

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA,

PLAINTIFF,

AND THE VULCAN SOCIETY, INC., ET AL.,

PLAINTIFFS-INTERVENORS,

v.

CITY OF NEW YORK, ET AL.,

DEFENDANTS.

CIV. ACTION No. 07-cv-2067 (NGG)(RLM)

STATEMENT OF UNDISPUTED FACTS PURSUANT TO RULE 56.1

Pursuant to Local Rule 56.1, Plaintiff United States (“United States”) submits this Statement of Material Facts as to which Plaintiff contends there is no genuine issue of fact to be tried.

DEFINITIONS

For purposes of this Statement, the following definitions shall apply:

1. “Applicant” refers to any individual who applied for employment as an entry-level firefighter in the Fire Department of New York through an open competitive examination process.
2. “Candidate” means an individual who took Written Exam 7029, Written Exam 2043 and/or Written Exam 6019.
3. “Certification list” means a list of candidates drawn from the Exam 7029 or Exam 2043 eligibility list and certified to the FDNY by DCAS. “Certify” or “Certified” has the same meaning as those terms when used in Rule 4 of the Personnel Rules and Regulations of the City of New York.

4. The “City” means defendant City of New York.
5. “DCAS” means the City’s Department of Citywide Administrative Services.
6. “Entry-level Firefighter” means any person in an entry-level firefighter position within the FDNY or in basic training for, and expected to be placed into, such a position following successful completion of training and any required certifications, regardless whether the individual holds a job title of “cadet,” “trainee” or other similar title.
7. “Exam 2043” means the open competitive examination process for appointment to the rank of entry-level firefighter which included the written examination administered by the City in December 2002. “Written Exam 2043” means the written examination administered by the City as part of Exam 2043, regardless of the form of the written examination (i.e., A.M., P.M., Sabbath, Special Military, etc.).
8. “Exam 6019” means the open competitive process for appointment to the rank of entry-level firefighter which included the written examination administered by the City in January 2007. “Written Exam 6019” means the written examination administered by the City as part of Exam 6019, regardless of the form of the written examination (i.e., A.M., P.M., Sabbath, Special Military, etc.).
8. “Exam 7029” means the open competitive process for appointment to the rank of entry-level firefighter which included the written examination administered by the City in February 1999. “Written Exam 7029” means the written examination administered by the City as part of Exam 7029, regardless of the form of the written examination (i.e., A.M., P.M., Sabbath, Special Military, etc.).
9. “FDNY” means Fire Department of the City of New York and any agent, official, employee, office, department or division of the FDNY.
10. “PPT” means the physical performance test administered by the City as part of Exam 7029 and Exam 2043.
11. “Title VII” means Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. §2000e et seq.

UNDISPUTED FACTS

I. Jurisdiction and Venue¹

1. The United States filed the Complaint initiating this lawsuit on May 21, 2007, alleging that the City has violated Title VII by using employment practices that have resulted in an unlawful disparate impact upon black and Hispanic applicants for the entry-level firefighter position in the FDNY. Doc. No. 1.
2. The City is a municipal government and a political subdivision created pursuant to the laws of the State of New York. Doc. No. 1, ¶ 3; Doc. No. 8, ¶ 3.²
3. The City is a person within the meaning of Section 701(a) of Title VII, 42 U.S.C. § 2000e(a). Doc. No. 1, ¶ 4; Doc. No. 8, ¶ 4.
4. The City is an employer within the meaning of Section 701(b) of Title VII, 42 U.S.C. § 2000e(b). Doc. No. 1, ¶ 4; Doc. No. 8, ¶ 4.
5. The United States District Court for the Eastern District of New York has jurisdiction of the United States' claims in this action under 42 U.S.C. § 2000e-5(f), 42 U.S.C. § 2000e-6(b), 28 U.S.C. § 1343(a)(3), and 28 U.S.C. § 1345. Defendant's Responses and Objections to Plaintiff United States' Second Set of Requests for Admission and Third Set of Interrogatories ("Def. 9/8/2008 Discovery Resp."; App. A), Response to Request 24.
6. Venue is proper in the Eastern District of New York. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 25.

II. Factual Background

A. FDNY's Firefighter Workforce

7. According to documents produced by the City, in 2002, the population of the City was

¹ Headings and footnotes are included in this Statement for the convenience of the reader and do not constitute part of any statement(s) of fact. Citations are included in each numbered paragraph/statement of fact pursuant to Local Civil Rule 56.1(d) and do not constitute a part of such statement of fact. References in parentheses to "App. ___" contained in citations refer to Appendices filed concurrently with this Statement of Undisputed Facts. References in parentheses to "Doc. No. ___" refer, by number, to documents entered on the case docket.

² To the extent that paragraphs 2-6 are conclusions of law, they are undisputed by the City.

25% black and 27% Hispanic. 2002 Annual Report on Social Indicators of the City's Department of Planning, FDNY-E-000003836 (App. B).

8. According to documents produced by the FDNY, as of October 12, 2007, there were 8,998 firefighters in the FDNY, of whom only 3.37% (303) were black and 6.72% (605) were Hispanic. FDNY-E-000004230 (App. C). As of that date, only 2.90% of the 11,699 individuals in all uniformed ranks in the FDNY were black, and only 5.73% were Hispanic. FDNY-E-000004230 (App. C).

B. The Challenged Employment Practices

9. Between 1999 and 2008, the City used two open competitive examination processes, Exam 7029 and Exam 2043, to screen and select applicants for appointment as entry-level firefighters in the FDNY. Doc. No. 1, ¶¶ 9-10; Doc. No. 8, ¶¶ 9-10; Pl. Dep. Exh. 2 (App. D); Pl. Dep. Exh. 4 (App. E); Def. 9/8/2008 Discovery Resp. (App. A), Response to Requests 54-57, 70-73, 120-121 and Response to Interrogatory 36.
10. The employment practices challenged by the United States are:
 - (a) the City's use of Written Exam 7029 as a pass/fail screening device with a cutoff score of 84.705;
 - (b) the City's rank-order processing and selection of candidates from the Exam 7029 eligibility list based on a combination of their scores on Written Exam 7029 and the PPT;
 - (c) the City's use of Written Exam 2043 with a cutoff score of 70 as a pass/fail screening device; and
 - (d) the City's rank-order processing and selection of candidates from the Exam 2043 eligibility list based on a combination of their scores on Written Exam 2043 and the PPT.

See Doc. No. 1; Doc. No. 161, p. 6; Doc. No. 171, p. 3; Doc. No. 182, p. 3.

C. The City's Hiring from Exams 7029 and 2943

11. The City appointed over 3,200 entry-level firefighters from Exam 7029. DCAS-E-00004641 (App. F). Based on the data provided by the City, only 104 (3.2%) of the firefighters appointed from Exam 7029 were black, and only 274 (8.5%) were Hispanic. Siskin Nov. 2007 Report (App. G), Table 3 Part A and Table 4 Part A.

12. According to documents produced by the City, as of November 15, 2007,³ the City had appointed over 2,100 entry-level firefighters from Exam 2043. Pl. Dep. Exh. 205 (App. H). Only 80 (3.7%) of the firefighters appointed from Exam 2043 were black, and only 187 (or 8.7%) were Hispanic. Siskin Nov. 2007 Report (App. G), Table 12 Part A and Table 14 Part A.

