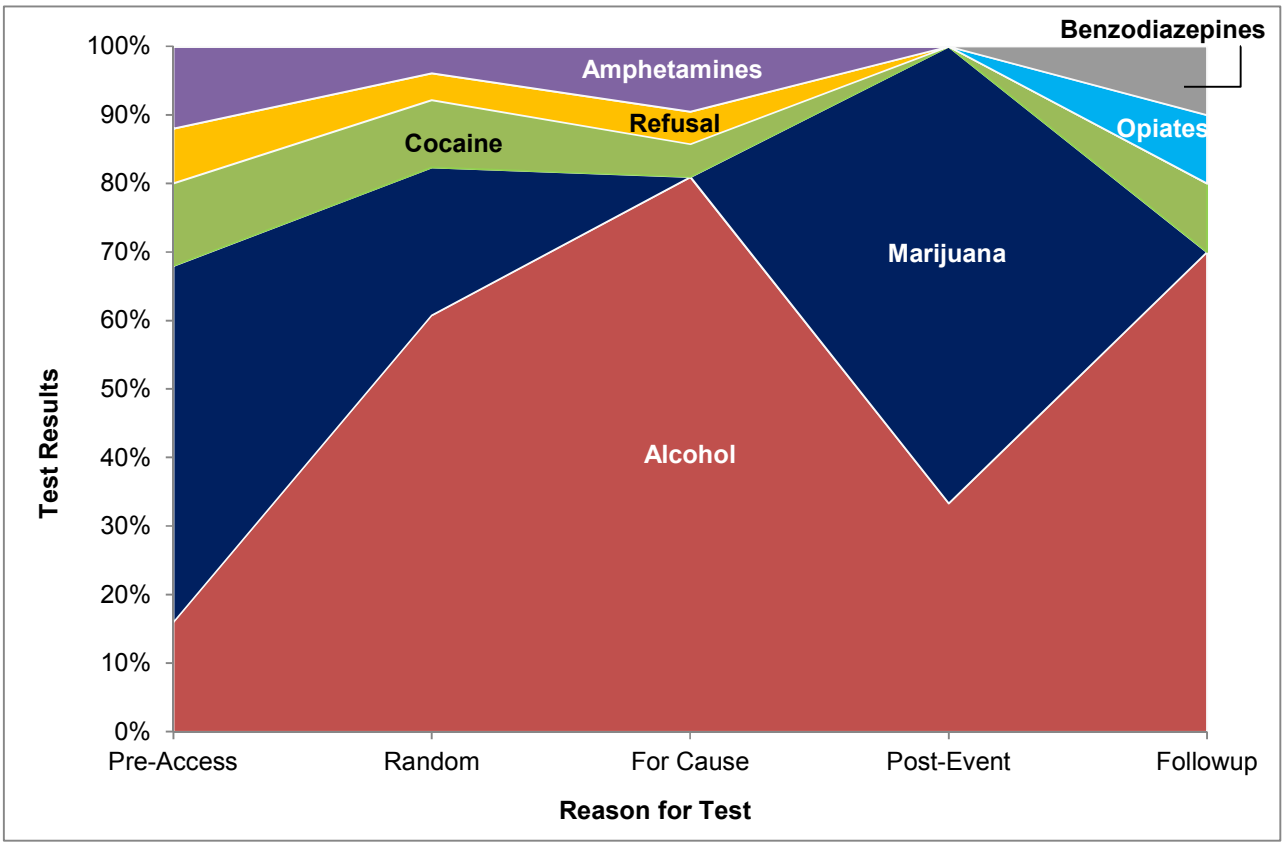
Tablesa 17 and 18 and associated Charts 15 and 16 highlight the percentage of positive results associated with each substance by reason for test and employment category. The charts provide an easy way to identify the relative percentage of positive results by substance for each category.

Table 17
Licensee Employees, Percentage of Positive Tests by Substance and Reason for Test (EIE results)

Substance	Reason for Test				
	Pre-Access	**Random**	**For Cause**	**Post-Event**	**Followup**
Alcohol	16%	61%	81%	33%	70%
Marijuana	52%	22%	0%	67%	0%
Cocaine	12%	10%	5%	0%	10%
Refusal to Test	8%	4%	5%	0%	0%
Amphetamines	12%	4%	10%	0%	0%
Opiates	0%	0%	0%	0%	10%
Benzodiazepines	0%	0%	0%	0%	10%
Total*	100%	100%	100%	100%	100%
	(Total = 25)	(Total = 51)	(Total = 21)	(Total = 3)	(Total = 10)

* "Total" represents the number of occurrences.

Chart 15



* Chart 15 includes all test categories except the "Other" category. No tests were reported for the "Other" category in CY 2011.

Observations on Chart 15

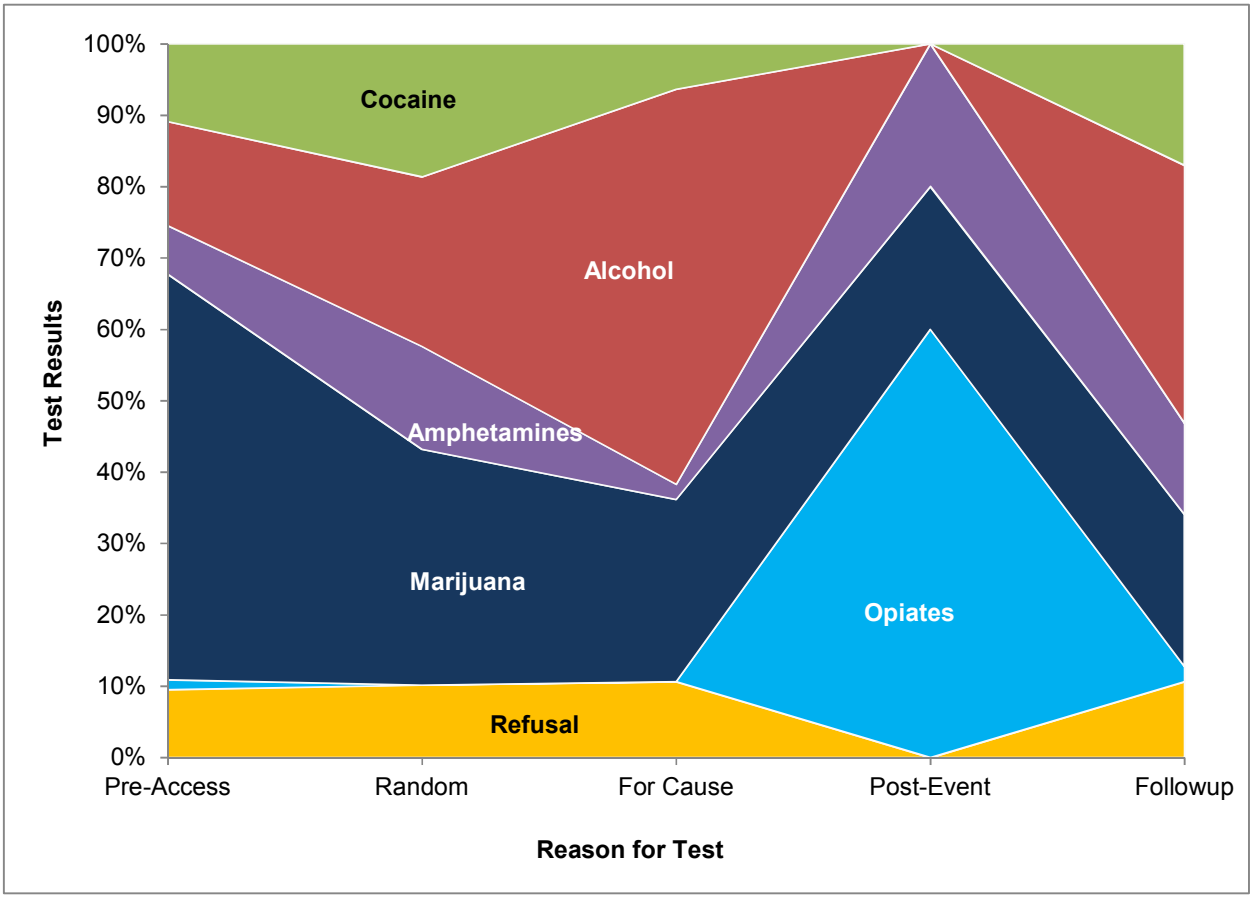
- Marijuana and alcohol accounted for at least 68 percent (and up to 100 percent) of positive test results, regardless of the reason for test.
  - Marijuana comprised 67 percent of the post-event positive tests.
  - Alcohol constituted 81 percent of the for-cause positive tests.
- There were reports of testing refusals for pre-access, random, and for-cause tests.

