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

Summary of Fitness for Duty Program Performance Reports for Calendar Year 2010

Purpose

The U.S. Nuclear Regulatory Commission (NRC) provides the following fitness-for-duty (FFD) program performance summary to inform interested stakeholders of the drug and alcohol (D&A) testing performance of the commercial nuclear industry for calendar year (CY) 2010. The information provided is aggregated from licensees' and other affected entities' submissions of performance data and information reports under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 26, "Fitness for Duty Programs" (Part 26).

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Uses

The NRC expects licensees to review and consider the information contained in this report for applicability to their facilities and to take corrective actions, as appropriate, to improve the performance of their FFD programs. Suggestions contained in this report are not NRC requirements and; therefore, no specific action or written response is required.

The information in this report also informs members of the public of the commercial nuclear power industry's FFD performance. This use is consistent with the Commission's Operational Excellence objective[1] to appropriately inform and involve stakeholders in the regulatory process.

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.

[1] See NUREG-1614, Vol. 4, "Strategic Plan, Fiscal Years 2008–2012," U.S. Nuclear Regulatory Commission, February 2008.

The performance information contained in this report is shared with NRC offices and regions. This supports inspection preparation pursuant to NRC Inspection Manual Chapter (IMC) 2201, "Security Inspection Program for Commercial Nuclear Power Reactors," and IMC 2681, "Physical Protection and Transport of SNM and Irradiated Fuel Inspection of Fuel Facilities."

Public Comment

The NRC welcomes comments concerning the content of this report. Written comments should be provided by accessing the NRC's FFD Web site at http://www.nrc.gov/reactors/operating/ops-experience/fitness-for-duty-programs/contact-us.html.

Written comments also may be sent by mail addressed to:

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 and standards are applicable to the entities listed below:

- all holders of operating licenses for nuclear power reactors and licensees authorized to possess, use, or transport formula quantities of strategic special nuclear material (SSNM)
- all current and potential applicants for a combined 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"
- all 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) who implement FFD programs or program elements to the extent that the licensees and other affected entities implement C/V FFD programs or program elements

The NRC received FFD program performance information from 74 licensees or other affected entities, such as C/Vs, listed below.

- 64 operating reactor sites
- 1 reactor construction site (Vogtle Units 3 and 4)
- 6 corporate FFD Program Offices, including 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, including Babcock & Wilcox Nuclear Operations Group; Institute of Nuclear Power Operations (INPO); and 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, licensees and other affected entities were allowed to defer implementation of the requirements related to D&A testing until March 31, 2009; therefore, CY 2010 represents the first year in which all licensees reported FFD performance information pursuant to § 26.717, "Fitness-for-Duty Program Performance Data," of the current rule.

FFD performance information submitted by licensees to the NRC is available for public review by accessing the NRC's Agencywide Documents Access and Management System (ADAMS) at the NRC Web site http://www.nrc.gov/reading-rm.html. Historical FFD performance information can also be reviewed directly from the NRC's FFD Web site at http://www.nrc.gov/reactors/operating/ops-experience/fitness-for-duty-programs/performance-reports.html.

In making their CY 2010 annual submittals, licensees either submitted a hardcopy performance report or an electronic version of an annual report to meet the annual 10 CFR 26.717 reporting requirement. This report describes the reporting system for FFD performance on page 6.

Executive Summary

The number of licensees using the FFD electronic reporting (e-reporting) system increased by 50 percent over CY 2009. This exemplifies the commendable effort by 51 of 74 facilities subject to Part 26 to train their personnel, write procedures on e-reporting requirements, and develop internal control processes to facilitate a paperless reporting system. The Nuclear Energy Institute not only championed this effort, but it also was fully supported by both large and small corporate entities that make up a significant portion of the commercial nuclear infrastructure—the generators of electricity, the fuel fabrication facilities, and the C/Vs who provide managers, technical experts, and safety services to NRC-licensed facilities.

This section summarizes the test results and reports submitted by licensees. The section, "Detailed Data Analysis" (page 8), contains detailed results, associated site- and event-specific descriptions, and NRC staff data analyses in graphical and tabular formats.

A particular observation from e-reported data is that licensees do not appear to be identifying cocaine and amphetamine abuse during pre-access testing of their employees but rather during for-cause testing (see Chart 11). This observation could indicate that enhancements are needed for pre-access screening (e.g., background checks) or that employee assistance programs for persons who start drug abuse while on the job may need to be strengthened. This detailed observation is only possible because of the NRC-industry initiative to electronically report FFD performance information.

For CY 2010, the industry conducted 167,089 D&A tests, resulting in an overall industry positive rate of 0.59 percent for drug abuse, illicit alcohol consumption, and testing refusals. By employment category, C/Vs tested positive at a rate of 0.76 percent and licensee employees at 0.22 percent; this 3-to-1 ratio has been consistent for years.

Marijuana and alcohol continue to be the abuse substances of choice (Table a), accounting for the significant percentage of positive test results for each employment and labor category. Three substances (marijuana, alcohol, and cocaine) continue to account for more than 90 percent of substances identified in each testing year. These trends have been consistent for more than a decade and tend to directly reflect societal use. The NRC staff has noted an increase in the percentage of marijuana and alcohol positive rates, while cocaine positives have decreased.

Table a: Abuse Substances of Choice

Substance	1990	2010
Marijuana	47%	56%
Alcohol	19%	23%
Cocaine	29%	13%

As for positive rates by test category (i.e., pre-access, random, for-cause, post-event, and follow-up), pre-access testing accounted for two-thirds (approximately 70 percent) of all positive test results. This trend is consistent with previous years.

The CY 2010 annual random testing positive rate for the industry is 0.31 percent and reflects the highest rate seen since CY 2001, which was 0.30 percent. It is important to note that variability in the random testing positive rate for industry during the past 20 years has ranged from 0.23 percent to 0.39 percent (Table 9 and Chart 6). Although the current rate is relatively high, it has not resulted in conditions adverse to safety or security. The NRC staff will continue to assess this trend.

Withholding Sensitive Information

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 10 CFR Part 26.

Approximately 1 in every 12 persons tested for cause is positive for substance abuse and found unfit for duty. For-cause testing includes being tested for adverse performance, observed physical or mental behavior, or other factors. Based on the data presented in Chart 10 and Tables 5a, 5b, and 14, the NRC staff continues to monitor the statistical variations being observed in FFD performance data to better assess the effectiveness of licensee behavioral observation programs (BOP).[2] For example, the NRC staff is studying whether there is an adverse correlation between a zero percent positive rate for for-cause testing (see Chart 14) and the random positive testing rate (see Chart 3 and Tables 2, 5a, and 5b). The NRC staff is also evaluating whether an effective performance objective within a BOP can be generally established to provide reasonable assurance that, when a person is identified as needing a for-cause test: (1) the person does indeed exhibit a mental, physical, or conduct-related action realistically indicative of a condition potentially adverse to safety or security and (2) the for cause D&A testing result will contribute to the licensee's assessment.

[2] Observation is a primary method by which a licensee determines that a person is potentially unfit for duty and needs a for-cause drug or alcohol test, or both.

The NRC staff acknowledges that human performance assessments are intrinsically very difficult, and it 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). As such, the NRC staff notes that a for-cause testing objective should not be:

- too low to result in the possibility of individual harassment, an adverse impact on the work environment, or a large non-positive to positive ratio for-cause-testing result, nor;

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

In all test categories, contractors continue to test positive at a much higher rate than licensee employees; however, as identified in Charts 4, 5, and 7, test data show a downward trend in the positive testing rate for contractors. These trends appear to be converging with the lower positive test rates for licensee employees. Although it is too soon to tell, these trends could be indicative of better licensee hiring practices, better communication of D&A testing policies, and/or changing socioeconomic conditions.

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

- About half of all FFD programs reported implementing the NRC-optional drug testing policy to conduct "limit-of-detection"[3] (LOD) testing of "dilute"[4] specimens. Some licensees also used the LOD method for suspected subversion attempts, as well as in for-cause, post-event, and follow-up testing. Qualitative data support the effectiveness of licensees' conducting LOD testing, and e-reporting significantly improved the quality of information communicated in describing LOD test events (refer to additional LOD information on page 15).

- Eight of the 74 FFD programs used more stringent initial cutoff levels for drugs, such as marijuana and opiates, or expanded their drug testing panel to include other controlled substances.

Licensees reported 13 events associated with their licensee testing facility (LTF) or their contracted laboratory certified by the U.S. Department of Health and Human Services (HHS-certified laboratory or laboratory). These events involved equipment malfunctions, human errors, and issues associated with an incorrectly formulated blind performance test sample (BPTS). Seven of 13 events were associated with a BPTS. Similar to CY 2009 data, a number of events or issues were associated with C/Vs who formulated and supplied BPTSs to the commercial power reactor industry. The NRC staff will further assess this performance, and e-reporting should help identify trends and focus corrective actions.

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[3] "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.

[4] "Dilute," as used in this sentence, is a laboratory determination based on the creatinine and specific gravity (SG) concentrations (see Footnote 12) that are lower than expected for human urine (see 10 CFR 26.5).

Licensees also reported 21 events requiring a 24-hour event report to the NRC Operations Center under 10 CFR 26.719(b) (see Section 3, page 13). Eleven of these events occurred when supervisors tested positive for a drug or alcohol, and four were attributed to NRC-licensed operators. The NRC staff continues to monitor these occurrences.

Reporting of FFD Performance Information

The submission of FFD performance reports is a requirement to inform the NRC and the public of FFD performance within the commercial power reactor community. Submission of performance information demonstrates the industry's commitment to public health and safety and the common defense and security in the conduct of licensed activities; in part, this is because the industry goes above and beyond the regulations by describing in detail FFD-related events and issues affecting its programs. The industry demonstrates this commitment by its voluntary use of the e-reporting system, developed by the NRC, in coordination with the industry, to meet the requirements of 10 CFR 26.11, "Communications," and 10 CFR 26.717. This openness and transparency fosters achievement of a common goal that enhances safety and security through 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 illustrations in the section, "Evaluation of E-Reported Data," starting on page 36, demonstrate the quality of data assessment and evaluation that results from e-reporting.

The FFD e-forms used by licensees and other entities subject to Part 26 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.[5]

In the NRC's "Summary of Fitness for Duty Program Performance Reports for CY 2009," available at the above Web site, the staff discussed the background and details on implementing e-reporting. The following summarizes FFD e-reporting improvements and observations that occurred in CY 2010.

- Calendar year 2010 marked the second year FFD e-reporting was available.[6]
- The Annual Reporting Form (ARF) and Single Positive Test Form (SPTF) were updated to improve nomenclature and consistency with Part 26 reporting requirements. The embedded instructions and logic architecture within the forms were revised to simplify use and reduce reporting errors.

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

6 The NRC staff and industry representatives previously agreed that CYs 2009 and 2010 would be beta-test years for the electronic reporting of FFD performance data. This 2-year period provided licensees the option to either electronically report or provide a traditional hardcopy report and for the NRC staff and industry to develop lessons learned to improve the e-reporting process and to simplify the forms. This period also enabled the NRC staff to complete its back-end data evaluation process and for licensees to complete training and process revisions to facilitate e-reporting. As a result, some licensees did not use the e-reporting system in CY 2010 and preferred to submit a traditional hardcopy report.

- The NRC enhanced the process used to submit ARFs and SPTFs. This effort significantly reduced the number of submission and authentication errors associated with electronic signature requirements. Another desirable outcome is that the FFD e-reporting process is better aligned with the NRC's well-established "general reporting" process, can be viewed at http://www.nrc.gov/site-help/e-submittals.html.

- As illustrated in this and the CY 2009 report, e-reporting enables the NRC staff to perform a more in-depth analysis of the FFD program performance information. The best examples of this ability are NRC staff analyses of subversion attempts, for-cause testing, and pre-access testing.

- The use of e-reporting by licensees increased by 50 percent over CY 2009. For the CY 2010 reporting period, about two-thirds of the industry (51 of 74 facilities) used the e-reporting system. This represented 20 licensees and 3 C/Vs. This increase demonstrates the commendable effort by the commercial nuclear industry to train its personnel, write procedures on e-reporting requirements, and develop internal control processes to facilitate a paperless reporting system. The Nuclear Energy Institute not only championed this effort, but it also was fully supported by both large and small corporate entities that make up a significant portion of the commercial nuclear infrastructure—the generators of electricity, the fuel fabrication facilities, and the C/Vs who provide managers, technical experts, and safety services to NRC-licensed facilities.

Detailed Data Analysis

Table b: Index of Detailed Data Analysis and Descriptions

Section 1 Detailed Data Analysis Summary

The following is a detailed summary of the information presented in this report.

- The total number of tests performed by industry has increased from a low in CY 2001 of 117,203 to 166,641 in 2010. The number of tests performed in CY 2010 is comparable to testing levels in CY 2009 (Tables 5a and 5b).

- Pre-access testing accounted for approximately two-thirds of all positive test results.

- The industry's positive rate for all tests conducted is 0.59 percent (Table 1).

- For-cause testing has the highest industry positive test rate at 8.56 percent. This rate declined from 19.74 percent in CY 2009.

- The industry positive rates for each work category for all tests performed remain low (Table 2).

    - Licensee employees: 0.22 percent
    - Contractors: 0.76 percent

- Marijuana and alcohol accounted for a significant percentage of positive test results for each work category (Table 3).

    - Licensee employees: alcohol (48 percent), marijuana (30 percent)
    - Contractors: alcohol (18 percent), marijuana (55 percent)

- From 1990 through 2010, the annual random testing positive rate for industry decreased from 0.37 percent to 0.31 percent; however, the 2010 random testing positive rate of 0.31 percent reflects an increase from recent years (the 2008 and 2009 rates were 0.23 and 0.25 percent, respectively). See Tables 5a and 5b.

- Three substances (marijuana, cocaine, and alcohol) continue to account for more than 90 percent of substances identified in each testing year (Table 6).

    - Marijuana (47 percent of substances in 1990, 56 percent in 2010)
    - Cocaine (29 percent of substances in 1990, 23 percent in 2010)
    - Alcohol (19 percent of substances in 1990, 13 percent in 2010)

- C/Vs continue to have higher positive test rates than licensee employees. This pattern is consistent across all test types for many years. Since 1993, C/Vs have had an overall positive test rate that is, on average, 3.7 times greater than that of licensee employees (Tables 7–10).

- Table 11 presents the range of positive tests reported by licensees in CY 2010 by work category for pre-access and random testing. The information indicates that the overall positive rates are low (less than 1 percent) for pre-access and random testing, with C/Vs testing positive at a much higher rate than licensee employees.

  Pre-access testing positive rates:

    - Licensee employees: 0.20 percent
      The positive-rate range[7] for the industry was from 0 to 4.44 percent.

[7] The positive-rate range is across all licensees and indicates the range between the lowest and the highest positive rate. These values do not directly correlate to performance.

- C/Vs: 0.76 percent
  The positive-rate range for the industry was from 0 to 2.29 percent.

Random testing positive rates:

- Licensee employees: 0.17 percent
  The positive-rate range for the industry was from 0 to 1.01 percent.

- C/Vs: 0.54 percent
  The positive-rate range for the industry was from 0 to 3.45 percent.

Section 2 Certified Laboratories

This section summarizes licensee reports of testing errors or unsatisfactory performance discovered in drug performance testing at either an LTF or an HHS-certified laboratory. The errors may involve techniques, processes, quality control samples, or actual urine specimens. Typically, licensees or laboratories self-identify the errors, which may involve generic issues that could adversely affect test integrity and other licensees and laboratories. To meet the reporting requirement of 10 CFR 26.719(c), the licensee submit a report (called a "30-day report") to the NRC describing the incident and corrective actions taken or planned. When available, the NRC staff provided the names of the affected laboratories and BPTSs to facilitate the communication of corrective actions.

Seven licensees reported issues associated with laboratory tests of BPTSs.