D. The Application and Selection Process for Exams 7029 and 2043

1. Administration of the Written Examination and PPT

13. In order to be allowed to take Written Exam 7029 or Written Exam 2043, each applicant was required to return completed application forms along with any required application fee. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Requests 49 and 50.
14. Each applicant for Exam 7029 or Exam 2043 who timely submitted a properly completed application and any required application fee was sent an admission card for the written examination. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Requests 51 and 52.
15. While there were minimum qualifications for appointment for Exam 7029 and for Exam 2043, applicants were not screened for the applicable minimum qualifications prior to taking the written examination. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 53.
16. Both Written Exam 7029 and Written Exam 2043 are objectively-scored paper and pencil examinations consisting of 85 multiple choice questions. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Requests 31 and 38.
17. The City first administered Written Exam 7029 in February 1999. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Request 54 and Interrog. No. 36.
18. The last time the City administered Written Exam 7029 was in December 2002. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 55.
19. Although the City administered various versions of Written Exam 7029 at various times, each time the City administered Written Exam 7029, the examination items (*i.e.*, questions) were the same, though the order of the examination items and answer choices sometimes differed. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Request 32 and Interrog. No. 36.

³ Although the Exam 2043 eligibility list did not expire until May 2008 and the United States several times requested that the City update its discovery responses, the City has not provided updated hiring data.

20. The City first administered Written Examination 2043 in December 2002. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 56.
21. The City continued to administer Written Exam 2043 at least as late as March 2007. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 57.
22. Although the City administered various versions of Written Exam 2043 at various times, each time the City administered Written Exam 2043, the examination items (i.e., questions) were the same, though the order of the examination items and answer choices sometimes differed. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Request 39 and Interrog. No. 36.
23. For both Written Exam 7029 and Written Exam 2043, each candidate's score on the written examination was the percentage of the 85 questions on the examination that the candidate answered correctly. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 58.
24. The City considered only those candidates who scored at or above 84.705 on Written Exam 7029 to have passed Written Exam 7029. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 65.
25. The City considered only those candidates who scored above 70 on Written Exam 2043 to have passed Written Exam 2043. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Request 66 and Interrog. No. 36.⁴
26. The City used the same physical performance test ("PPT") for both Exam 7029 and Exam 2043. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 40.
27. For both Exam 7029 and Exam 2043, the City did not allow candidates who failed the written examination to take the PPT. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Requests 68 and 69; paragraphs 24 and 25, above.

2. The Exam 7029 and 2043 Eligibility Lists

28. The City placed all candidates who passed both Written Exam 7029 and the PPT (and submitted the required filing fee) on the Exam 7029 eligibility list. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 72 and Interrog. No. 36; Letter to D.

⁴ According to the City, it considered candidates who scored at or above 70 on Written Exam 2043 to have passed the written examination. Id. However, because the written examination consisted of 85 items and was scored as the percentage of items answered correctly, the lowest possible passing score was 60/85 or 70.588% (i.e., above 70). See ¶¶ 16 and 23, above.

Reese from E. Sample, dated 10/14/2008 (App. I).

29. The City placed all candidates who passed both Written Exam 2043 and the PPT on the Exam 2043 eligibility list. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 73 and Interrog. No. 36; Letter to D. Reese from E. Sample, dated 10/14/2008 (App. I).
30. On the Exam 7029 and Exam 2043 eligibility lists, respectively, the City assigned each candidate a list number (or rank) based on the candidate's Adjusted Final Average, with the lowest list numbers (*i.e.*, the highest ranks) being assigned to the candidates with the highest Adjusted Final Averages. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Requests 72-75 and Interrog. No. 36; Letter to D. Reese from E. Sample, dated 10/14/2008 (App. I).
31. For Exam 7029 and Exam 2043, respectively, the City calculated a candidate's Adjusted Final Average by: (1) standardizing and combining the candidate's scores on the written examination and the PPT; (2) rescaling (*i.e.*, "transforming") the resulting score onto a scale of approximately 70 to 100; and (3) adding any applicable Residency, Legacy or Veterans' points. Def. 9/8/2008 Discovery Resp. (App. A), Response to Requests 77, 84-87 and 94-96; Pl. Dep. Exh. 35 (App. J); Pl. Dep. Exh. 36 (App. K).
32. For both Exam 7029 and Exam 2043, candidates who had the same Adjusted Final Average were ranked (*i.e.*, assigned list numbers) on the eligibility list based upon the last five digits of the candidates' social security numbers. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 76 and Interrog. No. 36.
33. The eligibility list generated from Exam 7029 was established on November 15, 2000. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 70 and Interrog. No. 36.
34. The eligibility list generated from Exam 2043 was established on May 5, 2004. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 71.

3. Processing/Selection from the Exam 7029 and 2043 Eligibility Lists

35. In order to be appointed from the Exam 7029 or Exam 2043 eligibility list, a candidate had to appear on a certification list then in force and meet all requirements for appointment set forth in the relevant notice of examination and pass a medical and psychological examination. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 97 and Interrog. No. 36.
36. The Candidate Investigation Division ("CID") of the FDNY conducted the processing/investigation of candidates from the Exam 7029 and Exam 2043 eligibility lists to determine whether they met the requirements for appointment. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 98.

37. For Exam 7029 and Exam 2043, CID began the processing/investigation of candidates by sending candidates on the eligibility list background investigation-related forms and inviting candidates for intake interviews based upon candidates' ranks (i.e., list numbers) on the eligibility list, beginning with the highest ranks (i.e., lowest list numbers). Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 102; Tow Dep. (App. L), pp. 31:16-34:25, 55:20-57:22.
38. For Exam 7029 and Exam 2043, CID did not assign a candidate to an investigator for the background investigation until after the candidate's intake interview. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 103.
39. For Exam 7029 and Exam 2043, CID did not assign candidates to investigators for background investigation until it believed the candidate's list number likely would be reached for possible appointment to the next academy class. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 104.
40. Each certification list from the Exam 7029 or Exam 2043 eligibility list consisted of candidates drawn in rank (i.e., list number) order from the eligibility list, beginning with the highest-ranking candidate (i.e., the candidate with lowest list number) on the eligibility list who had not withdrawn from consideration and who remained eligible for certification. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Requests 110 and 111.
41. The number of candidates certified from the Exam 7029 or Exam 2043 eligibility list at a given time was based on an assessment by the DCAS Certification Unit and the FDNY of how many candidates would be needed on the certification list in order to fill an upcoming academy class. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 105.
42. The City appointed candidates from certification lists drawn from the Exam 7029 or Exam 2043 eligibility list in descending rank order (i.e., ascending list number order) from among those candidates on the certification list who had completed the investigation process, had been determined to be qualified at the time a new academy class was appointed, and were not already FDNY firefighters. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 112.
43. If the rank/list number of a candidate on the Exam 7029 or 2043 eligibility list had not been reached by the date on which the last appointment to a given academy class was made (i.e., if all candidates appointed to the class from the eligibility list had lower list numbers), the candidate was not appointed at that time even if the candidate had completed all steps in the selection process and been found qualified. Def. 9/8/2008 Discovery Resp. (App. A), Response to Request 113.