Table 18
Contractors/Vendors, Percentage of Positive Results by Substance and Reason for Test* (EIE results)

Substance	Reason for Test				
	Pre-Access	Random	For Cause	Post-event	Followup
Marijuana	57%	33%	26%	20%	21%
Alcohol	14%	24%	55%	0%	36%
Cocaine	11%	19%	6%	0%	17%
Amphetamines	7%	14%	2%	20%	13%
Opiates	1%	0%	0%	60%	2%
Refusal to Test	9%	10%	11%	0%	11%
PCP	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%
	(Total = 635)	(Total = 118)	(Total = 47)	(Total = 5)	(Total = 47)

* Table 18 includes all test categories except the "Other" category. No tests were reported for the "Other" category in CY 2011.

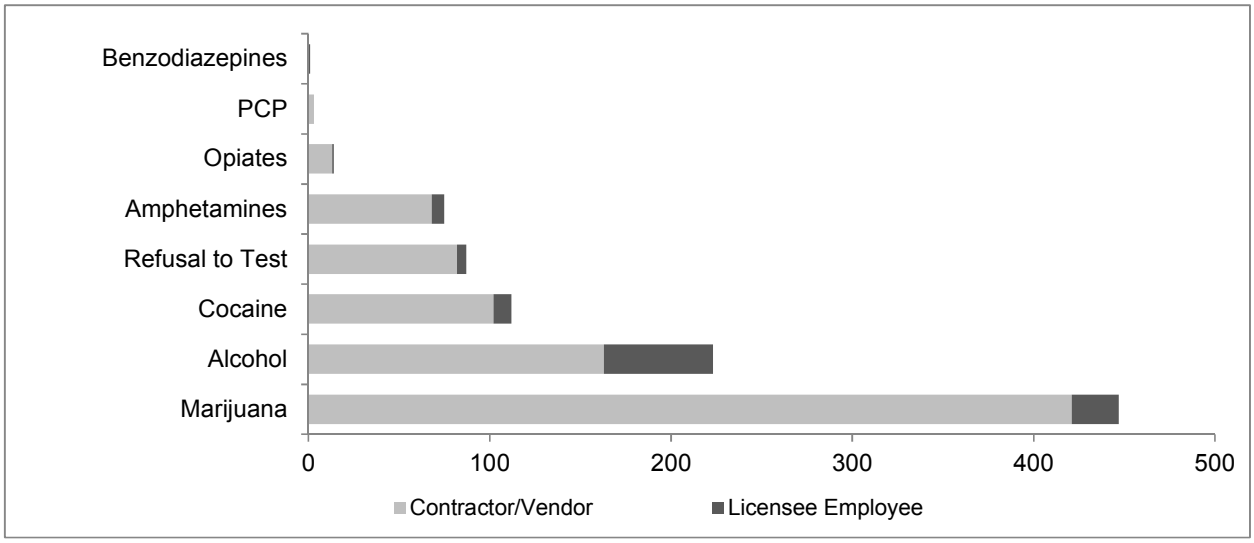
Chart 16



Observations on Chart 16

- Marijuana accounted for 57 percent of the pre-access positive tests.
- Opiates accounted for 60 percent of the post-event positive tests (note: two of three tests were positive for heroin (identified by the heroin metabolite 6-AM).
- Testing refusals were reported for pre-access, random, for-cause, and followup testing

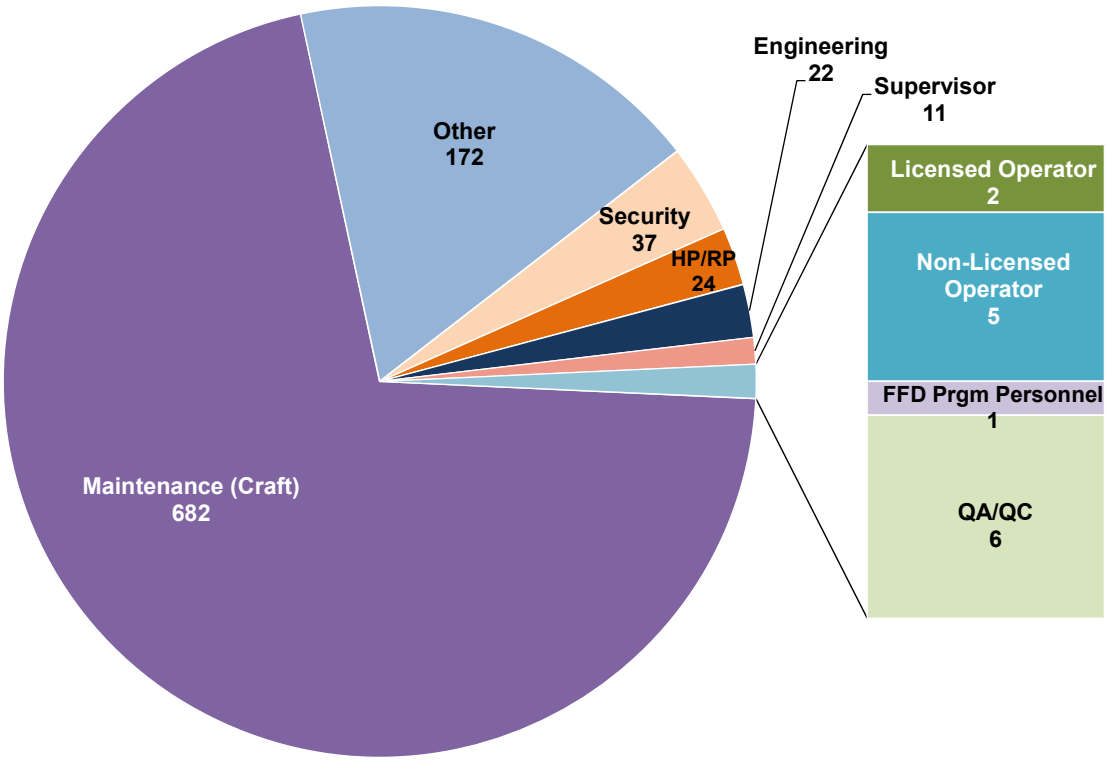
Chart 17
Positive Results by Substance and Employment Category (EIE results)



Observations on Chart 17

- C/Vs accounted for the large majority of substances detected and testing refusals, including:
  - 94 percent of marijuana positives,
  - 91 percent of cocaine positives, and
  - 73 percent of alcohol positives.
- Alcohol was the most detected substance in licensee employees.

