

**REGULATORY EVALUATION,
REGULATORY FLEXIBILITY DETERMINATION,
TRADE IMPACT ASSESSMENT, AND UNFUNDED
MANDATES DETERMINATION**

FINAL RULE

**ANTIDRUG AND ALCOHOL MISUSE PREVENTION
PROGRAMS FOR PERSONNEL ENGAGED IN SPECIFIED
AVIATION ACTIVITIES
(14 CFR 121)**

**OFFICE OF AVIATION POLICY AND PLANS
OPERATIONS REGULATORY ANALYSIS BRANCH
APO-310**

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Executive Summary

The FAA is making a number of changes in its antidrug and alcohol misuse prevention programs. These proposals include modifications to testing requirements, the elimination of periodic drug testing, changes to program submission requirements, and the elimination of the program certification statements. These changes will make these programs, described in Appendices I and J in part 121 more efficient. The provisions in these two programs do not always parallel each other; there are unnecessary differences between both provisions that lead to confusion among those entities that are required to test for drugs and alcohol. The FAA will change the language in these Appendices to eliminate this confusion.

The rule changes will cost \$178,600 (net present value, \$72,000) over ten years. The FAA believes that these new rules can result in enhanced safety and concludes that several specific benefits will accrue from these rule changes.

The specific changes to pre-employment testing will be beneficial. The FAA believes that certain employers had misunderstood the current requirements and that the new requirements will be better understood. This will reduce the number of pre-employment enforcement cases, saving both the FAA and the industry time and resources. Pre-employment testing acts as the "gatekeeper;" since this type of testing has the largest number of positives, it is a major tool that would keep drug users from getting into the aviation industry in the first place.

These rule changes will increase consistency between Appendices I and J, where possible. Elimination of unnecessary differences will mean better compliance with of the regulations as well as reducing the cost and time involved with industry inquiries into the current conflicts between the two.

Companies no longer having to file antidrug plans and alcohol misuse prevention program certification statements will bring about some cost savings. Each company will benefit from a reduction in the paperwork burden, and the FAA will also realize these same benefits.

The final rule will not have an impact on international trade, a significant economic impact on a substantial number of small businesses, or contain any Federal intergovernmental mandates or private sector mandates that will require additional analysis.

I. Introduction and Background

In 1988, the FAA published a final rule, Anti-Drug Program for Personnel Engaged in Specified Aviation Activities (Anti-Drug) (53 FR 47024), which required specified aviation employers to initiate antidrug programs for personnel performing safety-sensitive functions. This rule was the result of widespread public sentiment and belief that persons in safety-sensitive occupations should not be drug abusers.

This rule was modified in 1994¹ to incorporate specific requirements from the Omnibus Transportation Employee Testing Act of 1991 (the Act) (Pub. L. 102-143, Title V.). This 1994 rule also incorporated other changes to address provisions of the antidrug rule that were unclear or did not comport with Department of Transportation (DOT) drug testing procedures.

The Act also required the FAA, along with the Office of the Secretary of Transportation (OST), as well as the other DOT modal administrations to promulgate alcohol misuse prevention programs. In 1994, the FAA published a final rule, Alcohol Misuse Prevention Program for Personnel Engaged in Specified Aviation Activities (59 FR 7380), which required specific aviation employers to conduct alcohol testing.

Since the publication of the final rules, and because of FAA and industry experience with the drug and alcohol rules, the FAA has identified certain requirements that need to be amended. The FAA has also identified administrative clarifications and unnecessary differences between the drug testing program requirements and the alcohol misuse prevention program requirements in Appendices I and J of part 121, respectively. As a result, the FAA issued an NPRM, Notice No. 02-04 (67 FR 9366; February 28, 2002), to amend these appendices to achieve these changes.

In Notice No. 02-04, the FAA proposed to clarify that each person who performs a safety-sensitive function directly or by any tier of a contract for an employer is subject to

¹ Antidrug Program for Personnel Engaged in Specified Aviation Activities, (59 FR 42911).

testing.² Several commenters stated that this was more than a clarifying change. The commenters suggested that there would be an economic impact from this proposed change. Therefore, the FAA is removing this issue from the final rule and will publish a Supplemental Notice of Proposed Rulemaking (SNPRM) in the near future. All other issues and comments related to Notice No. 02-04 are addressed and resolved in this final rule.

II. The Final Rule

The FAA will amend several sections of Appendix I and Appendix J of part 121. This section will briefly describe these amendments, first for Appendix I and then for Appendix J. The cost implications of these rule changes will be discussed in section III.

For Appendix I:

- In section I, entitled "General," the FAA made clarifying changes and added two clarifying paragraphs.
- In section II, entitled "Definitions," the FAA changes the definition of "employer" to eliminate the following sentence "Provided, however, that an employer may use a person who is not included under that employer's drug program to perform a safety-sensitive function, if that person is subject to the requirements of another employer's FAA mandated antidrug program." Employers will no longer be permitted to rely on another company, with whom they have no agreement or contract, to cover their moonlighting employees.³
- In section III, entitled "Employees Who Must Be Tested," the FAA specifies that the rule applies to all employees performing safety-sensitive duties, including any assistant, helper, or individual in a training status. It applies to full time, part-time, temporary, intermittent employees regardless of degrees of

² Many contractors use subcontractors, who in turn, use subcontractors, in the compilation of a contract. The phrase "at any tier" refers to all subcontractor levels.

³ Although this term "moonlighting" is not in the current rule, the term is used informally by FAA and the industry to describe the use by an employer of an employee (usually part-time or intermittent) to perform safety-sensitive duties without testing that employee when that employee works for and is covered under another employer's antidrug program.

supervision; if they perform a safety-sensitive duty, they are subject to the testing program.

- In section IV, entitled "Substances for Which Testing Must Be Conducted Under Appendix I," the FAA made clarifying changes.
- In section V, entitled "Types of Drug Testing Required," the FAA clarified random testing requirements, made modifications to pre-employment and reasonable cause testing, and eliminated periodic testing.
- In section IX, entitled "Implementing an Antidrug Program," certificate holders that have antidrug and alcohol misuse prevention programs will no longer have to submit their programs to the FAA for approval. Under this rule, the FAA will track new and existing certificate holders using the Operations Specifications Sub-System (OPSS) and will require these certificate holders to obtain operations specifications for drug and alcohol testing. New and existing sightseeing operators, air traffic control facilities not operated by the FAA, and certain non-certificated contractors will need to register with the FAA. Only one operations specification is required for both the drug and alcohol programs, and certificate holders are required to provide less information than under the current rule.