44. The City appointed entry-level firefighters from the Exam 7029 eligibility list from February 2001 until at least September 2004. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Request 120 and Interrog. No. 36; Siskin Nov. 2007 Report (App. G), pp. 12, 18 n.9 and Table 3 Part A; Patitucci Rule 30(b)(6) Dep. (App. M), pp. 204:14-20.
45. The Exam 7029 eligibility list was terminated on November 15, 2004. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Request 120 and Interrog. No. 36.
46. The City appointed entry-level firefighters from the Exam 2043 eligibility list from May 2004 until at least January 2008. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Request 121 and Interrog. No. 36; Siskin Nov. 2007 Report (App. G), p. 12 and Table 12 Part A; Doc. No. 8, ¶ 10.
47. The Exam 2043 eligibility list expired on May 5, 2008. Def. 9/8/2008 Discovery Resp. (App. A), Responses to Request 121 and Interrog. No. 36.

III. The City's Use of Each of the Employment Practices Challenged by the United States Resulted in Disparate Impact Upon Black and Hispanic Candidates.

A. The Parties' Experts

48. Dr. Bernard Siskin, the United States' statistical expert, holds a Ph.D. in statistics with a minor in econometrics from the Wharton School of the University of Pennsylvania and is former Chair of the Department of Statistics of Temple University. Siskin Resumé (App. N); Siskin Nov. 2007 Report (App. G), p. 1.
49. Dr. Siskin has many years of experience in the application of statistics to employment practices and employment discrimination issues, has published in that field, and has been accepted by courts on numerous occasions as an expert in that field. Siskin Resumé (App. N); Siskin Nov. 2007 Report (App. G), p. 1; Siskin Dep. (App. O), pp. 19:14-20:1, 22:16-23:19.
50. Dr. Siskin is well qualified to provide expert testimony in the application of statistics to employment discrimination issues. Paragraphs 48 and 49, above.
51. Drs. Philip Bobko and F. Mark Schemmer are the City's experts with respect to the issue of disparate impact. Bobko Dep. (App. P), p. 12:2-8; Schemmer Dep. (App. Q), p. 11:5-9.

B. Methods of Assessing Disparate Impact

1. Standard Deviation Analyses/Statistical Significance Tests

52. Statistical significance tests are used to decide whether a disparity, such as a disparity between the pass rates of two groups (e.g., black candidates and white candidates) on an examination, is or is not likely due to normally-occurring chance variation. Siskin Nov. 2007 Report (App. G), p. 15; Bobko/Schemmer Report (App. R), p. 11; Bobko Dep. (App. P), pp. 80:24-81:8.
53. A disparity can be described in terms of units of standard deviation, which correspond to the likelihood that an observed disparity at least as large as the one obtained would occur by chance. For example, a 5% likelihood equates to slightly less than two (1.96) units of standard deviation, while three units of standard deviation equates to less than a 1% likelihood. Siskin Nov. 2007 Report (App. G), p. 15; Bobko/Schemmer Report (App. R), pp. 11-12.
54. Statisticians, testing experts, and other social scientists normally consider a disparity to be “statistically significant” if there is a 5% or lower likelihood (i.e., probability) that so large a disparity would occur by chance. Siskin Nov. 2007 Report (App. G), p. 15; Bobko/Schemmer Report (App. R), pp. 11-12.
55. As Dr. Siskin explained in his November 2007 expert report, and the City’s experts agreed, sample size affects the number of standard deviations that is equivalent to a given disparity. Siskin Nov. 2007 Report (App. G), pp. 21-22; Bobko/Schemmer Report (App. R), p. 12.
56. Flipping a coin is a common example that illustrates why sample size should affect the number of standard deviations that is equivalent to a given disparity. Flipping a fair coin 10 times will not always result in exactly five heads and five tails; a result of six heads and four tails on ten flips would not indicate with a reasonable degree of certainty that the coin was not fair (i.e., that the disparity was not likely due to chance variation). Bobko/Schemmer Report (App. R), p. 11. However, if one flipped a fair coin 1,000 times, one would expect that the number of heads and tails would be close to equal, and a result of 600 heads and 400 tails would allow one to conclude with a high degree of certainty that the coin was not fair (i.e., the disparity between the rate at which heads came up and the rate at which tails came up was not likely due to chance variation). See Weisen Nov. 2007 Report (App. S), pp. 10-11.
57. Put simply, with a disparity in pass rates of a given size, the bigger the sample (e.g., the more times one flips the coin, or the more applicants who take the test), the more confident one can be that the difference in pass rates in the sample is not due to chance. Bobko Dep. (App. P), p. 77:19-25.

2. The “80% Rule” and Practical Significance

58. The “80% Rule” is one measure of practical significance suggested by the Uniform Guidelines. Siskin Nov. 2007 Report (App. G), p. 17; Bobko/Schemmer Report (App. R), p. 8.
59. To use the 80% Rule, one computes the ratio of the pass rate of one group (e.g., blacks) to the pass rate of another group (e.g., whites) and compares the ratio to 80%. Siskin Nov. 2007 Report (App. G), p. 17. Ratios greater than 80% are said to “pass” the 80% Rule, while ratios less than 80% are said to “fail” the 80% Rule. For example, if 75% of the black applicants passed a given examination and 95% of the white applicants passed the examination, the 80% Rule ratio would be approximately .79 or 79% ($75/95 = .789$), and the examination would “fail” the 80% Rule.
60. Because the 80% Rule ignores sample size, it does not indicate the probability that an observed disparity is or is not due to chance - i.e., it does not tell us how sure we can be that the disparity is not due to chance. Bobko Dep. (App. P), pp. 77:19-79:14; Schemmer Dep. (App. Q), p. 177:13-20.
61. As the City’s experts acknowledged in their report, the Uniform Guidelines point out that the 80% Rule is a “rule of thumb” - i.e., a rule that is easy to apply but does not always produce the correct answer. Bobko/Schemmer Report (App. R), p. 8; Schemmer Dep. (App. Q), p. 174:14-24.
62. As the City’s experts admit, the fact that the ratio of the pass rates of two groups on an examination is greater than 80% (i.e., “passes the 80% Rule”), does not necessarily mean that the examination does not result in a disparate impact. Bobko Dep. (App. P), pp. 60:15-61:5 and 71:8-73:9; Schemmer Dep. (App. Q), pp. 158:4-159:18, 166:13-167:2 and 167:8-16.
63. Dr. Bobko, one of the City’s experts, previously has acknowledged that the courts almost always rely on tests of statistical significance when determining whether an employment practice resulted in a disparate impact. Bobko Dep. (App. P), pp. 61:6-17, 92:2-94:18; Pl. Dep. Exh. 614 (App. T), p. 510.
64. With a large sample size, a test of statistical significance using 1% as the standard (i.e., concluding that there is a statistically significant disparity if there is no more than a 1% likelihood of observing a disparity so large due to chance) is better than the 80% Rule at controlling both for false positives (situations in which the test used will indicate a disparity when there is no disparity) and false negatives (situations in which the test will indicate there is no disparity when there is a disparity). In other words, with a large sample size, a test of statistical significance is more likely to produce the “right” answer to the question of whether there is a non-chance disparity between the pass rates of two

groups. Bobko Dep. (App. P) pp. 61:6-17, 62:2-63:22, 66:2-22.