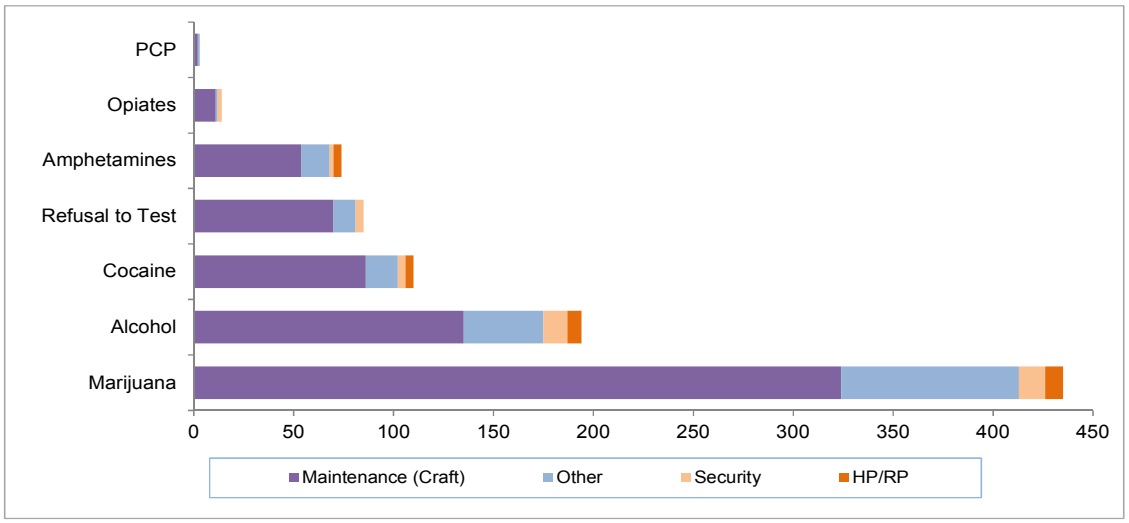
Chart 18
Positive Results by Labor Category (EIE results)



Observations on Chart 18

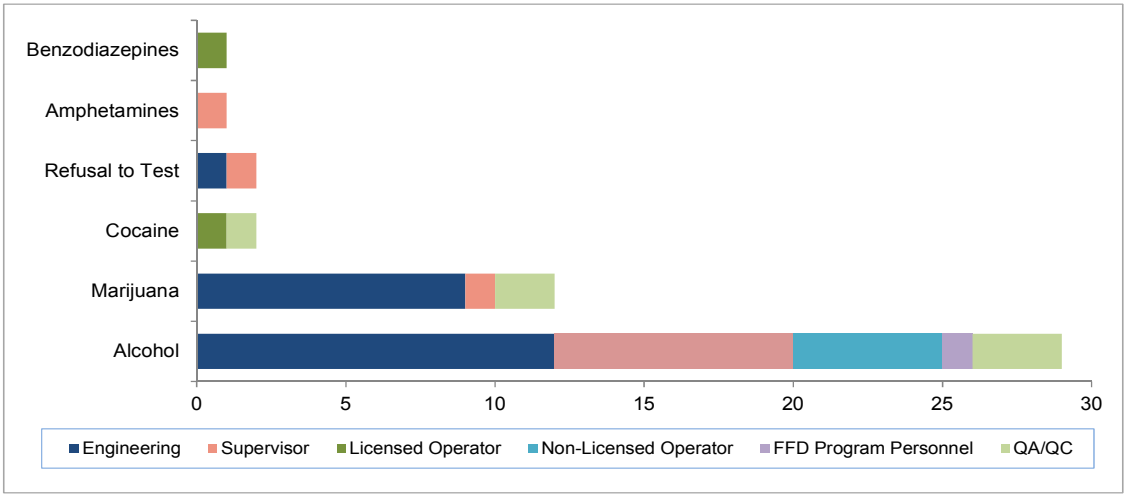
- Positive results associated with the "Maintenance (Craft)" (682) and "Other" (172) labor categories comprised 89 percent of all reported violations (854 of 962 positive results). The top four labor categories (Maintenance (Craft), Other, Security, and HP/RP) accounted for 95 percent (915 of 962) of the total positive results.
- Refer to Chart 21 for additional detail on the specific substances identified for each labor category.

Chart 19
Positive Results by Substance* by Labor Category for Top Four Labor Categories (EIE results)



* Chart 19 includes only substances for which positive tests were reported.

Chart 20
Positive Results by Substance* by Labor Category for Remaining Six Labor Categories (EIE results)