For Appendix J:

- In section I, entitled "General," the FAA made clarifying changes.
- In section II, entitled "Covered Employees," the FAA made changes similar to section III of Appendix I, specifying that the decision to cover an employee must be based on the duties that the individual performs rather than his/her job title or degree of supervision.
- In section VII, entitled "Implementing an Alcohol Misuse Prevention Program," the FAA changed the entire section to parallel the changes in section IX of Appendix I.

III. Cost of Compliance

In this analysis, the FAA estimated future costs for a 10-year period, from 2004 through 2013. As required by the Office of Management and Budget, the present value of this stream of costs was calculated using a discount factor of 7 percent. All costs in this analysis are in 2002 dollars.

These changes will affect all companies with antidrug and alcohol misuse prevention programs. There are currently 7,240 companies, see Table A-1 in the Appendix.⁴ In addition, these changes will affect employees in 11 separate occupational categories:

- Part 121 Pilots, Copilots, and Instructors
- Part 135 Pilots and Instructors
- Part 135 On-Demand Pilots
- Part 121 Navigators/Engineers
- Flight Attendants
- Mechanics/Repairmen
- Aircraft Dispatchers
- Non-FAA Air Traffic Controllers
- Ground Security Coordinators (GSC)
- Aviation Security Screening Personnel
- Sightseeing Operators, and their employees, as defined in 14 CFR 135.1(c)

Table A-2 in the Appendix shows the number of employees in each category, as well as their wage and projected growth rate in the number of employees.

In addition, the FAA uses the following hourly salaries for these employees:

- Clerical - \$17.93;⁵
- Aviation-related company manager - \$39.51; and
- Medical Review Officer (MRO) - \$45.64^{6 7}

The FAA estimates that a drug-screening test will require 45 minutes of a person's time to provide information for chain-of-custody forms and to provide a urine sample for drug testing, as well as accounting for the time to get to

⁴ This has increased from the 6,887 companies reported in the regulatory evaluation for the NPRM. This change is due to the normal changes in a dynamic industry as new aviation-related companies come into being while others go out of business.

⁵ Salaries for clerical and aviation-related company manager were obtained from Bureau of Labor Statistics, Employer Costs for Employee Compensation - March 2000, June 29, 2000, page 15, Table 10, <http://stats.bls.gov/ecthome.htm>.

⁶ Source: Office of Aerospace Medicine (AAM), FAA, April 2002.

⁷ Benefits for employees are calculated by multiplying the base wage by 23.45 percent to account for employee benefits. The source of the fringe benefits factor is Table 4-5, page 4-22, Economic Analysis of Investment and Regulatory Decision--A Guide, FAA-APO-98-4, January 1998.

and from the testing site. The FAA also assumes that affected persons will provide urine samples for testing while on duty. The FAA estimates that the average drug test costs \$45;⁸ this cost covers, among other things, collection of specimens, reporting, recordkeeping, and chain-of-custody procedures, as well as the cost of the technician. The laboratory cost is estimated to be \$15 per test, which is included in the \$45.

As discussed in the previous section, the FAA will amend several sections of Appendix I and Appendix J of part 121; not all of these changes will have cost implications. Some of the changes to Appendix I parallel changes to Appendix J. Section A will discuss the changes with cost implications, while Section B will discuss those changes with no cost implications.

A. Changes with Cost Implications

Under Appendix I, section II, the FAA is requiring employers to test all employees who perform safety sensitive duties, including contractor employees, unless the employees are in a testing program for a contractor to the employer. This change will impose costs. The current provision, which has allowed "moonlighting," is confusing to the industry and has been a loophole in employee coverage. In most circumstances, the second employer does not know the employee's status with the first employer. The second employer is unlikely to know if the employee is still working for the first employer in a safety-sensitive function or if that employee either had a positive test result or refused to submit to testing.

Compliance inspections and investigations also show that employers are confused by the differences between the drug and alcohol rules on moonlighting. The current drug rule allows moonlighting, while the alcohol rule does not permit it. Moonlighting occurs mostly among small employers, who often do not know the other employers that the moonlighting employee is working for. For current moonlighting employees performing safety-sensitive duties for an employer, the employer is not required to conduct a pre-employment test on the employee. Consequently, these employees can potentially avoid pre-employment testing. However, the employer must include the employee in its drug

⁸ Source: Office of Aerospace Medicine (AAM), FAA, April 2003.

and alcohol-testing program, which will subject the employee to the other testing, such as random, etc., and the other elements of these regulations.

From the effective date of this final rule, the employer may not hire or transfer any employee into a safety-sensitive function before the employer conducts a pre-employment test on the employee and receives a negative drug test result on the employee. The employer may use a contract employee who is not included under that employer's FAA-mandated antidrug and alcohol misuse prevention program to perform a safety-sensitive function only if that contract employee is subject to the requirements of the contractor's FAA-mandated antidrug program and is performing a safety-sensitive function on behalf of that contractor (i.e., within the scope of employment with the contractor).

This change will affect selected occupational categories as only certain types of employees tend to moonlight. These include part 121/135 pilots, mechanics, screeners, sightseer pilots, and part 135 on-demand pilots, primarily single owner operator pilots. The FAA does not know exactly how many of these employees moonlight, but is confident that the number is small.⁹ Accordingly, the FAA will base costs on an additional 1 percent of these employees that current moonlight.¹⁰ The FAA projects that in 2004, about 2,500 additional employees will be subject to these new regulations, increasing to about 2,900 in 2013, totaling about 27,100 over 10 years.

The regulation does not apply to those employees currently moonlighting; only new hires will have to be pre-employment tested. The FAA assumes a 15% turnover plus projected annual rate of increase. Accordingly, additional pre-employment tests are projected at about 380 in 2004, rising to approximately 440 in 2013, totaling almost 4,100 over the ten years examined by this analysis. In addition, on average, 25% will be subject to random testing. Based on historical data from 1997 to 2001, 0.54% will be subject to post-accident testing, 0.07% to reasonable cause testing, 0.05% to return to duty testing, and 0.31% to follow-up

⁹ Source: Office of Aerospace Medicine (AAM), FAA, April 2003.