- 6-acetylmorphine (6-AM) testing Palisades NPP reported receiving unexpected test results for three BPTSs submitted in the same month for testing at the Quest Diagnostics (Quest, Lenexa, KS) HHS-certified laboratory. Each sample was formulated to be positive for codeine, morphine, and 6-AM. The laboratory confirmed codeine and morphine as positive but reported two of the specimens as invalid[8] for 6-AM because of gas chromatography/mass spectrometry (GC/MS) interference and the other as "quantity not sufficient" to complete testing for 6-AM. The tests were positive for 6-AM, but a quantitative result could not be obtained (testing exhibited incomplete chromatographic peak resolution for the quantification ion) using the GC/MS confirmation method. Quest-Lenexa previously had tested specimens from this same BPTS lot and confirmed the results correctly. Bottle B of each BPTS was sent to a second HHS-certified laboratory (MedTox Scientific, Inc., MedTox) for testing and each specimen confirmed positive for codeine, morphine, and 6-AM. The investigation concluded that the cause of the inaccurate test results was interference with a component of the blind specimen matrix and the confirmatory testing method the laboratory used. Quest-Lenexa validated an alternate confirmation method using a different temperature program (the method uses the same extraction process currently used but requires an adjustment to the temperature heating ramp of the GC oven). The approach resolved the interference issues, and the laboratory updated its standard operating procedure to include this new alternate testing method. (30-day report dated November 9, 2010; BPTS supplier ElSohly Laboratories, Inc.)

[8] For definitions of laboratory-related words (e.g., invalid, substituted, dilute), refer to 10 CFR 26.5.

- PCP testing Three separate licensees (Arkansas Nuclear One NPP, Grand Gulf NPP, and Palo Verde NPP) reported unexpected results for BPTSs formulated by Professional Toxicology, Inc., to be positive for phencyclidine (PCP). The cause of the invalid results was chromatographic interference with the quantification of the phencyclidine ion. Because the chromatography data did not meet the standard laboratory acceptance criteria, the laboratories were unable to report the results. Ultimately, Quest-Lenexa, during testing for the Arkansas Nuclear One and Grand Gulf NPPs, determined that the interfering substance was an over-the-counter medication containing doxylamine (a sleep aid). Quest-Lenexa was able to identify and separate the interfering substance in the BPTSs received from the supplier and successfully revised its GC/MS testing protocol.

    - Palo Verde NPP reported receiving inconsistent test results for a BPTS formulated to be a false negative challenge for PCP. On January 2, 2010, the initial laboratory reported the expected result to the licensee. To challenge the licensee's laboratory that conducts Bottle B testing, Bottle B of the BPTS was sent for testing. The second laboratory failed to reconfirm the initial test result and reported chromatographic interference with the quantification of the PCP ion. The laboratory performed two additional tests and both failed to reconfirm PCP. The remaining content of Bottle B was sent to a third laboratory for testing. The third laboratory reconfirmed the presence of PCP. The licensee removed the second laboratory from its approved list of vendors. (The 30-day report, dated April 7, 2010, did not identify the HHS-certified laboratories, but it appears to the NRC staff that the second laboratory was Quest-Lenexa, based on the Arkansas Nuclear One and Grand Gulf items below.)

    - Arkansas Nuclear One reported receiving inconsistent test results for a BPTS formulated by Professional Toxicology to be positive for PCP (certified at a 44 nanograms/milliliter (ng/mL) PCP level). On February 3, 2010, Quest-Lenexa reported an invalid test result caused by GC/MS interference. The BPTS supplier reported that Quest-Lenexa originally had certified the subject lot for the BPTS and also reported that other HHS-certified laboratories had successfully tested the specimens without error. The BPTS supplier contacted other laboratories that had successfully tested its specimens from this lot and requested that each reevaluate samples to look for contaminants or interference substances (none were identified). Quest-Lenexa did obtain additional samples from Professional Toxicology and determined that an interfering substance appeared to be present but was unable to identify it. At the conclusion of their investigations, neither the laboratory nor the BPTS supplier was able to explain the unsatisfactory test results. (30-day report dated March 18, 2010)

    - Grand Gulf NPP reported receiving inconsistent test results for two of three BPTSs formulated by Professional Toxicology to be positive for PCP. On March 8, 2010, Quest-Lenexa reported the results for two of the samples as invalid due to GC/MS interference. The BPTS supplier and the laboratory investigated. Quest-Lenexa originally certified the BPTS lot in question and also successfully tested other samples from the same lot. The BPTS supplier reported no changes in the preparation or processing of the PCP samples but had modified, in recent months, the GC/MS process used to verify the presence of PCP. Quest-Lenexa had

processed PCP samples from other BPTS suppliers without error. The Quest-Lenexa investigation identified and separated the interfering substance (doxylamine—a sleep aid) that was present in the BPTSs from Professional Toxicology. The laboratory developed a new procedure to eliminate the interference of the substance and incorporated this change into its standard operating procedure on May 20, 2010. Additional testing was performed using the PCP BPTSs from Professional Toxicology. The new GC/MC testing protocol resulted in correct test results. (30-day report dated June 15, 2010)

- Adulterant testing Palo Verde NPP reported receiving an inconsistent test result for a BPTS formulated to return an adulterated test result (i.e., the specimen was adulterated with acid). Southwest Laboratories, Inc. (Southwest Labs), the HHS-certified laboratory that tested the specimen, failed to identify the lower-than-normal pH[9] of the specimen. The laboratory reported the specimen results as (1) negative for drugs, (2) normal creatinine, and (3) a pH of 5.3. The test used an Olympus AU640 automated analyzer. The laboratory conducted an investigation. It used a pH meter to test the BPTS and obtained a result of 1.2. The laboratory also verified that the automated analyzer was calibrated correctly. To further test the analytical performance of the analyzer and to simulate the adulterated specimen conditions of the BPTS, the laboratory randomly selected donor specimens and spiked them with acid. All donor-simulated specimens tested correctly by the analyzer as having low pH; however, unlike the donor specimens tested, the BPTS presented a high background absorbance that gave an incorrect response. The laboratory concluded the synthetic nature of the BPTS resulted in an unusually high background absorbance for the pH assay, which resulted in the equipment reporting a response at the lower cutoff of the acceptable pH range. As a result of the background interference, the standard pH screening the laboratory used was not reliable for pH screening of synthetic challenge samples. The laboratory adopted a new protocol for pH screening for specimens with unusual background absorption by reformulating its routine pH screening assay. For samples that are dilute, the laboratory also will conduct a secondary screening using a 2-place digital pH meter. (30-day report dated May 13, 2010)

- Cocaine testing Arkansas Nuclear One NPP reported receiving unexpected test results for a BPTS formulated by Professional Toxicology as a false negative challenge for cocaine. The Quest-Lenexa laboratory tested the BPTS. The same HHS-certified laboratory that conducted the BPTS testing originally certified the lot from which the BPTS was taken. An aliquot of the original BPTS was sent to a second Quest laboratory (Atlanta, GA) for testing. Quest-Atlanta confirmed the specimen as positive for cocaine at 432 ng/mL. The Entergy fleet was notified of this situation to determine if other facilities encountered any issues with BPTSs from the same lot. Quest-Lenexa had successfully tested another specimen from the same lot (cocaine metabolite quantified at 426 ng/mL). Quest-Lenexa retested the original BPTS using the same immunoassay methodology as used on the first sample and received a positive screening result, which was then confirmed at 427 ng/mL. An investigation of the two test results by Quest-Lenexa found that the absorbance ratio was different (initial test at 0.966; retest at 1.15). An absorbance ratio of 1.00 is required for a sample to be considered positive

[9] A pH level is a measure of the acidity or basicity of an aqueous solution. It is the negative logarithm (base 10) of the molar concentration of dissolved hydronium atoms (H_3O^+).

and for confirmatory testing. The difference between the two immunoassay test results was 0.18 (determined to be an acceptable level of variation for an immunoassay response). The laboratory also reported that a review of all proficiency testing for cocaine for the previous year found no evidence of systematic bias. (30-day report dated August 19, 2010)

- False negative test results Indian Point NPP reported receiving inconsistent test results for two BPTSs submitted for testing on the same day at the HHS-certified laboratory, Quest Diagnostics, in Norristown, PA (Quest-Norristown). One BPTS was formulated to be positive for cocaine and the second to be positive for opiates. The test results for both specimens were negative. An investigation by Quest-Norristown concluded that a human performance error resulted in the reporting of incorrect test results. The bar code affixed to the tube that each specimen is manually aliquoted into had been reversed. To address the problem, the laboratory revised its standard operating procedure to place additional focus on the review of bar code sequencing for the manual aliquoting process used for this licensee's specimen testing. Quest-Norristown also will glue the bar-coded tubes into the rack holders to eliminate the possibility of incorrectly placing the tubes into the testing rack. (30-day report dated November 8, 2010)

- Marijuana testing Callaway NPP reported receiving three separate instances of unexpected test results for BPTS formulated to be positive for marijuana. The licensee terminated its contract with the BPTS supplier and contracted with a new supplier.

    - In the first instance, three HHS-certified laboratories received a BPTS from the same lot. Each BPTS was formulated as a false negative challenge for marijuana (target drug or analyte[10] between 130 percent and 155 percent of the initial cutoff level). Two of the three laboratories incorrectly returned negative results: Quest-Lenexa and Clinical Reference Laboratory, Inc. (CRL). An investigation by the licensee concluded that the BPTS supplier had formulated the specimens too close to the cutoff level.

    - The licensee conducted a study to evaluate the potential effects of handling differences on analyte concentration. The BPTS supplier provided frozen samples to Callaway NPP. When needed, the licensee would thaw the BPTS, fill the split-specimen bottles accordingly, and then process the specimen for shipment to the laboratory as a normal specimen. When the original BPTS lot was validated by an HHS-certified laboratory, the BPTS was sent frozen to the testing laboratory. The licensee evaluated the potential effects of different specimen handling conditions on two specimens from the same lot. One specimen was tested 2 hours after being thawed at the laboratory; the other specimen was thawed at the laboratory and stored at room temperature for 24 hours before testing (consistent with normal shipping procedures). The licensee did the testing at the original HHS-certified laboratory that validated the BPTS lot. The study concluded that the concentration of analyte in a specimen was lower when stored at room temperature for 24 hours before testing than a specimen tested 2 hours after it was thawed. (30-day report dated March 22, 2010; BPTS supplier Duo Research, Inc.)

[10] An analyte is the chemical structure, constituent, or substance being analyzed in a laboratory procedure.

- In the second instance, two HHS-certified laboratories received a BPTS formulated as positive for marijuana (target drug or analyte between 150 percent and 200 percent of the initial cutoff level). CRL reported the BPTS as negative (with a screening value for marijuana of 43 ng/mL). (30-day report dated June 4, 2010; BPTS supplier Duo Research)

- In the third instance, two HHS-certified laboratories each received a BPTS formulated as positive for marijuana. One laboratory (CRL) returned a negative test result. The second laboratory (Quest-Lenexa) returned a positive result at 51 ng/mL; this result was 31 ng/mL below the certificate of analysis the BPTS supplier provided for the sample. Based on an additional study the licensee conducted, in which it sent specimens from this BPTS lot to four separate HHS-certified laboratories, it was determined that the BPTS lot had become unstable. The supplier destroyed the lot. (30-day report dated July 26, 2010; BPTS supplier Duo Research)

- Single specimen retesting, 10 CFR 26.165[11] Wolf Creek NPP reported that the HHS-certified laboratory (the primary testing laboratory) failed to follow procedures for preparing, sealing, and shipping an aliquot of a single specimen to a second HHS-certified laboratory for retesting at the donor's request. The second laboratory rejected the specimen for testing because the security seal on the bottle did not include a specimen identifier. The Medical Review Officer (MRO) cancelled the test. The licensee report contained personally identifiable information and is withheld from public disclosure. (30-day report dated November 8, 2010)

- Retesting specimens, 10 CFR 26.165 Fermi 2 NPP reported that it sent BPTSs to the HHS-certified laboratory contracted only to conduct retests of positive specimens. The licensee had determined that blind performance testing was not required because of the type of testing the laboratory conducted; however, Part 26 does exempt from the blind performance testing provisions in 10 CFR 26.168, "Blind Performance Testing," laboratories that only conduct retesting or Bottle B testing of specimens. As a result, the licensee established a BPTS program for the laboratory.

- Susquehanna NPP reported that an incident occurred on October 21, 2010. The details of the event are withheld from public disclosure because of security-sensitive information. (30-day report date January 20, 2011)

Section 3 Reportable Events due to Positive Test Results

Licensees reported 21 FFD-related events to the NRC Operations Center under 10 CFR 26.719, "Reporting Requirements" (i.e., event reports). The following table includes information in SPTFs and FFD program performance reports, if available.

[11] See 10 CFR 26.165, "Testing Split Specimens and Retesting Single Specimens."

Table d Reportable Events due to Positive Test Results

Facility	Test Type	Employment Type	Labor Category	Substance
Vogtle 1&2	Pre-Access	Contractor/Vendor	FFD Program Personnel	Marijuana
Browns Ferry	Random	Licensee employee	Supervisor	Alcohol
Brunswick		C/V	Supervisor	Cocaine (dilute)
Comanche Peak		Licensee employee	Licensed operator	Alcohol
Exelon Corporate		C/V	FFD Program Personnel	Marijuana
INPO		Licensee employee	Supervisor	Alcohol
Kewaunee		Licensee employee	Licensed operator	Alcohol
LaSalle		Licensee employee	Supervisor	Alcohol
Point Beach		Licensee employee	Licensed operator	Alcohol
Prairie Island		C/V	Supervisor	Refusal to Test
Three Mile Island		Licensee employee	Supervisor	Alcohol
Turkey Point		Licensee employee	Supervisor	Alcohol
Vogtle 3 & 4		C/V	Supervisor	Alcohol
Turkey Point	For-Cause	C/V	Supervisor	Alcohol
TVA Corporate	Follow-up	Licensee employee	Supervisor	Alcohol
Xcel (facility not specified)		Not specified	Supervisor	Alcohol
St. Lucie	Not specified	C/V	Not specified	Alcohol
North Anna	N/A	Not specified	Licensed operator	Self-reported DUI
Oyster Creek	N/A	Not specified	Nonsupervisory	Possession of alcohol in the PA
Peach Bottom	For-Cause	Licensee employee	Nonsupervisory	Possession of alcohol in the PA
Clinton	Licensee discovered an unknown item that may have been marijuana within the PA in no individual's possession. Although the item could not be identified as marijuana, the licensee submitted a 24-hour reportable event notice.			Unknown

Table d—Initializations

PA Protected area, see 10 CFR 26.5 for a definition.
N/A Not applicable
DUI Driving under the influence—a State determination based on a blood alcohol concentration (BAC) limit. There is no correlation between Part 26 time-dependent BAC limits and State DUI BAC limits.

Section 4 Program and System Management

The current drug testing cutoff levels are provided in 10 CFR 26.133 and 26.163, both entitled, "Cutoff Levels for Drugs and Drug Metabolites." The current 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 elected to lower the drug cutoff levels used during the reporting period for certain drugs, as authorized by 10 CFR 26.31(d). The current rule also establishes time-dependent alcohol cutoffs and does not allow licensees to lower alcohol test cutoffs for the conduct of NRC-required alcohol testing or the application of NRC-required sanctions under 10 CFR 26.75, "Sanctions;" however, for follow-up testing,

licensees are required to determine whether the affected individual has abstained[12] from D&A use. Furthermore, some licensees have established "corporate" or "employment" D&A limits to screen applicants before employment or for use during follow-up 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 2010, two facilities lowered their BAC cutoff.

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

Lowering Drug Cutoffs

In CY 2010, four facilities lowered their marijuana cutoff and two facilities lowered their opiate cutoff.

Limit-of-Detection Testing, 10 CFR 26.163(a)(2)

In CY 2010, 36 licensees conducted LOD testing.

LOD testing is a powerful means by which to identify illicit drug use and a primary tool used in the battle against persons attempting to subvert the drug testing process. Section 26.183(a)(2) establishes the requirements for conducting special analyses of dilute specimens based on creatinine and SG[13] levels associated with human urine. If creatinine and SG levels are outside a preestablished range (based on generic physiological performance), the rule enables licensees to conduct additional testing (i.e., LOD testing) for illicit drug use. If the tests identify an illicit drug and there is no legitimate medical explanation, the MRO will report this as a FFD violation to the licensee.