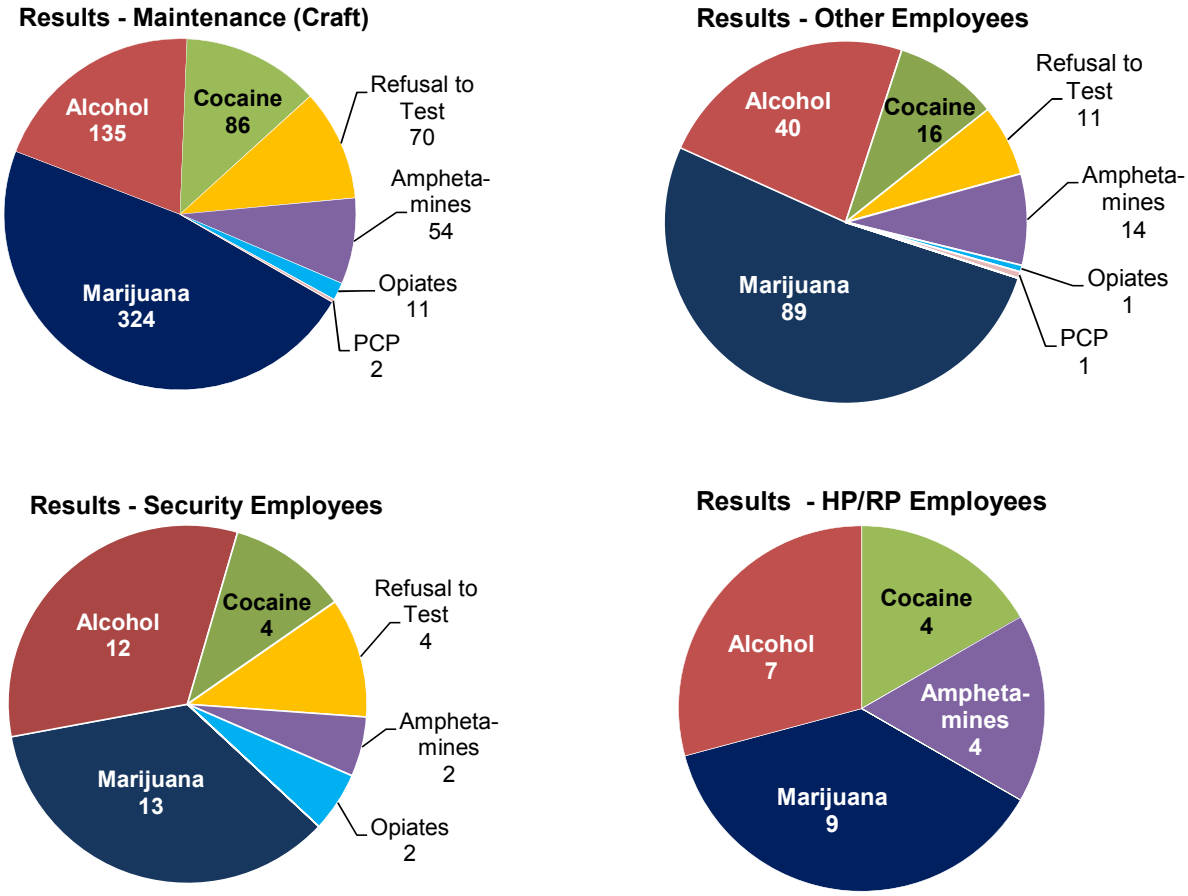


* Chart 20 includes only substances for which positive tests were reported.

Observations on Charts 19 and 20

- The "Maintenance (Craft)" labor category contributed the largest number of positive test results for each substance identified. This category accounted for 71 percent (682 of 962) of all positive test results in CY 2011 (Chart 19).
- For the top four labor categories (maintenance (craft), other, security, and HP/RP), marijuana was the most commonly identified substance, accounting for 48 percent (435 of 915) of all positive test results. (Chart 19)
- For the remaining six labor categories (engineering, supervisor, licensed operator, nonlicensed operator, FFD program personnel, and quality assusrance/quality control (QA/QC)), alcohol positives made up 62 percent (29 of 37) of the total positive test results.

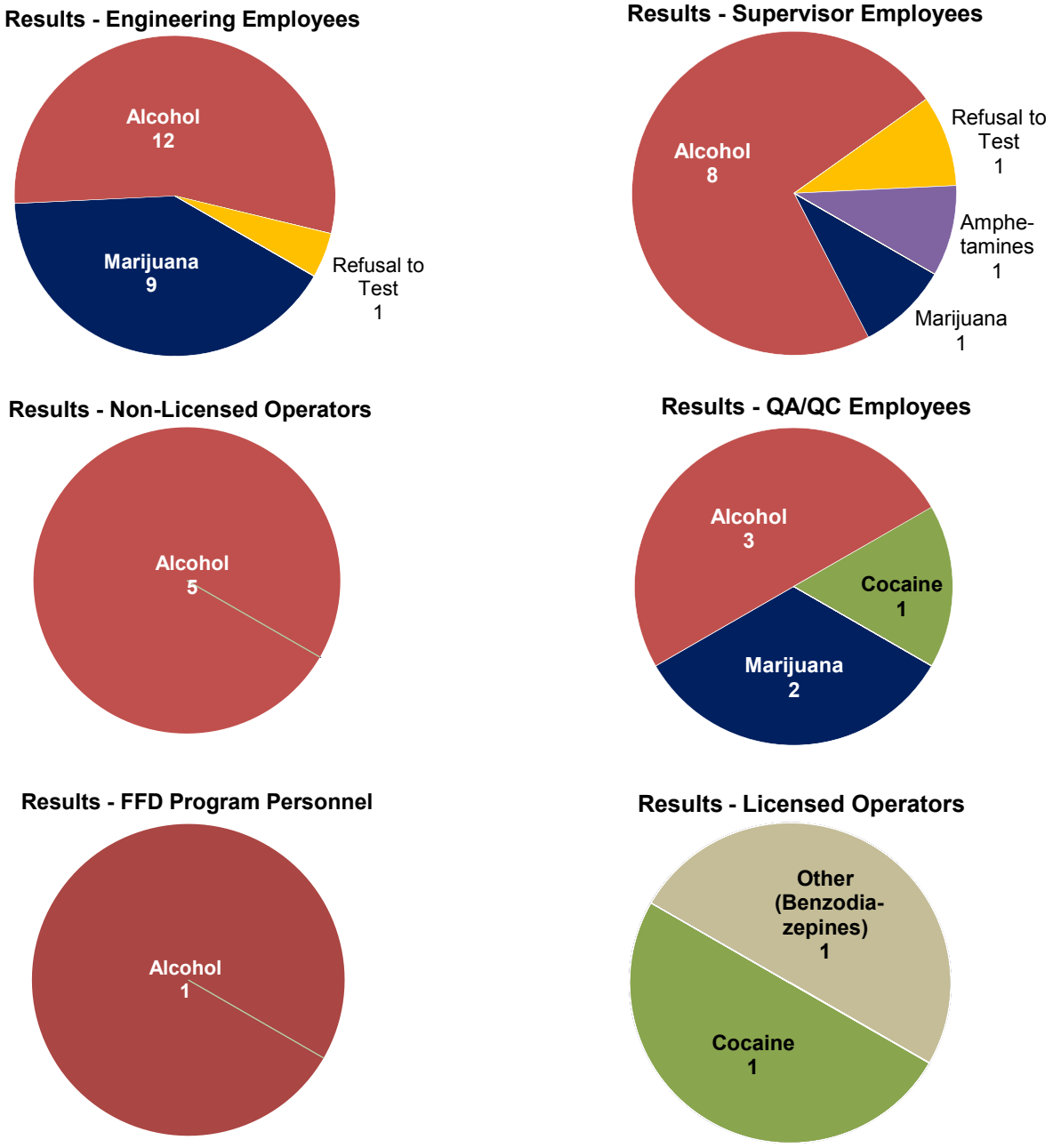
Chart 21
Individual Pie Charts Displaying Test Results for Top Four Labor Categories (EIE results)



Observation on Chart 21

- Two labor categories (maintenance (craft) and other) accounted for 89 percent of positive test results. The substance use patterns are similar for both labor categories (i.e., the proportions of substances detected were fairly consistent).

Chart 22
Individual Pie Charts Displaying Test Results for Remaining Six Labor Categories (EIE results)



Observations on Chart 22

Alcohol positives constituted 62 percent (29 of 37) of the positive tests for the the remaining six labor categories. Except for the "Licensed Operators" category, alcohol was detected during testing of each category, ranging from 50 to 100 percent of positives reported.