¹⁰ In the NPRM, the FAA called for comments on whether it made a correct approximation as to the number of employees who currently moonlight, but received no comments.

testing.¹¹ As shown in Table A-3 in the Appendix, in 2004, the FAA assumes an additional 1,000 drug tests, summing to 11,100 over the 10 years. The additional cost of these tests will be \$46,400 in 2004 and will sum to \$499,200 over 10 years.

As noted above, each test takes, on average, 45 minutes of an employee's time. Total salary costs, based on a weighted average of the salaries of employees likely to moonlight, average \$27.43 per hour, and this will apply to all tests except for pre-employment tests. Most pre-employment tests are given to potential employees who are not yet on the payroll. In some instances, employees may be moving from non-safety sensitive functions to safety sensitive functions. The FAA assumes that such employees make up a maximum of 3 percent of pre-employment tests. Costs will be \$13,700 in 2004, and will sum to \$147,200 over 10 years.¹²

As can be seen in Table A-3, total 10-year costs of eliminating the moonlight exception will sum to \$646,300 (present value, \$449,900).

2) The FAA is eliminating section V. B. of Appendix I, periodic testing. The current regulation requires that a new employer must periodically drug test part 67 medical certificate holders during the first calendar year of its program's implementation; this type of testing may be eliminated after the first calendar year when a random drug testing program has been put into practice.

Periodic testing was important at the beginning of the program when many people were grandfathered into newly approved antidrug programs without pre-employment testing. Initially, there was also a phase-in period for

¹¹ Source: Office of Aerospace Medicine (AAM), FAA, April 2003. It is important to note that these percentages are not multiplicative. Hence, in 2004, the FAA estimates there will be an additional 2,514 additional employees subject to these new regulations, and of these, 0.54%, or 14, will be subject to post-accident tests, 0.07%, or 2, will be subject to reasonable cause tests, etc.

¹² The first year cost is obtained by multiplying the composite hourly rate of \$29.34 times three-quarters hour (\$22.01), and is multiplied by the number of employees to be tested. This number of employees can be seen in Table A-3 and equals 3% of those needing pre-employment tests, or 11 tests, plus the sum of all the other tests, or 654 tests, for a total of 665 tests. Multiplying \$22.01 times 665 tests equals approximately \$14,600.

implementing random testing; it was likely that some pilots were not tested in the first year of testing. Since all flightcrew members are currently subject to pre-employment testing and annual random testing, the FAA believes that the elimination of periodic drug testing will not compromise safety and will be a cost savings.

From 1997 to 2001, there were an average of 124 periodic tests per year.¹³ The FAA will assume that this will be the number of tests no longer conducted. The average pilot salary, based on a weighted average of the salaries of the different types of pilots, yields an hourly wage of \$72.09. With the cost of a periodic test at \$45, cost savings over ten years sums to \$122,300 (present value, \$85,900).¹⁴

3) The FAA is making several changes to section IX of Appendix I and section VII of Appendix J; two of these changes will have cost implications. Provisions that affect part 121, 135, and 145 certificate holders will be covered in section 3a) and parts 135.1(c), contract ATC's, and other contractors in section 3b).

There are currently 7,240 existing plan holders, which currently submit 490 amendments each year. The FAA does not have information about how these 490 amendments are broken down between the different plan holders. Because 78.6% of the plan holders are parts 121, 135, and 145 certificate holders, the FAA will assume that they file 78.6% of the amendments, or 385 amendments. Those entities covered in 4b) make up the remaining 21.4%, so the FAA assumes that they file 105 amendments.

3a) Part 121, 135, and 145 certificate holders will no longer have to submit antidrug and alcohol misuse prevention programs to the FAA for approval. The FAA instead will track these certificate holders using the OPSS.¹⁵ Using this system will allow the FAA to quickly

¹³ Source: Office of Aerospace Medicine (AAM), FAA, April 2003.

¹⁴ Annual costs sum to \$12,300 and this is calculated by summing the cost of a test (\$45) with the employee's time (three-quarters of an hour times \$72.09 per hour) and multiplying by the annual number of tests (124). The annual costs are the same for each of the 10 years.

¹⁵ The OPSS is a document management system that gives the FAA easy access to certificate holders' operations specifications, among other air carrier information. Both the Flight Standards Service and the Office of Aerospace Medicine have access to this system.

make changes to specific types of certificate holders' operations specifications.

Currently, each carrier has an operations specification document on file with OPSS. This rule means that the system has one more section of which to keep track for each air carrier; this additional section will be applicable for both Appendix I and J. New and existing part 121 and 135 certificate holders will be issued an Antidrug and Alcohol Misuse Prevention Program Operations Specification (OpSpec) by their FAA principal operations inspector (POI). New and existing part 145 certificate holders that opt to conduct drug and alcohol testing under these regulations will be issued an OpSpec by their FAA principal maintenance inspector (PMI). These certificate holders must contact their FAA POI or PMI to make any required changes to the OpSpec. The data on the OpSpec consists of the certificate holder's name, address, telephone number, and the location where the testing records are kept. For part 135 and 145 certificate holders, the OpSpec data also includes whether the number of safety-sensitive employees is fewer than 50 or greater than or equal to 50.

The registration statement for non-certificated companies will require less information than the current antidrug and alcohol misuse prevention program plan requires. The new registration will contain the OpSpec information described above.

All current plan holders and any new entrants will be included in OPSS or will need to register with the FAA. A certificate holder will have to provide the required information to its POI or PMI who will enter the information into the OPSS. The operator will have to electronically sign the OPSS. This sometimes requires a visit to the POI's office. In some cases, companies have the capability to sign OPSS electronically from their offices.

All companies not currently covered by the OPSS will register with the FAA's Drug Abatement Division. The registration will require the same information as the OPSS and a drug and an alcohol certification statement that will state that the company will conduct testing in accordance with Appendices I & J. These companies will be tracked in a database and the certifications will be kept on file.

Any amendments will be entered into the system and the hard copy attached to the original submission.

Companies with antidrug and alcohol misuse prevention programs will incur additional costs from the new rule. In the first year of this rule, these companies will have to file the information, consisting of the OpSpecs or a registration statement. New companies will have to do the same in their first year. When the number of safety-sensitive employees at a company (other than a part 121 certificate holder) changes to 50 or above or falls below 50 safety-sensitive employees, the company will have to send employment change reports.