Although there are many legitimate reasons why a donor may provide a urine specimen that is dilute, dilution is also a method to subvert the testing process because it decreases the concentration of the drugs or drug metabolites in the specimen. As a result, concentrations may be sufficiently decreased that application of the Part 26 cutoffs would not identify the drug or drug metabolite—this would result in 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 probability of

The NRC staff notes that there may be a data discrepancy in the total number of licensees reporting that they conduct LOD testing. In its evaluation of CY 2010 FFD performance reports, the NRC staff identified 11 facilities that conducted LOD testing in CY 2009 but who did not report sufficient information this year to determine whether it used LOD testing in CY 2010. The NRC staff believes that, in some cases, the reporting discrepancy may have occurred if a licensee switched from hardcopy reporting to the FFD e-reporting system. If these 11 facilities were included, the total facilities would be 47 (in CY 2009, 42 licensees conducted LOD testing). With the recent revision of the ARF (Version 1.3.0—November 8, 2011), the staff significantly improved the reporting of LOD testing to prevent this problem from recurring.

[12] As described in 10 CFR 26.31(c)(4), a follow-up test verifies an individual's continued abstinence from substance abuse. This type of testing, required under 10 CFR 26.69, "Authorization with Potentially Disqualifying Fitness-for-Duty Information," allows licensees to determine whether to grant or maintain authorization.

[13] SG is the ratio of the density (mass per unit volume) of a substance to the density (mass of the same unit volume) of a reference substance.

detecting illicit drug use markedly increases because the LOD testing technique searches for the lowest concentration of the target analyte that can be reliably detected. This concentration level typically is significantly lower than the cutoff level.

Although not required to do so, a majority of licensees conduct LOD testing. This demonstrates a strong licensee 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)

In CY 2010, four facilities tested for additional drugs or drug metabolites (barbiturates, benzodianzepines, methadone, and propoxyphene).

Licensees may consult with local law enforcement authorities, hospitals, and drug counseling services to determine whether other drugs with abuse potential are being used in the geographical locale of the facility and by the local workforce that may not be detected in the panel of drugs and drug metabolites specified in the regulations. In that case, licensees may add drugs to their drug testing panels and establish cutoff levels for these additional substances, based on established forensic toxicology science and review. The NRC staff notes that licensees are not required to test for additional drugs or drug metabolites; however, a number of licensees voluntarily reach out to their communities in order to inform their programs.

Section 5 Other Program and System Management Issues

- Brunswick NPP reported that an employee submitted his resignation because he had taken another person's prescription medication and did not want to test positive on his next drug test. When the individual reported to the site to turn in his security equipment, he provided a written statement about his use of the prescription medication. The MRO reviewed the statement and deemed the individual in violation of the FFD program for misuse of prescription medication. The individual did not have a positive drug or alcohol test.

- Comanche Peak NPP reported that it did not submit a sufficient number of BPTSs during the first calendar quarter of 2010. Because of a late surge of refueling outage in-processing near the end of this quarter, the licensee missed the required 1 percent submittal requirement by a fractional amount. The licensee documented this discrepancy in the site's corrective action program. Corrective actions taken included tracking blind samples using only whole numbers and submitting an extra blind sample each quarter.

- Cooper NPP reported changing its policy for testing for the odor of alcohol. The previous policy was to conduct drug and alcohol testing. The licensee updated its policy to require only alcohol testing.

- Dominion Generation reported that FFD records for all of its NPPs were centralized at one facility (Innsbrook Corporate) to improve oversight of the records before archiving them. The MRO now maintains an office at this facility, and the FFD Program Supervisor and Lab Testing Supervisor function as members of the MRO staff to better enable communication and processing of FFD results. In addition, the MRO was trained as a Substance Abuse Expert.

- Fermi 2 NPP reported that its annual random testing rate did not meet the requirement because an additional 187 individuals, who were not granted access to protected and vital areas, were included in the site's random pool.

- Fitzpatrick NPP reported not testing one individual in a follow-up testing program for one quarter in 2009 because the individual was assigned to another licensee facility. The licensee discovered this oversight during its 2010 QA audit. It conducted two follow-up tests the next quarter, after the individual returned to the initial facility.

- Fort Calhoun NPP reported that because there was no way to verify the time at which a random list was drawn, the Assistant FFD Coordinator could potentially exceed the time requirement for specimen collection and subvert the random testing process. The licensee added a time stamp to the database to reflect the time the names are drawn.

- Fort Calhoun NPP reported that training records for collectors needed more documentation to reflect training on changes to 10 CFR Part 26.

- Indian Point NPP reported receiving a Green noncited violation because it did not complete for-cause testing after a licensee employee's second arrest for DWI by drugs.[14] An apparent cause evaluation determined that conservative decisionmaking was not used during adjudication of the second arrest. Corrective actions were taken to ensure the use of peer checking within the department and the fleet.

- Oconee NPP reported increasing its random testing rate as a result of issues involving drug use or abuse by C/Vs at the facility. Site management increased the random testing rate to 100 percent for the facility pool from October 4 through November 22, 2010. The licensee identified no drug or alcohol positives during this accelerated screening period.

- Progress Energy reported that a database update in February 2010 prevented the average badge population for employees and C/Vs from being compiled with complete accuracy for its facilities (Brunswick, Crystal River, H.B. Robinson, and Shearon Harris). Because the database did not contain historical data, the numbers from January 1, 2010, until the data were updated could not be re-created. The licensee determined that the "total size of the random testing pool" is correct and the breakdown between employees and contractors is as close as possible to being accurate.

[14] Driving while intoxicated (DWI) is a State determination. Many States have enacted laws applying the DWI determination to alcohol or drug impairment.

- Vogtle NPP (Units 1 and 2) reported an incident in which a contractor supervisor did not report to management an incident involving possible drug use within the facility's PA in a timely manner. The suspect individual tested negative and a corporate security investigation determined that no drug use had occurred and that the event did not represent a significant FFD policy violation or programmatic failure, as described in 10 CFR 26.719(b). All individuals involved received supplemental FFD program training.

- Vogtle NPP (Units 1 and 2) reported an event in a men's restroom within the PA. The cap of an alcoholic drink bottle rolled into the stall of another employee, who took the bottle cap to his supervisor. Having notified the FFD program staff of the incident, the licensee conducted a corporate security investigation. The licensee was unable to identify the individual who dropped the cap.

- Vogtle NPP (Units 3 and 4) is in the construction phase of power operation and has a construction contractor implementing a separate FFD program at the site. Both the licensee and the contractor are generating and maintaining an FFD random pool that includes its employees and associated contractors, with the licensee program manager reviewing and analyzing the generated data. This report period included several audits of the contractor's FFD program by the licensee and internally by the contractor. The licensee reported the following problems: (1) the procedure used to badge and grant site access at one facility differed from that at other licensee facilities because it was handled by the contractor and (2) unknown flaws of the licensee's FFD database caused individuals to be dropped or excluded from the random pool. When this problem was discovered on August 12, 2010, it was investigated. The random pool was rebuilt manually using the contractor's list of individuals granted badge access to the construction site; this list has since been checked weekly for completeness. The licensee also redesigned the FFD database as a flexible random pool that can easily handle daily auditing of pool entries and omissions. Additionally, the licensee examined noncompliant activities at the facility and determined that it was a failure on the part of the licensee and the contractor to complete self-disclosures and suitability inquiries on a number of contract personnel, which led to contractor work that was not in compliance with 10 CFR Part 26. The licensee assigned a knowledgeable, qualified, FFD subject matter expert to the site.

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.

Tables and Charts

Table 1
Test Results for Each Test Category

Test Category*	Number of Tests	Positive Tests	Percent Positive
Pre-Access	96,543	677	0.70%
Random	62,008	191	0.31%
For-Cause	549	47	8.56%
Post-event	884	6	0.68%
Follow-up	6,657	60	0.90%
Other†	448	7	1.56%
TOTAL	167,089	988	0.59%
TOTAL, without "Other" category	166,641	981	0.59%

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

† Some licensees identified an "Other" test category to capture testing they characterize as not meeting the 10 CFR 26.31(c) conditions, such as return-to-work testing. Most licensees did not clarify what type of conditions their "Other" testing category included. The NRC is developing guidance to address this reporting inconsistency.

Table 2
Test Results by Test and Employment Category

Test Category	Licensee Employees	C/Vs	Total
Pre-Access			
Number Tested	10,312	86,231	96,543
Number Positive	21	656	677
Percent Positive	0.20%	0.76%	0.70%
Random			
Number Tested	39,588	22,420	62,008
Number Positive	69	122	191
Percent Positive	0.17%	0.54%	0.31%
For-Cause			
Number Tested	214	335	549
Number Positive	11	36	47
Percent Positive	5.14%	10.75%	8.56%
Post-event			
Number Tested	353	531	884
Number Positive	0	6	6
Percent Positive	0.00%	1.13%	0.68%
Follow-up			
Number Tested	2,820	3,837	6,657
Number Positive	18	42	60
Percent Positive	0.64%	1.09%	0.90%
Other*			
Number Tested	141	307	448
Number Positive	1	6	7
Percent Positive	0.71%	1.95%	1.56%
TOTAL			
Number Tested	53,428	113,661	167,089
Number Positive	120	868	988
Percent Positive	0.22%	0.76%	0.59%
TOTAL (minus Other)			
Number Tested	53,287	113,354	166,641
Number Positive	119	862	981
Percent Positive	0.22%	0.76%	0.59%

* Table 1 discusses the “Other” test category.

Table 3
Positive Test Results by Substance and by Employment Category
(All Test Types, including Testing Refusals)

Positive Test Result	Licensee Employees		C/Vs		Total	
	Number	Percent	Number	Percent	Number	Percent
Marijuana	37	29.84%	497	55.28%	534	52.20%
Alcohol	60	48.39%	162	18.02%	222	21.70%
Cocaine	13	10.48%	112	12.46%	125	12.22%
Refusal to Test*	7	5.65%	65	7.23%	72	7.04%
Amphetamines	5	4.03%	49	5.45%	54	5.28%
Opiates	2	1.61%	13	1.45%	15	1.47%
Phencyclidine	0	0.00%	1	0.11%	1	0.10%
TOTAL†	**124**	**100.00%**	**899**	**100.00%**	**1,023**	100.00%

* This category includes adulterated and substituted validity test results and refusal-to-test actions (only those events where a specimen was not provided). Tables 23 through 26 contain additional information on subversion attempts (i.e., those events based on initial specimens with out-of-specification temperatures and second specimens collected under direct observation that tested positive).

† The totals in this table may be higher than those reported in Tables 1 and 2, where individuals tested positive for more than one substance.

Chart 1
2010 Positive Test Results by Substance
Licensee Employees

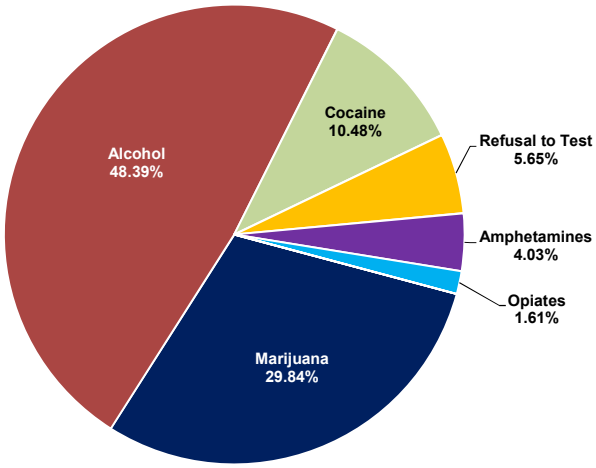


Chart 2
2010 Positive Test Results by Substance
Contractors/Vendors

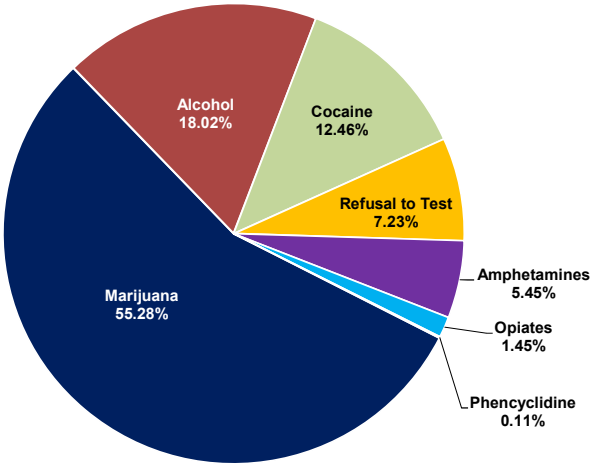


Table 4
Significant Fitness-for-Duty Events* (1990–2010)

Year	Reactor Operators	Licensee Supervisors	C/V Supervisors	FFD Program Personnel	Substances Found	Adulterated Specimen*	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**
2002	3	3	12	3	1	-	**22**
2003	6	3	8	0	2	9	**28**
2004	9	7	4	0	9	23	**52**
2005	5	13	14	1	9	29	**71**
2006	3	6	6	0	2	60	**77**
2007	3	7	1	1	0	47	**59**
2008	2	8	6	1	0	51	**68**
2009	1	5	4	1	2	83†	**96**
2010	4	7	3	2	3	72†	**91**

* For this report, an adulterated specimen is reported if the original specimen were adulterated, dilute, or possessed unusually low or high temperature, SG, or creatinine levels, and if the individual either refused to provide a second specimen or the specimen collected under observed collection resulted in a positive test result. The staff noted some inconsistencies in licensee reporting of adulterated specimens.

† In CYs 2009 and 2010, the number of adulterated specimens actually reflects the total number of refusal-to-test events (i.e., a donor refused to provide a specimen for testing) and laboratory test results of adulterated or substituted specimens under 10 CFR 26.161 (c) and (d). The majority of reported instances were associated with the donor failing to follow instructions or procedures (e.g., refusing to provide a specimen for testing).

A more robust measure of donor subversion attempts is now possible, based on data collected using the e-reporting system. Tables 23 through 26 provide information on the number of subversion attempts detected through specimen testing (an out-of-temperature range initial specimen with a negative result and a second specimen collected under direct observation with a positive result), in addition to reflecting the number of circumstances in which a donor refused to provide a specimen for testing.

Table 5a
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%
Follow-up										
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 5A does not include results from the "Other" test category.