65. The 1% likelihood standard for statistical significance is equivalent to between two and three units of standard deviation. Siskin Nov. 2007 Report (App. G), p. 15.
66. The use of 80% as a standard is arbitrary in the sense that there is no necessary or inherent reason why 80%, rather than, for example, 90% or 70%, is used. Siskin Nov. 2007 Report (App. G), p. 17; Schemmer Dep. (App. Q), p. 187:3-14; Bobko Dep. (App. P), pp. 98:9-99:17.
67. The City's experts admit that the 80% Rule cannot be used to evaluate the disparate impact of processing/selection of candidates in rank-order. Bobko Dep. (App. P), pp. 95:7-97:6; Bobko/Schemmer Report (App. R), p. 9 n.3 (80% Rule does not apply when comparing means or medians). Indeed, Dr. Bobko knows of no way to evaluate the practical significance of a disparity in ranks that he considers acceptable. Bobko Dep. (App. P), pp. 95:16-96:18.
68. As the City's experts admit, the Uniform Guidelines indicate that there are tests of practical significance other than the 80% Rule. Bobko/Schemmer Report (App. R), p. 7 (quoting Uniform Guidelines stating that differences in selection rates "may nevertheless constitute adverse impact, where they are significant in both statistical and practical terms" even if they pass the 80% Rule); Bobko Dep. (App. P), pp. 74:22-75:6; Schemmer Dep. (App. Q), p. 172:10-16.
69. Although, in their report, the City's experts criticize the measures of practical significance (i.e., shortfalls) used by Dr. Siskin, the City's experts are unable to identify any tests of practical significance other than the 80% Rule that they find acceptable. Bobko Dep. (App. P), pp. 75:7-11; Schemmer Dep. (App. Q), pp. 172:17-174:13.

3. Shortfalls Are a Measure of How Many Individuals Were Adversely Affected by the Disparate Impact of an Employment Practice.

70. Shortfalls are a method of assessing the practical effect of a disparity between two groups in terms of the number of individuals adversely affected by the disparity – e.g., the number of additional protected class members who would have passed an examination or the additional number of protected class members who ultimately would have been appointed if there had been no disparity in passing rates. Siskin Nov. 2007 Report (App. G), pp. 15-17.
71. Similarly, as a measure of whether black or Hispanic candidates who were appointed from the Exam 7029 or Exam 2043 eligibility list were hired later than they would have been but for a disparity in the ranks (i.e., list numbers) of black and white or Hispanic and white candidates on the eligibility list, one can calculate an estimated shortfall of black or

Hispanic candidates in each academy class appointed from the eligibility list. Siskin Nov. 2007 Report (App. G), pp. 19-21.

72. Unlike the 80% Rule, shortfalls provide information about the actual magnitude of the adverse impact on the protected class. Siskin Nov. 2007 Report (App. G), p. 17.
73. While the City's experts complain in their joint report that the hiring shortfalls calculated by Dr. Siskin are only an estimate, the City's expert, Dr. Bobko, admits that (1) although the actual hiring shortfalls could be lower than those calculated by Dr. Siskin, they could also be higher; and (2) Dr. Siskin's estimates are "in the middle." Bobko Dep. (App. P), pp. 142:8-143:13.
74. The City's expert, Dr. Bobko, admits that one cannot determine with certainty how many additional black and Hispanic candidates actually would have been appointed absent the disparities in pass rates on the written examinations and in ranks on the eligibility lists. For example, because the City did not allow blacks or Hispanics who failed the written examinations to proceed in the selection process, one can only estimate how many would have successfully completed the other phases of the process and been appointed. Bobko Dep. (App. P), p. 145:9-17.
75. While the City's experts complain in their joint report that the results of the shortfall calculations presented by Dr. Siskin are affected by sample size, Dr. Bobko admits that there is no method of evaluating how many people were affected by the disparate results of an employment practice that would not depend on sample size (i.e., the number of people to whom the practice was applied). Bobko Dep. (App. P), pp. 150:5-152:4.

C. The City's Experts Do Not Contest the Accuracy of Dr. Siskin's Calculations

76. Dr. Siskin concluded that each of the challenged practices resulted in a disparate impact upon both black and Hispanic candidates. Siskin Nov. 2007 Report (App. G), pp. 2-10.
77. One of the City's experts conducted analyses to attempt to verify Dr. Siskin's statistical calculations and confirmed the results reported by Dr. Siskin. Schemmer Dep. (App. Q), pp. 119:18-120:24 and 121:12-20; Bobko/Schemmer Report (App. R) (pointing out no inaccuracies in Dr. Siskin's calculations).
78. The City's experts and the United States' experts in the field of employment testing, Drs. Leaetta Hough and David Jones, agree, based on their experience with other cognitive written examinations, that one would expect that a cognitive written examination such as Written Exam 7029 or 2043 would result in disparate impact upon both blacks and Hispanics. Bobko Dep. (App. P), pp. 116:4-22, 117:15-118:12, 121:25-123:3, 123:13-17; Schemmer Dep. (App. Q), pp. 182:19-183:7, 225:11-226:25; Jones Dep. (App. U), pp. 133:7-134:6, 162:1-162:17, 171:19-173:6; Jones/Hough Report (App. V), pp. ii and 41-42, ¶¶ 182-184; see also, Cline Dep. (App. W), pp. 341:4-25, 351:14-352:25, 506:13-

507:18. Indeed, even non-experts have been aware that not only did minority candidates pass the written examinations at issue at lower rates than whites, those minority candidates who did pass tended to score lower than the whites who passed and so were clustered at the lower ranks of the eligibility lists. Scoppetta Dep. (App. X), pp. 117:17-118:2.

D. The City Concedes That the Challenged Practices Resulted in Disparate Impact upon Black Candidates for Exam 7029.

79. The City's own expert, Dr. Bobko, concluded that the City's pass/fail use of Written Exam 7029 with a cutoff score of 84.705 resulted in a disparate impact upon black candidates. Bobko Dep. (App. P), p. 52:7-12.
80. The City's own expert, Dr. Bobko, concluded that the City's rank-order processing and selection of candidates from the Exam 7029 eligibility list resulted in a disparate impact upon black candidates. Bobko Dep. (App. P), p. 56:8-12.
81. The City has conceded that the Exam 7029 practices challenged by the United States resulted in a disparate impact upon black candidates. Transcript of Conference, 11/12/2008 (App. Y), pp. 22-23; Transcript of Conference, 11/20/2008 (App. Z), pp. 11-12.

D. The City's Pass/Fail Use of Written Exam 7029 With a Cutoff Score of 84.705 Has Resulted in a Disparate Impact Upon Black and Hispanic Candidates.

1. The City's Pass/Fail Use of Written Exam 7029 Resulted in a Disparate Impact Upon Black Candidates.

82. As Dr. Siskin found, and the City's expert agreed, the City's use of Written Exam 7029 as a pass/fail screening device with a cutoff score of 84.705 resulted in a disparate impact upon black candidates. Bobko Dep. (App. P), 52:7-12; Siskin Nov. 2007 Report (App. G), pp. 2-3, 21-22.
83. The pass rate of white candidates on Written Exam 7029 was 89.92%, while the pass rates of black candidates was only 60.26%. Siskin Nov. 2007 Report (App. G), Table 1.
84. The City has admitted that the disparity between the pass rate of white candidates and the pass rate of black candidates on Written Exam 7029 is equivalent to more than 3 units of standard deviation. Defendant's Amended Responses and Objections to Plaintiff United States' First Set of Requests for Admission and Second Set of Interrogatories ("Def. 3/5/2008 Discovery Resp."; App. AA), p. 3, Response to Admission No. 1.
85. In fact, the disparity between the pass rate of white candidates and the pass rate of black candidates on Written Exam 7029 is equivalent to 33.9 units of standard deviation.

