UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
OFFICE OF NEW REACTORS
WASHINGTON, DC 20555-0001

November 24, 2009

NRC INFORMATION NOTICE 2009-28: SUMMARY OF FITNESS FOR DUTY PROGRAM PERFORMANCE REPORTS FOR CALENDAR YEAR 2008

ADDRESSEES

All holders of operating licenses for nuclear power reactors issued under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

All holders of nuclear power plant construction permits and early site permits with a limited work authorization and applicants for nuclear power plant construction permits that have a limited work authorization under the provisions of 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

All holders of a combined license for a nuclear power plant issued under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," and applicants for a combined license that have a limited work authorization.

All licensees who are authorized to possess, use, or transport formula quantities of strategic special nuclear material under the provisions of 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material."

All holders of a certificate of compliance or an approved compliance plan issued under 10 CFR Part 76, "Certification of Gaseous Diffusion Plants," if the holder engages in activities involving formula quantities of strategic special nuclear material.

All contractors and vendors (C/Vs) who implement fitness-for-duty (FFD) programs or program elements to the extent that the licensees and other entities listed above rely on those C/V FFD programs or program elements to comply with 10 CFR Part 26, "Fitness For Duty Programs."

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this Information Notice (IN) to report FFD performance information obtained from licensees as detailed in their 2008 FFD program performance report submissions. The agency expects recipients to review the information for applicability to their facilities and to consider, as appropriate, corrective actions to improve their

FFD programs. Suggestions contained in this IN are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

The regulations of 10 CFR Part 26, "Fitness for Duty Programs," prescribe requirements and standards for the establishment, implementation, and maintenance of FFD programs. On March 31, 2008, the Commission published a final rule for 10 CFR Part 26 that updated FFD requirements and enhanced consistency with other relevant Federal rules and guidelines. This final rule (Volume 73 of the *Federal Register*, page 16966 (73 FR 16966; March 31, 2008)) became effective on April 30, 2008; however, licensees and other entities could defer implementation of the requirements related to drug and alcohol testing until March 31, 2009. The former rule (54 FR 24494; June 7, 1989), required licensees to submit their FFD program performance reports to the NRC within 60 days of the end of each 6-month reporting period (January - June and July - December). The current rule requires licensees to submit FFD program performance data annually before March 1 of the following year in accordance with 10 CFR 26.727, "Fitness-for-Duty Program Performance Date."

In the past, the NRC summarized and analyzed the performance data and published NUREG/CR-5758, "Fitness for Duty in the Nuclear Power Industry—Annual Summary of Program Performance Reports." Beginning with calendar year 1996 data, the NRC has published the summary and analysis of FFD program performance data through the NRC's generic communication program. The enclosure to this IN provides FFD program performance data for calendar year 2008.

This IN presents FFD program performance information for 74 licensees or other entities as follows:

- 64 reactor sites. One utility aggregated the performance data for two different reactor sites into one performance report. Therefore, although this IN only distinguishes between 64 reactor sites, the actual test results address all 65 reactor sites.
- 6 corporate FFD program offices. Some utilities with multiple reactor sites administer the FFD program at a location different from the reactor sites and therefore report data for these personnel separately.
- 4 contractors/SSNM transporters. These four include BWX Technologies, Inc.; Institute of Nuclear Power Operations; Nuclear Fuel Services, Inc.; and Westinghouse Electric Company, LLC.

DISCUSSION

The following summarizes information reported by licensees or other entities (hereafter, as licensees) on FFD program issues encountered and where appropriate the lessons learned, management initiatives, and corrective actions.

- Ten licensees reported issues associated with licensee testing facilities or HHS-certified laboratory performance involving equipment malfunctions or potential weaknesses related to human error, or both. Of these, the majority of problems pertained to blind performance test samples.

- Seven licensees reported testing program policy and procedure issues. These primarily involved alcohol testing and illegal drug (cocaine and marijuana) use.

- A number of licensees elected to test for alcohol or specific drugs or both using more stringent cutoff levels than those established by regulation (see Sections 2.7(e) and 2.7(f) in Appendix A, "Guidelines for Drug and Alcohol Testing Programs," to 10 CFR Part 26 in the former rule; and 10 CFR 26.133, "Cutoff Levels for Drugs and Drug Metabolites," and 10 CFR 26.163, "Cutoff Levels for Drugs and Drug Metabolites," in the current rule). Specifically, 5 licensees lowered the alcohol cutoff, 63 licensees reduced the marijuana cutoff, 4 licensees reduced the cocaine cutoff, 5 licensees reduced the opiate cutoff, 8 licensees reduced the amphetamine cutoff, and 4 licensees reduced the phencyclidine (PCP) cutoff. The lower cutoff levels for drugs and drug metabolites have resulted in the identification of illegal drug use. In addition, 7 licensees tested for additional drugs above those required by regulation.

- Five licensees reported initiatives that resulted in the identification of programmatic improvements or areas of weakness requiring corrective action.

- Three licensees reported various types of self-assessments or initiatives to improve their FFD programs. These actions included but were not limited to peer and external reviews. Two other licensees implemented new software programs to enhance the management of the FFD and access authorization programs.

- The staff noted that, for a few licensees, the program performance reports did not summarize management actions taken in response to identified FFD program occurrences or deficiencies (10 CFR 26.71(d) in the former rule and 10 CFR 26.717(b)(8) of the current rule). Fitness for duty programs are subject to NRC inspection.

The following describes FFD program performance issues that occurred at licensee facilities. For summary purposes, this information is presented below in four categories: (1) Certified Laboratories, (2) Policies and Procedures, (3) Program and System Management, and (4) Other Program and System Management Issues.

(1) Certified Laboratories

Overall, 10 licensees reported problems associated with laboratory performance involving equipment malfunctions or potential weaknesses related to human error, or both, as follows:

- One licensee reported a potential deficiency associated with the tamper indicating seals supplied by the U.S. Department of Health and Human Services (HHS)-certified laboratory for use in securing specimen containers. The licensee determined through testing that the

laboratory-supplied seal could be removed from a specimen bottle without indications of tampering. The licensee immediately implemented the use of a second more sensitive seal that was applied over the laboratory-supplied seal. A review of drug test results for specimen testing conducted at the laboratory over the past 2 years revealed no instances in which a specimen was rejected for testing because of a problem with the tamper-indicating seal. The laboratory was in the process of developing a new seal at the time of the FFD performance report submission. The licensee will conduct tests on the new seal when it receives it from the laboratory and will verify that the seal cannot be removed from a specimen bottle without the seal showing signs of tampering.

- One licensee reported that a contractor FFD technician included the phrase "Quality Assurance Blind" on the custody-and-control forms for blind performance test samples sent to the HHS-certified laboratory. This information distinguished the blind samples from donor specimens submitted for testing. The FFD technician received training on the correct procedures to follow for completing the custody-and-control forms for blind samples, and the licensee submitted new blind samples to the HHS-certified laboratory to replace those previously sent in error. The licensee also reviewed the custody-and-control forms for previous blind samples and identified no additional discrepancies.

- One licensee reported that the HHS-certified laboratory misplaced two specimens. An additional specimen was collected and tested for each donor.

- One licensee reported that the HHS-certified laboratory reported a false negative test result for a blind performance test sample containing amphetamine. Retesting of the blind sample at a second HHS-certified laboratory resulted in a positive test for amphetamine. The licensee's performance report submission did not specify the cause of the testing error at the initial HHS-certified laboratory.

- One licensee reported that the HHS-certified laboratory reported a false negative result for a blind performance test sample containing PCP. The laboratory investigated and determined that a random mechanical instrument error resulting from a small crack in a wash nozzle line caused the false negative.

- One licensee reported that the HHS-certified laboratory reported a false negative result for a blind performance test sample containing PCP. The laboratory determined that the certifying scientist incorrectly entered the test result into the laboratory's computer system. The laboratory conducted error correction training with the certifying scientist and indicated that all certifying scientists would receive additional training to ensure that they accurately entry of gas chromatography/mass spectrometry results into the laboratory's computer system.

- One licensee reported that the HHS-certified laboratory reported an inconsistent test result for a blind performance test sample containing marijuana and an adulterant. The laboratory reported only a marijuana positive test result. The licensee's performance report submission did not specify the cause of the inconsistent result from the HHS-certified laboratory.

- One licensee reported that an FFD program audit determined that it had not met the quarterly blind performance test sample requirement for the former rule (i.e., 10 percent of specimens tested in the quarter up to 250) for the third quarter of 2008. The licensee submitted 33 samples when it should have submitted 35 samples. The issue was attributed to the licensee's failure to apply self-checking techniques to ensure that the intended action was correct. Licensee staff completed refresher training and the licensee developed a tracking table to more accurately evaluate the number and type (i.e., positive or negative) of blind samples submitted for testing each quarter. A Human Performance Success Clock Evaluation recommended a Section Clock Reset because company administrative expectations were not being met. The licensee forwarded the Human Performance Success Clock Evaluation to the Condition Report Program Administrator for retention.