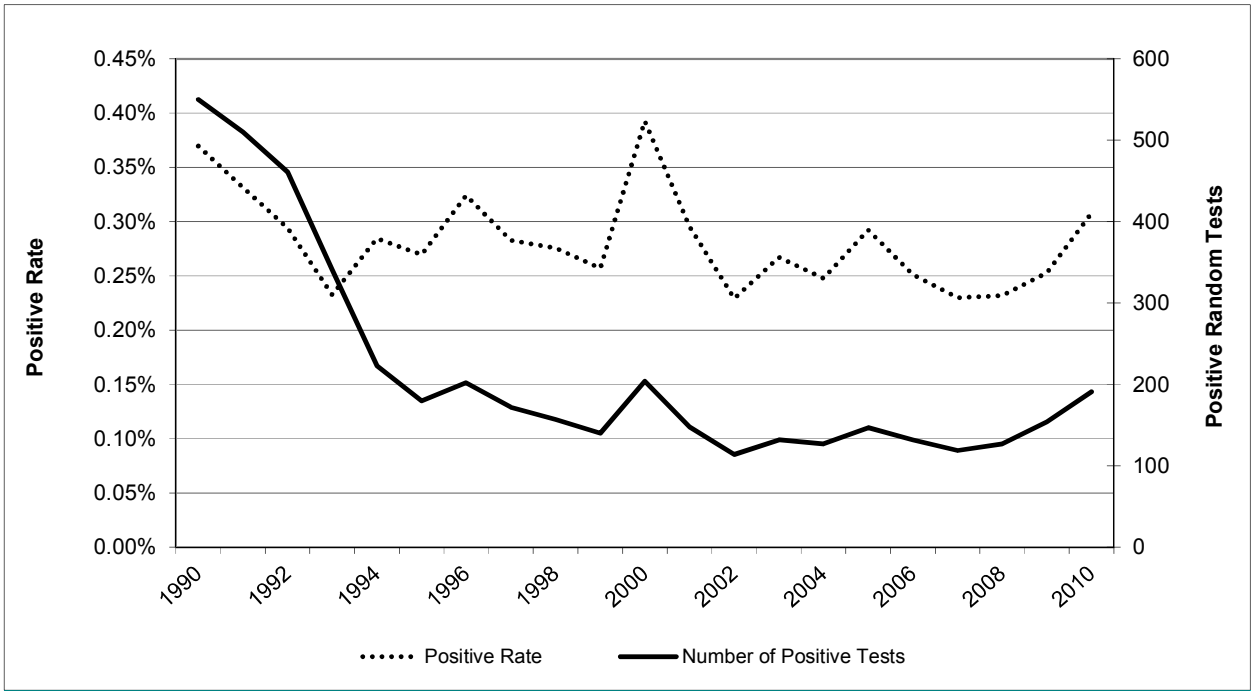
Table 5b
Trends in Testing by Test Type (2000–2010)

Type of Test	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*	2010
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
Number Positive	965	720	805	757	737	648	747	668	664	677	677
Percent Positive	1.41%	1.13%	1.10%	1.04%	0.97%	0.82%	0.93%	0.82%	0.76%	0.71%	0.70%
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
Number Positive	204	148	114	132	127	147	132	117	127	154	191
Percent Positive	0.39%	0.30%	0.23%	0.27%	0.25%	0.29%	0.25%	0.23%	0.23%	0.25%	0.31%
For-Cause											
Number Tested	609	506	617	637	701	671	716	720	797	547	549
Number Positive	132	99	110	123	134	105	104	81	94	108	47
Percent Positive	21.67%	19.57%	17.83%	19.31%	19.12%	15.65%	14.53%	11.25%	11.79%	19.74%	8.56%
Post-event											
Number Tested	274	224	455	415	458	490	905	895	986	893	884
Number Positive	6	2	2	3	5	1	5	10	7	1	6
Percent Positive	2.19%	0.89%	0.44%	0.72%	1.09%	0.20%	0.55%	1.12%	0.71%	0.11%	0.68%
Follow-up											
Number Tested	2,861	2,649	2,892	3,142	3,752	4,057	4,766	4,991	5,756	6,252	6,657
Number Positive	49	35	21	42	31	31	37	31	44	53	60
Percent Positive	1.71%	1.32%	0.73%	1.34%	0.83%	0.76%	0.78%	0.62%	0.76%	0.85%	0.90%
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**
Number Positive	**1,356**	**1,004**	**1,052**	**1,057**	**1,034**	**932**	**1,025**	**907**	**936**	**993**	**981**
Percent Positive	**1.09%**	**0.86%**	**0.83%**	**0.84%**	**0.78%**	**0.69%**	**0.74%**	**0.65%**	**0.62%**	**0.60%**	**0.59%**

* On March 31, 2009, the NRC required all licensees and affected entities to implement the March 31, 2008, final rule.

† Table 5B does not include results from the "Other" test category.

Chart 3
Trends in Positive Random Testing Rates (1990*–2010)



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

Table 6
Trends in Substances Identified (1990–2010)

Year	Marijuana	Cocaine	Alcohol	Amphet-amines	Opiates	Phen-cyclidine	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**

Table 7*
Trends in Positive Test Rates (All Test Types) by Employment Category (1993–2010)

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%

* Table 7 includes all test categories except the “Other” category.

Chart 4
Trends in Positive Test Rates (All Test Types)* by Employment Category (1993–2010)

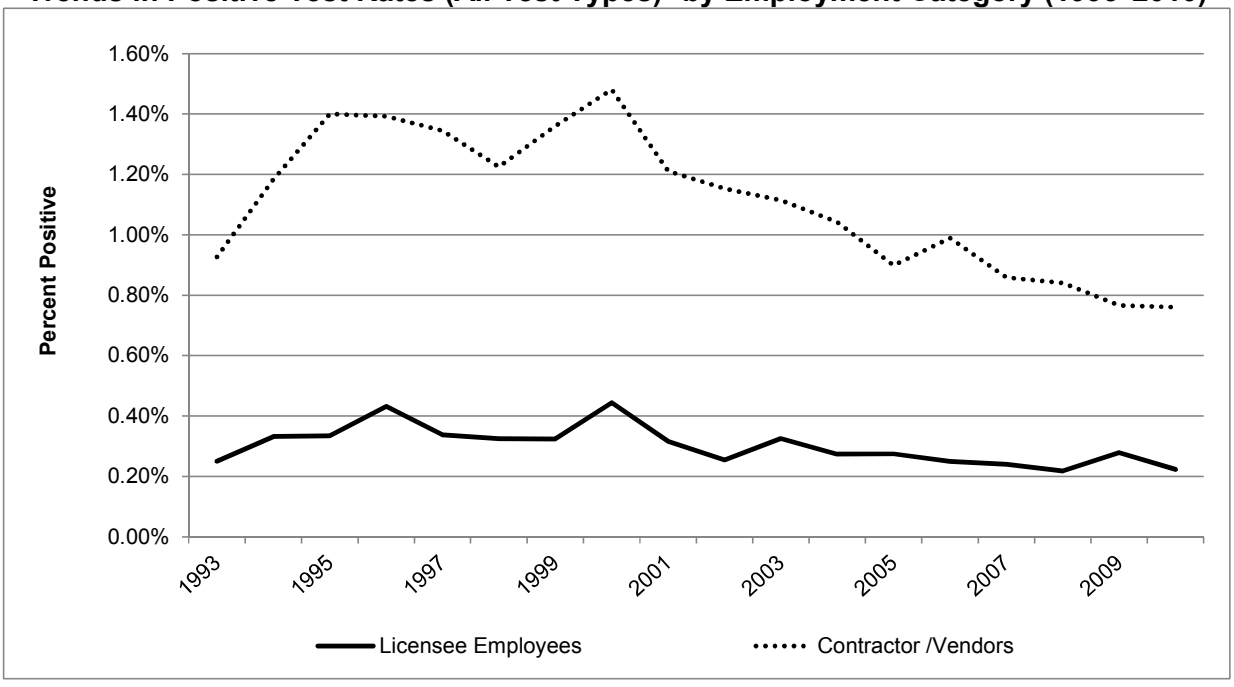


Table 8
Trends in Positive Pre-Access Testing Rates by Employment Category (1993–2010)

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%

Chart 5
Trends in Positive Pre-Access Testing Rates by Employment Category (1993–2010)

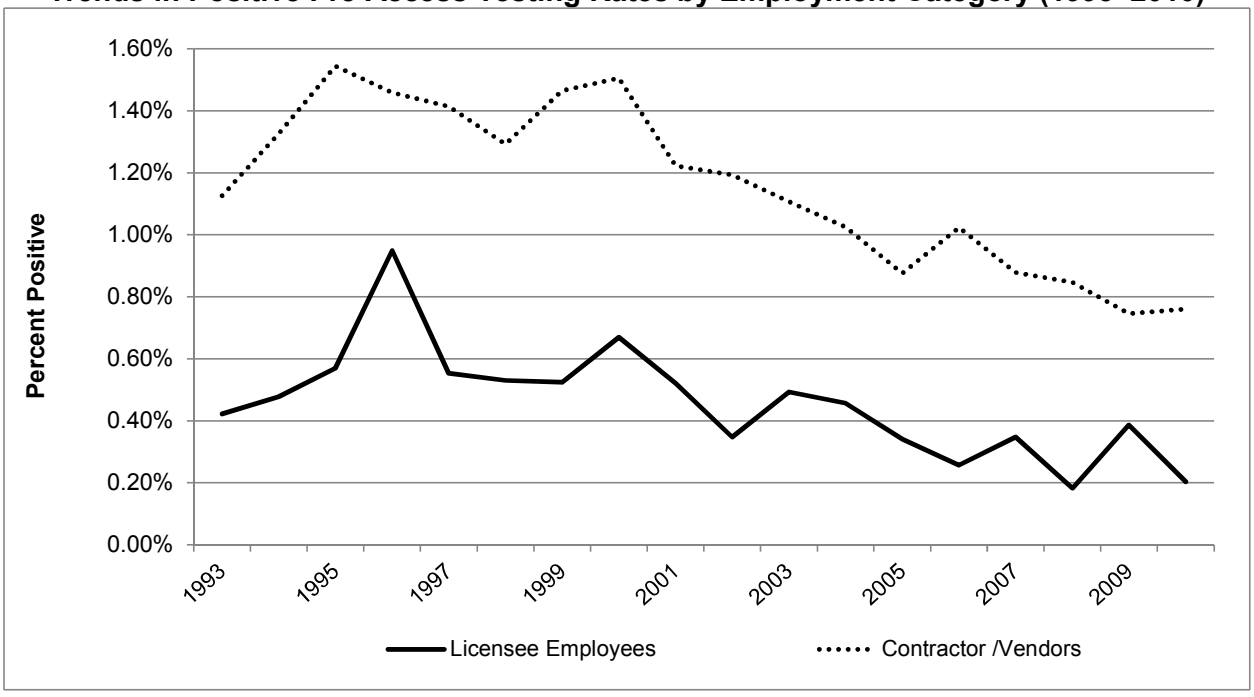


Table 9
Trends in Positive Random Test Rates by Employment Category (1993–2010)

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%

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

Chart 6
Trends in Positive Random Test Rates by Employment Category (1993–2010)

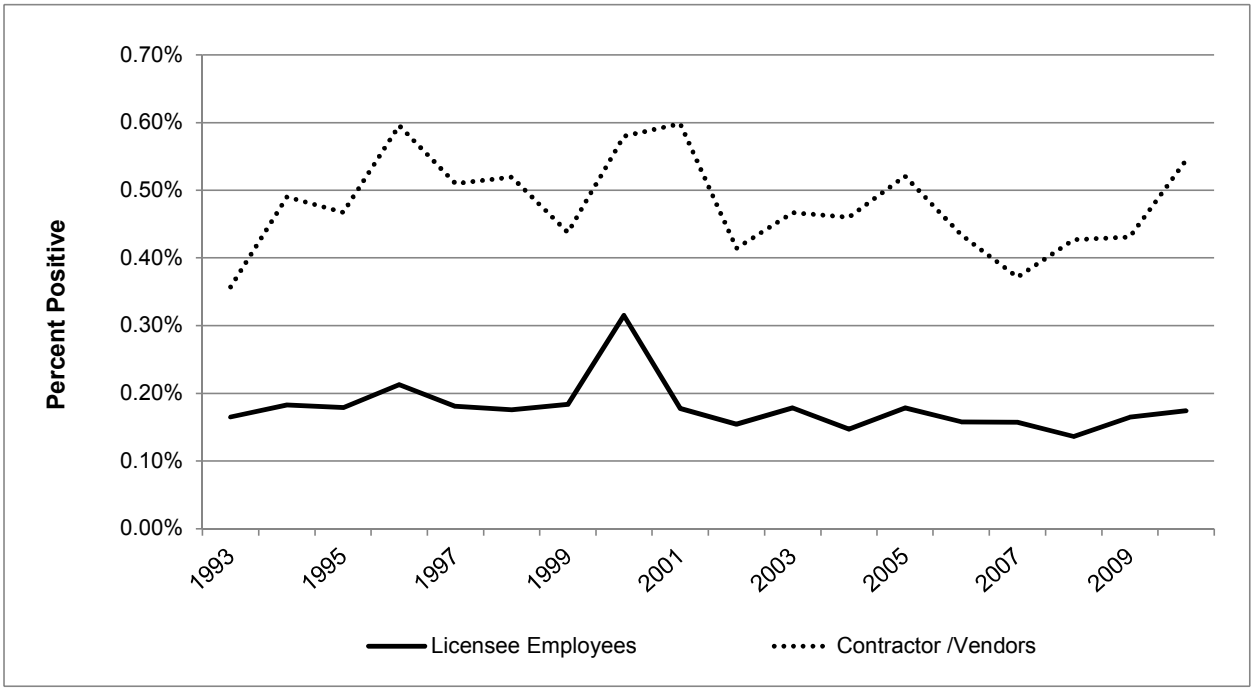
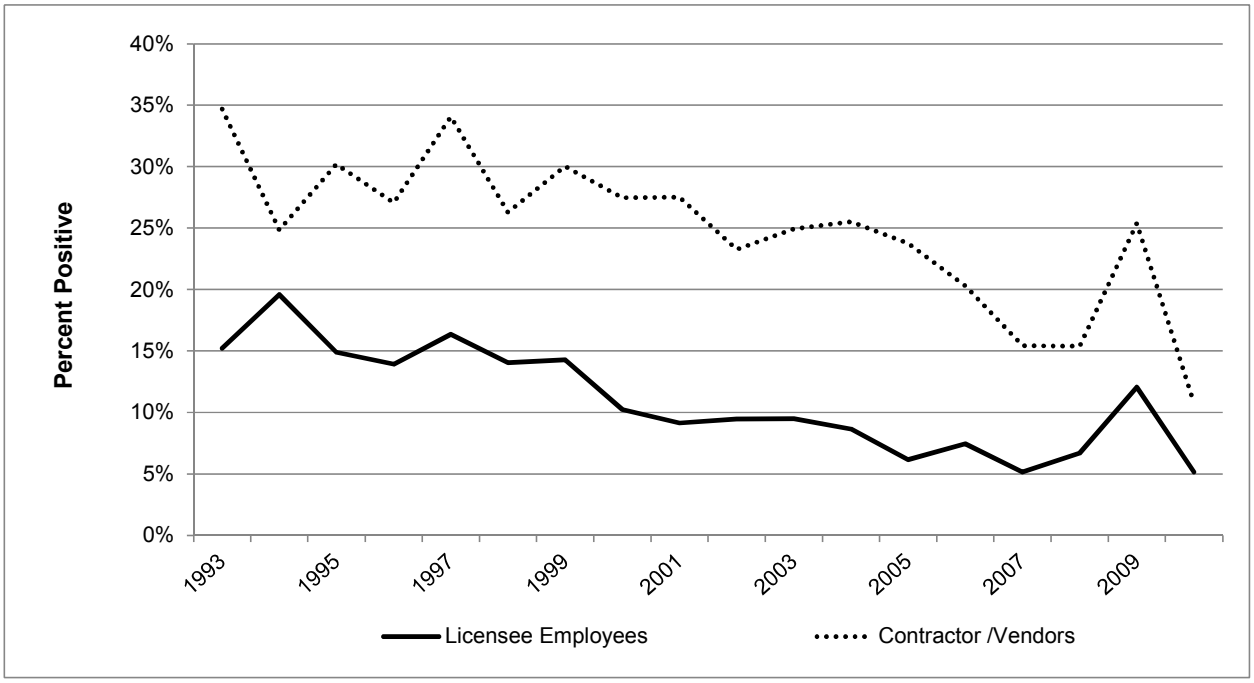


Table 10
Trends in Positive For-Cause Testing Rates by Employment Category (1993–2010)

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%

Chart 7
Trends in Positive For-Cause Testing Rates by Employment Category (1993–2010)



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 with additional information to evaluate their FFD program performance against the industry rate.