Currently, there are 484 companies that submit new plans each year; the FAA assumes that 78.6% of these, 380, are from part 121, 135, and 145 certificate holders, with the remaining 21.4%, 104, coming from entities covered in section 3b). The FAA anticipates that 33 companies will send employment change reports each year after the initial year. All of these reports will be from part 135 and 145 certificate holders, and non-certificated companies.¹⁶ These are included in the anticipated 385 amendments per year.

Each of the existing plan holders will have to spend time to produce information required for the OpSpec or the registration and submit it to the FAA. The FAA estimates that each submission will take 20 minutes at \$21 per hour.¹⁷ Total first year costs for these changes will be \$39,700.¹⁸ The FAA estimates that it will take 20 minutes to process new submissions, the employment change reports (when the number of safety-sensitive employees at an applicable company changes to above or below 50), and other amendments; total annual costs for these sum to \$5,400 in

¹⁶ Part 121 certificate holders are not required to submit employment change reports because all part 121 certificate holders are required to submit annual reports regardless of the number of safety-sensitive employees.

¹⁷ This cost figure was calculated by the Office of Management and Budget to represent an average for all of the employees who might handle a document from clerical to administrative to managerial staff. Source: OST Office of Drug and Alcohol Policy and Compliance, "Drug and Alcohol Testing Program 83-C Submission," July 26, 2000. It was updated to reflect the inflation rate.

¹⁸ This is obtained by multiplying the number of certificate holders, 5,669, times one third of an hour times the salary of \$21 per hour.

each year after 2004.¹⁹ Ten year costs, in the private sector, equal \$87,900 (present value, \$69,700).

At the FAA, the information being submitted to OPSS will have to be processed. An administrative assistant, an FG-7 being paid at \$22.66 per hour,²⁰ will enter this information into a database. The FAA assumes that the administrative assistants will need 10 minutes to input the information. First year costs will be \$21,400,²¹ while each subsequent year cost will be about \$2,900;²² costs over ten years sum to \$47,400 (present value, \$37,600).

As part of these changes, the FAA will use the OPSS database to replace the current system for storing and tracking this data, called CCDATA. OPSS is an existing database that is periodically modified with new or changed requirements, so any changes needed due to the rule will be done as part of normal upkeep. Consequently, there will be no extra costs to accommodate any modifications needed to store this data. The database page containing this information will be one page out of several hundred. The FAA believes that using OPSS will save time, as it requires very little new information and can be updated more easily.

The FAA is also not ascribing any costs to the plan holders providing a signed version of the information to the FAA. A fax could be sent and returned. A POI or PMI might hand carry it to and from the company in conjunction with other work. The program manager can go to the local Flight Standards District Office, and in many cases the signature can be accomplished in conjunction with other tasks. Accordingly, there are many options that do not increase required time and resources.

All companies will also incur cost savings, for they will no longer have to file an alcohol certification statement

¹⁹ This is obtained by summing two separate activities, each taking one third of an hour at \$21 per hour:

- Annual amendments filed - 385; and
- Annual number of new companies - 380.

²⁰ The annual 2002 salary for a FG-7 is \$35,582. Multiplying by 1.3245 and dividing by 2080 hours yields \$22.66 per hour.

²¹ This is obtained by multiplying the number of certificate holders, 5,669, times one sixth of an hour times the salary of \$22.66 per hour.

²² This is obtained by summing two separate activities, each taking one sixth of an hour times \$22.66 an hour:

- Annual amendments filed - 385; and
- Annual number of new companies - 380.

and a drug plan. Currently, companies submit a combined drug plan and an alcohol certification statement to the FAA. This statement contains information such as the numbers and types of safety-sensitive employees, the names of the MRO and program manager, as well as the name and address of the primary laboratory.²³

Thus, each of the existing companies will no longer have to spend time to produce these plans and certification statements to file with the FAA. The FAA estimates that it will take 2 hours at \$21 per hour to produce these plans and certification statements. Total first year cost savings will be \$238,100.²⁴ The FAA estimates that the 385 amendments that existing companies submit take half an hour to process. The FAA estimates that there would have been 373 new plans submitted each year; each plan taking 2 hours to process. Total annual cost savings for the amendments and new plans, in subsequent years, sum to \$18,700.²⁵ Ten year cost savings, at the company level, equal \$406,000 (present value, \$336,100).

Ten year net cost savings sum to \$270,700 (present value, \$228,800).²⁶

3b) The rule also will eliminate the antidrug program plan and alcohol misuse prevention program certification statement requirements for new and existing non-Federal air traffic control facilities and operators as defined by §135.1(c). Instead, as with the certificate holders, a single registration statement requirement will suffice for both programs. In addition, the FAA will require new and

²³ This laboratory must be Department of Health and Human Services (DHHS) certified.

²⁴ This is obtained by multiplying the number of certificate holders, 5,669, times 2 hours times the salary of \$21 per hour.

²⁵ This is obtained by summing two separate activities, each at \$21 per hour:

- Annual amendments filed - 385, taking one third of an hour; and
- Annual number of new companies - 380, taking 2 hours.

²⁶ As discussed in the text, there are three cost-related components:

- the additional costs to the aviation industry to process the new registration information (of producing information required for the OpSpec or the registration and submit it to the FAA), summing to \$87,900 over ten years (\$69,700, discounted);
- the additional costs to the FAA to process the new registration information (the company information being submitted to OPSS), summing to \$47,400 over ten years (\$37,600, discounted); and
- the cost savings from new companies not having to submit a plan, summing to \$406,000 over ten years (\$336,100, discounted).

existing non-certificated contractors that elect to have an antidrug and alcohol misuse prevention program to register with the FAA.

The FAA has identified 343 part 135.1(c) operators and 1,228 contractors that will be affected by these rule changes; the contractors include 21 ATC contractors, providing services for the ATC contract towers, and 1,207 other contractors.²⁷

Each of the existing plan holders will have to spend time to produce information required for the OpSpec or the registration, file and store it, and submit it to the FAA. As above, the FAA estimates that it will take 20 minutes at \$21 per hour. Total first year costs for these efforts will be \$11,000.²⁸ Using the assumption that it will take 20 minutes to process new submissions and amendments, total annual costs, for subsequent years, for the amendments and new plans sum to \$1,500.²⁹ Ten year costs, for the private sector for these costs, equal \$24,200 (present value, \$19,200).