- Two licensees reported not meeting the quarterly blind performance test sample requirement for one quarter of testing. However, the licensees noted that the combined average for the first and second quarters was over 10 percent of the specimens submitted to the HHS-certified laboratory. The licensee generated condition reports, implemented corrective actions to prevent recurrence, and issued company-wide condition reports to share the event and lessons learned with other entities.

(2) Policies and Procedures

Overall, 7 licensees reported testing program policy and procedure issues as follows:

- One licensee reported that an NRC security inspection report identified a Green non-cited violation for failure to test personnel selected for random drug and alcohol testing at the earliest reasonable and practical opportunity.

- One licensee reported that the results of a self-assessment evaluation of 200 breath alcohol tests determined that 1 breath test had been improperly administered. The test was performed with only 1 minute between breath samples. An additional 1,000 records were reviewed with no issues identified.

- One licensee reported that a confirmed positive alcohol test result was appealed and overturned because the specimen collector completed the custody-and-control form improperly.

- One licensee reported that the pre-access[1] alcohol test for a refueling outage short-term contractor was conducted in error. Positive results were obtained during initial breath testing but confirmatory testing was not conducted because of a communication error by the

[1] Licensees and other entities shall administer drug and alcohol tests to the individuals who are subject to 10 CFR Part 26 under the following conditions: for pre-access, for-cause, and post-event. (10 CFR 26.31(c)). Licensees and entities are required to conduct pre-access testing as well as other actions (such as background, credit, and criminal history checks) to help ensure the honestly, integrity, and reliability of persons being considered for unescorted access to a licensee facility.

breath collector. The breath collector, a temporary worker hired for outage processing, was relieved of collection duties pending counseling and additional training. The short-term contractor was not granted unescorted access to the plant.

- One licensee reported that it determined that two licensee security officers were associated with illegal drugs. One security officer admitted to illegal drug use while on vacation and following his return to work. The second security officer was involved in an offsite event apparently involving the possession of cocaine and drug paraphernalia; this event required police response. For-cause tests were completed for both security officers, and the results of the tests were negative. The licensee terminated both employees' employment and implemented an accelerated random testing program for security officers above that required by 10 CFR Part 26. During this reporting period, the accelerated testing resulted in no positive test results.

- One licensee reported that a contract employee that previously had unescorted access, tested positive for marijuana on a pre-access test. The licensee granted the employee 5-day reinstated access pending receipt of the pre-access drug test result. Upon receipt of a positive test result, the licensee suspended the employee's unescorted access. The licensee reviewed the employee's work activities and did not identify any deficient work practices that could have impacted security- or safety-related systems/equipment. A review of the employee's request for unescorted access revealed no disqualifying information or indication of illegal drug use. The employee did not enter the protected area during the 5-day period. The licensee subsequently revoked the employee's unescorted access.

- One licensee reported that a thermometer used during a urine specimen collection was past due for calibration. A second specimen was collected from the donor and a condition report was written.

(3) Program and System Management

As described above, the current 10 CFR Part 26 rule was published and became effective April 30, 2008. However, licensees could defer implementation of the drug and alcohol provisions until March 31, 2009. As a result, for the 2008 FFD performance reporting period, some licensees may have implemented the amended/new requirements midway through calendar year 2008. Therefore, the drug and alcohol performance data presented below (e.g., cutoff and blood alcohol content (BAC) levels) could represent either the former or the current requirements depending on the actual date that the licensee implemented the current rule. The drug and alcohol testing requirements for the former rule are provided in 10 CFR Part 26, Appendix A, Sections 2.7(e) and 2.7(f). The current drug testing cutoff levels are found in 10 CFR 26.133 and 26.163 and the confirmatory BAC percentage considered a positive test result is found in 10 CFR 26.103. The changes to the drug and alcohol testing cutoff level changes are as follows:

- Marijuana metabolites. Initial cutoff level was lowered from 100 nanograms per milliliter (ng/mL) to 50 ng/mL.

- Opiate metabolites. Initial and confirmatory cutoff levels were increased from 300 ng/mL to 2000 ng/mL.

- Confirmatory alcohol test percent BAC. The current rule provides a work status provision to evaluate time-at-work when determining a positive alcohol test result. (Before the current rule, the NRC considered only a confirmatory alcohol test result of 0.04 percent BAC or higher as a positive test result.) Under the current rule, a positive test result is reported for three situations: a confirmatory alcohol test result of 0.04 percent BAC or higher; a 0.03 percent BAC or higher and in work status for at least 1-hour; and, a 0.02 percent BAC or higher and in work status for at least 2 hours.

Alcohol Testing (BAC Cutoff Levels):

- One licensee reported testing at a lower BAC cutoff level (0.02 percent BAC) for pre-access and follow-up testing.
- Four licensees reported testing at BAC cutoff levels ranging from 0.011-0.039 percent to extrapolate BAC levels based on time between alcohol consumption and time of test.
- Eight licensees reported implementing the BAC cutoff levels in the current rule.

Drug Testing (Cutoff Levels):

- Three licensees reported testing at the limits of detection (LOD) for all for-cause and follow-up tests and for suspect specimens. This testing resulted in the identification of marijuana and cocaine positive results.

Note:	For the drug or drug metabolites provided below, the following format is used: (Initial Cutoff Level/Confirmatory Cutoff Level). For example, "(50/15 ng/mL)" means that the initial confirmatory cutoff level is 50 ng/mL and the confirmatory cutoff level is 15 ng/mL.

<u>Marijuana</u>

Sixty-three licensees reported testing at lower cutoff levels than those required by the former rule. The majority of these licensees had also tested at these levels in prior years.

- Fifty-four licensees reported testing at lower cutoff levels under the former rule and consistent with the cutoff levels in the current rule (50/15 ng/mL).
  - Three of the 54 licensees reported maintaining an initial cutoff level at 100 ng/mL for licensee bargaining unit personnel and applied the 50/15 ng/mL cutoff levels for all other personnel.
  - Four of the 54 licenses reported using a 20 ng/mL initial cutoff level and confirmatory cutoff level at the LOD for dilute specimens (i.e., specimens with a creatinine concentration of less than 20 milligrams per deciliter).
  - Two licensees reported testing at lower cutoff levels (50/10 ng/mL). One of these licensees reported switching to a confirmatory cutoff level of 15 ng/mL in October 2008.
  - Two licensees reported testing at lower cutoff levels (20/15 ng/mL).
  - One licensee reported testing at lower cutoff levels (20/10 ng/mL).

- Four licensees reported testing at lower cutoff levels (20/3 ng/mL).

Cocaine

- Four licensees reported testing at lower cutoff levels (150/60 ng/mL).

Opiates

- Five licensees reported testing at lower cutoff levels (300/150 ng/mL).

Amphetamine

- One licensee reported testing at lower cutoff levels (1000/250 ng/mL).
- One licensee reported testing at lower cutoff levels (1000/200 ng/mL), but only for amphetamine, not for methamphetamine.
- One licensee reported testing at lower cutoff levels (300/300 ng/mL).
- One licensee reported testing at lower cutoff levels (300/250 ng/mL).
- Four licensees reported testing at lower cutoff levels (300/100 ng/mL).

Phencyclidine (PCP)

- Four licensees reported testing at lower cutoff levels (20/10 ng/mL).

Testing for Additional Drugs

- Five licensees reported testing for barbiturates (300/300 ng/mL), benzodiazepines (300/300 ng/mL), methadone (300/300 ng/mL), and methaqualone (300/300 ng/mL). Those tests resulted in one positive result.
- One licensee reported testing for methadone (300/200 ng/mL), but discontinued that testing after October 2008.
- One licensee reported testing for barbiturates (300/250 ng/mL) and benzodiazepines (300/250 ng/mL).

(4) Other Program and System Management Issues

- One licensee conducted an FFD self-assessment with a team of three peer evaluators from other licensees and two of their own employees. The assessment generated 13 recommendations that the licensee is currently evaluating.

- One licensee reported four issues identified during an NRC inspection: (1) donors had access to a soap dispenser in the collection area; (2) the licensee failed to perform follow-up testing at the required procedural frequency for a person; (3) unescorted access not withheld for three individuals who were not covered under the behavioral observation program (BOP) for more than 30 days; and (4) personal/privacy information was stored in an unprotected network location.

- One licensee reported that staff at the licensee testing facility participated in proficiency testing provided by the College of American Pathologists to ensure to the accuracy and integrity of the drug testing process.

- Two licensees implemented a new vendor-supplied database system to maintain and process information for the access authorization, FFD, and BOP programs. The information system automated and simplified processes, replaced multiple databases, and eliminated redundant work for licensee staff. This system incorporates and standardizes processes, programs, and procedures, including the annual supervisory reviews, monthly access control list, and the generation of the random selection lists for the FFD program. Efficiencies were gained by eliminating multiple data entry points and by reducing file maintenance activities.

CONTACT

This IN requires no specific action or written response. Please direct any questions about this matter to the technical contact listed below.

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Enclosure:
Summary of Fitness-for-Duty Program Performance Reports (Calendar Year 2008)

Note: NRC generic communications may be found on the NRC public Web site, http://www.nrc.gov, under Electronic Reading Room/Document Collections.