Section 8 Testing Refusals

This report presents information on testing refusals in two categories and reflects the information in Charts 23 through 26. The two categories are as follows:

Category 1—Refusal to test, subversion attempt confirmed by specimen test result. These determinations include the circumstances listed below:

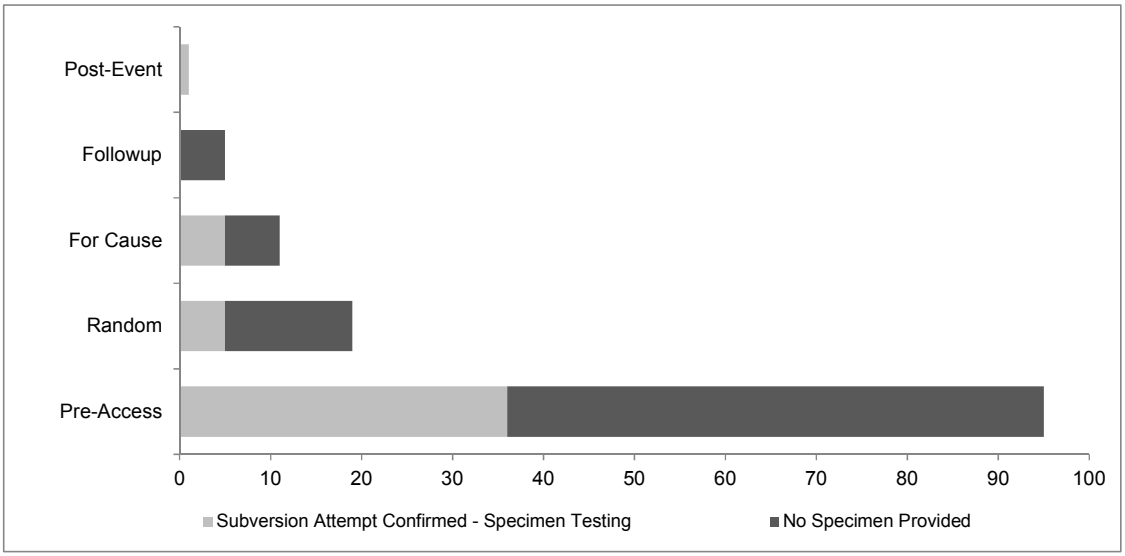
- adulterated or substituted specimens validity test results (i.e., laboratory test results in 10 CFR 26.161, "Cutoff Levels for Validity Testing")
- an out-of-temperature-range specimen on the initial collection followed by an immediate second collection under direction observation, where the initial specimen tests negative and the second specimen tests positive (the majority of testing refusals where a specimen was provided)

Category 2—Refusal to test, no specimen provided. These determinations include the circumstances listed below:

- refusal to cooperate with the testing process (e.g., donor refuses to provide a specimen)
- identification during the collection process of materials to subvert the testing process (e.g., heating pack and clean urine in a bag, adulterant to add to a specimen)
- donor admits to attempting to adulterate, substitute, or otherwise alter the specimen

Charts 23 and 24 provide information on CY 2011 testing refusals by reason for test and by labor category, respectively.

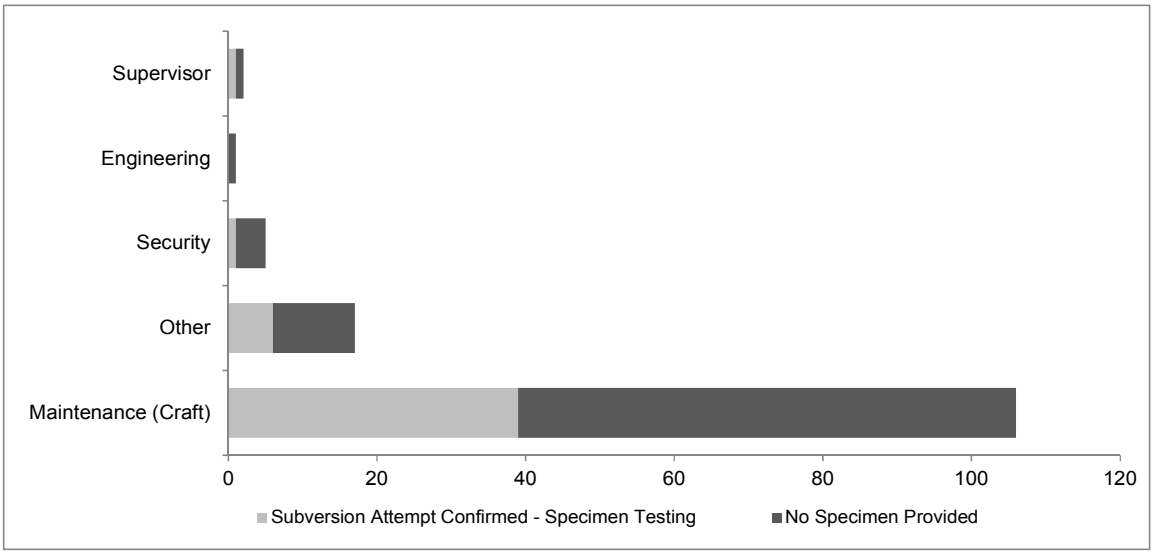
Chart 23
Summary of Testing Refusals by Reason for Test and Refusal Category (EIE Results)



Observations on Chart 23

- The total number of refusals based on no specimen being provided (84) was greater than the total number of testing refusals confirmed through specimen testing (47).
- The large majority (73 percent) of testing refusals occurred during pre-access testing.

Chart 24
Summary of Testing Refusals by Labor Category* and Refusal Category (EIE results)



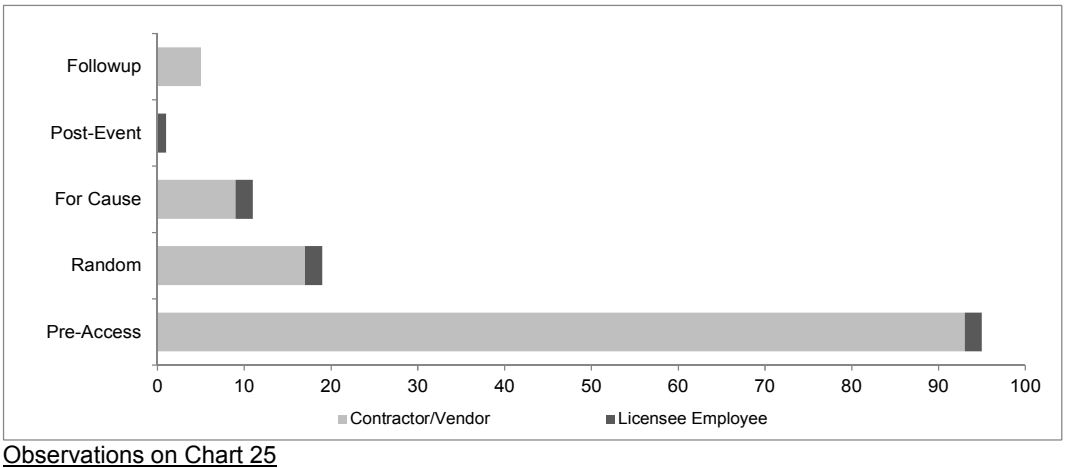
* Chart 24 includes only those labor categories for which testing refusals were reported.

Observations on Chart 24

- The total number of refusals to provide a specimen (84) was greater than the total number of testing refusals confirmed through specimen testing (47).
- Most testing refusals are associated with the “Maintenance (Craft)” labor category (81 percent), followed by the “Other” labor category (13 percent).

Charts 25 and 26 illustrate the relative contribution of licensee employees and C/Vs to the refusal-to-test counts for each reason-for-test and labor category.