Siskin Nov. 2007 Report (App. G), pp. 3, 21 and Table 1; Siskin Dep. (App. O), p. 76:21-25. The likelihood that such a disparity would occur by chance is less than 1-in-4.5 million billion. Siskin Nov. 2007 Report (App. G), p. 21.

86. A practical effect of the disparate impact of the City's pass/fail use of Written Exam 7029 upon black candidates was a shortfall of 519 blacks who otherwise would have passed Written Exam 7029. In other words, due to the disparity between black and white pass rates on Written Exam 7029, 519 black candidates were eliminated from any possibility of appointment solely because of their scores on the written examination. Siskin Nov. 2007 Report (App. G), pp. 3, 22 and Table 1.
87. Had the City's pass/fail use of Written Exam 7029 not had a disparate impact, almost three quarters (74.7%) of the black candidates who failed Written Exam 7029 would have passed it. Siskin Nov. 2007 Report (App. G), p. 3.
88. Had the City's use of Written Exam 7029 as a pass/fail device with a cutoff score of 84.705 not resulted in a disparate impact, an estimated 114 more black candidates would have been appointed, and the number of black candidates appointed from the Exam 7029 eligibility list would have more than doubled. Siskin Nov. 2007 Report (App. G), pp. 3, 22 and Table 1.
89. As the City has admitted, the ratio of the pass rate of black candidates to the pass rate of white candidates on Written Exam 7029 is less than 80%. Def. 3/5/2008 Discovery Resp. (App. AA), p. 9, Objection and Response to Admission No. 13. In fact, the ratio of the pass rate of black candidates to the pass rate of white candidates on Written Exam 7029 is 67%. Siskin Nov. 2007 Report (App. G), pp. 3, 22 and Table 1.

2. The City's Pass/Fail Use of Written Exam 7029 Resulted in a Disparate Impact Upon Hispanic Candidates.

90. As Dr. Siskin found, the City's Pass/Fail Use of Written Exam 7029 with a cutoff score of 84.705 resulted in a disparate impact upon Hispanic candidates for the entry-level firefighter position in the FDNY. Siskin Nov. 2007 Report (App. G), pp. 2-3 and 23-24.
91. When asked at deposition, the City's experts refused to state that the City's pass/fail use of Written Exam 7029 with a cutoff score of 84.705 either did result in or did not result in a disparate impact upon Hispanic candidates. Bobko Dep. (App. P), pp. 52:13-54:12; Bobko/Schemmer Report (App. R), p. 6 (not concluding that any of the challenged practices does not result in disparate impact, but instead stating that the evidence of disparate impact resulting from some practices is "mixed" based on the 80% Rule).
92. The pass rate of whites on Written Exam 7029 was 89.92%, while the pass rates of Hispanics on that examination was only 76.67%. Siskin Nov. 2007 Report (App. G), Table 2.

93. The City has admitted that the disparity between the pass rate of white candidates and the pass rate of Hispanic candidates on Written Exam 7029 is equivalent to more than 3 units of standard deviation. Def. 3/5/2008 Discovery Resp. (App. AA), p. 3, Objection and Response to Admission No. 2.
94. In fact, the disparity between the pass rates of Hispanic and white candidates is equivalent to 17.41 units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 3 and 23; Siskin Dep. (App. O), p. 76:21-25. The probability that such a disparity would occur by chance is less than 1-in-4.5 million billion. Siskin Nov. 2007 Report (App. G), p. 23.
95. The practical effect of the disparate impact of the City's pass/fail use of Written Exam 7029 upon Hispanics was a shortfall of 282 Hispanic candidates who otherwise would have passed Written Exam 7029. In other words, due to the disparity between the Hispanic and the white pass rates, 282 Hispanic candidates were eliminated from any possibility of appointment solely because of their scores on the written examination. Siskin Nov. 2007 Report (App. G), pp. 3, 23 and Table 2.
96. Had the City's pass/fail use of Written Exam 7029 not had a disparate impact upon Hispanic candidates, well over half (56.9%) of the Hispanics who failed Written Exam 7029 would have passed it. Siskin Nov. 2007 Report (App. G), pp. 3, 23 and Table 2.
97. Had the City's use of Written Exam 7029 as a pass/fail device with a cutoff score of 84.705 not resulted in a disparate impact upon Hispanics, an estimated 62 more Hispanic candidates would have been appointed, and the number of Hispanic candidates hired from the Exam 7029 eligibility list would have increased by approximately 23%. Siskin Nov. 2007 Report (App. G), pp. 3, 23-24, Table 2.

E. The City's Pass/Fail Use of Written Exam 2043 With a Cutoff Score of 70 Has Resulted in a Disparate Impact Upon Black and Hispanic Candidates.

I. The City's Pass/Fail Use of Written Exam 2043 Has Resulted in a Disparate Impact upon Black Candidates.

98. As Dr. Siskin found, the City's Pass/Fail Use of Written Exam 2043 with a cutoff score of 70 resulted in a disparate impact upon black candidates for the entry-level firefighter position in the FDNY. Siskin Nov. 2007 Report (App. G), pp. 5-6 and 26-27.
99. When asked at deposition, the City's experts refused to state either that the City's pass/fail use of Written Exam 2043 with a cutoff score of 70 did result in or did not result in a disparate impact upon black candidates. Bobko Dep. (App. P), pp. 52:13-55:7; Bobko/Schemmer Report (App. R), p. 6 (not concluding that any of the challenged practices does not result in disparate impact, but instead stating that the evidence of disparate impact resulting from some practices is "mixed" based on the 80% Rule).

100. The pass rate of whites on Written Exam 2043 was 97.25%, while the pass rates of blacks was only 85.43%. Siskin Nov. 2007 Report (App. G), Table 5.
101. The City has admitted that the disparity between the pass rate of white candidates and the pass rate of black candidates on Written Exam 2043 is equivalent to more than 3 units of standard deviation. Def. 3/5/2008 Discovery Resp. (App. AA), p. 4, Objection and Response to Admission No. 3.
102. In fact, the disparity between the black pass rate and the white pass rate on Written Exam 2043 is equivalent to 21.84 units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 5, 26 and Table 5. The probability that such a disparity would occur by chance is less than 1-in-4.5 million billion. Siskin Nov. 2007 Report (App. G), p. 26.
103. The practical effect of the disparate impact of the City's pass/fail use of Written Exam 2043 upon blacks was a shortfall of 165 blacks who otherwise would have passed Written Exam 2043. In other words, due to the disparity between the black and white pass rates, 165 black candidates were eliminated from any possibility of appointment based solely on their scores on the written examination. Siskin Nov. 2007 Report (App. G), pp. 5, 27 and Table 5.
104. Had the City's pass/fail use of Written Exam 2043 not had a disparate impact upon black candidates, over four fifths (81.3%) of the black candidates who failed Written Exam 2043 would have passed it. Siskin Nov. 2007 Report (App. G), pp. 5, 27.
105. In terms of hires, had the City's pass/fail use of Written Exam 2043 not resulted in a disparate impact upon black candidates, an estimated 30 additional black candidates would have been appointed as entry-level firefighters, and the number of black candidates hired from the Exam 2043 eligibility list would have increased by 37.5%. Siskin Nov. 2007 Report (App. G), pp. 5-6, 27, Table 5 and Table 12 Part A.