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Summary of Fitness for Duty Program Performance Reports
(Calendar Year 2008)

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 26.717, "Fitness-for-Duty Program Performance Data," (formerly 10 CFR 26.71(d)) requires licensees and other entities to, in part, collect, compile, retain, and submit fitness for duty program performance data. The tables and charts below present information for calendar year 2008 and in some cases present data over longer periods of time to present trends. The following is a summary description of the data listed in the subsequent tables. In some cases, the numerical summary values below have been rounded.

Summary

- The tables show that the industry positive test rate is low for both licensee and contractor/vendor populations.

- Table 1 shows that the positive test rate for all tests conducted by the industry is 0.65 percent. The for-cause test rate resulting from behavior observation is 11.79 percent, the highest industry positive test rate.

- Table 2 illustrates a consistent pattern regarding positive test rates by work category. Licensee employees have the lowest positive test rates and short-term contractors have the highest positive test rates. This pattern has been consistent across test types and over time as shown in Tables 9, 10, 11, and 12.

- Table 4 shows that marijuana is the substance most frequently detected substance in both licensee employee and contractor tests. For licensee employees, alcohol is the next most frequently detected substance while cocaine is the most frequently detected substance for contractors.

- Table 5 shows a downward trend in the number of significant events for reactor operators and supervisors.

- Table 7 illustrates that three substances (marijuana, cocaine, and alcohol) have accounted for approximately 95 percent of all substances identified in each year of industry testing from 1990 through 2008.
    - Marijuana 47 percent of substances in 1990, 55 percent in 2008
    - Cocaine 29 percent of substances in 1990, 20 percent in 2008
    - Alcohol 19 percent of substances in 1990 and 2008

- Table 8 shows that from 1990 through 2008 the annual random testing positive rate for industry has decreased from 0.37 percent to 0.23 percent.

Enclosure

- Table 13 presents the range of positive test rates reported by licensees in 2008, by work category, for pre-access and random testing. The information presented indicates that while the overall positive rates are low (less than 1 percent), contractors test positive at a much higher rate than licensee employees.

  Pre-access testing positive rates
  - Industry rate (contractors) is 0.85 percent
    (licensee sites reported positive rates from 0.0 to 2.10 percent)

  - Industry rate (licensee employees) is 0.18 percent
    (licensee sites reported positive rates from 0.0 to 1.53 percent).

  Random testing positive rates
  - Industry rate (contractors) is 0.43 percent
    (licensee sites reported positive rates from 0.0 to 2.01 percent)

  - Industry rate (licensee employees) is 0.14 percent
    (licensee sites reported positive rates from 0.0 to 0.60 percent).

Table 1 Test Results for Each Test Category (2008)

Test Category	Number of Tests	Positive Tests	Percent Positive
Pre-Access	87,468	664	0.76%
Random	54,759	127	0.23%
For-Cause			
Observed Behavior	797	94	11.79%
Post-Accident	986	7	0.71%
Follow-Up	5,756	44	0.76%
Other	2,171	55	2.53%
TOTAL*	**151,937**	**991**	**0.65%**
TOTAL without "Other" category	**149,766**	**936**	**0.62%**

* Includes the "Other" test category. Although some licensees specified the nature of the tests included in the "Other" category (e.g., return to work), most licensees did not provide clarifying information.

Table 2 Test Results by Test and Work Categories (2008)

Test Category	Licensee Employees	Long-Term Contractors*	Short-Term Contractors*	Total
Pre-Access				
Number Tested	11,498	1,086	74,884	**87,468**
Number Positive	21	10	633	**664**
Percent Positive	0.18%	0.92%	0.85%	**0.76%**
Random				
Number Tested	38,721	1,813	16,225	**54,759**
Number Positive	50	2	75	**127**
Percent Positive	0.14%	0.11%	0.46%	**0.23%**
For-Cause				
Observed Behavior				
Number Tested	329	30	438	**797**
Number Positive	22	0	72	**94**
Percent Positive	6.69%	0.00%	16.44%	**11.79%**
Post-Accident				
Number Tested	448	69	469	**986**
Number Positive	1	0	6	**7**
Percent Positive	0.22%	0.00%	1.28%	**0.71%**
Follow-Up				
Number Tested	2,856	139	2,761	**5,756**
Number Positive	19	0	25	**44**
Percent Positive	0.67%	0.00%	0.91%	**0.76%**
Other				
Number Tested	1,196	263	712	**2,171**
Number Positive	9	0	47	**55**
Percent Positive	0.75%	0.00%	6.60%	**2.53%**
TOTAL				
Number Tested	**53,048**	**3,400**	**95,489**	**151,937**
Number Positive	**122**	**12**	**857**	**991**
Percent Positive	**0.23%**	**0.35%**	**0.90%**	**0.65%**
TOTAL without "Other"				
Number Tested	**51,852**	**3,137**	**94,777**	**149,766**
Number Positive	**113**	**12**	**811**	**936**
Percent Positive	**0.22%**	**0.38%**	**0.86%**	**0.62%**

* Some licensees distinguished between short-term and long-term contractors, whereas others reported all contractors as short term.

Table 3 Test Results by Test Category (2008)

Test Category	First 6 Months	Second 6 Months	Year
Pre-Access			
Number Tested	48,177	39,291	87,468
Number Positive	394	270	664
Percent Positive	0.82%	0.69%	0.76%
Random			
Number Tested	27,795	26,964	54,759
Number Positive	71	56	127
Percent Positive	0.26%	0.21%	0.23%
For-Cause			
Observed Behavior			
Number Tested	450	347	797
Number Positive	56	38	94
Percent Positive	12.44%	10.95%	11.79%
Post-Accident			
Number Tested	526	460	986
Number Positive	5	2	7
Percent Positive	0.95%	0.43%	0.71%
Follow-Up			
Number Tested	3,082	2,674	5,756
Number Positive	20	24	44
Percent Positive	0.65%	0.90%	0.76%
Other			
Number Tested	1,206	965	2,171
Number Positive	30	25	55
Percent Positive	2.49%	2.59%	2.53%
TOTAL			
Number Tested	**81,236**	**70,701**	**151,937**
Number Positive	**576**	**415**	**991**
Percent Positive	**0.71%**	**0.59%**	**0.65%**
TOTAL without "Other"			
Number Tested	**80,030**	**69,736**	**149,766**
Number Positive	**546**	**390**	**936**
Percent Positive	**0.68%**	**0.56%**	**0.62%**

Table 4 Confirmed Positive Test Results by Substance and by Work Category (2008) (All test types, including testing Refusals)

Positive Test Result	Licensee Employees		Contractors (Long-Term/Short-Term)		Total	
	Number	Percent	Number	Percent	Number	Percent
Marijuana	47	32.87%	459	52.16%	506	49.46%
Cocaine	21	14.69%	163	18.52%	184	17.99%
Opiates	3	2.10%	13	1.48%	16	1.56%
Amphetamines	3	2.10%	32	3.64%	35	3.42%
Phencyclidine	1	0.70%	0	0.00%	1	0.10%
Alcohol	39	27.27%	138	15.68%	177	17.30%
Refusal to Test	29	20.28%	75	8.52%	104	10.17%
TOTAL*	**143**	**100.00%**	**880**	**100.00%**	**1,023**	**100.00%**

* The totals in this table may be higher than those reported in Tables 1, 2, and 3 because of instances in which an individual tested positive for more than one substance.

Chart 1
2008 Positive Test Results by Substance
Licensee Employees

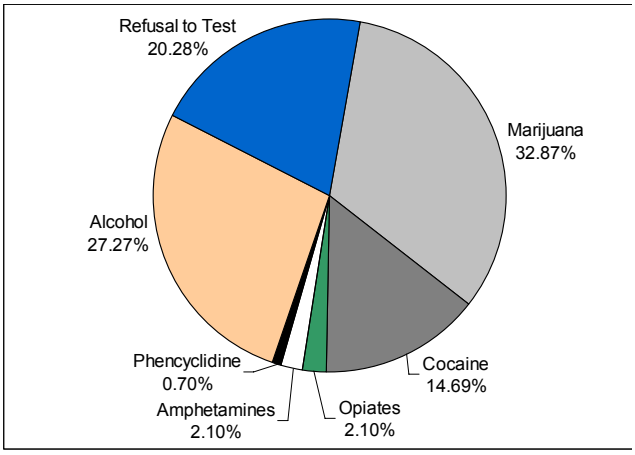


Chart 2
2008 Positive Test Results by Substance
Contractors

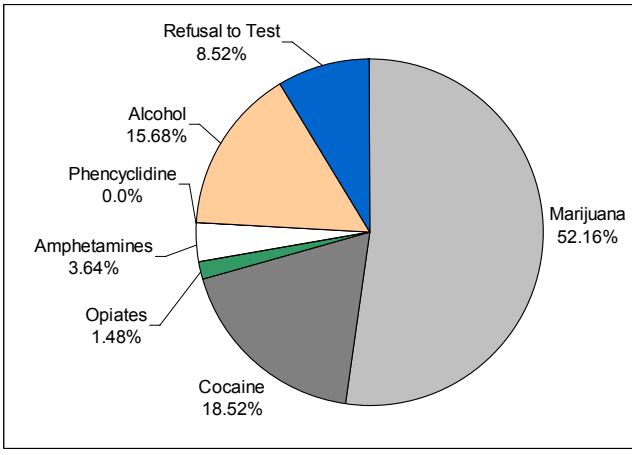


Table 5 Significant Fitness-for-Duty (FFD) Events*

Year	Reactor Operators	Licensee Supervisors	Contract 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**

* For this report, an adulterated specimen is reported if the original specimen was determined to be adulterated, dilute, or possessed unusually low or high temperature, specific gravity, 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 notes that some inconsistencies were identified in licensee reporting of adulterated specimens.