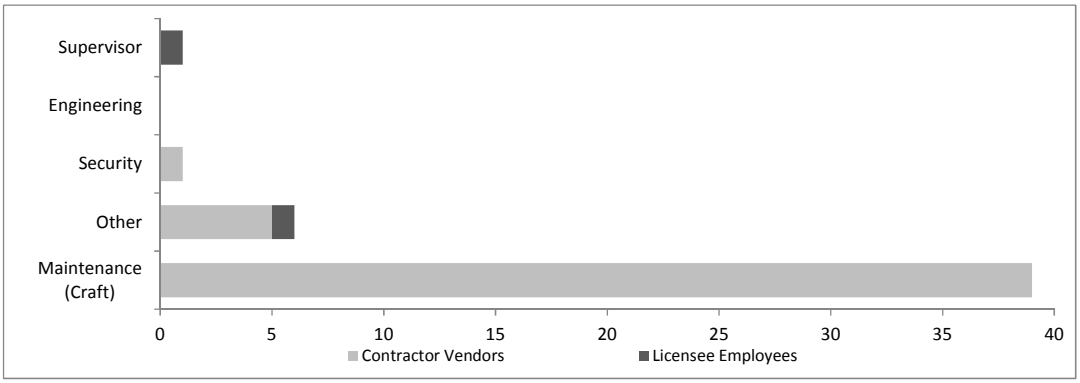
Chart 25
Testing Refusals by Reason for Test and Employment Category (EIE results)



Observations on Chart 25

- C/Vs were responsible for 95 percent of all testing refusals, including 98 percent of the testing refusals during pre-access testing and 100 percent of the testing refusals during followup testing.
- Licensee employees constituted 100 percent of testing refusals during post-event testing.
- The large majority (73 percent) of testing refusals occurred during pre-access testing.

Chart 26
Testing Refusals by Labor Category* and Employment Category (EIE results)



* Chart 26 includes only the labor categories for which testing refusals were reported.

Observations on Chart 26

- C/Vs were responsible for 95 percent of all testing refusals, including 98 percent of the testing refusals in the "Maintenance (Craft)" labor category.
- Licensee employees accounted for 100 percent of refusals in the "Engineering" labor category.
- Most testing refusals were associated with the "Maintenance (Craft)" labor category (81 percent), followed by the "Other" labor category (13 percent).

Table of Changes

This table highlights changes made to the tables in this report compared to the NRC staff's CY 2010 report.

Report				Changes Made
CY 2010 results		CY 2011 results		
Table/ Chart No.	Table/ Chart Title	Table/ Chart No.	Table/ Chart Title	
Table a	Abuse Substances of Choice	Table 1	Abuse Substances of Choice	• Updated the table to include a total row and an additional column to present the percentage change in positive rate by substance from 1990 to 2011.
Table b	Index of Detailed Data Analysis and Descriptions	Table 3	Index of Detailed Data Analysis and Descriptions	• Renumbered the table
Table d	Reportable Events due to Positive Test Results	Table 5	Reportable Events due to Individual Employee Violations	• Updated the title to reflect the comprehensiveness of the table, which includes reportable events due to possession of substances and program subversions, in addition to positive test results.
Table 1	Test Results for Each Test Category	Table 6	Test Results for Test Category	• Updated the title to be consistent with other table titles. • Revised the column titles to improve consistency among the columns. • Revised the row title spellings of For-Cause, Post-event, and Follow-up to "For Cause," "Post-Event," and "Followup" to be consistent with the spellings in §26.31(c)(2). • Removed the rows for "Other" and "TOTAL, without Other" Category, because tests are no longer reported for the "Other" category.
Table 2	Test Results by Test and Employment Category	Table 7	Test Results by Test and Employment Categories	• Reformatted the presentation of information. • Updated the title to improve grammar. • Deleted total row as the information was duplicative with Table 1. • Revised the row title spellings of For-Cause, Post-event, and Follow-up to "For Cause," "Post-Event," and "Followup" to be consistent with the spellings in §26.31(c)(2). • Removed the rows for "Other" and "TOTAL (minus Other)," because tests are no longer reported for the "Other" category.

Report				Changes Made
CY 2010 results		CY 2011 results		
Table/ Chart No.	Table/ Chart Title	Table/ Chart No.	Table/ Chart Title	
Table 3	Positive Test Results by Substance and by Employment Category (All Test Types, including Testing Refusals)	Table 8	Positive Test Results by Substance and Employment Category (All Test Types, including Testing Refusals)	• Added a row for "Other" drugs because positive tests were reported for drugs in addition to the NRC-required testing panel. • Removed the word "by" to improve consistency with other chart titles.
Table 4	Significant Fitness-for-Duty Events (1990-2010)	Table A-1	Significant Fitness-for-Duty Events (1990-2001)	• Deleted the column "Adulterated specimen." The information reflected in the column was not a reportable event per 10 CFR 26.719, the information on testing refusals is more accurately reflected in Table 7, and e-reporting data provides more precise information on refusal types. Because of the variability in the data collected and reported in this field, it was removed from the report, as trending was not possible. • Moved historical data (1990 to 2001) to Appendix A as Table A-1.
		Table 9	Significant Fitness-for-Duty Events (2002-2011)	
Table 5a	Trends in Testing by Test Type (1990–1999)	Table A-2	Trends in Testing by Test Type (1990-1999)	• Revised the row title spellings of For-Cause, Post-event, and Follow-up to "For Cause," "Post-Event," and "Followup" to be consistent with the spellings in §26.31(c)(2). • Moved this historical data to Appendix A as Table A-2.
Table 5b	Trends in Testing by Test Type (2000–2010)	Table 10	Trends in Testing by Test Type (2000-2011)	• Revised the row title spellings of For-Cause, Post-event, and Follow-up to "For Cause," "Post-Event," and "Followup" to be consistent with the spellings in §26.31(c)(2).
Table 7	Trends in Positive Test Rates (All Test Types) by Employment Category (1993–2010)	Table A-3	Trends in Positive Test Rates (All Test Types) by Employment Category (1993–2011)	• Moved tabular results to the Appendix (Table A-3) and retained the graphical display of the information in the body of the report. The reader can refer to the Appendix if the underlying data is needed for additional evaluation.
Table 8	Trends in Positive Pre-Access Testing Rates by Employment Category (1993–2010)	Table A-4	Trends in Positive Pre-Access Testing Rates by Employment Category (1993–2011)	• Moved tabular results to the Appendix (Table A--) and retained the graphical display of the information in the body of the report. The reader can refer to the Appendix if the underlying data is needed for additional evaluation.