To calculate costs for processing these submissions at the FAA, using the same cost and salary assumptions as in section 3a), first year costs will be \$5,900,³⁰ while each subsequent year cost will be about \$800.³¹ Costs over ten years sum to \$13,000 (present value, \$10,400).

As in section 3a), these companies will no longer have to file an alcohol certification statement and a drug plan, resulting in cost savings. Total first year cost savings

²⁷ The FAA does not expect any employment change reports from any of these companies. In general, part 135.1(c) operators are small businesses, less than 50 employees. Meanwhile, the bigger ATC contractors tend to be fairly stable, while the smaller ones would not get enough additional towers to change their status.

²⁸ This is obtained by multiplying the number of companies, 1,571, times one third of an hour times the salary of \$21 per hour.

²⁹ This is obtained by summing two separate activities, each taking one third of an hour at \$21 per hour:

- Annual amendments filed - 105; and
- Annual number of new companies - 104.

³⁰ This is obtained by multiplying the number of companies, 1,571, times one sixth of an hour times the salary of \$22.66 per hour.

³¹ This is obtained by summing two separate activities, each taking one sixth of an hour times \$19.85 an hour:

- Annual amendments filed - 105; and
- Annual number of new companies - 104.

will be \$66,000.³² The FAA estimates that the 105 amendments that existing companies submit take 20 minutes of company time to process. The FAA estimates that there would have been 104 new plans submitted each year. Total annual costs, for subsequent years, for the amendments and new plans sum to \$5,100.³³ Ten year cost savings, in the private sector, equal \$111,900 (present value, \$92,700).

Ten year net cost savings from this change sum to \$74,700 (present value, \$63,200).³⁴

As can be seen in Table 1, the total cost for these rule changes sums to \$178,625 (net present cost, \$71,988). As can be seen in Table 2, the total cost to the industry sums to \$239,100 (present value, \$119,900). The difference comprises the total costs savings to the FAA, which sum to \$60,400 (present value, \$48,000), and can be seen in Table 3.

Table 1 - Total Costs (2002 dollars)		
Changes	Costs	Discounted Costs
Covering "moonlighting" employees	\$646,330	\$449,899
No Periodic Testing	(\$122,650)	(\$86,145)
Registration changes for parts 121, 135, and 145	(\$270,704)	(\$228,816)
Registration changes for selected small operators and contractors	(\$74,711)	(\$63,202)
TOTAL	\$178,625	\$71,989

³² This is obtained by multiplying the number of companies, 1,571, times 2 hours times the salary of \$21 per hour.

³³ This is obtained by summing two separate activities, each at \$21 per hour:

- Annual amendments filed - 105, taking one third of an hour; and
- Annual number of new companies - 104, taking 2 hours.

³⁴ As discussed in the text, there are three cost-related components:

- the additional costs to the aviation industry to process the new registration information (of producing information required for the OpSpec or the registration and submit it to the FAA), summing to \$24,200 over ten years (\$19,200, discounted);
- the additional costs to the FAA to process the new registration information (the company information being submitted to OPSS), summing to \$13,000 over ten years (\$10,300, discounted); and
- the cost savings from new companies not having to submit a plan, summing to \$111,900 over ten years (\$92,700, discounted).

Table 2 - Total Costs to Industry (2002 dollars)		
Changes	Costs	Discounted Costs
Covering "moonlighting" employees	\$646,330	\$449,899
No Periodic Testing	(\$122,650)	(\$86,145)
Registration changes for parts 121, 135, and 145	(\$223,293)	(\$191,217)
Registration changes for selected small operators and contractors	(\$61,677)	(\$52,853)
TOTAL	\$239,070	\$119,937

Table 3 - Total Cost Savings to the FAA (2002 dollars)		
Changes	Costs	Discounted Costs
Covering "moonlighting" employees	\$0	\$0
No Periodic Testing	\$0	\$0
Registration changes for parts 121, 135, and 145	(\$47,411)	(\$37,599)
Registration changes for selected small operators and contractors	(\$13,034)	(\$10,349)
TOTAL	(\$60,445)	(\$47,948)

B. Changes with No Cost Implications

Under Appendix I, the changes to section I will impose no costs as the changes involve definitions and are descriptive in nature.

All but one of the changes to section II of Appendix I are descriptive in nature, thus imposing no costs; the item involving cost was covered above.

The changes to section III of Appendix I and section II of Appendix J are intended to clarify the sections because it has been the FAA's experience that employers have often misunderstood which employees must be tested. The decision to cover an employee must be based on the employee's duties rather than his or her job title. Employees in a training

status, who perform safety-sensitive functions under the direct supervision of another employee, must also be subject to an antidrug program. Employers have sometimes interpreted the rule incorrectly and, therefore, have not been testing the proper employees. There will be no costs to these changes, as previous FAA antidrug and alcohol misuse analyses had already identified the proper employees and calculated the costs of testing accordingly.³⁵

The changes to section IV of Appendix I will impose no costs as these changes are administrative and are descriptive in nature.

The changes to section V of Appendix I and section III of Appendix J cover changes to different types of testing. The changes that have cost implications were covered above in section A; all other changes to these sections will have no cost implications as will be discussed in the following 5 paragraphs.

Section V. A. of Appendix I deals with pre-employment testing. Paragraph V. A. 1. will change the requirements of pre-employment testing back to the original obligations established in the 1988 requirements when the antidrug program requirements were first established. The original requirements involved first testing and then obtaining a negative drug test result prior to hiring a person to perform safety-sensitive functions. A change made in 1994, in order to parallel alcohol testing, required pre-employment drug testing prior to the first time an individual performed a safety-sensitive function rather than prior to being hired by an employer.

Since this change, however, it has been the FAA's experience that some aviation employers misunderstood when they were required to conduct pre-employment drug testing, thus violating the regulations. Before the 1994 change, such misunderstandings were not prevalent. The original

³⁵ Final Regulatory Impact Analysis, Regulatory Flexibility Determination, and Trade Impact Assessment, Final Rule, Anti-Drug Program for Personnel Engaged in Specified Aviation Activities (Anti-Drug evaluation), Office of Aviation Policy and Plans, FAA, November, 1988 and Final Regulatory Impact Analysis, Regulatory Flexibility Determination, and Trade Impact Assessment, Final Rule, Alcohol Misuse Program for Personnel Engaged in Specified Aviation Activities (Alcohol evaluation), Office of Aviation Policy, Plans, and Management Analysis, FAA, January 1994.

language was a clearer standard for employers to follow. Accordingly, the FAA is changing the regulation back to the original language. There will be no cost effect to this change. The costs of the tests for these employees had been calculated and included in the 1988 FAA antidrug analysis,³⁶ and the 1994 analysis did not attribute any costs to the aforementioned change.