Table 6A Trends in Testing by Test Type

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	732	727	696	751	758	763	848	722	720	736
Number Positive	214	167	178	163	122	139	138	149	100	120
Percent Positive	29.23%	22.97%	25.57%	21.70%	16.09%	18.22%	16.27%	20.64%	13.89%	16.30%
Followup										
Number Tested	2,633	3,544	4,283	4,139	3,875	3,262	3,262	3,296	2,863	3,008
Number Positive	65	62	69	56	50	35	40	31	43	30
Percent Positive	2.47%	1.75%	1.61%	1.35%	1.29%	1.07%	1.23%	0.94%	1.50%	1.00%
TOTAL†										
Number Tested	**274,599**	**262,597**	**266,551**	**242,966**	**163,241**	**150,121**	**147,458**	**149,167**	**129,698**	**127,340**
Number Positive	**2,377**	**1,722**	**1,818**	**1,512**	**1,372**	**1,476**	**1,512**	**1,448**	**1,122**	**1,224**
Percent Positive	**0.87%**	**0.66%**	**0.68%**	**0.62%**	**0.84%**	**0.98%**	**1.03%**	**0.97%**	**0.87%**	**0.96%**

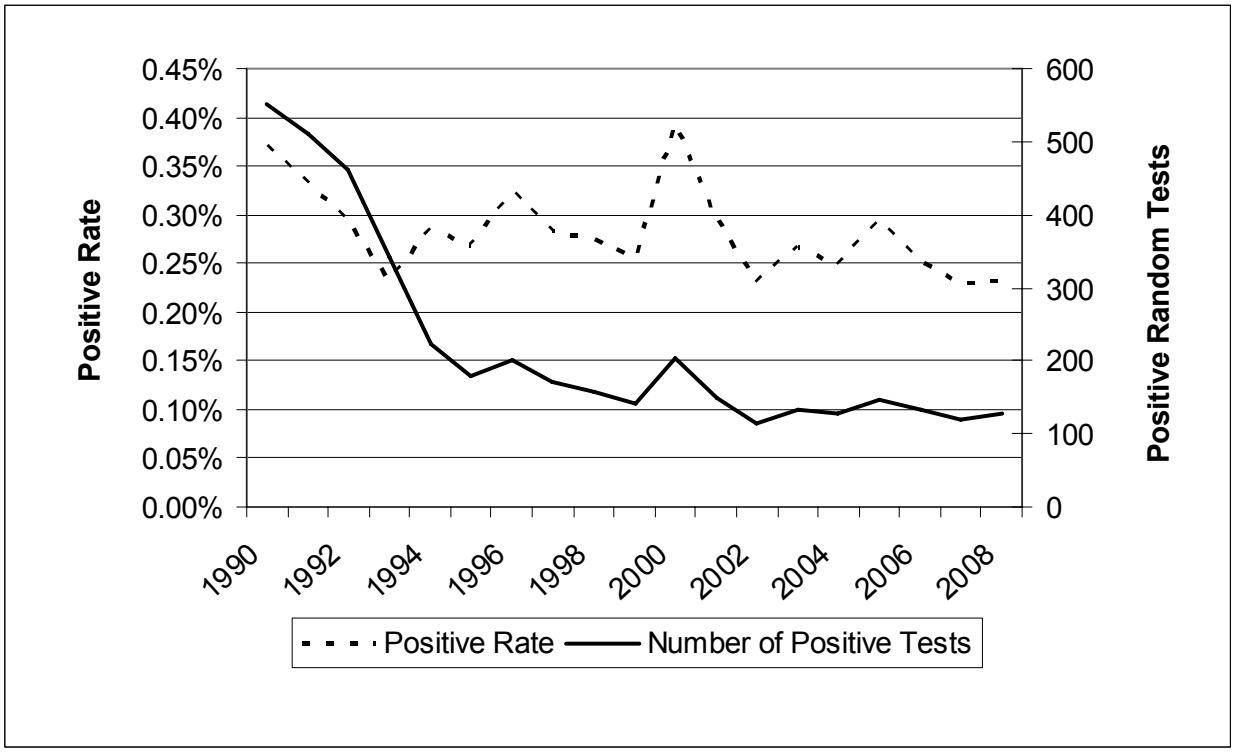
* Beginning in 1994, the NRC reduced the minimum annual random testing rate from 100 to 50 percent of the subject population.
† "Total" does not include results from the "Other" test category.

Table 6B Trends in Testing by Test Type

Type of Test	2000	2001	2002	2003	2004	2005	2006	2007	2008
Pre-Access									
Number Tested	68,333	63,744	73,155	72,988	76,119	79,005	79,980	81,932	87,468
Number Positive	965	720	805	757	737	648	747	668	664
Percent Positive	1.41%	1.13%	1.10%	1.04%	0.97%	0.82%	0.93%	0.82%	0.76%
Random									
Number Tested	51,955	50,080	49,741	49,402	51,239	50,286	52,557	51,665	54,759
Number Positive	204	148	114	132	127	147	132	117	127
Percent Positive	0.39%	0.30%	0.23%	0.27%	0.25%	0.29%	0.25%	0.23%	0.23%
For-Cause									
Number Tested	883	730	1,072	1,052	1,159	1,161	1,621	1,615	1,783
Number Positive	138	101	112	126	139	106	109	91	101
Percent Positive	15.63%	13.84%	10.45%	11.98%	11.99%	9.13%	6.72%	5.63%	5.66%
Followup									
Number Tested	2,861	2,649	2,892	3,142	3,752	4,057	4,766	4,991	5,756
Number Positive	49	35	21	42	31	31	37	31	44
Percent Positive	1.71%	1.32%	0.73%	1.34%	0.83%	0.76%	0.78%	0.62%	0.76%
TOTAL†*									
Number Tested	**124,032**	**117,203**	**126,860**	**126,584**	**132,269**	**134,509**	**138,924**	**140,203**	**149,766**
Number Positive	**1,356**	**1,004**	**1,052**	**1,057**	**1,034**	**932**	**1,025**	**907**	**936**
Percent Positive	**1.09%**	**0.86%**	**0.83%**	**0.84%**	**0.78%**	**0.69%**	**0.74%**	**0.65%**	**0.62%**

† “Total” does not include results from the “Other” test category.

Chart 3 Trends in Positive Random Testing Rates*



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

Table 7 Trends in Substances Identified

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**

Table 8 Trends in Positive Test Rates for Workers with Unescorted Access

Year	Random Testing		For-Cause Testing		Total (Random and For-Cause Testing)	
	Number of Tests	Percent Positive	Number of Tests	Percent Positive	Number of Tests	Percent Positive
1990	148,743	0.37%	732	29.23%	**149,475**	**0.54%**
1991	153,818	0.33%	727	22.97%	**154,545**	**0.47%**
1992	156,730	0.29%	696	25.57%	**157,426**	**0.44%**
1993	146,605	0.23%	751	21.70%	**147,356**	**0.37%**
1994*	78,391	0.28%	758	16.09%	**79,149**	**0.48%**
1995	66,791	0.27%	763	18.22%	**67,554**	**0.50%**
1996	62,307	0.32%	848	16.27%	**63,155**	**0.57%**
1997	60,829	0.28%	722	20.64%	**61,551**	**0.54%**
1998	56,969	0.28%	720	13.89%	**57,689**	**0.50%**
1999	54,457	0.26%	736	16.30%	**55,193**	**0.50%**
2000	51,955	0.39%	883	15.63%	**52,838**	**0.70%**
2001	50,080	0.30%	730	13.84%	**50,810**	**0.53%**
2002	49,741	0.23%	1,072	10.45%	**50,813**	**0.46%**
2003	49,402	0.27%	1,052	11.98%	**50,454**	**0.56%**
2004	51,239	0.25%	1,159	11.99%	**52,398**	**0.51%**
2005	50,286	0.29%	1,161	9.13%	**51,447**	**0.49%**
2006	52,557	0.25%	1,621	6.72%	**54,178**	**0.44%**
2007	51,665	0.23%	1,615	5.63%	**53,280**	**0.39%**
2008	54,759	0.23%	1,783	5.66%	**56,542**	**0.40%**

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

Table 9 Trends in Positive Test Rates (All Test Types)* by Work Category

Year	Licensee Employees		Long-Term Contractors		Short-Term Contractors	
	Number Positive	Percent Positive	Number Positive	Percent Positive	Number Positive	Percent Positive
1993	274	0.25%	17	0.21%	1,221	0.97%
1994	219	0.33%	25	0.49%	1,128	1.22%
1995	197	0.34%	14	0.40%	1,265	1.44%
1996	244	0.43%	21	0.69%	1,247	1.42%
1997	187	0.34%	29	0.80%	1,232	1.37%
1998	169	0.33%	22	0.67%	931	1.25%
1999	159	0.32%	22	0.65%	1,043	1.39%
2000	206	0.44%	78	1.51%	1,072	1.48%
2001	147	0.32%	22	0.64%	835	1.24%
2002	117	0.26%	12	0.46%	923	1.18%
2003	146	0.33%	12	0.61%	899	1.13%
2004	123	0.27%	15	0.58%	896	1.06%
2005	122	0.27%	19	0.78%	791	0.90%
2006	118	0.25%	14	0.68%	893	1.00%
2007	115	0.24%	15	0.67%	777	0.86%
2008	113	0.22%	12	0.38%	811	0.86%

* This includes all test categories with the exception of the “Other” test category.