Table 11
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	0.20	0–4.44
Contractors/Vendors	0.76	0–2.29

Random Testing		
Employment Category	**Industry % Positive**	**Range of % Positive (by Site)**
Licensee Employees	0.17	0–1.01
Contractors/Vendors	0.54	0–3.45

For-Cause Testing		
Employment Category	**Industry % Positive**	**Range of % Positive (by Site)**
Licensee Employees	5.14	0–100
Contractors/Vendors	10.75	0–100

Table 12
Distribution of Pre-Access Testing Positive Rate Ranges
by Employment Category and Number of Sites

Positive Rate Range (%)	Licensee Employees	Contractors/Vendors
0	58	10
>0–0.5	5	17
>0.5–1	8	29
>1–1.5	1	11
>1.5–2	0	4
>2–2.5	0	2
>2.5–3	0	0
>3–3.5	0	0
>3.5–4	0	0
>4–4.5	1	0
Total Sites	**73**	**73**

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

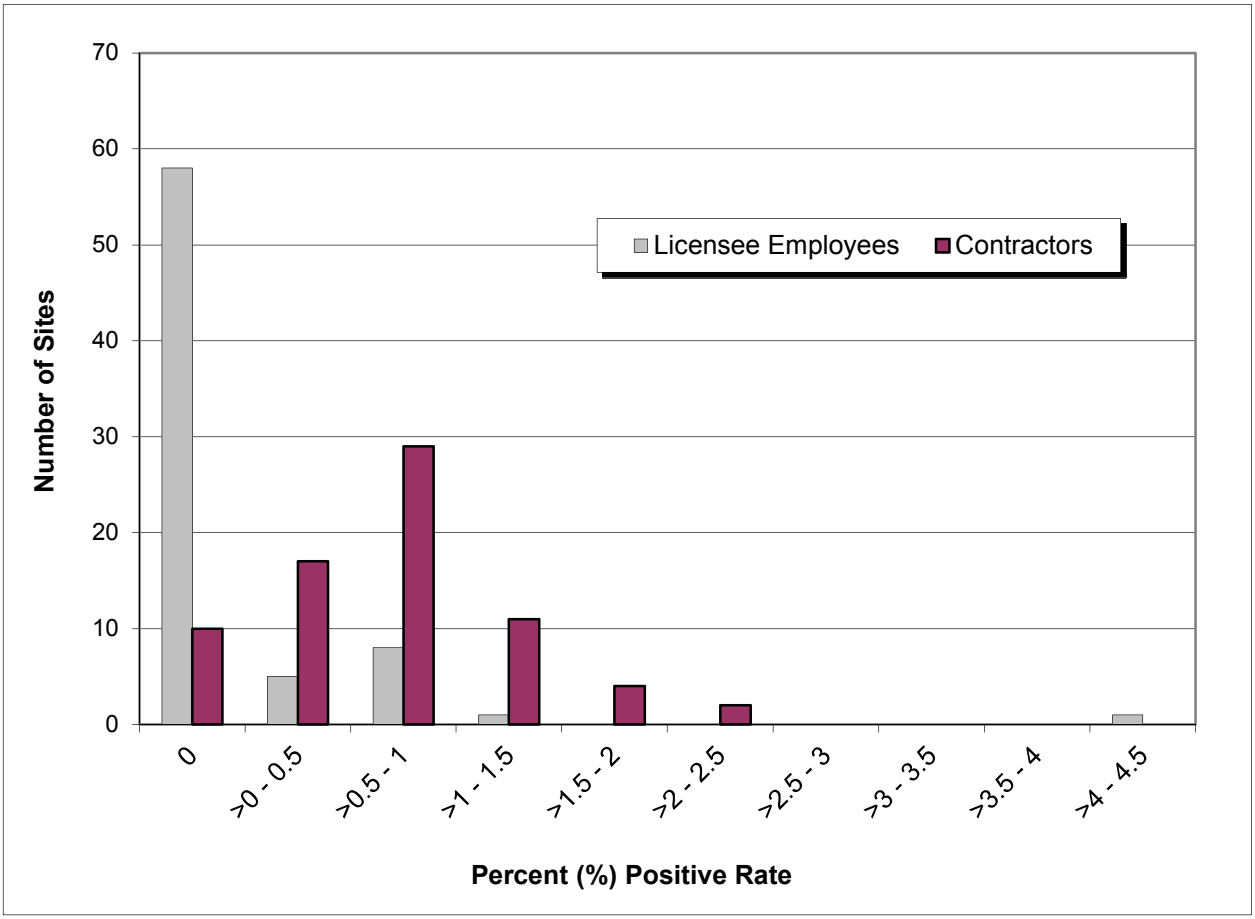


Table 13
Distribution of Random Testing Positive Rate Ranges
by Employment Category and Number of Sites

Positive Rate Range (%)	Licensee Employees	Contractors/Vendors
0	33	20
>0–0.25	14	7
>0.25–0.5	23	11
>0.5–0.75	2	14
>0.75–1.0	1	9
>1.0–1.25	1	7
>1.25–1.5	0	3
>1.5–1.75	0	0
>1.75–2.0	0	0
>2.0–2.25	0	1
>2.25	0	1
Total Sites*	**74**	**73**

* Total site counts may differ because a site may not have tested any individuals in a work category.

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

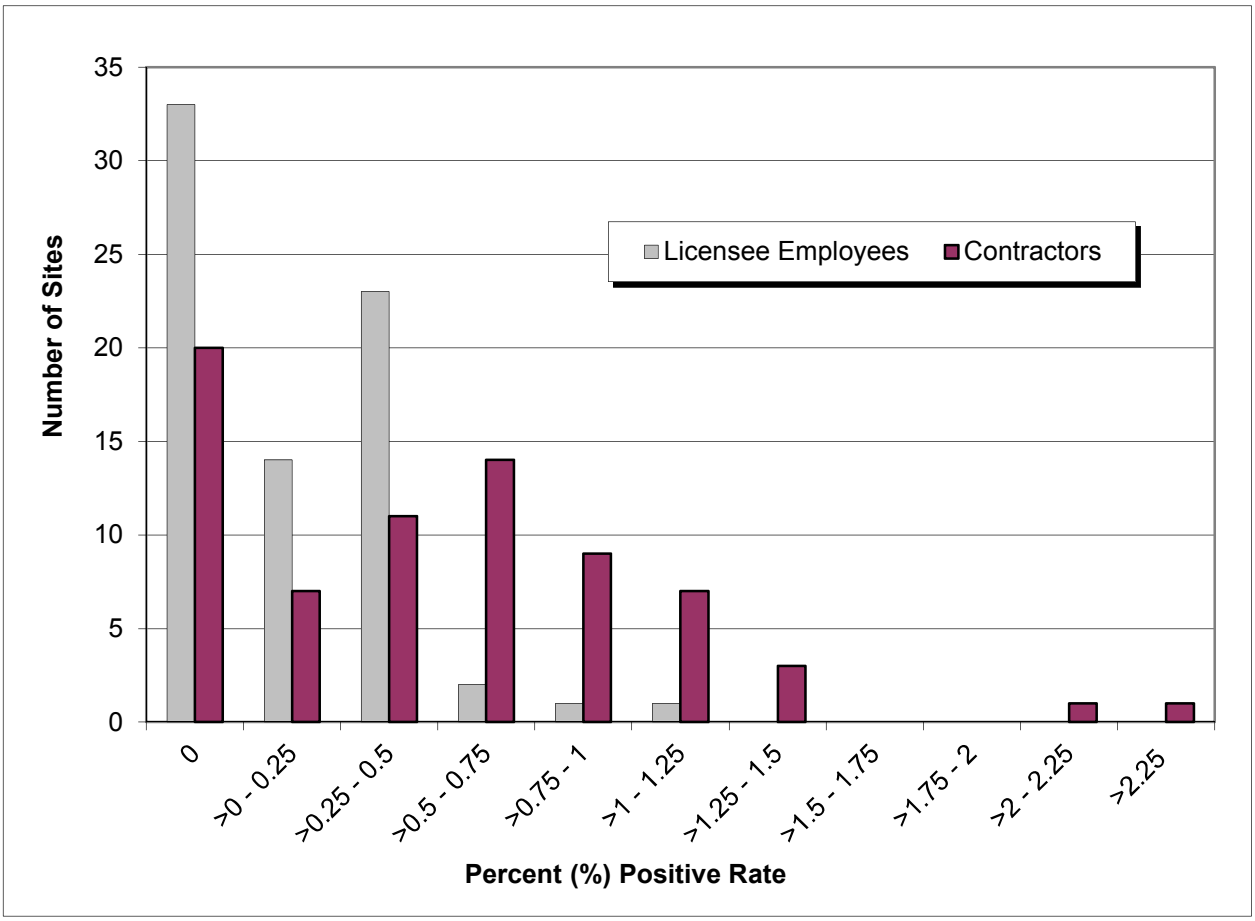
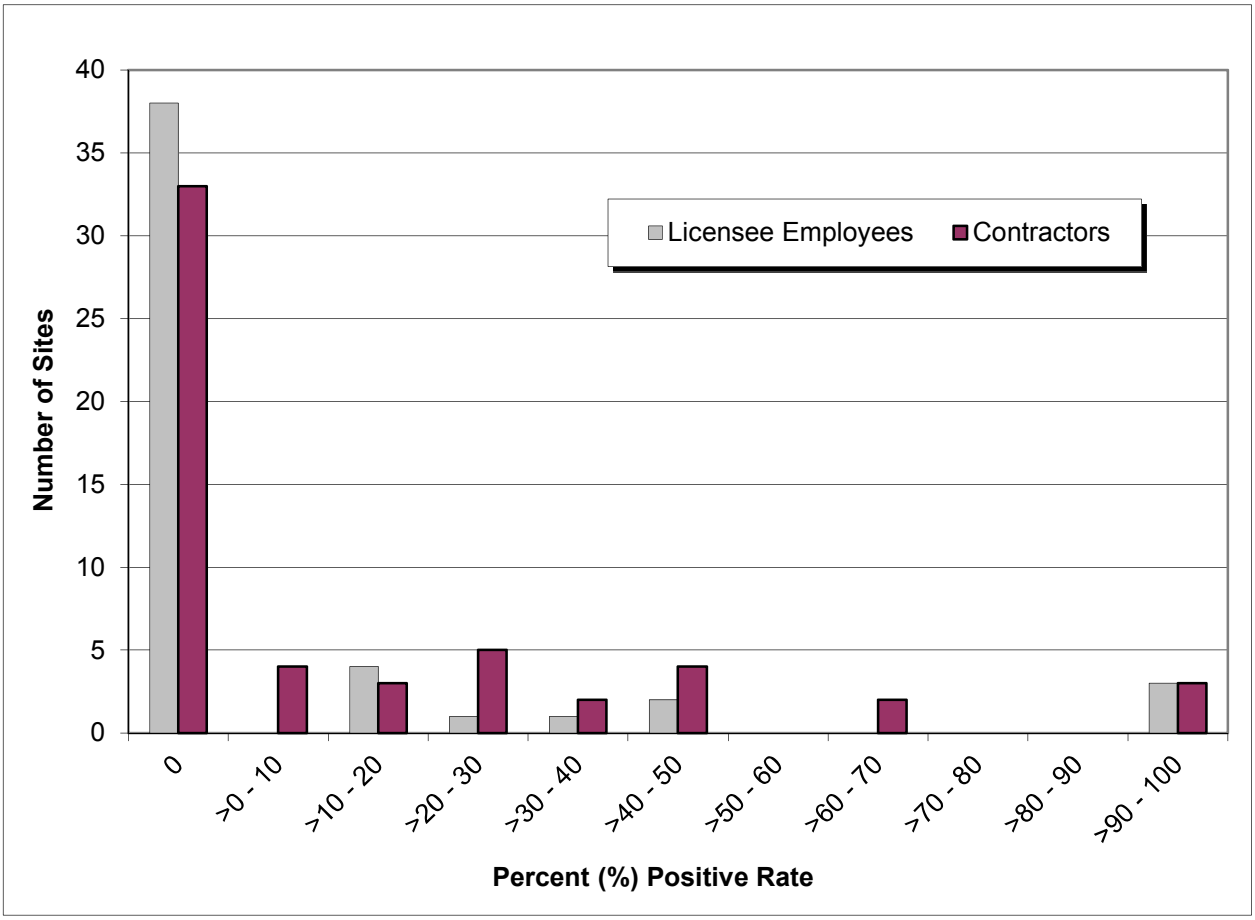


Table 14
Distribution of For-Cause Testing Positive Rate Ranges
by Employment Category and Number of Sites

Positive Rate Range (%)	Licensee Employees	Contractors/Vendors
0	38	33
>0–10	0	4
>10–20	4	3
>20–30	1	5
>30–40	1	2
>40–50	2	4
>50–60	0	0
>60–70	0	2
>70–80	0	0
>80–90	0	0
>90–100	3	3
Total Sites*	**49**	**56**

* Total site counts may differ because a site may not have tested any individuals in a work category.

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



Evaluation of E-Reported Data

This section provides a more detailed analysis of FFD program performance information provided by licensees and other entities that chose to use the voluntary e-reporting system the NRC developed in cooperation with industry. For CY 2010, two-thirds of the industry used the e-reporting system. As industry use of e-reporting increases, additional analyses and exhibits can enhance the communication of FFD performance.

The FFD e-reporting system for D&A consists of two reporting elements: an ARF and an SPTF, both of which must be used to satisfy the 10 CFR 26.717 reporting requirement. E-reporting results in greater consistency and accuracy and is a quantitative illustration of FFD performance.

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

Single Positive Test Form—An e-form used to report information on each positive test result or subversion attempt (e.g., refusal to test, adulteration, or substitute of specimen). Information presented on the SPTF 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 certain substances).

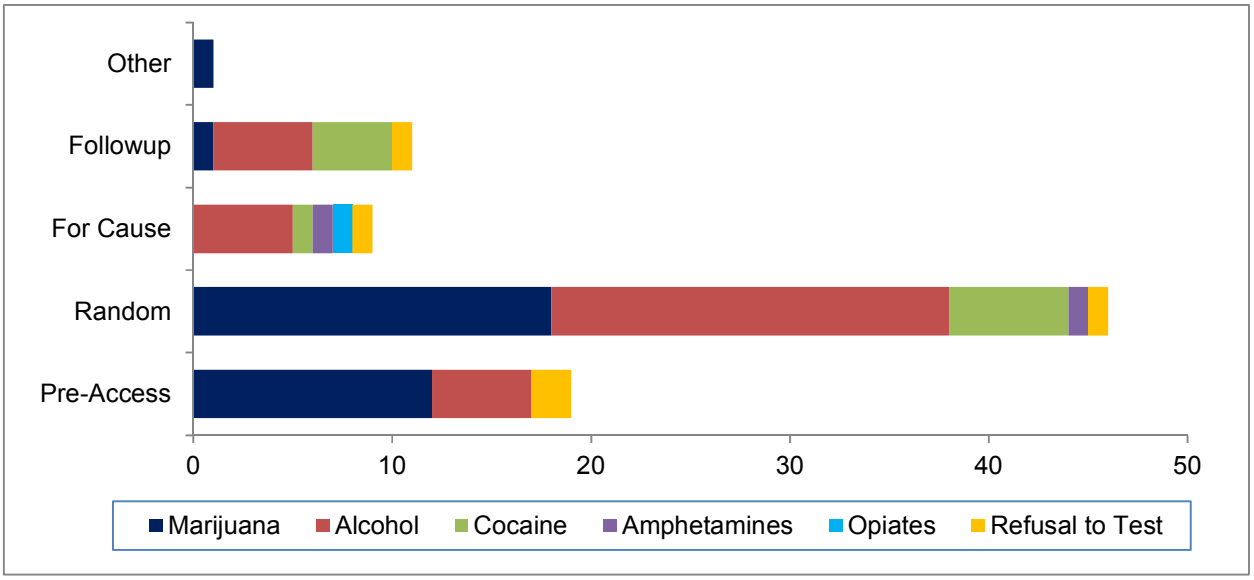
Table 15
Test Results for Each Test Category (Electronic Information Exchange (EIE) results)

Test Category	Number of Tests	Positive Tests	Percent Positive
Pre-Access	65,673	493	0.75%
Random	39,765	117	0.29%
For-Cause	358	27	7.54%
Post-event	538	3	0.56%
Follow-up	4,563	38	0.83%
Other	351	6	1.71%
TOTAL	**111,248**	**684**	**0.61%**

Observations on Table 15

- Licensees using the e-reporting system reported information on 111,248 tests. The e-reported data therefore covers approximately 67 percent of the 167,089 total tests the industry conducted (Table 1).
- The analysis includes 684 positive results, including testing refusals. The data cover 69 percent of positives and testing refusal results in CY 2010 (Table 1).
- Reporting summary:
  - In CY 2009, 25 percent of industry e-reported (13 licensees with 19 facilities).
  - In CY 2010, 69 percent of industry e-reported (20 licensees with 51 facilities).