The changes to paragraph V. A. 2. of Appendix I will require employers to perform a pre-employment drug test on employees prior to their transfer into a safety-sensitive function. This change simply makes clear to employers that they may have misinterpreted the existing rule and that pre-employment testing is required before an employee first performs a safety-sensitive job. Therefore, this change does not add any additional costs.

In paragraph V. A. 3. of Appendix I, the FAA will require employers to conduct another pre-employment test on an employee if more than 180 days have elapsed since the pre-employment testing of that employee and the hiring or transferring of that employee to perform a safety-sensitive function. This rule may result in additional tests in rare cases, but the FAA does not know the extent of these additional tests. In the NPRM, the FAA called for comments as to how many additional tests might result, but received no responses.

Paragraph IX of Appendix I and section VII of Appendix J eliminates the 60 and 180 days, respectively, that are allowed for new employers and their contractors to be subject to antidrug and alcohol prevention programs. The rule will require such programs to be implemented by the time the contractors perform safety-sensitive functions for an employer. This 60-day period was put into the original antidrug program to allow an employer time to ensure that its contractors obtained coverage. However, both the antidrug and alcohol misuse prevention program regulations have been in place for a number of years, so that this phase-in period is no longer needed. Since contractors will have to have these programs in place with or without these time windows, there will be no costs to this requirement.

³⁶ Anti-Drug evaluation.

The changes to section I of Appendix J will impose no costs as these changes involve definitions and are descriptive in nature.

Changes made throughout Appendices I and J to modify the name of the Office of Aerospace Medicine will impose no new costs.

IV. Analysis of Benefits

The specific changes to pre-employment testing will result in a number of benefits. The FAA believes that certain employers have misunderstood the current requirements and that the new requirements will be better understood. This will reduce the number of pre-employment enforcement cases. From 2000 to 2002, the FAA initiated 197 legal enforcement cases dealing with pre-employment violations, or an average of 66 cases per year. The FAA believes that these rule changes can reduce the number of legal enforcement cases, saving both the FAA and the industry time and resources.

Pre-employment testing acts as the "gatekeeper" to safety-sensitive work. Since this type of testing has had the largest number of positives, it is a major tool that reduces the likelihood that drug users will become employed in safety sensitive positions in the aviation industry. Most of the other drug and alcohol tests are largely deterrence based. Clarifying pre-employment requirements is important, as the process will reduce the number of mistakes by employers that can lead to employees not being pre-employment tested, the consequences including both potential safety impacts and enforcement actions for non-compliance.

Companies no longer having to file anti-drug plans and alcohol misuse prevention program certification statements will bring about some cost savings. In addition to the costs savings discussed above, each company will benefit from a reduction in the paperwork burden; the FAA will also benefit. Some companies have misunderstood the purpose and intent of these antidrug plans and alcohol misuse prevention program certification statements, as there is confusion as to what is required by the regulations and what each company's plan requires them to do. Since the programs and obligations in each plan sometimes differ, eliminating the plans can lead to better compliance and

enforcement of the regulations. It will also eliminate duplicative FAA databases and permit easy access to information about new certificate holders.

The new rule will increase consistency between Appendices I and J, where possible. Elimination of unnecessary differences will reduce industry inquiries into the current conflicts between the two, saving both individual companies and the FAA time and resources, as well as increasing compliance with the regulations.

V. Comparison of Costs and Benefits

This action will make a number of changes in order to make the antidrug and alcohol misuse prevention programs more efficient. The modifications to testing requirements, the changes to program submission requirements, and the elimination of the antidrug plans and the alcohol misuse prevention program certification statements should make these programs more effective.

The rule changes will cost \$178,600 (net present value, \$72,000) over ten years. The public will see:

- increased safety, by reducing the likelihood that a drug user will be employed in a safety sensitive position due to clarified pre-employment requirements;
- reduced paperwork, by companies no longer have to file an alcohol certification statement and a drug plan; and
- enhanced program management, due to the elimination of unnecessary differences between Appendices I and J.

The FAA has determined that these rules will not compromise safety. Accordingly, the FAA finds these rule changes to be cost-beneficial.

VI. Comments

At this time, the FAA is only addressing economic comments on issues included in this final rule. Many of the comments received in response to NPRM, Notice No. 02-04, addressed the language "at any tier," which was a proposed clarification in the NPRM. Several commenters stated that this was more than a clarifying change and that there would be an economic impact from this proposed change. For example, some commenters estimated that employees of an additional 5,000 non-certificated entities would require

testing. Commenters also raised concerns about the impact of the "at any tier" language on small entities, the applicability of the language to foreign repair stations, and other related costs, which may have been overlooked by the FAA. As discussed in the preamble to the final rule, the FAA is removing the "at any tier" issue from the final rule and will publish a Supplemental Notice of Proposed Rulemaking (SNPRM) in the near future. Economic comments concerning the "at any tier" issue will be addressed in the regulatory evaluation that accompanies the SNPRM. All other economic issues and comments related to NPRM, Notice No. 02-04, are addressed in this regulatory evaluation to the final rule.

1. Price of Drug Testing:

ARSA, AIA, and others commented that FAA estimates the average cost of a drug test to be \$12-\$14. Contrary to this, ARSA believes most companies obtain services from third party administrators (TPA), which charge an average cost per test of \$60 (includes specimen collection, laboratory processing, and medical review officer (MRO) verification). Other administrative services would range from \$25 to \$50 per employee. Jet Aviation is one of several commenters, presenting their own cost estimates for implementation of the program. Assuming 200 employees, they estimate that the costs will be \$38,000 for the first year, and \$47,200 when including the annual retest. In addition, they assume an administrative fee of \$6 per test, per year, specimen collection fee of \$20 per test, and laboratory test of \$44 per person. Two hours will be lost from work at the rate of \$60.00 per hour.