Table 10 Trends in Positive Pre-Access Testing Rates by Work Category

Year	Licensee Employees		Long-Term Contractors		Short-Term Contractors	
	Number Positive	Percent Positive	Number Positive	Percent Positive	Number Positive	Percent Positive
1993	47	0.42%	7	0.47%	898	1.14%
1994	49	0.48%	12	0.86%	916	1.34%
1995	60	0.57%	7	0.61%	1,055	1.56%
1996	94	0.95%	13	1.21%	1,025	1.46%
1997	62	0.55%	17	1.34%	1,017	1.42%
1998	50	0.53%	12	0.88%	760	1.30%
1999	44	0.52%	10	0.75%	880	1.48%
2000	51	0.67%	60	2.06%	854	1.48%
2001	44	0.52%	16	0.98%	660	1.23%
2002	28	0.35%	10	0.80%	767	1.20%
2003	41	0.49%	8	1.03%	708	1.11%
2004	35	0.46%	8	0.73%	694	1.03%
2005	28	0.34%	12	1.56%	608	0.87%
2006	24	0.26%	7	1.33%	716	1.02%
2007	34	0.35%	8	1.25%	626	0.88%
2008	21	0.18%	10	0.92%	633	0.85%

Table 11 Trends in Positive Random Test Rates by Work Category

Year	Licensee Employees		Long-Term Contractors		Short-Term Contractors	
	Number Positive	Percent Positive	Number Positive	Percent Positive	Number Positive	Percent Positive
1993	157	0.17%	7	0.11%	177	0.39%
1994	96	0.18%	7	0.19%	120	0.54%
1995	82	0.18%	5	0.21%	93	0.50%
1996	94	0.21%	4	0.21%	104	0.64%
1997	76	0.18%	6	0.27%	90	0.54%
1998	71	0.18%	9	0.48%	77	0.52%
1999	71	0.18%	7	0.35%	62	0.45%
2000	116	0.32%	5	0.24%	83	0.64%
2001	64	0.18%	4	0.24%	80	0.65%
2002	55	0.15%	1	0.08%	58	0.45%
2003	61	0.18%	3	0.26%	68	0.48%
2004	51	0.15%	6	0.43%	70	0.46%
2005	60	0.18%	5	0.33%	82	0.54%
2006	55	0.16%	5	0.35%	72	0.44%
2007	55	0.16%	5	0.33%	57	0.38%
2008	50	0.14%	2	0.11%	75	0.46%

Table 12 Trends in Positive Observed Behavior Testing Rates by Work Category

Year	Licensee Employees		Long-Term Contractors		Short-Term Contractors	
	Number Positive	Percent Positive	Number Positive	Percent Positive	Number Positive	Percent Positive
1993	35	15.58%	2	16.67%	126	35.29%
1994	39	19.60%	5	35.71%	75	24.35%
1995	35	14.89%	2	16.67%	101	30.70%
1996	34	13.93%	4	33.33%	98	26.85%
1997	34	16.35%	6	37.50%	104	33.88%
1998	26	14.05%	1	11.11%	70	26.82%
1999	29	14.29%	4	23.53%	87	30.42%
2000	21	10.24%	12	13.48%	99	31.43%
2001	20	9.13%	2	10.00%	77	28.84%
2002	23	9.47%	1	12.56%	86	23.50%
2003	22	9.48%	0	0.00%	101	25.70%
2004	23	8.65%	0	0.00%	111	26.62%
2005	19	6.15%	2	12.50%	84	24.28%
2006	24	7.45%	2	9.52%	78	20.91%
2007	15	5.14%	2	9.09%	64	15.76%
2008	22	6.69%	0	0.00%	72	16.44%

FFD Performance Testing Results by Site

This section presents distributional information by site for pre-access, random, and for-cause testing (i.e., observed behavior testing). This distributional information provides licensees with additional information to evaluate the performance of their FFD program against the industry rate. Before this 2008 report, NRC Information Notices primarily presented industry trends by test type and work categories and did not provide FFD program performance testing data on a site-specific basis.

Table 13 Industry Positive Test Results for Pre-Access, Random, and Observed Behavior Testing by Work Category (2008)

Pre-Access Testing		
Work Category	**Industry % Positive**	**Range of % Positive (by Site)**
Licensee Employees	0.18	0 - 1.53
Contractors	0.85	0 - 2.10
All Work Categories	**0.76**	**N/A**
Random Testing		
Work Category	**Industry % Positive**	**Range of % Positive (by Site)**
Licensee Employees	0.14	0 - 0.60
Contractors	0.43	0 - 2.01
All Work Categories	**0.23**	**N/A**
Observed Behavior Testing		
Work Category	**Industry % Positive**	**Range of % Positive (by Site)**
Licensee Employees	6.69	0 - 100
Contractors	15.38	0 - 100
All Work Categories	**11.79**	**N/A**

2008 Pre-Access Testing Positive Rates by Site

Table 14 Distribution of Pre-Access Testing Positive Rates by Work Category by Site

All Employees		Licensee Employees		Contractors	
Positive Rate Range (%)	Sites	Positive Rate Range (%)	Sites	Positive Rate Range (%)	Sites
0	11	0	57	0	11
>0.0 - 0.2	1	>0.0 - 0.2	1	>0.0 - 0.25	4
>0.2 - 0.4	8	>0.2 - 0.4	2	>0.25 - 0.5	14
>0.4 - 0.6	12	>0.4 - 0.6	3	>0.5 - 0.75	12
>0.6 - 0.8	11	>0.6 - 0.8	5	>0.75 - 1.0	11
>0.8 - 1.0	14	>0.8 - 1.0	2	>1.0 - 1.25	8
>1.0 - 1.2	8	>1.0 - 1.2	2	>1.25 - 1.5	4
>1.2 - 1.4	3	>1.2 - 1.4	0	>1.5 - 1.75	2
>1.4 - 1.6	4	>1.4 - 1.6	1	>1.75 - 2.0	3
>1.6 - 1.8	1	>1.6 - 1.8	0	>2.0 - 2.25	0
Total Sites*	**73**	**Total Sites**	**73**	**Total Sites**	**72**

* Total site counts may differ because a site may not have tested one work category.

Chart 4 Distribution of Pre-Access Testing Positive Rates (All Employees) by Site

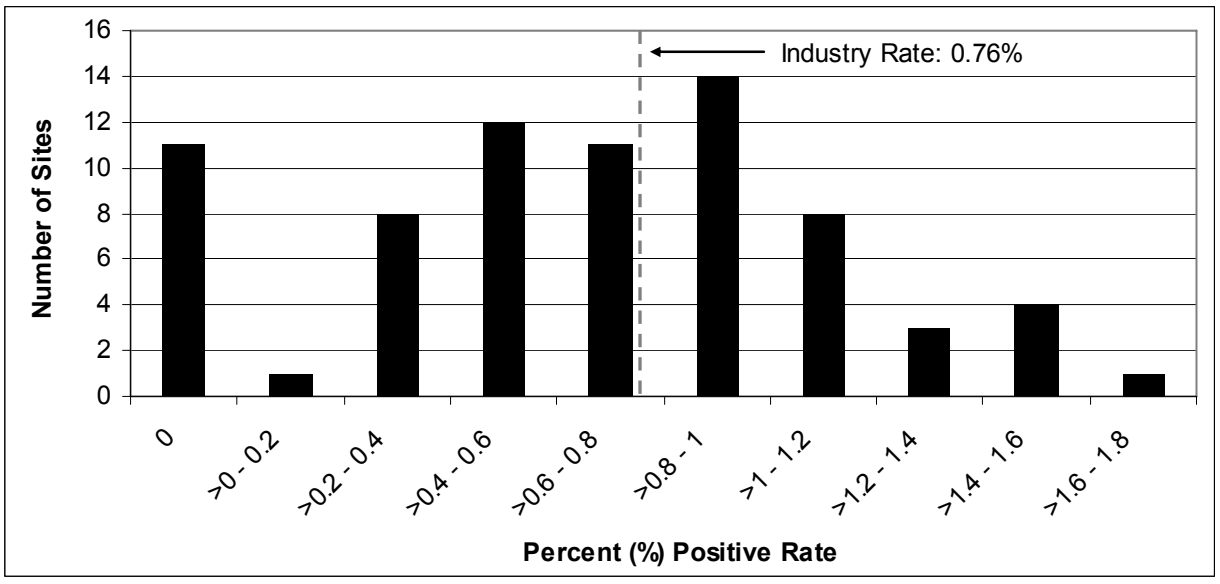


Chart 5 Distribution of Pre-Access Testing Positive Rates (Licensee Employees) by Site