2. The City's Pass/Fail Use of Written Exam 2043 Has Resulted in a Disparate Impact Upon Hispanic Candidates.

106. As Dr. Siskin found, the City's pass/fail use of Written Exam 2043 with a cutoff score of 70 resulted in a disparate impact upon Hispanic candidates for the entry-level firefighter position in the FDNY. Siskin Nov. 2007 Report (App. G), pp. 5-6 and 27-28.
107. When asked at deposition, the City's experts refused to state that the City's pass/fail use of Written Exam 2043 with a cutoff score of 70 did result in or did not result in a disparate impact upon Hispanic candidates. Bobko Dep. (App. P), pp. 52:13-55:14; Bobko/Schemmer Report (App. R), p. 6 (not concluding that any of the challenged practices does not result in disparate impact, but instead stating that the evidence of disparate impact resulting from some practices is "mixed" based on the 80% Rule).

108. The pass rate of whites on Written Exam 2043 was 97.2%, while the pass rates of Hispanics was 92.8%. Siskin Nov. 2007 Report (App. G), Table 6.
109. The City has admitted that the disparity between the pass rate of white candidates and the pass rate of Hispanic candidates on Written Exam 2043 is equivalent to more than 3 units of standard deviation. Def. 3/5/2008 Discovery Resp. (App. AA), p. 4, Objection and Response to Admission No. 4.
110. In fact, the disparity is equivalent to 10.46 units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 5, 27 and Table 6. The probability that such a disparity would occur by chance is less than 1-in-4.5 million billion. Siskin Nov. 2007 Report (App. G), p. 27 and Table 6.
111. The practical effect of the disparate impact of the City's pass/fail use of Written Exam 2043 upon Hispanic candidates was a shortfall of 94 Hispanics who otherwise would have passed Written Exam 2043. In other words, due to the disparity between Hispanic and white pass rates, 94 Hispanic candidates were eliminated from any possibility of appointment solely because of their scores on the written examination. Siskin Nov. 2007 Report (App. G), pp. 6, 28 and Table 6.
112. Had the City's pass/fail use of Written Exam 2043 not had a disparate impact, over three fifths (61.8%) of the Hispanic candidates who failed Written Exam 2043 would have passed it. Siskin Nov. 2007 Report (App. G), pp. 6, 28 and Table 6.
113. In terms of hires, the City's pass/fail use of Written Exam 2043 resulted in a shortfall of an estimated 17 Hispanic candidates appointed as firefighters. In other words, had the City's pass/fail use of Written Exam 2043 not had a disparate impact upon Hispanic candidates, an estimated 17 additional Hispanic candidates would have been appointed as entry-level firefighters. Siskin Nov. 2007 Report (App. G), pp. 6, 28 and Table 6.

F. The City's Rank-Order Processing/Selection of Candidates from the Exam 7029 Eligibility List Resulted in Disparate Impact upon Both Black and Hispanic Candidates.

1. The City's Rank-Order Processing/Selection of Candidates from the Exam 7029 Eligibility List Resulted in Disparate Impact upon Black Candidates.

114. As Dr. Siskin found, and the City's expert agreed, the City's rank-order processing/selection of candidates from the Exam 7029 eligibility list resulted in a disparate impact upon black candidates for the FDNY entry-level firefighter position. Siskin Nov. 2007 Report (App. G), pp. 4 and 24-25; Bobko Dep. (App. P), p. 56:8-12.

115. The City has admitted that, as a group, black candidates on the Exam 7029 eligibility list were ranked statistically significantly lower (i.e., had statistically significantly higher list numbers) than white candidates on the eligibility list. Def. 3/5/2008 Discovery Resp. (App. AA), pp. 5 and 7, Objection and Response to Admission Nos. 5 and 9.
116. The City has admitted that the disparity between the ranks (or list numbers) of black candidates on the Exam 7029 eligibility list and the ranks of white candidates on the eligibility list is equivalent to more than three units of standard deviation. Def. 3/5/2008 Discovery Resp. (App. AA), pp. 5 and 7-8, Objection and Response to Admission Nos. 6 and 10.
117. In fact, the disparity in ranks between black candidates and white candidates on the Exam 7029 eligibility list is equivalent to 6.48 units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 4 and 24. The probability that such a disparity would occur by chance is less than 1-in-11 billion. Siskin Nov. 2007 Report (App. G), p. 24.
118. According to documents produced by DCAS, while 33% of white candidates on the Exam 7029 eligibility list had list numbers at or above 2000, only 21% of black candidates on the list had list numbers in that range. DCAS-0017588 (App. AB).
119. According to documents produced by DCAS, while 20% of white candidates on the Exam 7029 eligibility list had list numbers at or below 5001, 30% of black candidates had list numbers in that range. DCAS-0017588 (App. AB).
120. Similarly, according to documents produced by DCAS, only 10.1% of black candidates on the Exam 7029 eligibility list were in the top 20% of all candidates on the eligibility list, while 53.8% of black candidates on the list were in the bottom 40% of all candidates on the list, and 29.2% of black candidates on the list were in the bottom 20% of all candidates on the list. DCAS-0018557 (App. AC).
121. Thus, black candidates were under-represented among higher-ranked candidates and over-represented among lower-ranked candidates on the Exam 7029 eligibility list. See paragraphs 115-120, above.
122. The practical effect of the disparate impact upon blacks of the City's rank-order processing/selection from the Exam 7029 eligibility list was that, on average, blacks were delayed in being reached on the eligibility list and being considered for appointment, resulting in an estimated loss of a total of approximately 20 years of FDNY wages and seniority for an estimated 68 black firefighters whose hiring from the Exam 7029 eligibility list was delayed. Siskin Nov. 2007 Report (App. G), pp. 4, 25 and Table 3 Part B.

2. The City's Rank-Order Processing/Selection of Candidates from the Exam 7029 Eligibility List Resulted in Disparate Impact upon Hispanic Candidates.

123. As Dr. Siskin found, the City's rank-order processing/selection of candidates from the Exam 7029 eligibility list has resulted in a disparate impact upon Hispanic candidates for the FDNY entry-level firefighter position. Siskin Nov. 2007 Report (App. G), pp. 4-5 and 25-26.
124. When asked at deposition, the City's experts refused to state either that the City's rank-order processing and selection of candidates from the Exam 7029 eligibility list did result in or did not result in a disparate impact upon Hispanic candidates. Bobko Dep. (App. P), pp. 56:25-57:7; Bobko/Schemmer Report (App. R), p. 6.
125. The City has admitted that, as a group, Hispanic candidates on the Exam 7029 eligibility list were ranked statistically significantly lower (*i.e.*, had statistically significantly higher list numbers) than white candidates on the list. Def. 3/5/2008 Discovery Resp. (App. AA), pp. 6 and 8, Objection and Response to Admission Nos. 7 and 11.
126. The City has admitted that the disparity between the ranks (or list numbers) of Hispanic candidates on the Exam 7029 eligibility list and the ranks of white candidates on the eligibility list is equivalent to more than three units of standard deviation. Def. 3/5/2008 Discovery Resp. (App. AA), pp. 6-7 and 9, Objection and Response to Admission Nos. 8 and 12.
127. In fact, the disparity in ranks between Hispanics and whites on the Exam 7029 eligibility list is equivalent to 4.57 units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 4 and 25. The probability that such a disparity would occur by chance is less than 1-in-204,000. Siskin Nov. 2007 Report (App. G), p. 25.
128. According to documents produced by DCAS, while 33% of white candidates on the Exam 7029 eligibility list had list numbers at or above 2000, only 28% of Hispanic candidates on the list had list numbers in that range. DCAS-0017588 (App. AB).
129. According to documents produced by DCAS, while 20% of white candidates on the Exam 7029 eligibility list had list numbers at or below 5001, 29% of Hispanic candidates had list numbers in that range. DCAS-0017588 (App. AB).
130. Similarly, according to documents produced by DCAS, only 14.3% of Hispanics on the Exam 7029 eligibility list were in the top 20% of all candidates on the eligibility list, while 47.8% of Hispanics on the list were in the bottom 40% of all candidates on the list, and 27.3% of Hispanics on the list were in the bottom 20% of all candidates on the list. DCAS-0018557 (App. AC).