Report				Changes Made
CY 2010 results		CY 2011 results		
Table/ Chart No.	Table/ Chart Title	Table/ Chart No.	Table/ Chart Title	
Table 9	Trends in Positive Random Test Rates by Employment Category (1993–2010	Table A-5	Trends in Positive Random Test Rates by Employment Category (1993–2011)	• Moved tabular results to the Appendix (Table A-5) and retained the graphical display of the information in the body of the report. The reader can refer to the Appendix if the underlying data is needed for additional evaluation.
Table 10	Trends in Positive For-Cause Testing Rates by Employment Category (1993–2010)	Table A-6	Trends in Positive For Cause Testing Rates by Employment Category (1993–2011)	• Moved tabular results to the Appendix (Table A-6) and retained the graphical display of the information in the body of the report. The reader can refer to the Appendix if the underlying data is needed for additional evaluation. • Revised the spelling of For-Cause to "For Cause" in the title to be consistent with the spelling in §26.31(c)(2).
Table 11	Industry Positive Test Results for Pre-Access, Random, and For-Cause Testing by Employment Category	Table 12	Industry Positive Test Results for Pre-Access, Random, and For Cause Testing by Employment Category	• Renumbered table • Revised the spelling of For-Cause to "For Cause" in the title and row heading to be consistent with the spelling in §26.31(c)(2).
Table 12	Distribution of Pre-Access Testing Positive Rate Ranges by Employment Category and Number of Sites	Table 13	Distribution of Pre-Access Testing Positive Rate Ranges by Employment Category and Number of Sites	• Renumbered table
Table 13	Distribution of Random Testing Positive Rate Ranges by Employment Category and Number of Sites	Table 14	Distribution of Random Testing Positive Rate Ranges by Employment Category and Number of Sites	• Renumbered table
Table 14	Distribution of For-Cause Testing Positive Rate Ranges by Employment Category and Number of Sites	Table 15	Distribution of For Cause Testing Positive Rate Ranges by Employment Category and Number of Sites	• Renumbered table • Revised the spelling of For-Cause to "For Cause" in the title to be consistent with the spelling in §26.31(c)(2).
Table 15	Test Results for Each Test Category (Electronic Information Exchange (EIE) results)	Table 16	Test Results for Each Test Category (Electronic Information Exchange (EIE) results)	• Renumbered table • Revised the row title spellings of For-Cause, Post-event, and Follow-up to "For Cause," "Post-Event," and "Followup" to be consistent with the spellings in §26.31(c)(2). • Removed the row for "Other," because tests are no longer reported for the "Other" category.

Report				Changes Made
CY 2010 results		CY 2011 results		
Table/ Chart No.	Table/ Chart Title	Table/ Chart No.	Table/ Chart Title	
Table 16	Licensee Employees, Percentage of Positive Tests by Substance and Reason for Test* (EIE results)	Table 17	Licensee Employees, Percentage of Positive Tests by Substance and Reason for Test* (EIE results)	• Renumbered the table
Table 17	Contractors/Vendors, Percentage of Positive Results by Substance and Reason for Test (EIE results)	Table 18	Contractors/Vendors, Percentage of Positive Results by Substance and Reason for Test (EIE results)	• Renumbered the table
Chart 7	Trends in Positive For-Cause Testing Rates by Employment Category (1993–2010)	Chart 7	Trends in Positive For Cause Testing Rates by Employment Category (1993–2011)	• Revised the spelling of For-Cause to "For Cause" in the title to be consistent with the spelling in §26.31(c)(2).
Chart 10	Comparison of Site For-Cause Testing Positive Rate Ranges by Employment Category and Number of Sites	Chart 10	Comparison of For Cause Testing Positive Rate Ranges by Employment Category and Number of Sites	• Removed the word "Site" to be consistent with other histogram charts. • Revised the spelling of For-Cause to "For Cause" in the title to be consistent with the spelling in §26.31(c)(2).
Chart 17	Positive Results by Substance and Work Category (EIE results)	Chart 17	Positive Results by Substance and Employment Category (EIE results)	• Revised Work Category to "Employment Category" in title to improve consistency in report terminology.
Chart 22	Individual Pie Charts Displaying Test Results for Remaining Six Labor Categories (EIE results)	Chart 22	Individual Pie Charts Displaying Test Results for Remaining Six Labor Categories (EIE results)	• Revised title of pie chart, Results—FFD Program Personnel Employees, to "Results—FFD Program Personnel" to eliminate redundancy and improve chart formatting.
Chart 23	Summary of Testing Refusals by Reason-for-Test and Subversion Category (EIE Results)	Chart 23	Summary of Testing Refusals by Reason for Test and Refusal Category (EIE Results)	• Revised spelling of Reason-for-Test to "Reason for Test" in title of chart to be consistent with the spelling in §26.31(c)(2). • Revised "Subversion" to "Refusal" in title to improve consistency with section discussion text.
Chart 24	Summary of Testing Refusals by Labor Category and Subversion Category (EIE results)	Chart 24	Summary of Testing Refusals by Labor Category* and Refusal Category (EIE results)	• Revised "Subversion" to "Refusal" in title to improve consistency with section discussion text.

Report				Changes Made
CY 2010 results		CY 2011 results		
Table/ Chart No.	Table/ Chart Title	Table/ Chart No.	Table/ Chart Title	
Chart 25	Subversion Attempts by Reason-for-Test and Work Category (EIE results)	Chart 25	Testing Refusals by Reason for Test and Employment Category (EIE results)	• Revised "Subversion Attempts" to "Testing Refusals" in title to improve consistency with the section discussion text. • Revised spelling of "Reason-for-Test" to "Reason for Test" in title to be consistent with the spelling in §26.31(c)(2). • Revised "Work Category" to "Employment Category" in title to improve consistency in report terminology.
Chart 26	Subversion Attempts by Labor Category and Work Category (EIE results)	Chart 26	Testing Refusals by Labor Category and Employment Category (EIE results)	• Revised "Subversion Attempts" to "Testing Refusals" in title to improve consistency with the section discussion text. • Revised "Work Category" to "Employment Category" in title to improve consistency in report terminology.

The following table presents information on new tables and charts included in the 2011 report. The presentation of each table or chart is consistent with the order of appearance in the report.

New Tables and Charts

New Tables and Charts—2011		
Table/ Chart	Title	Description
Table 2	E-reporting System Use (CYs 2009—2011)	Table that presents time series data on the use of the e-reporting system
Table 4	Laboratory Testing Errors and Unsatisfactory Performance	Table that describes the 30-day events and other reports related to laboratory errors

Appendix A
Historical Information

Table A-1*
Significant Fitness-for-Duty Events (1990–2001)

Year	Reactor Operators	Licensee Supervisors	C/V Supervisors	FFD Program Personnel	Substances Found	Total
1990	19	26	12	1	6	**64**
1991	16	18	24	5	8	**71**
1992	18	22	28	0	6	**74**
1993	8	25	16	0	2	**51**
1994	7	11	11	1	0	**30**
1995	8	16	10	0	5	**39**
1996	8	19	8	2	5	**42**
1997	9	16	10	0	4	**39**
1998	5	10	10	3	0	**28**
1999	5	2	12	2	2	**23**
2000	5	11	8	0	3	**27**
2001	4	9	12	0	0	**25**

* Table A-1 presents 24-hour reportable events per §26.719.