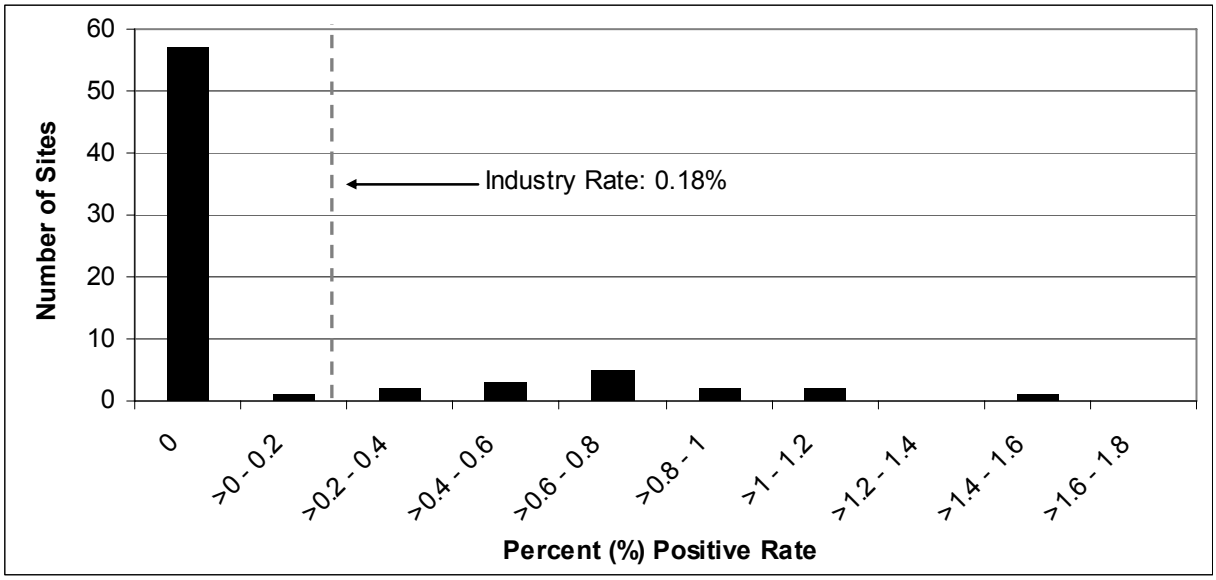
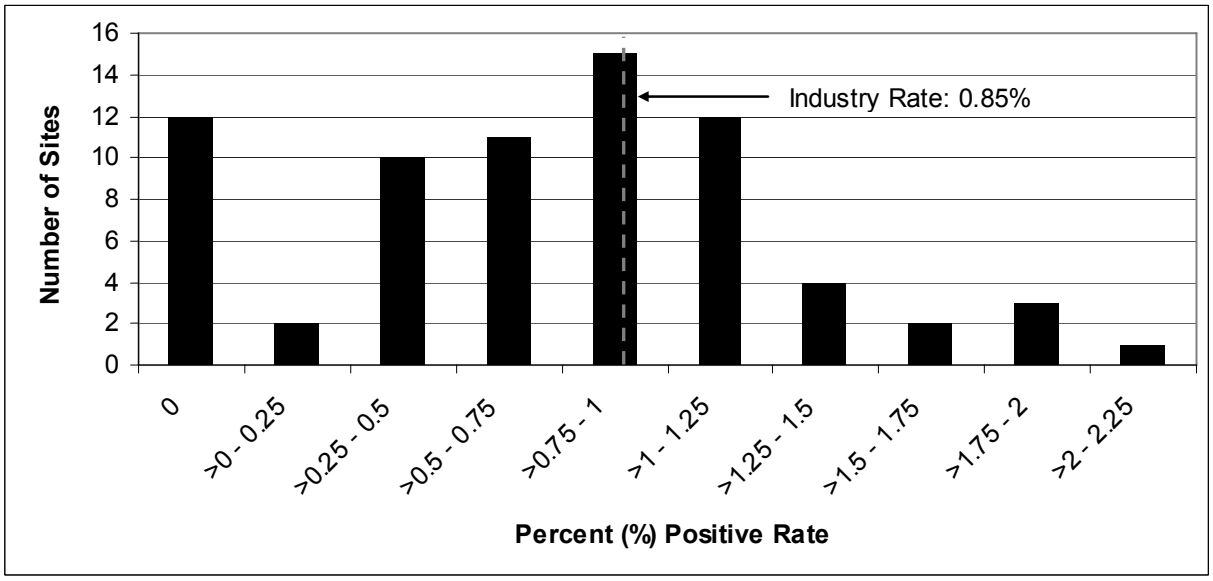


Chart 6 Distribution of Pre-Access Testing Positive Rates (Contractors) by Site



2008 Random Testing Positive Rates by Site

Table 15 Distribution of Random Testing Positive Rates by Work Category by Site

All Employees		Licensee Employees		Contractors	
Positive Rate Range (%)	Sites	Positive Rate Range (%)	Sites	Positive Rate Range (%)	Sites
0	28	0	43	0	38
>0.0 - 0.1	2	>0.0 - 0.1	1	>0.0 - 0.3	3
>0.1 - 0.2	10	>0.1 - 0.2	7	>0.3 - 0.6	14
>0.2 - 0.3	9	>0.2 - 0.3	10	>0.6 - 0.9	10
>0.3 - 0.4	14	>0.3 - 0.4	5	>0.9 - 1.2	2
>0.4 - 0.5	4	>0.4 - 0.5	1	>1.2 - 1.5	4
>0.5 - 0.6	5	>0.5 - 0.6	6	>1.5 - 1.8	0
>0.6 - 0.7	1	>0.6 - 0.7	0	>1.8 - 2.1	1
Total Sites	**73**	**Total Sites**	**73**	**Total Sites**	**72**

* Total site counts may differ because a site may not have tested one work category.

Chart 7 Distribution of Random Testing Positive Rates (All Employees) by Site

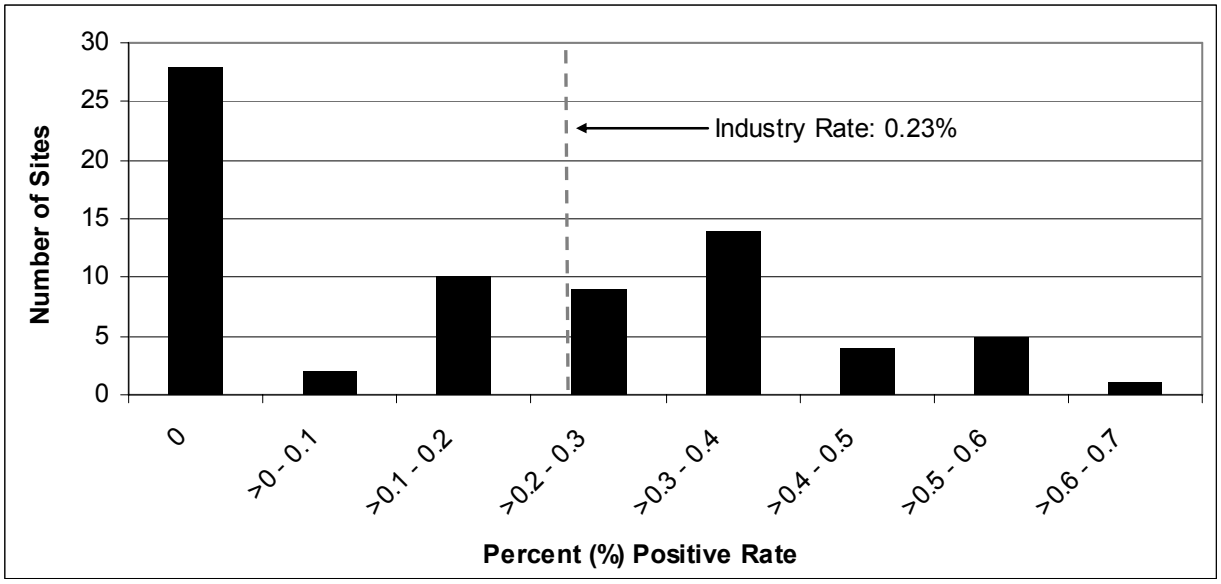


Chart 8 Distribution of Random Testing Positive Rates (Licensee Employees) by Site