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

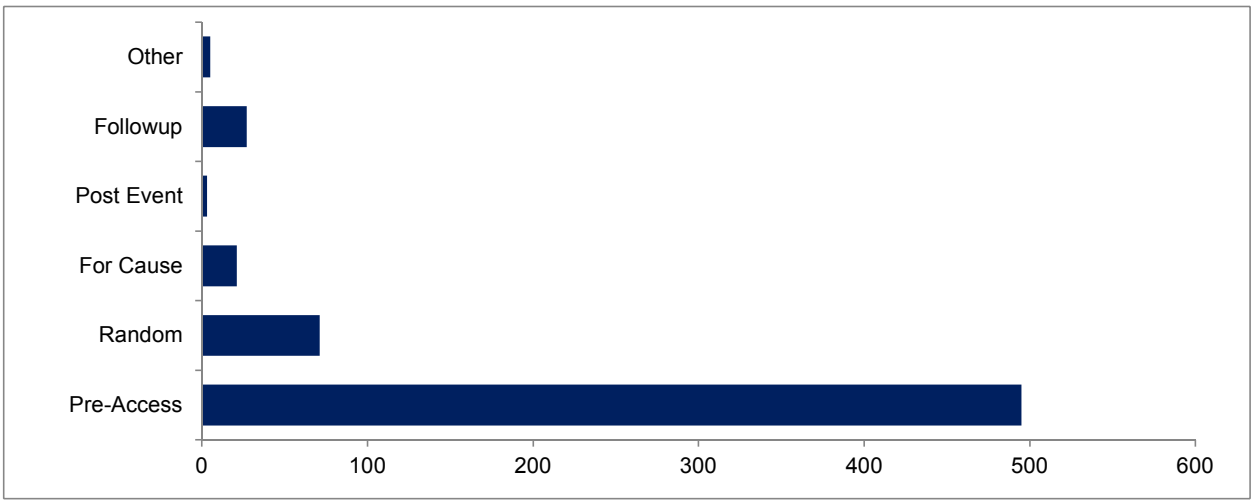


* This includes all test categories except the post-event category, for which there were no positive results.

Observations on Chart 11

- The number of positive results (86) was lower than for C/Vs (622), Chart 12.
- Five substances were detected (marijuana, alcohol, cocaine, amphetamines, and opiates).
    - marijuana and alcohol—predominant substances in each testing category, although only marijuana was detected in testing characterized as "Other"
    - cocaine—detected in random, for-cause, and follow-up testing
    - amphetamines—detected in random and for-cause testing
    - opiates—only detected in for-cause testing
- Testing refusals were reported for each of the four main testing categories (pre-access, random, for-cause, and follow-up).
- Of the four main testing categories, for-cause testing resulted in the fewest positive test results.
- No positive results were reported for the post-event testing category.
- For licensee employees, random tests account for most positive test results; conversely, C/V pre-access tests account for the majority of positive test results (Chart 12).

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



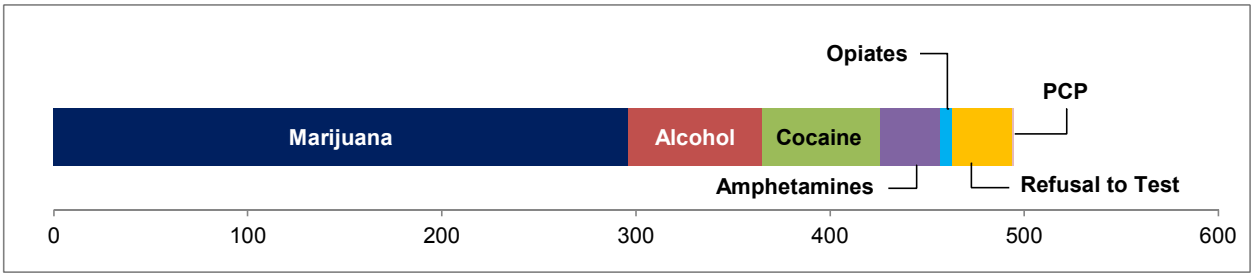
Observations on Chart 12

- Testing of C/Vs yielded 622 positive test results, including testing refusals.
- Approximately 80 percent of positive test results (495) occurred during pre-access testing.
- A much smaller number of positive results were reported for random (71), for-cause (21), post-event (3), follow-up (27), and other (5) testing.

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

As illustrated below, the breakout of substances for C/Vs according to 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). So, to improve the clarity of this illustration, pre-access testing results are reported separately.

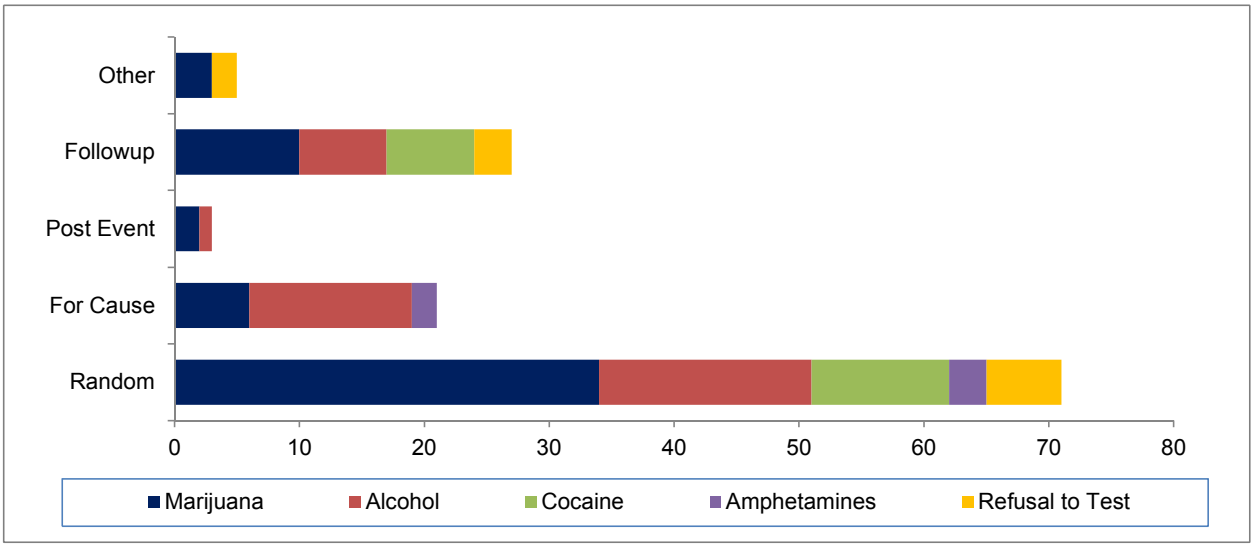
Chart 13
Contractors/Vendors, Pre-Access Positive Results by Substance (EIE results)



Observations on Chart 13

- Eighty-six percent of the pre-access testing positives were associated with three substances: marijuana (351), alcohol (107), and cocaine (79).
- A smaller number of positive tests were reported for amphetamines (36), opiates (6), testing refusals (42), and PCP (1).

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



Observations on Chart 14

- Tests detected four substances (marijuana, alcohol, cocaine, and amphetamines).
  - marijuana and alcohol—predominant substances in each testing category, although only marijuana detected in testing characterized as "Other"
  - cocaine—detected in random, follow-up, and pre-access testing (Chart 13)
  - amphetamines—detected in random, for-cause, and pre-access testing (Chart 13)
- As with licensee employees, alcohol was the most detected substance in C/Vs for-cause testing.
- Testing refusals were reported for random, follow-up, and pre-access testing (Chart 13).

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

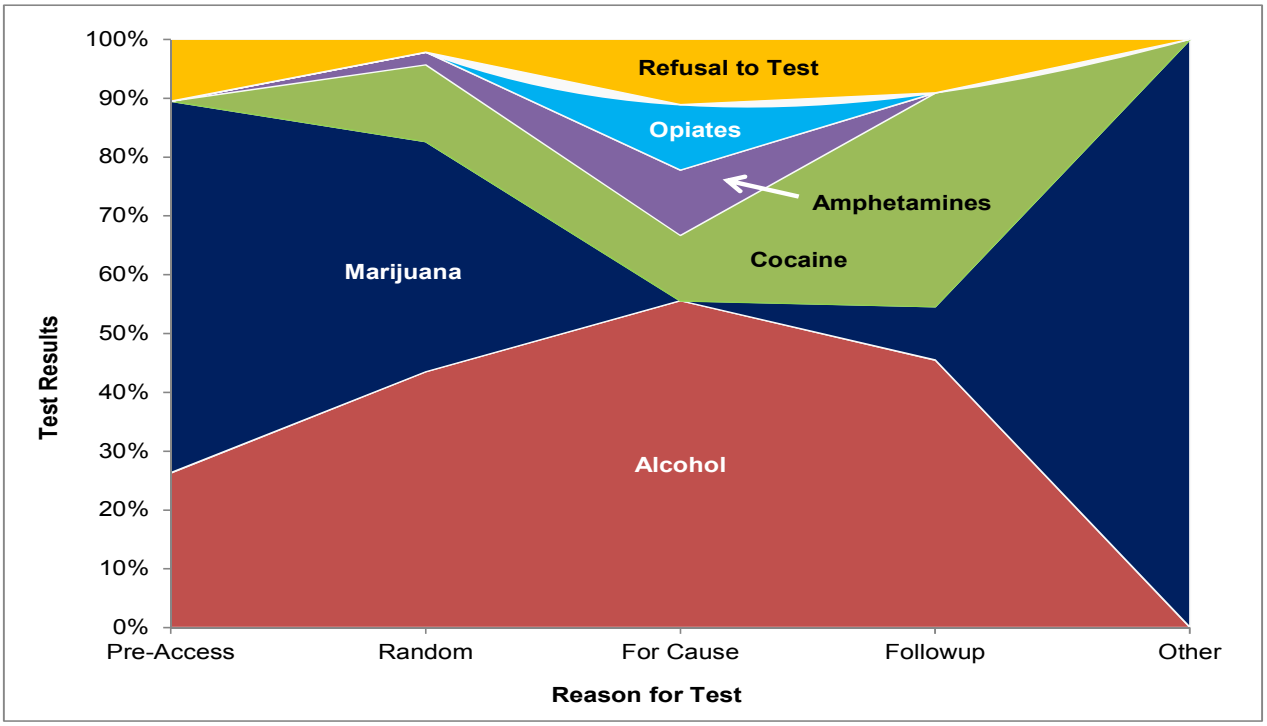
Licensee Employees, Percentage of Positive Tests by Substance and Reason for Test* (EIE results)

Table 16

Substance	Reason for Test				
	Pre-Access	Random	For-Cause	Follow-up	Other
Alcohol	26%	43%	56%	45%	-
Marijuana	63%	39%	-	9%	100%
Cocaine	-	13%	11%	36%	-
Refusal to Test	11%	2%	11%	9%	-
Amphetamines	-	2%	11%	-	-
Opiates	-	-	11%	-	-
Total	100%	100%	100%	100%	100%
	(Total = 19)	(Total = 46)	(Total = 9)	(Total = 11)	(Total = 1)

* This excludes only the post-event category, for which there were no positive results.

Chart 15



Observations on Chart 15

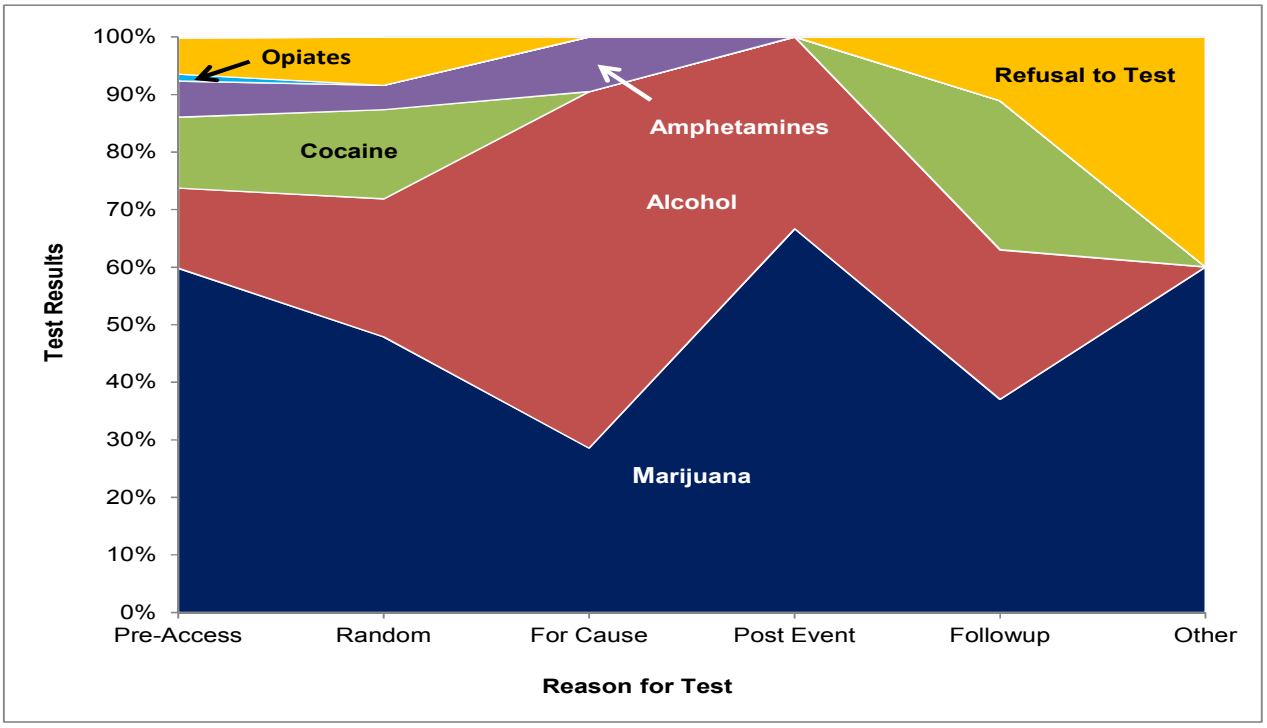
- The number of positive results (86), including testing refusals, was smaller than for contractors (622).
- Marijuana and alcohol accounted for at least 54 percent (and up to 100 percent) of positive test results, regardless of the reason for the test. Alcohol constituted over half (56 percent) of the for-cause positive tests.
- There were reports of testing refusals for each of the four main testing categories (pre-access, random, for-cause, and follow-up).
- There were no reports of positive results for the post-event testing category.

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

Table 17

Substance	Reason for Test					
	Pre-Access	Random	For-Cause	Post-event	Follow-up	Other
Marijuana	60%	48%	29%	67%	37%	60%
Alcohol	14%	24%	62%	33%	26%	-
Cocaine	12%	15%	-	-	26%	-
Amphetamines	6%	4%	10%	-	-	-
Opiates	1%	-	-	-	-	-
Refusal to Test	6%	8%	-	-	11%	40%
PCP	-	-	-	-	-	-
Total	100%	100%	100%	100%	100%	100%
	(Total = 495)	(Total = 71)	(Total = 21)	(Total = 3)	(Total = 27)	(Total = 5)

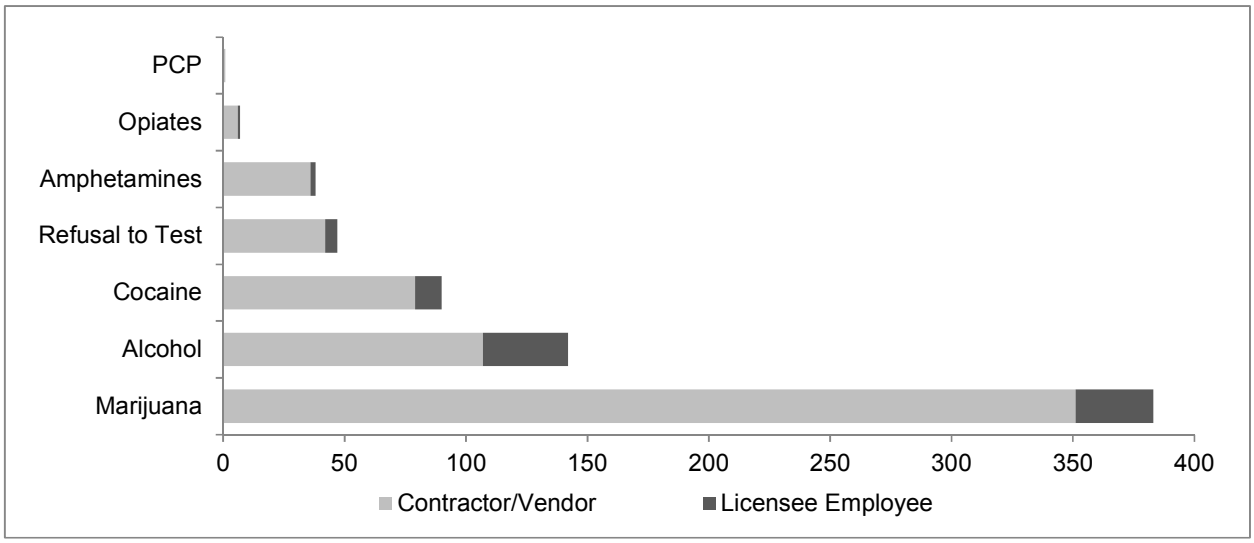
Chart 16



Observations on Chart 16

- The number of positive results (622), including testing refusals, was greater than for licensees (86).
- Marijuana and alcohol accounted for at least 60 percent (and up to 100 percent) of positive test results, regardless of the reason for the test.
    - Marijuana constituted more than half of the pre-access (60 percent), post-event (67 percent), and other (60 percent) positive tests.
    - Alcohol constituted 62 percent of the for-cause positive tests.
- Testing refusals were reported for pre-access, random, follow-up, and other testing categories.
- Opiates were only detected in pre-access testing and represented only 1 percent of positives for that test type.