Table A-2
Trends in Testing by Test Type (1990–1999)

Type of Test	1990	1991	1992	1993	1994*	1995	1996	1997	1998	1999
Pre-Access										
Number Tested	122,491	104,508	104,842	91,471	80,217	79,305	81,041	84,320	69,146	69,139
Number Positive	1,548	983	1,110	952	977	1,122	1,132	1,096	822	934
Percent Positive	1.26%	0.94%	1.06%	1.04%	1.22%	1.41%	1.40%	1.30%	1.19%	1.35%
Random										
Number Tested	148,743	153,818	156,730	146,605	78,391	66,791	62,307	60,829	56,969	54,457
Number Positive	550	510	461	341	223	180	202	172	157	140
Percent Positive	0.37%	0.33%	0.29%	0.23%	0.28%	0.27%	0.32%	0.28%	0.28%	0.26%
For Cause										
Number Tested	664	572	552	599	521	576	621	531	455	506
Number Positive	212	167	175	163	119	138	136	144	97	120
Percent Positive	31.93%	29.20%	31.70%	27.21%	22.84%	23.96%	21.90%	27.12%	21.32%	23.72%
Post-Event										
Number Tested	68	155	144	152	237	187	227	191	265	230
Number Positive	2	0	3	0	3	1	2	5	3	0
Percent Positive	2.94%	0.00%	2.08%	0.00%	1.27%	0.53%	0.88%	2.62%	1.13%	0.00%
Followup										
Number Tested	2,633	3,544	4,283	4,139	3,875	3,262	3,262	3,296	2,863	3,008
Number Positive	65	62	69	56	50	35	40	31	43	30
Percent Positive	2.47%	1.75%	1.61%	1.35%	1.29%	1.07%	1.23%	0.94%	1.50%	1.00%
TOTAL										
Number Tested	**274,599**	**262,597**	**266,551**	**242,966**	**163,241**	**150,121**	**147,458**	**149,167**	**129,698**	**127,340**
Number Positive	**2,377**	**1,722**	**1,818**	**1,512**	**1,372**	**1,476**	**1,512**	**1,448**	**1,122**	**1,224**
Percent Positive	**0.87%**	**0.66%**	**0.68%**	**0.62%**	**0.84%**	**0.98%**	**1.03%**	**0.97%**	**0.87%**	**0.96%**

* Beginning in 1994, the NRC reduced the minimum annual random testing rate from 100 percent to 50 percent of the subject population.

Table A-3
Trends in Positive Test Rates (All Test Types)* by Employment Category (1993–2011)

Year	Licensee Employees			Contractors/Vendors		
	Total Tests	Number Positive	Percent Positive	Total Tests	Number Positive	Percent Positive
1993	109,375	274	0.25%	133,591	1,238	0.93%
1994	65,850	219	0.33%	97,391	1,153	1.18%
1995	58,801	197	0.34%	91,320	1,279	1.40%
1996	56,387	244	0.43%	91,071	1,268	1.39%
1997	55,402	187	0.34%	93,765	1,261	1.34%
1998	51,926	169	0.33%	77,772	953	1.23%
1999	49,046	159	0.32%	78,294	1,065	1.36%
2000	46,385	206	0.44%	77,647	1,150	1.48%
2001	46,466	147	0.32%	70,737	857	1.21%
2002	45,905	117	0.25%	81,095	935	1.15%
2003	44,892	146	0.33%	81,692	911	1.12%
2004	44,900	123	0.27%	87,369	911	1.04%
2005	44,405	122	0.27%	90,104	810	0.90%
2006	47,219	118	0.25%	91,705	907	0.99%
2007	47,974	115	0.24%	92,229	792	0.86%
2008	51,852	113	0.22%	97,914	823	0.84%
2009	54,845	153	0.28%	109,602	840	0.77%
2010	53,287	119	0.22%	113,354	862	0.76%
2011	54,203	127	0.23%	124,383	953	0.77%

* Table A-3 includes all test categories except the “Other” category.

Table A-4
Trends in Positive Pre-Access Testing Rates by Employment Category (1993–2011)

Year	Licensee Employees			Contractors/Vendors		
	Total Tests	Number Positive	Percent Positive	Total Tests	Number Positive	Percent Positive
1993	11,119	47	0.42%	80,352	905	1.13%
1994	10,254	49	0.48%	69,963	928	1.33%
1995	10,534	60	0.57%	68,771	1,062	1.54%
1996	9,901	94	0.95%	71,140	1,038	1.46%
1997	11,195	62	0.55%	73,125	1,034	1.41%
1998	9,422	50	0.53%	59,724	772	1.29%
1999	8,386	44	0.52%	60,753	890	1.46%
2000	7,613	51	0.67%	60,720	914	1.51%
2001	8,442	44	0.52%	55,302	676	1.22%
2002	8,050	28	0.35%	65,138	777	1.19%
2003	8,309	41	0.49%	64,679	716	1.11%
2004	7,661	35	0.46%	68,458	702	1.03%
2005	8,210	28	0.34%	70,795	620	0.88%
2006	9,336	24	0.26%	70,644	723	1.02%
2007	9,783	34	0.35%	72,149	634	0.88%
2008	11,498	21	0.18%	75,970	643	0.85%
2009	10,619	41	0.39%	85,259	636	0.75%
2010	10,312	21	0.20%	86,231	656	0.76%
2011	10,729	28	0.26%	93,119	713	0.77%

Table A-5
Trends in Positive Random Test Rates by Employment Category (1993–2011)

Year	Licensee Employees			Contractors/Vendors		
	Total Tests	Number Positive	Percent Positive	Total Tests	Number Positive	Percent Positive
1993	95,103	157	0.17%	51,502	184	0.36%
1994*	52,493	96	0.18%	25,898	127	0.49%
1995	45,815	82	0.18%	20,976	98	0.47%
1996	44,183	94	0.21%	18,124	108	0.60%
1997	42,011	76	0.18%	18,818	96	0.51%
1998	40,415	71	0.18%	16,554	86	0.52%
1999	38,692	71	0.18%	15,765	69	0.44%
2000	36,784	116	0.32%	15,171	88	0.58%
2001	36,048	64	0.18%	14,032	84	0.60%
2002	35,608	55	0.15%	14,240	59	0.41%
2003	34,202	61	0.18%	15,200	71	0.47%
2004	34,723	51	0.15%	16,516	76	0.46%
2005	33,587	60	0.18%	16,699	87	0.52%
2006	34,818	55	0.16%	17,739	77	0.43%
2007	34,984	55	0.16%	16,681	62	0.37%
2008	36,721	50	0.14%	18,038	77	0.43%
2009	40,682	67	0.16%	20,195	87	0.43%
2010	39,588	69	0.17%	22,420	122	0.54%
2011	39,817	63	0.16%	25,961	139	0.54%

* Beginning in 1994, the NRC reduced the minimum annual random testing rate from 100 percent to 50 percent of the subject population.

Table A-6
Trends in Positive For Cause Testing Rates by Employment Category (1993–2011)

Year	Licensee Employees			Contractors/Vendors		
	Total Tests	Number Positive	Percent Positive	Total Tests	Number Positive	Percent Positive
1993	230	35	15.22%	369	128	34.69%
1994	199	39	19.60%	322	80	24.84%
1995	235	35	14.89%	341	103	30.21%
1996	244	34	13.93%	377	102	27.06%
1997	208	34	16.35%	323	110	34.06%
1998	185	26	14.05%	270	71	26.30%
1999	203	29	14.29%	303	91	30.03%
2000	205	21	10.24%	404	111	27.48%
2001	219	20	9.13%	287	79	27.53%
2002	243	23	9.47%	374	87	23.26%
2003	232	22	9.48%	405	101	24.94%
2004	266	23	8.65%	435	111	25.52%
2005	309	19	6.15%	362	86	23.76%
2006	322	24	7.45%	394	80	20.30%
2007	292	15	5.14%	428	66	15.42%
2008	329	22	6.69%	468	72	15.38%
2009	232	28	12.07%	315	80	25.40%
2010	214	11	5.14%	335	36	10.75%
2011	350	22	6.29%	506	51	10.08%