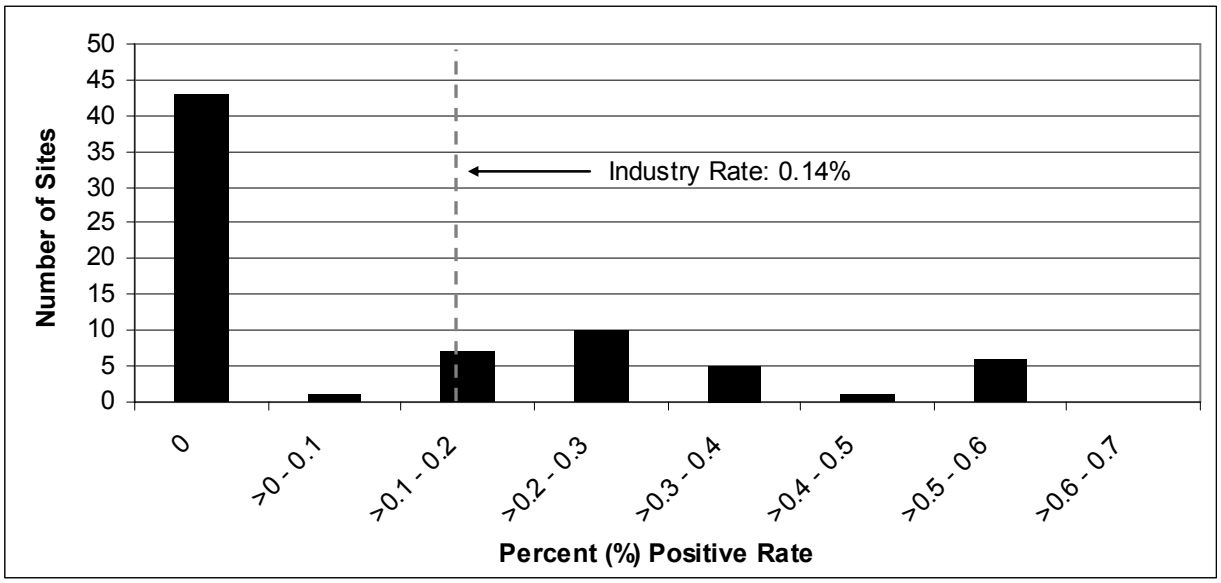
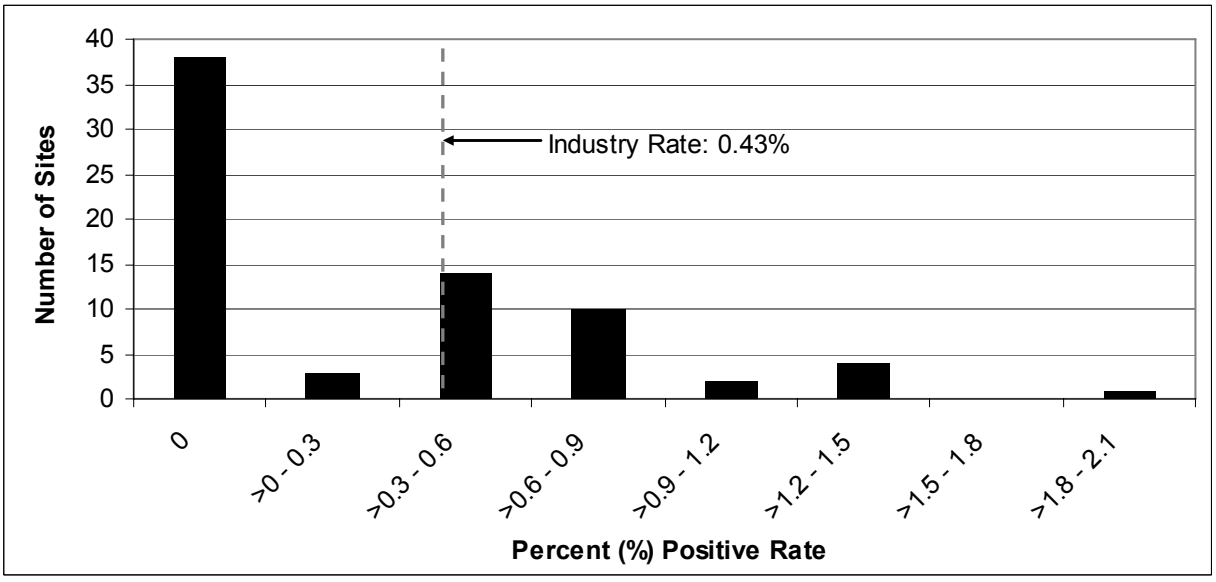


Chart 9 Distribution of Random Testing Positive Rates (Contractors) by Site



2008 Observed Behavior Testing Rates by Site

Table 16 Distribution of For-Cause Testing Positive Rates by Work Category by Site

All Employees		Licensee Employees		Contractors	
Positive Rate Range (%)	Sites	Positive Rate Range (%)	Sites	Positive Rate Range (%)	Sites
0	25	0	42	0	27
>0 - 10	8	>0 - 10	0	>0 - 10	4
>10 - 20	12	>10 - 20	5	>10 - 20	7
>20 - 30	6	>20 - 30	1	>20 - 30	3
>30 - 40	11	>30 - 40	3	>30 - 40	7
>40 - 50	2	>40 - 50	5	>40 - 50	7
>50 - 60	1	>50 - 60	0	>50 - 60	1
>60 - 70	2	>60 - 70	0	>60 - 70	2
>70 - 80	0	>70 - 80	0	>70 - 80	1
>80 - 90	0	>80 - 90	0	>80 - 90	0
>90 - 100	1	>90 - 100	1	>90 - 100	2
Total Sites	**68**	**Total Sites**	**57**	**Total Sites**	**61**

* Total site counts may differ because a site may not have tested one work category.

Chart 10 Distribution of Observed Behavior Testing Positive Rates (All Employees) by Site

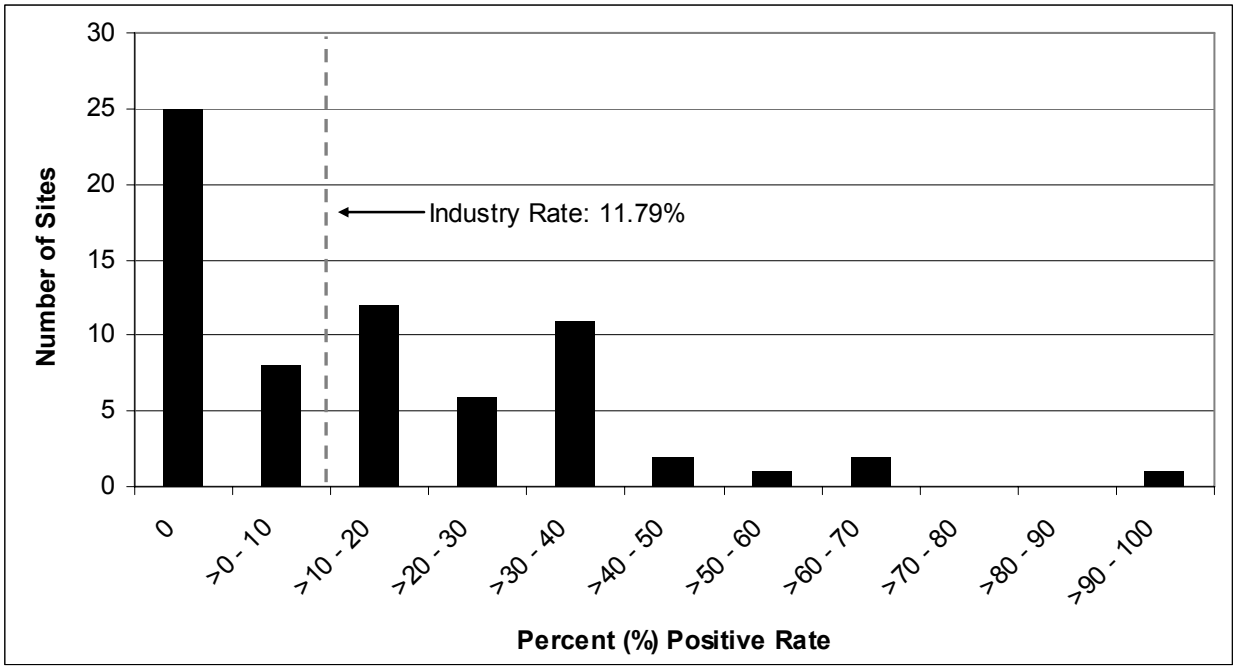


Chart 11 Distribution of Observed Behavior Testing Positive Rates (Licensee Employees) by Site