FAA's Response:

FAA has reviewed its cost estimates used in the NPRM and notes that the FAA regulations do not require an annual retest. FAA continues to use the rate of \$15 for the average laboratory costs, however we have adjusted the total drug test costs to capture the other related costs. Therefore, we have increased the average total costs to \$45, which now includes specimen collection, laboratory processing, and medical review officer verification. The FAA has re-examined the amount of time an average employee would need to take a random drug test, and believes that 45 minutes is appropriate. The 45 minutes is composed of 30 minutes of travel time (both to and from) and 15 minutes

for the drug test. Certainly, in some industries, the amount of time would be higher, but the FAA is confident that 45 minutes represents a reasonable industry average. The FAA derived an hourly cost of \$29.85 per hour in the NPRM based on a weighted average of the number of employees subject to drug testing and their hourly salaries. After these adjustments, FAA has re-estimated the cost of the changes engendered by this rule to drug testing and the lost labor time in the first year to be \$46,400, which encompasses the costs for covering moonlighting employees and savings from elimination of periodic tests.

2. Filing and Registration of Operations Specification with OPSS:

In the economic evaluation for the NPRM, the FAA estimated the cost for all existing plan holders to produce, register, and submit the information required for the Operations Specifications Sub-System (OPSS) at \$37,500 in the first year of compliance. Some commenters misunderstood and thought that this cost represented the overall compliance cost for drug testing. These commenters pointed out that \$37,500 was much lower than their individual first year costs. Prime Turbine, for example, believes that figure of \$37,500 would be difficult to achieve even for their small organization.

FAA's Response:

It is important to remember that this rule makes modifications to the existing antidrug and alcohol rules, so \$37,500 is not the same as the costs for the drug-testing program. The \$37,500 only refers to the processing and submittal costs, and not to the overall antidrug program. The FAA stresses that the antidrug and alcohol rules, as codified in Appendixes I and J, and not this current rule, are responsible for the costs of testing.

VII. Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) establishes "as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation." To achieve that principle, the RFA requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The RFA covers a wide-

range of small entities, including small businesses, not-for-profit organizations and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the agency determines that it will, the agency must prepare a regulatory flexibility analysis as described in the Act.

However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the 1980 RFA provides that the head of the agency may so certify and a regulatory flexibility analysis is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

For this rule, the small entity group is considered to be part 121 and 135 air carriers (Standard Industrial Classification Code [SIC] 4512) and part 145 repair stations (SIC Code 4581, 7622, 7629, and 7699). The FAA has identified 98 of a total of 144 part 121 air carriers and 2,118 of a total of 3,074 part 135 air carriers that are small entities. However, the FAA has been unable to determine how many of the 2,412 part 145 repair stations are considered small entities, and called for comments in the NPRM, but received none.

The annualized cost of these rule changes to the industry is \$17,100. The FAA is unable to isolate the cost savings to each industry group because some of the changes apply to individual companies while others apply to the employees.³⁷ So, the FAA looked at the average cost impact on each of the small entities and also on all of the small entity industry groups. If all the cost were borne by only small part 121 air carriers, small part 135 air carriers, or applicable repair stations, the average cost per certificate holder would be \$174, \$8, or \$7, respectively. If the costs were divided among all of these business entities, the average cost per entity would be \$4 per entity. Consequently, the FAA certifies that the rule will not have a significant economic impact on a substantial number of these entities.

³⁷ For instance, one of the employee groups covered by these rules are maintenance workers; there are maintenance employees working for part 121, part 135, part 145, part 135.1(c), and other contractors.

VIII. International Trade Impact Statement

The Trade Agreement Act of 1979 prohibits Federal agencies from establishing any standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. The FAA has assessed the potential effect of this final rule and determined that it will have only a domestic impact and therefore no affect on any trade-sensitive activity.

IX. Unfunded Mandates Determination

The Unfunded Mandates Reform Act of 1995 (the Act) is intended, among other things, to curb the practice of imposing unfunded Federal mandates on State, local, and tribal governments. Title II of the Act requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of \$100 million or more (adjusted annually for inflation) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a "significant regulatory action."

This final rule does not contain such a mandate. The requirements of Title II do not apply.

APPENDIX

Type of Company	Number of Companies
Part 121	127
Part 135	2,639
Part 145	2,903
Pt. 135.1(c)	343
Contract ATC's	21
Other Contractors	1,207
TOTAL	7,240

Occupational Category	Hourly Wage Rate (2002 dollars)	Number of employees in 2002	Employee Annual Growth Rate
Part 121 pilots, copilots, and instructors	\$88.62	83,650	2.3%
<i>Part 121/135 pilots³⁸</i>	\$49.27	2,038	2.4%
Part 135 pilot and instructors	\$34.71	12,824	2.6%
Part 135 on-demand pilots	\$20.34	14,636	2.0%
Part 121 navigators/engineers	\$33.76	4,962	-2.5%
Flight attendants	\$30.72	127,077	1.6%
Mechanics/repairmen	\$31.85	212,240	1.5%
Aircraft dispatchers	\$23.95	12,963	1.1%
Non-FAA Air Traffic Controllers	\$22.45	1,281	1.8%
Ground security coordinators (GSC)	\$26.43	17,831	1.5%
Aviation Security Screening Personnel	\$14.18	1,148	1.5%
Sightseeing operators	\$16.50	573	1.0%

Sources:

A. Wage Rates

- For pilots from the Majors, the FAA used an annual salary of \$151,000, in 1999, from Searles, Robert, "Operations Planning Guide: Salary Survey," The McGraw-Hill Companies, Inc., 1999. To obtain an hourly wage, the FAA divided this salary by 1,800 hours. This salary was based on:
 - ◆ Data from the DOT Form 41 quarterly submissions from certificate holders for 1999
 - ◆ The compliance cost submission from the Airline Transport Association (ATA) for the docket on the

³⁸ These pilots are included under the totals for part 121 pilots. They have been broken out as the cost discussion for moonlighting deals with part 121/135 pilots rather than all part 121 pilots.