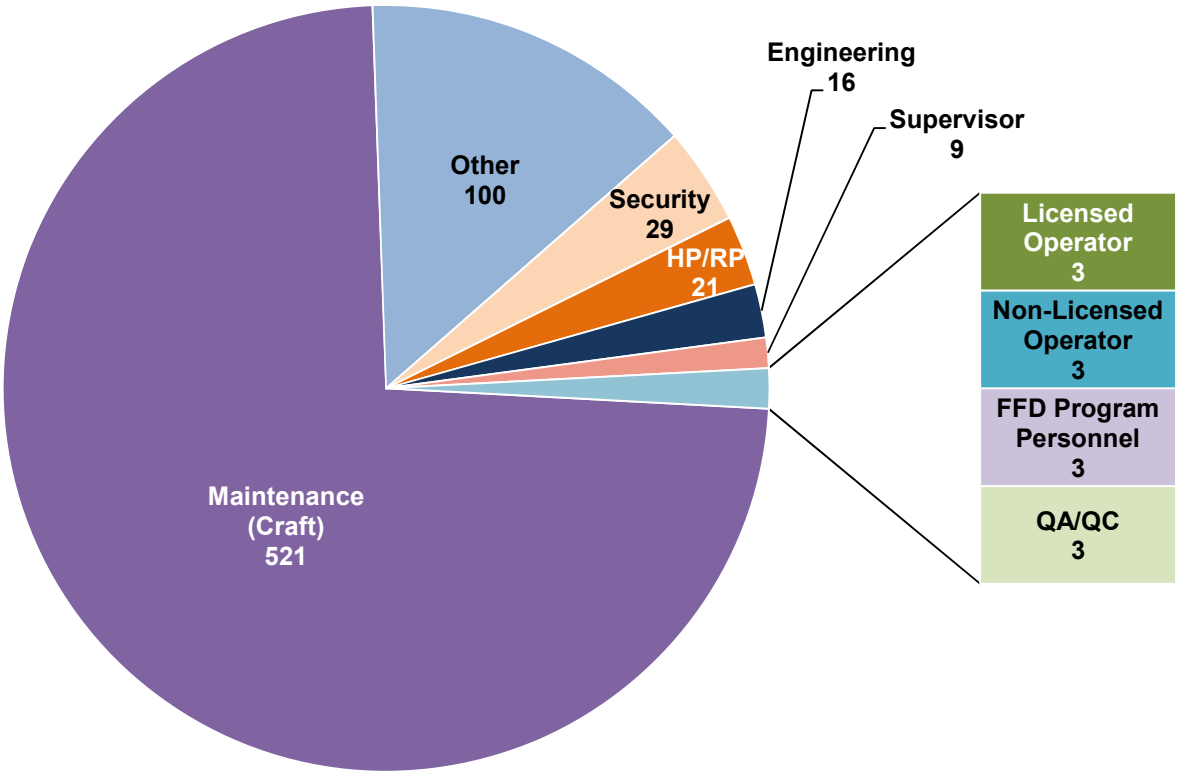
Chart 17
Positive Results by Substance and Work Category (EIE results)



Observations on Chart 17

- The large majority of substances detected and testing refusals occurred with C/Vs, including the following:
  - 92 percent of marijuana positives,
  - 88 percent of cocaine positives, and
  - 75 percent of alcohol positives.

Chart 18
Positive Results by Labor Category (EIE results)



Observations on Chart 18

- The labor categories maintenance (521) and other (100) comprised 88 percent of all reported violations (621 of 708 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)

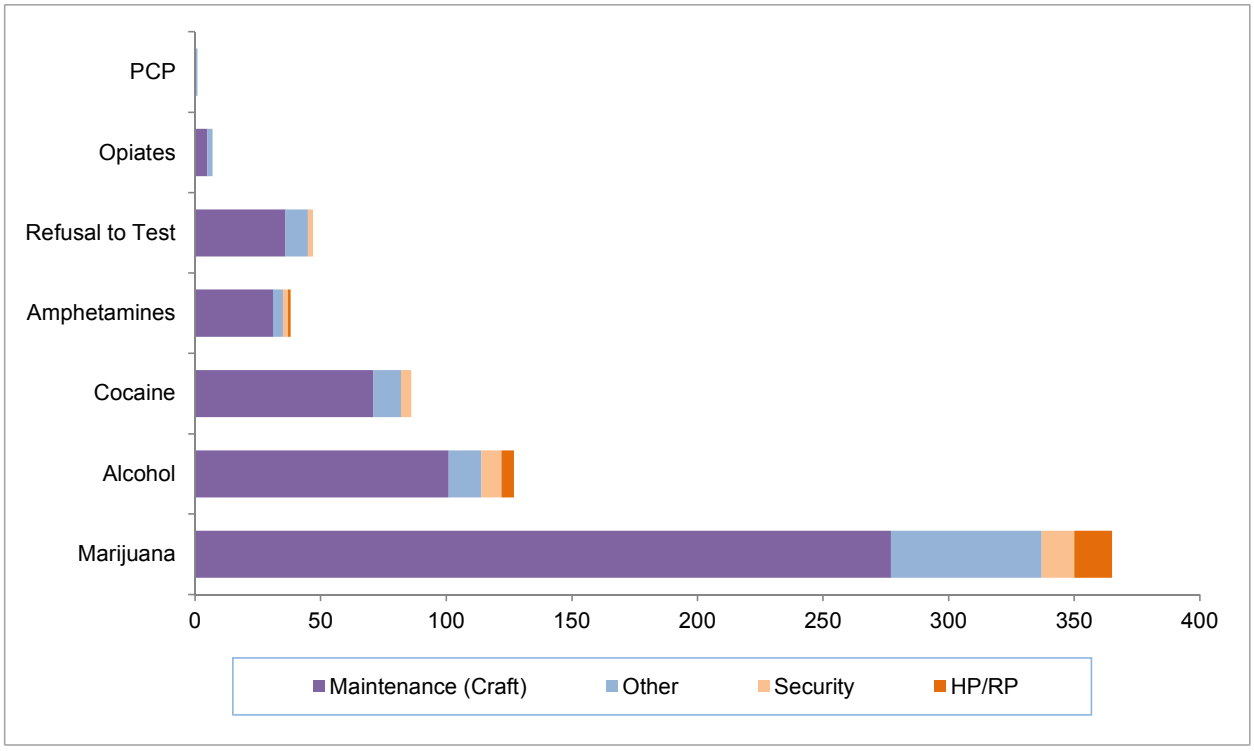
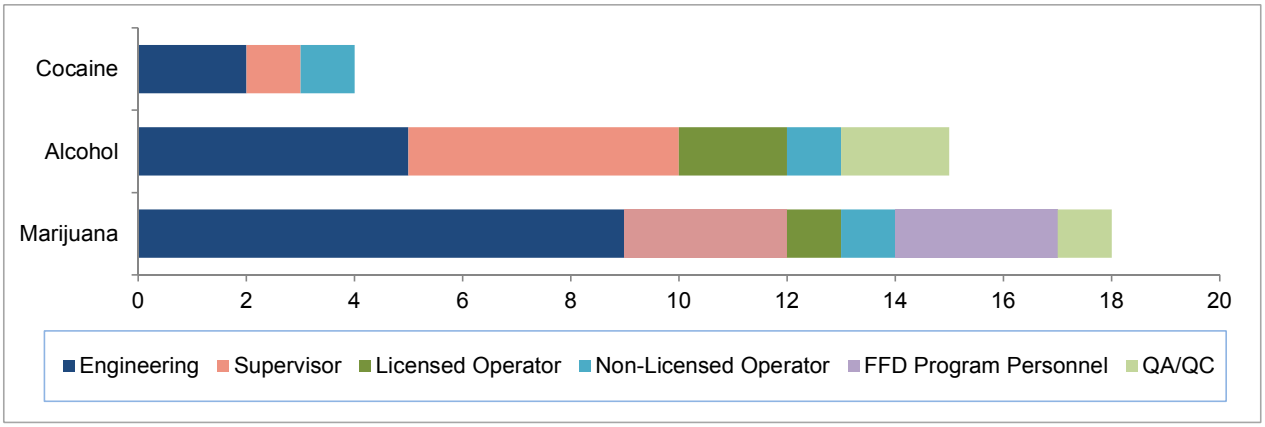


Chart 20
Positive Results by Substance* by Labor Category for Remaining Six Labor Categories
(EIE results)

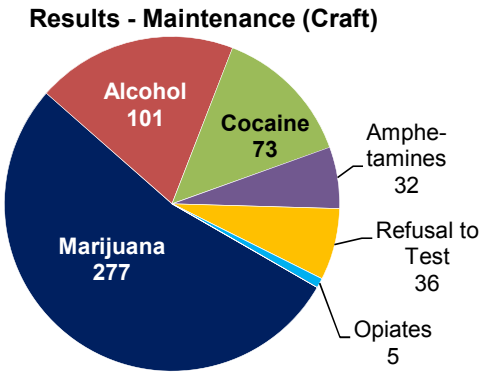


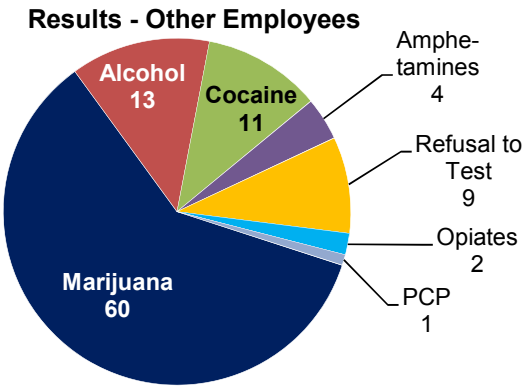
* This includes only substances for which positive tests were reported.

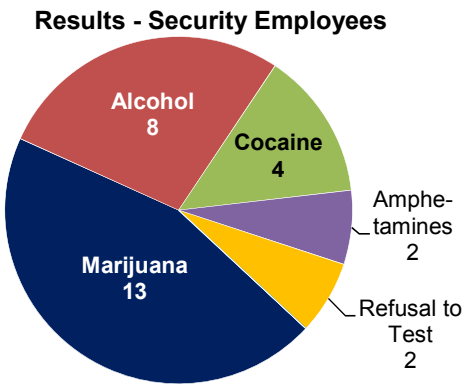
Observations on Charts 19 and 20

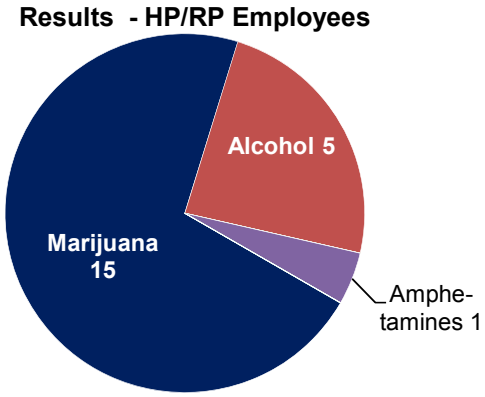
- The labor category maintenance is associated with the largest numbrer of positive results for each substance identified (Chart 19).
- The remaining six labor categories (engineering, supervisor, licensed operator, nonlicensed operator, FFD program personnel, and QA/QC) accounted for three substances (marijuana, cocaine, and alcohol) (Chart 20).

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





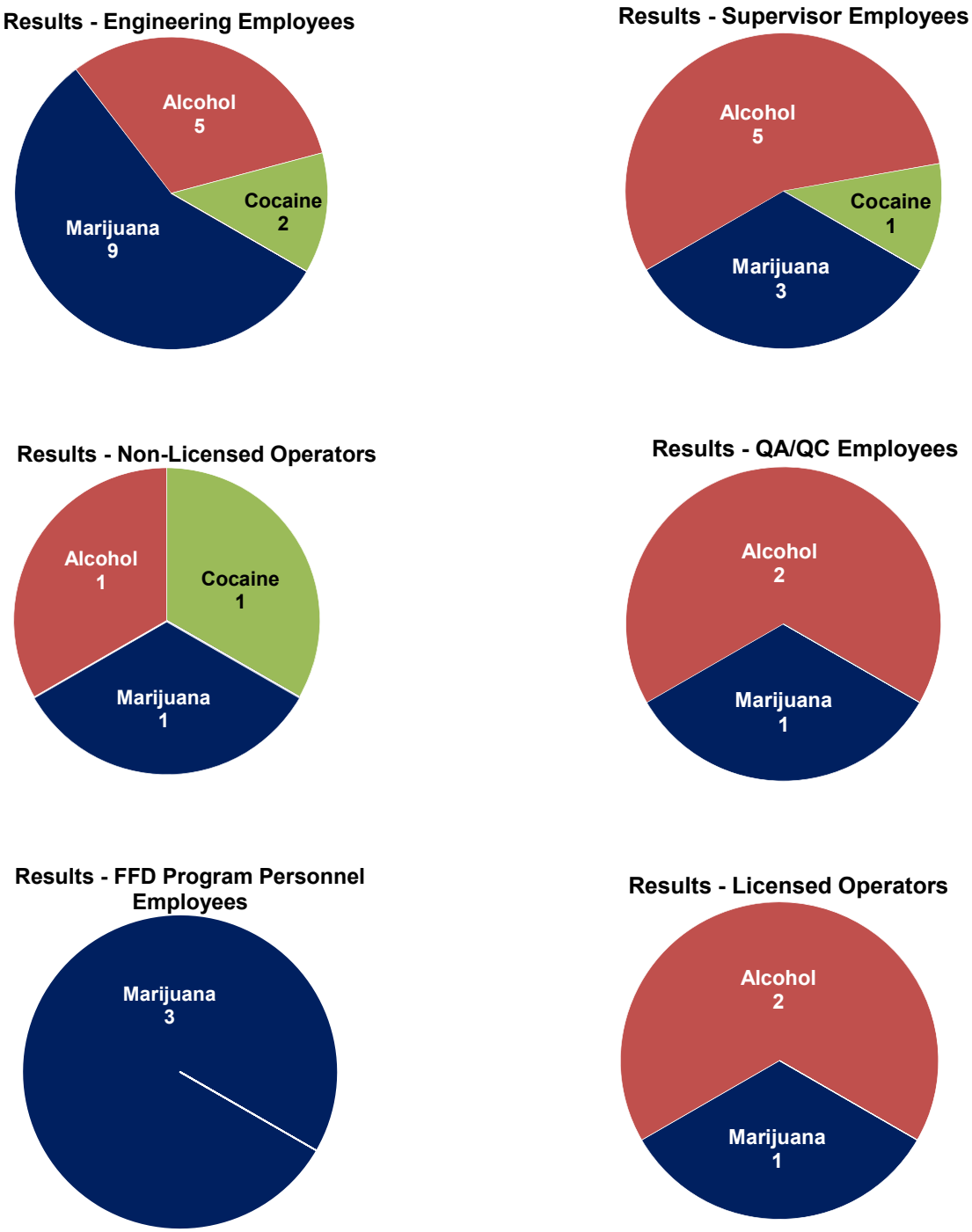




Observation on Chart 21

- The two labor categories (maintenance and other) that accounted for 88 percent of positive test results demonstrated a similar substance use pattern (i.e., the proportions of substances detected were consistent).