131. Thus, Hispanic candidates were under-represented among higher-ranked candidates and over-represented among lower-ranked candidates on the Exam 7029 eligibility list. See paragraphs 124-130, above.
132. The practical effect of the disparate impact upon Hispanics of the City's rank-order processing/selection from the Exam 7029 eligibility list was that, on average, Hispanics were delayed in being reached on the eligibility list and considered for appointment, resulting in an estimated loss of a total of over 23 years of FDNY wages and seniority for an estimated 86 Hispanic firefighters whose hiring from the Exam 7029 eligibility list was delayed. Siskin Nov. 2007 Report (App. G), pp. 4-5, 26 and Table 4 Part B.

G. The City's Rank-Order Processing/Selection of Candidates from the Exam 2043 Eligibility List Resulted in Disparate Impact upon Both Black and Hispanic Candidates.

133. When asked at deposition, the City's experts refused to state that the City's rank-order processing and selection of candidates from the Exam 2043 eligibility list either did result in or did not result in a disparate impact upon black or Hispanic candidates. Bobko Dep. (App. P), p. 57:11-15 and 57:19-23; Bobko/Schemmer Report (App. R), p. 6.

1. The City's Rank-Order Processing/Selection of Candidates from the Exam 2043 Eligibility List Resulted in Disparate Impact upon Black Candidates.

134. As Dr. Siskin found, the City's rank-order processing/selection of candidates from the Exam 2043 eligibility list resulted in a disparate impact upon black candidates. Siskin Nov. 2007 Report (App. G), pp. 7-8 and 31-34.
135. As the City apparently concedes, as a group, black candidates on the Exam 2043 eligibility list were ranked statistically significantly lower than white candidates on the list, and the disparity in ranks is equivalent to more than three units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 7 and 31-32; Transcript of Conference, 11/12/2008 (App. Y), pp. 22-23; Transcript of Conference, 11/20/2008 (App. Z), p. 11.
136. In fact, the disparity in ranks between blacks and whites on the Exam 2043 eligibility list is equivalent to 9.45 units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 7 and 32. The probability that such a disparity would occur by chance is less than 1-in-4.5 million billion. Siskin Nov. 2007 Report (App. G), p. 32.
137. According to documents produced by DCAS, while 28% of white candidates on the Exam 2043 eligibility list had list numbers at or above 2000, only 18% of black candidates on the eligibility list had list numbers in that range. DCAS-0017584 (App. AD).

138. According to documents produced by DCAS, while 30% of white candidates on the Exam 2043 eligibility list had list numbers at or below 5001, 50% of black candidates had list numbers in that range. DCAS-0017584 (App. AD).
139. Similarly, according to documents produced by DCAS, only 11.4% of black candidates on the Exam 2043 eligibility list were in the top 20% of all candidates on the eligibility list, 56.9% of black candidates on the list were in the bottom 40% of all candidates on the list, and 46.2% of black candidates on the list were in the bottom 20% of all candidates on the list. DCAS-0018557-18558 (App. AC).
140. Thus, black candidates were under-represented among higher-ranked candidates and over-represented among lower-ranked candidates on the Exam 2043 eligibility list. See paragraphs 135-139, above.
141. As a result of the disparity between the ranks of black candidates and those of white candidates on the Exam 2043 eligibility list, white candidates on the Exam 2043 eligibility list were reached for possible appointment at a statistically significantly higher rate than had black candidates on the eligibility list. Siskin Nov. 2007 Report (App. G), pp. 7-8 and 32-33.
142. The disparity between the rates at which white and black candidates on the Exam 2043 eligibility list had been reached for possible appointment is equivalent to 9.74 units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 7-8, 32-33 and Table 11. The likelihood of such a disparity occurring by chance is infinitesimally small, less than 1-in-4.5 million billion. Siskin Nov. 2007 Report (App. G), pp. 32-33.
143. The City admits that the ratio of the rates at which black and white candidates on the Exam 2043 eligibility list ranked high enough to be appointed (i.e., at or above the rank of the last person appointed from the list) was less than 80% of the rate at which white candidates ranked high enough to be appointed. Def. 3/5/2008 Discovery Resp. (App. AA), p. 11, Response to Admission No. 16; Siskin Nov. 2007 Report (App. G), p. 33.
144. In fact, the rate at which black candidates on the Exam 2043 eligibility list had been reached for possible appointment was only 67.6% of the rate at which white candidates had been reached. Siskin Nov. 2007 Report (App. G), p. 33.
145. One practical effect of the disparate impact upon blacks of the City's rank-order processing/selection from the Exam 2043 eligibility list was a shortfall of 95 black candidates who otherwise would have ranked high enough to be considered for appointment, and a hiring shortfall of an estimated 42 black candidates. Siskin Nov. 2007 Report (App. G), pp. 8, 33 and Table 11. In other words, had there been no disparity in the ranks of black and white candidates on the Exam 2043 eligibility list, 95 more black candidates would have been considered for appointment, and an estimated 42 more blacks would have been appointed as FDNY firefighters. Siskin Nov. 2007 Report

(App. G), pp. 8, 33 and Table 11.

146. The disparate impact of the City's rank-order processing/selection from the Exam 2043 eligibility list also has had a practical effect upon black firefighters who were appointed from Exam 2043. Because of the disparate impact upon blacks of the City's rank-order processing/selection from the Exam 2043 eligibility list, blacks were delayed in being reached on the eligibility list, resulting in an estimated loss of a total of approximately 14 years and one month of FDNY wages and seniority for 44 black firefighters. Siskin Nov. 2007 Report (App. G), pp. 9, 33-34 and Table 12 Part B.

2. The City's Rank-Order Processing/Selection of Candidates from the Exam 2043 Eligibility List Resulted in Disparate Impact upon Hispanic Candidates.