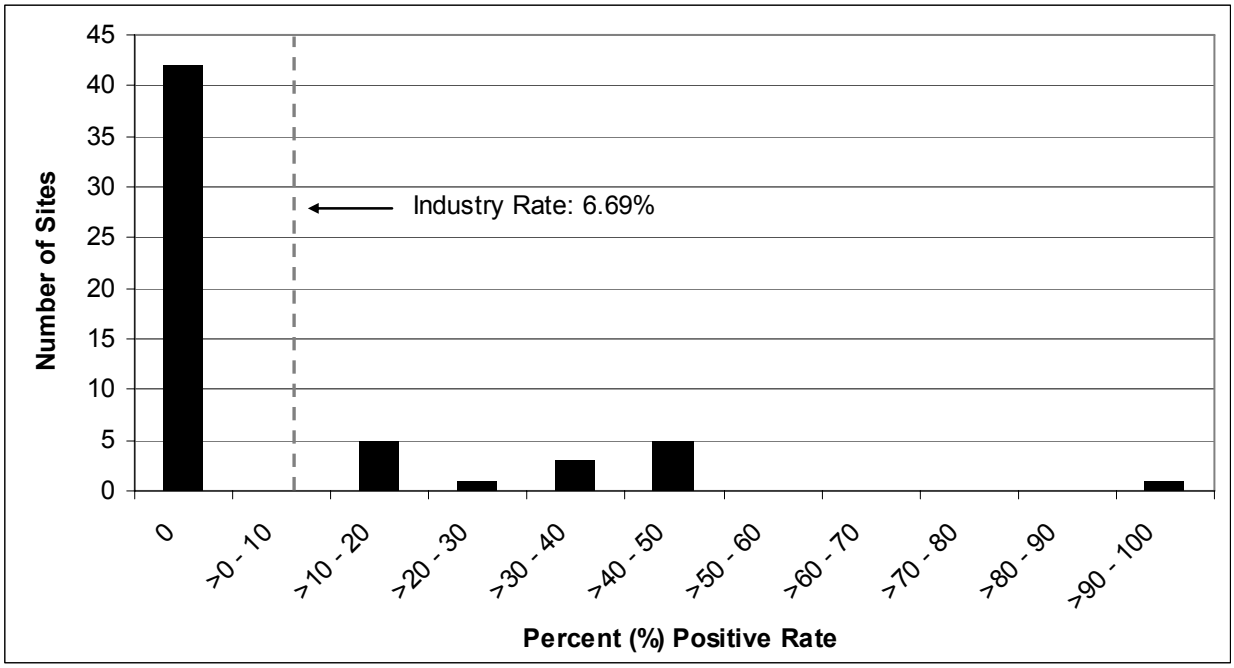
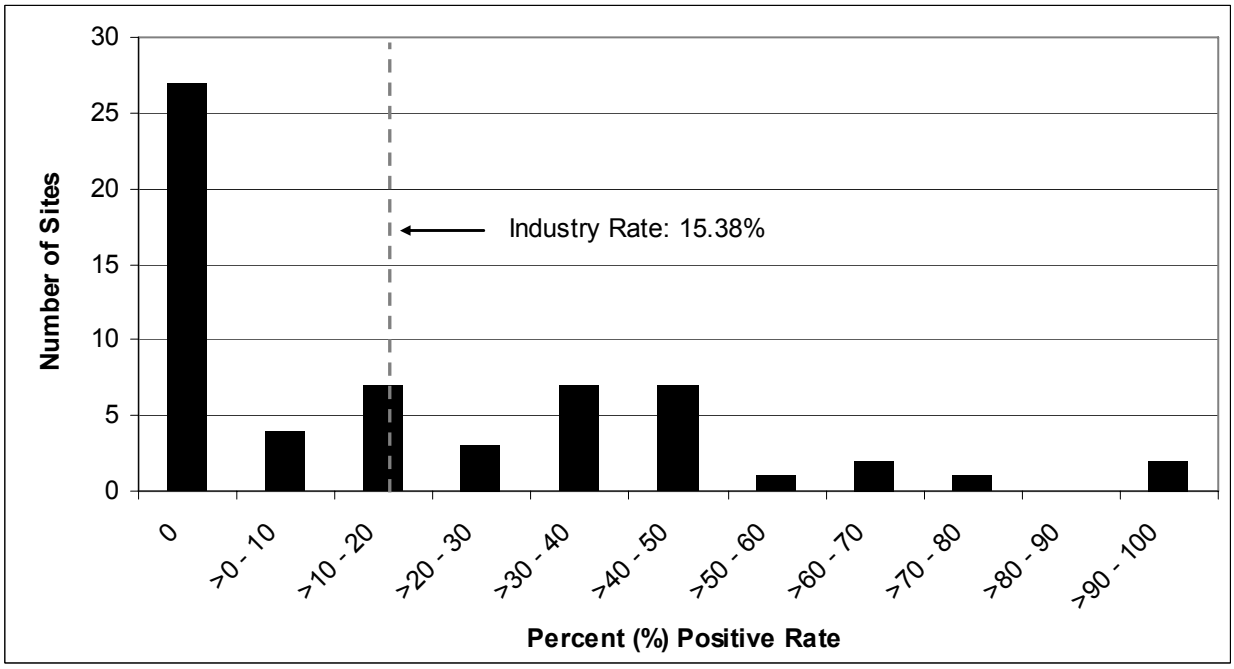


Chart 12 Distribution of Observed Behavior Testing Positive Rates (Contractors) by Site



2008 Distribution of Test Results by Sites and Work Category Summary

Chart 13 Comparisons of Site Pre-Access Testing Positive Rates by Work Category

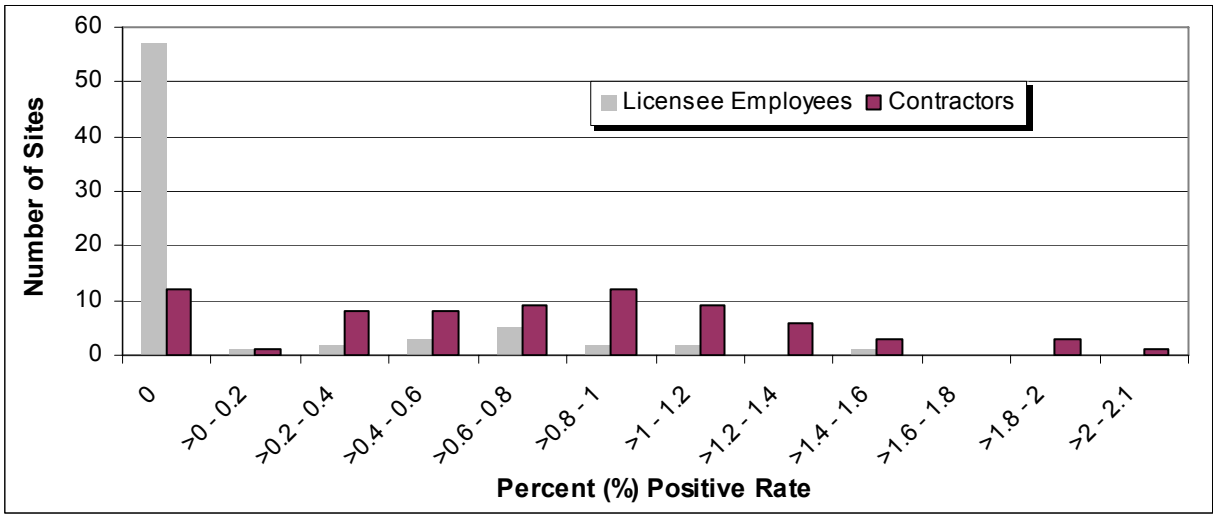


Chart 14 Comparison of Site Random Testing Positive Rates by Work Category

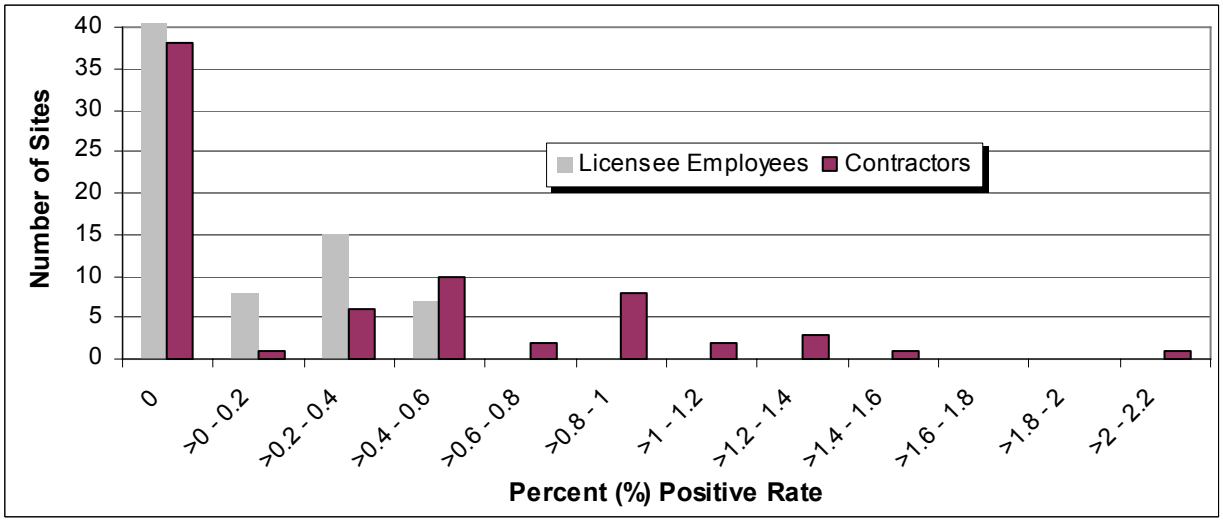


Chart 15 Comparison of Site Observed Behavior Testing Positive Rates by Work Category