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



Observations on Chart 22

- Tests detected three substances (marijuana, alcohol, and cocaine) for the six labor categories with the fewest positive tests.
- Alcohol and marijuana constitute the majority of positive tests, ranging from 66 to 100 percent.

Subversion Attempts

This report presents subversion attempts in two categories and reflects them in Charts 23 through 26 by the reason for the test and by labor. The two subversion attempt categories are classified as follows:

Category 1—Refusal to test, based on a specimen test result. These determinations include the circumstances listed below:

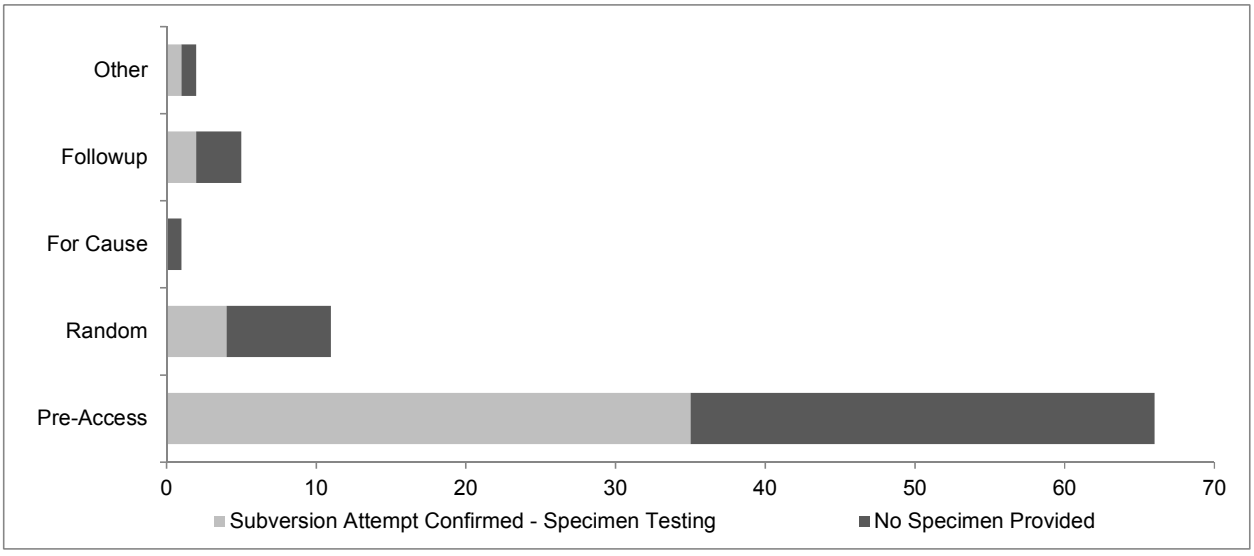
- validity test results of adulterated or substituted specimens (i.e., laboratory test results in 10 CFR 26.161, "Cutoff Levels for Validity Testing")
- an out-of-temperature-range specimen on the initial collection followed by an immediate second collection under direction observation, where the initial 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:

- a refusal to cooperate with the testing process (i.e., donor refusal 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)

Charts 23 and 24 provide information on CY 2010 subversion attempts by reason-for-test and by labor category respectively.

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

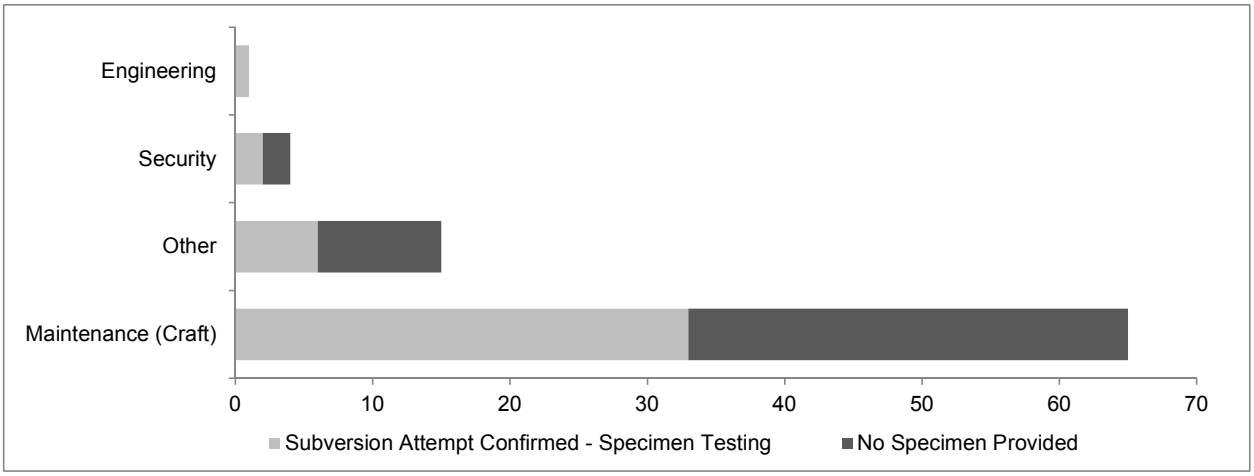


* This includes only the testing categories for which subversion attempts were reported.

Observations on Chart 23

- The total number of subversion attempts confirmed through specimen testing (42) was nearly the same as the total number of refusals to provide a specimen (43).
- The large majority (83 percent) of subversion attempts occurred during pre-access testing.
- The largest number of subversion attempts in the reason-for-test category, confirmed by specimen testing, was pre-access testing.

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



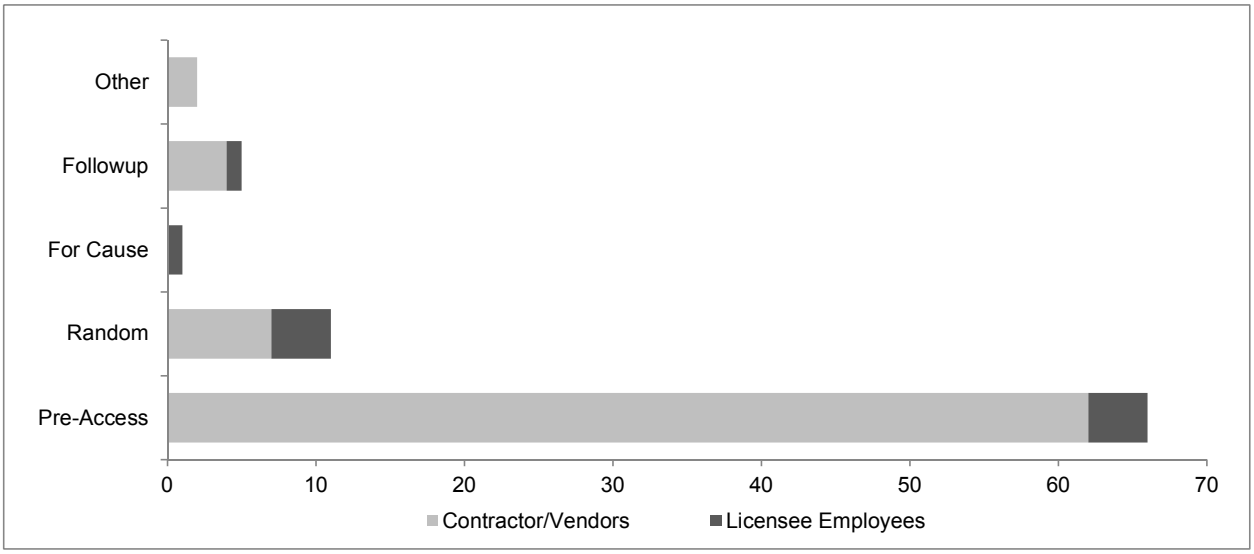
* This includes only the labor categories for which subversion attempts were reported.

Observations on Chart 24

- The total number of subversion attempts confirmed through specimen testing (42) was nearly the same as the total number confirmed as refusals to provide a specimen (43).
- Most subversion attempts are associated with the labor category maintenance (76 percent), followed by the labor category other (18 percent).

Charts 25 and 26 illustrate the relative contribution of licensee employees and CVs to the subversion attempt counts for each reason-for-test and labor category.

Chart 25*
Subversion Attempts by Reason-for-Test and Work Category (EIE results)

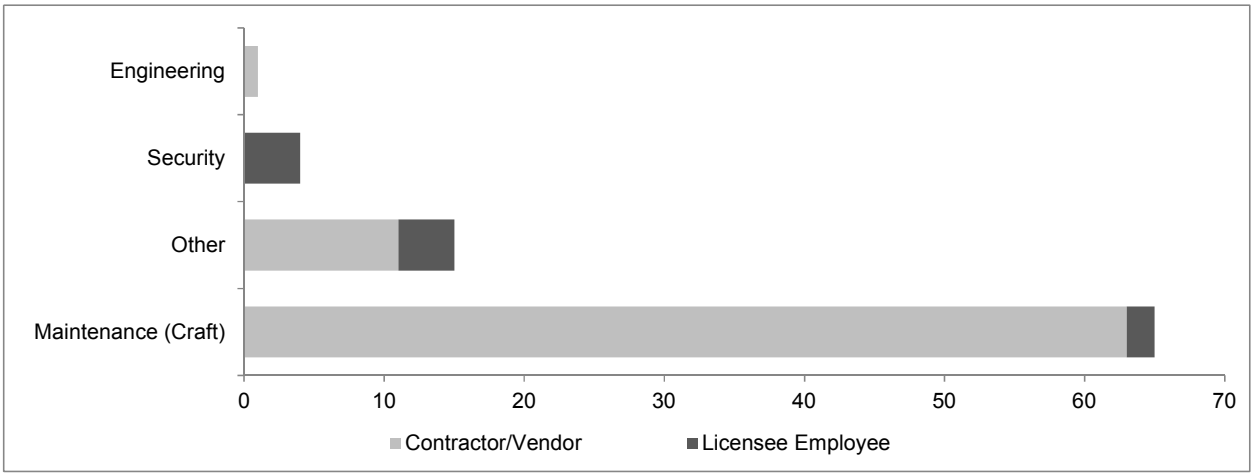


* This includes only the testing categories for which subversion attempts were reported.

Observations on Chart 25

- C/Vs were responsible for 88 percent of all subversion attempts, including 94 percent of the subversion attempts during pre-access testing.
- Licensee employees constituted 100 percent of subversion attempts during for-cause testing.
- The large majority (83 percent) of subversion attempts occurred during pre-access testing.

Chart 26*
Subversion Attempts by Labor Category and Work Category (EIE results)



* This includes only the labor categories for which subversion attempts were reported.

Observations on Chart 26

- C/Vs were responsible for 88 percent of all subversion attempts, including 97 percent of the subversion attempts in the labor category maintenance.
- Licensee employees accounted for 100 percent of attempts in the labor category security.
- Most subversion attempts were associated with the labor category maintenance (76 percent), followed by the labor category other (18 percent).

Table of Changes

This table highlights changes made to the tables in this report compared to the NRC staff's CY 2009 report.

Information Notice				Changes Made
CY 2009 results		CY 2010 results		
Table/ Chart No.	Table/Chart Title	Table/ Chart No.	Table/Chart Title	
Table a	Licensees Using the Voluntary E-Reporting System in CY 2009	Table a	Licensees and Other Entities Using the Voluntary E-Reporting System in CY 2010	• Updated the title to include references to other entities. Several other entities used the e-reporting system in CY 2010.
Table 10	Trends in Positive For-Cause Testing Rates by Work Category (1993-2009)	Table 10	Trends in Positive For Cause Testing Rates by Work Category (1993-2010)	• Revised the spelling of For-Cause to "For Cause" in the title, which is consistent with the spelling in §26.31(c)(2).
Table 11	Industry Positive Test Results for Pre-Access, Random, and For-Cause Testing, by Work Category, 2009	Table 11	Industry Positive Test Results for Pre-Access, Random, and For Cause Testing, by Work Category, 2010	• Revised the spelling of For-Cause to "For Cause" in the title, which is consistent with the spelling in §26.31(c)(2).
Chart 7	Trends in Positive For-Cause Testing Rates by Work Category (1993–2009)	Chart 7	Trends in Positive For Cause Testing Rates by Work Category (1993–2010)	• Revised the spelling of For-Cause to "For Cause" in the title, which is consistent with the spelling in §26.31(c)(2).
Chart 10	Comparison of Site For-Cause Testing Positive Rate Ranges by Work Category and Number of Sites, 2009	Chart 10	Comparison of Site For Cause Testing Positive Rate Ranges by Work Category and Number of Sites, 2010	• Revised the spelling of For-Cause to "For Cause" in the title, which is consistent with the spelling in §26.31(c)(2).
Chart 18	Positive Results by Substance by Labor Category (EIE Results), 2009	Chart 19	Positive Results by Substance by Labor Category for Top Four Labor Categories (EIE Results), 2010	• Divided original chart into two separate charts for presentation purposes. With increased industry use of the e-reporting system, the charts reflect additional labor categories.
		Chart 20	Positive Results by Substance by Labor Category for Remaining Six Labor Categories (EIE Results), 2010	

Information Notice				Changes Made
CY 2009 results		CY 2010 results		
Table/ Chart No.	Table/Chart Title	Table/ Chart No.	Table/Chart Title	
Chart 19	Individual Pie Charts Displaying Test Results for Each Labor Category (EIE Results), 2009	-	-	• Deleted chart. This information is now presented in two new charts—Individual Pie Charts Displaying Test Results for Top Four Labor Categories (new Chart 21) and Individual Pie Charts Displaying Test Results for Remaining Six Labor Categories (new Chart 22).
Chart 20	Subversion Attempt Descriptions, by Reason for Test (EIE Results), 2009	-	-	• Deleted charts. Replaced charts with improved subversion-attempt reporting information, based on different data analysis techniques. Original data were generic in nature (descriptions of subversion attempts but limited in clarity and utility). See new charts 23 through 26.
Chart 21	Subversion Attempt Descriptions, by Labor Category (EIE Results), 2009	-	-	

The following table presents information on new tables and charts included in the 2010 Information Notice (IN). The presentation of each table or chart is consistent with the order of appearance in the IN.

New Tables and Charts—2010 IN		
Table/ Chart	Title	Description
Chart 18	Positive Results by Labor Category (EIE Results), 2010	Pie chart that displays the total number of positive test results for each labor category.
Chart 19	Positive Results by Substance by Labor Category for Top Four Labor Categories (EIE Results), 2010	Bar chart that presents the positive test counts for each substance by labor category. This chart only includes the four labor categories with the most positive tests reported.
Chart 20	Positive Results by Substance by Labor Category for Remaining Six Labor Categories (EIE Results), 2010	Bar chart that presents the positive test counts for each substance by labor category. This chart includes the six labor categories with the fewest number of positive tests reports.
Chart 21	Individual Pie Charts Displaying Test Results for Top Four Labor Categories (EIE Results), 2010	Four pie charts, one for each of the four labor categories with the most positive counts, which present the number of positive tests by substance for that labor category.
Chart 22	Individual Pie Charts Displaying Test Results for Remaining Six Labor Categories (EIE Results), 2010	Six pie charts, one for each of the six labor categories with the fewest positive counts, which present the number of positive tests by substance for that labor category.
Chart 23	Summary of Testing Refusals by Reason for Test and Subversion Category (EIE Results), 2010	Bar chart that presents the number of subversion attempts in two categories (refusals based on test results, refusals based on no specimen provided) by reason for test.
Chart 24	Summary of Testing Refusals by Labor Category and Subversion Category (EIE Results), 2010	Bar chart that presents the number of subversion attempts in two categories (refusals based on test results, refusals based on no specimen provided) by labor category.
Chart 25	Subversion Attempts by Reason for Test and Work Category(EIE Results), 2010	Bar chart that presents the total number of subversion attempts by reason for test by work category (licensee employee, contractor/vendor).
Chart 26	Subversion Attempts by Labor Category and Work Category(EIE Results), 2010	Bar chart that presents the total number of subversion attempts by labor category and work category.