147. As Dr. Siskin found, the City's rank-order processing/selection of candidates from the Exam 2043 eligibility list resulted in a disparate impact upon Hispanic candidates. Siskin Nov. 2007 Report (App. G), pp. 7-8 and 34-35.
148. As the City apparently concedes, as a group, Hispanic candidates on the Exam 2043 eligibility list ranked statistically significantly lower than white candidates, and the disparity in ranks is equivalent to more than three units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 8, 34; Transcript of Conference, 11/12/2008 (App. Y), pp. 22-23; Transcript of Conference, 11/20/2008 (App. Z), p. 11.
149. In fact, the disparity in ranks between Hispanics and whites on the Exam 2043 eligibility list is equivalent to 4.55 units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 8 and 34. The likelihood of such a disparity occurring by chance is less than 1-in-186,225. Siskin Nov. 2007 Report (App. G), p. 34.
150. According to documents produced by DCAS, while 28% of white candidates on the Exam 2043 eligibility list had list numbers at or above 2000, only 25% of Hispanic candidates on the eligibility list had list numbers in that range. DCAS-0017584 (App. AD).
151. According to documents produced by DCAS, while 30% of white candidates on the Exam 2043 eligibility list had list numbers at or below 5001, 39% of Hispanic candidates had list numbers in that range. DCAS-0017584 (App. AD).
152. Similarly, according to documents produced by DCAS, only 17.2% of Hispanics on the Exam 2043 eligibility list were in the top 20% of all candidate on the eligibility list, 45.4% of Hispanics on the list were in the bottom 40% of all candidates on the list, and 24.6% of Hispanics on the list were in the bottom 20% of all candidates on the list. DCAS-0018557-18558 (App. AC).

153. Thus, Hispanic candidates were under-represented among higher-ranked candidates and over-represented among lower-ranked candidates on the Exam 2043 eligibility list. See paragraphs 148-152, above.
154. As a result of the disparity between the ranks of Hispanic candidates and those of white candidates on the Exam 2043 eligibility list, white candidates on the Exam 2043 eligibility list had been reached for possible appointment at a statistically significantly higher rate than had Hispanic candidates. Siskin Nov. 2007 Report (App. G), pp. 8 and 34.
155. The disparity between the rates at which white and Hispanic candidates on the Exam 2043 eligibility list had been reached for possible appointment is equivalent to 5.04 units of standard deviation. Siskin Nov. 2007 Report (App. G), pp. 8, 34 and Table 13. The likelihood of such a disparity occurring by chance is less than 1-in-2 million. Siskin Nov. 2007 Report (App. G), p. 34 and Table 13.
156. The rate at which Hispanic candidates on the Exam 2043 eligibility list had been reached for possible appointment was only 86.9% of the rate at which white candidates had been reached. Siskin Nov. 2007 Report (App. G), p. 35.
157. One practical effect of the disparate impact of the City's rank-order processing/selection from the Exam 2043 eligibility list was a shortfall of 63 Hispanic candidates who otherwise would have ranked high enough to be considered for hire, and a hiring shortfall of an estimated 28 Hispanics. Siskin Nov. 2007 Report (App. G), pp. 8, 34-35 and Table 13. In other words, had there been no disparity in the ranks of Hispanic and white candidates on the Exam 2043 eligibility list, 63 more Hispanic candidates would have been considered for appointment, and an estimated 28 more Hispanics would have been appointed as FDNY firefighters. Siskin Nov. 2007 Report (App. G), pp. 8, 34-35 and Table 13.
158. The disparate impact of the City's rank-order processing/selection from the Exam 2043 eligibility list also has had a practical effect upon Hispanic firefighters who were appointed from Exam 2043. Because of the disparate impact upon Hispanics of the City's rank-order processing/selection from the Exam 2043 eligibility list, Hispanics were delayed in being reached on the eligibility list and being considered for appointment, resulting in an estimated loss of a total of approximately 12 years and four months of FDNY wages and seniority for 51 Hispanic firefighters. Siskin Nov. 2007 Report (App. G), pp. 9, 35 and Table 14 Part B.

H. Both Black and Hispanic Candidates Disproportionately "Effectively Failed" Written Exam 2043.

159. Because the City used Written Exam 2043 on both a pass/fail basis and (in combination with PPT scores) for rank-order processing/selection and did not exhaust the Exam 2043

eligibility list, evaluating the disparate impact of the City's use of Written Exam 2043 based on a cutoff score of 70 understates the true effect of the written examination upon black and Hispanic candidates. Siskin Nov. 2007 Report (App. G), pp. 6-7, 28-31.

160. Even candidates who scored above 70 on Written Exam 2043 may not have scored high enough to be considered for appointment, regardless of their scores on the PPT, due to the City's methodology for assigning ranks on the 2043 eligibility list. Such candidates have "effectively failed" the written examination. Siskin Nov. 2007 Report (App. G), pp. 6, 28-29.
161. Blacks and Hispanics who passed the written examinations tended to score lower than whites who passed the written examinations. For example, according to documents produced by the FDNY, while 76.3% of white candidates who passed Written Exam 2043 scored between 90 and 100, only 44.9% of blacks scored that high. FDNY-E-000000830 (App. AE). Similarly, according to documents produced by the FDNY, while 76.3% of white candidates who passed Written Exam 2043 scored between 90 and 100, only 58.5% of Hispanics scored that high. FDNY-E-000000830 (App. AE).
162. Thus, to evaluate the full impact of the City's use of Written Exam 2043, the United States' expert, Dr. Siskin, replicated his analyses of the disparate impact of the City's use of Written Exam 2043 as a pass/fail screening device, using the "effective cutoff score" on Written Exam 2043, rather than the nominal cutoff score of 70. Siskin Nov. 2007 Report (App. G), pp. 29-31. For these analyses, the effective cutoff score for a candidate was the minimum score the candidate would have needed on Written Exam 2043 (given the number of bonus points the candidate was awarded) to have had any chance of being reached for appointment. Siskin Nov. 2007 Report (App. G), p. 29.
163. The effective pass rate of white candidates on Written Exam 2043 was 70.31%, while the effective pass rates of black candidates was only 41.49%. Siskin Nov. 2007 Report (App. G), Table 7.
164. The disparity between the effective pass rate of white candidates and the effective pass rate of black candidates on Written Exam 2043 is equivalent to 21.89 units of standard deviation. Siskin Nov. 2007 Report (App. G), p. 29 and Table 7. The likelihood that such a disparity would occur by chance is less than 1-in-4.5 million billion. Siskin Nov. 2007 Report (App. G), p. 29 and Table 7.
165. In terms of practical effect, as a result of the disparity between the black and white effective pass rates on Written Exam 2043, 401 black candidates were effectively eliminated from any possibility of appointment. Siskin Nov. 2007 Report (App. G), p. 30 and Table 7.
166. Absent the disparity between the black and white effective pass rates on Written Exam 2043, an estimated 70 additional blacks would have been appointed as FDNY firefighters.

Siskin Nov. 2007 Report (App. G), p. 30 and Table 7.

167. The effective pass rate of Hispanic candidates on Written Exam 2043 was 58.93%. Siskin Nov. 2007 Report (App. G), Table 9.
168. The disparity between the effective pass rate of white candidates and the effective pass rate of Hispanic candidates on Written Exam 2043 is equivalent to 10.52 units of standard deviation. Siskin Nov. 2007 Report (App. G), p. 30 and Table 9. The likelihood that such a disparity would occur by chance is less than 1-in-4.5 million billion. Siskin Nov. 2007 Report (App. G), p. 30 and Table 9.
169. In terms of practical effect, as a result of the disparity between the Hispanic and white effective pass rates on Written Exam 2043, 242 Hispanic candidates were effectively eliminated from any possibility of appointment. Siskin Nov. 2007 Report (App. G), p. 31 and Table 9.
170. Absent the disparity between the Hispanic and white effective pass rates on Written Exam 2043, an estimated 45 additional Hispanics would have been appointed as FDNY firefighters as of the date of the data produced by the City. Siskin Nov. 2007 Report (App. G), p. 31 and Table 9.

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