- following FAA analysis - Initial Regulatory Impact Analysis, Regulatory Flexibility Determination, and Trade Impact Assessment, Flight Crewmember Duty Period Limitations and Rest Requirements, Notice of Proposed Rulemaking, Office of Aviation Policy, Plans and Management Analysis, FAA, November 1995; and
- ◆ The implicit GDP deflators for 2002 from the most recent Economic Report to the President.
 - For all other pilots, flight attendants, mechanics/repairmen, and dispatchers, this information came from Searles, Robert, "Operations Planning Guide: Salary Survey," The McGraw-Hill Companies, Inc., 1999. This survey has several categories for pilots for each table, and along with a summary table, the survey has wage rate for different types of airplanes. The FAA increased these salaries by 1.2345 to account for all fringe benefits and then divided by 1,800 hours to obtain the pilots hourly wage and by 2,080 to obtain the all other employee's hourly wage. Listed below is the pilot category and table used for each employee group:
 - ◆ Part 121/135 pilots - use of the average of chief pilot for the Turboprops and Light Jets Table;
 - ◆ Part 135 pilots and instructors - use of senior pilot for the Turboprops and Light Jets Table;
 - ◆ Part 121 navigators/engineers - use of copilot from the Summary Table;
 - ◆ Flight attendant - use of flight attendant from the Summary Table;
 - ◆ Mechanics/repairmen - use of maintenance technician from the Summary Table; and
 - ◆ Scheduler/dispatcher - use of scheduler/dispatcher from the Summary Table.
 - For non-FAA air traffic controllers and sightseeing operators, this information was updated from the Alcohol evaluation by use of the Consumer Price Index (CPI).
 - For GSC's, the source was the Transportation Security Administration, March 2003.
- B. Number of employees in 2002
- For all pilots, as well as flight attendants, mechanics/repairmen, aircraft dispatchers, GSC's, and

non-FAA air traffic controllers, this information was obtained from the Office of Aviation Medicine (AAM);³⁹

- For aviation screening personnel, TSA has taken over most of this function. AAM has been advised to assume that the industry will still employ 5% of the total previously employed. As of 2002, 22,956 security screeners had been employed, so for the purposes of this analysis, the FAA will assume 1,148 privately employed screeners, employed by aviation companies and not by TSA, still subject to drug and alcohol testing under our program. The FAA does not know if this will continue into the future, but, to be conservative, will assume some screening of privately employed screeners, and
- For sightseeing operators, this information was obtained by examining the number of flight crewmembers for each § 135.1(c) company with antidrug and alcohol misuse prevention programs.

C. Employee annual growth rate

- For part 121 pilots, flight attendants, and aircraft dispatchers, the FAA calculated the growth rate of the population from 1992, shown in the Alcohol evaluation, to the current level in 2002;
- For part 135 pilots, on-demand pilots, part 121 navigators/engineers, GSC's, aviation security screeners, and sightseer pilots, the FAA used the same growth rate as was used in the Alcohol evaluation;⁴⁰

³⁹ AAM's data provided the number of flightcrew members and flight instructors for part 121 and 135 companies. For the part 121 companies, there were 86,800 flightcrew members and 1,812 flight instructors, while for the part 135 companies, there were 26,742 flightcrew members and 718 flight instructors. This data had to be modified to fit into the four categories used by this analysis - part 121 pilots, copilots, and instructors; Part 121 navigators/engineers; Part 135 pilots and instructors; and Part 135 on-demand pilots. To do so, the FAA did the following:

- For the part two 121 categories - Based on the population data from 2000, 94.4% were pilots, copilots, and instructors, while 5.6% were navigators and engineers. The FAA then applied these percentages to the total number of part 121 flightcrew members and flight instructors.
- For the part two 135 categories - Based on the population data from 2000, 46.7% were pilots and instructors, while 53.3% were on-demand pilots. The FAA then applied these percentages to the total number of part 135 flightcrew members and flight instructors.

⁴⁰ For these employees, there were major differences between the populations used in the 1992 analysis and the current populations. Hence, it did not make sense to use growth rates based on these differences.

- For mechanics, the FAA used the average of the two above methods;
- For non-FAA contract towers, the FAA used the projected growth in total aircraft operations at airports with contract traffic control service;⁴¹ and
- For part 121/135 pilots, the FAA used the average of the growth rates for the part 121 pilots and part 135 pilots.

⁴¹ Source: FAA Aerospace Forecasts: Fiscal Years 1999-2010, Tables 37, FAA-APO-99-1, March 1999.

Table A-3 – Costs of Employers no Longer Relying on Another Company to Cover their “Moonlighting” Employees (2002 dollars)											
Employees	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	TOTAL
Part 121/135 pilots	21	22	22	23	24	24	25	25	26	27	239
Part 135 Pilot and Instructors	135	139	142	146	150	153	157	162	166	170	1,520
Part 135 On-Demand Pilots	152	155	158	162	165	168	171	175	178	182	1,666
Mechanics/Repairmen	2,188	2,222	2,256	2,291	2,327	2,362	2,399	2,436	2,474	2,512	23,467
Aviation Security Screening Personnel	12	12	12	12	13	13	13	13	13	14	127
Sightseeing Operators	6	6	6	6	6	6	6	6	6	6	60
Total Personnel	2,514	2,556	2,596	2,640	2,685	2,726	2,771	2,817	2,863	2,911	27,079
Number of tests											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	TOTAL
Pre-employment	377	383	389	396	403	409	416	423	429	437	4,062
Random	629	639	649	660	671	682	693	704	716	728	6,771
Post-Accident	14	14	14	14	15	15	15	15	15	16	147
Reasonable Cause	2	2	2	2	2	2	2	2	2	2	20
Return to Duty	1	1	1	1	1	1	2	2	2	2	14
Follow-up	8	8	8	8	8	8	8	9	9	9	83
Total number of tests	1,031	1,047	1,063	1,081	1,100	1,117	1,136	1,155	1,173	1,194	11,093
Cost of											
Testing	\$46,400	\$47,133	\$47,853	\$48,645	\$49,489	\$50,261	\$51,104	\$51,955	\$52,805	\$53,714	\$499,178
Cost of Employee's Time	\$13,687	\$13,897	\$14,106	\$14,337	\$14,567	\$14,818	\$15,069	\$15,299	\$15,550	\$15,822	\$147,152
Total Costs	\$60,087	\$61,030	\$61,959	\$62,982	\$64,011	\$65,079	\$66,173	\$67,209	\$68,310	\$69,491	\$646,330
Discount Factor	0.9346	0.8734	0.8163	0.7629	0.7130	0.6663	0.6227	0.5820	0.5439	0.5083	
Discounted Costs	\$56,156	\$53,306	\$50,577	\$48,049	\$45,639	\$43,365	\$41,209	\$39,116	\$37,156	\$35,326	\$449,899

Note: All years shown in this table are calendar years.