



Content-Related and Criterion-Related Validation Study of

CritiCall[®]



Knowledge, Skill, and Ability Testing Software

**for Dispatchers and Calltakers of the
Florida Highway Patrol**

*This Report Provides Information that Addresses Essential Validity
Requirements of Sections 15B and 15C of the federal Uniform Guidelines on
Employee Selection Procedures*

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Report prepared by



193 Blue Ravine Road, Suite 270, Folsom, CA

(800) 999-0438

Human Resources Consulting since 1974

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Executive Summary

A content-related validation study of CritiCall Pre-Employment Testing Software (hereafter referred to as *CritiCall*) for the selection of dispatchers and calltakers by the Florida Highway Patrol (FHP) was facilitated by Biddle Consulting Group, Inc. (BCG) during June through September of 2012. Based on information provided by 66 Job Experts, it was determined that all of the test modules described within the current report are, in general, fair and valid, addressing the essential requirements of Section 15C of the federal Uniform Guidelines on Employee Selection Procedures (Uniform Guidelines; 1978).

In addition, a criterion-related validation study of CritiCall was also facilitated by BCG for the FHP in May and June of 2012. It was determined that the composite T-scores of the combination of standardized scores from the CritiCall test modules used for selection purposes has a strong uncorrected-significant relationship ($r_{xy} = 0.41$) to supervisor's ratings of 62 current FHP employees. The same relationship corrected for the reliability of the criteria ($r_{yy} = 0.88$) was $r_{xy} = 0.44$. The strength of the relationship between the composite T-scores of the set of test modules (AutoTest Code) used by FHP for employment purposes and job performance ratings is such that the overall test is likely to be considered fair and valid, addressing the essential requirements of Section 15B of the Uniform Guidelines. That being said, a more definitive statement about the validity of the composite scores would require a larger number of participants.

Finally, it was also determined that several of the individual test modules were statistically-significantly related to both overall job-performance ratings and performance ratings of specific skill areas at the $p < 0.05$ level using either a two-tailed or two-tailed hypothesis test. However, the relatively small sample size resulted in a number of relationships that would traditionally be reported as being significant as being non-significant. It is anticipated that the number of statistically-significant relationships would grow as the sample size is increased.

Introduction

This report is designed to address essential elements of Sections 15B and 15C of the federal Uniform Guidelines on Employee Selection Procedures (Uniform Guidelines; 1978) regarding the validity of CritiCall testing for the selection of Dispatchers and Calltakers by the Florida Highway Patrol (FHP). While the Uniform Guidelines are not law, they have been recognized by the United States Supreme Court and given “great deference” by the courts (see the U. S. Supreme Court ruling in *Griggs v. Duke Power Co.*, 401 U.S. 424 [1971]).

Evidence of the *content-related* validity of all of the individual CritiCall test modules contained in the battery of test modules (i.e., AutoTest Code) given to job applicants was obtained using CritiCall’s built-in Validation Wizard feature. Content-related validity evidence is gathered by showing that the content of the job is sufficiently related to the content of the test to demonstrate the job-relatedness of the tests. The Validation Wizard also collects information from job experts to help determine appropriate cutoff scores for the job as it is performed at that employer in accordance with the *U.S. v. South Carolina* (1978) Supreme Court ruling.

Additional evidence for demonstrating the validity of the use of CritiCall testing was developed using a *criterion-related* validation approach. According to Section 5B of the Uniform Guidelines, evidence of the validity of a test or other selection procedure using a criterion-related validity study consists of empirical data demonstrating that the selection procedure is predictive of or significantly correlated with important elements of *job performance*. In other words, it consists of the demonstration of a statistically-significant relationship between scores on the CritiCall test and some job-related criteria, such as job performance ratings by employees’ supervisors.

Criterion-related validity studies can be conducted in one of two ways: using a *predictive* model or a *concurrent* model. A predictive model is conducted when applicant test scores are correlated to subsequent measures of job performance (e.g., six months after the tested applicants are hired). A concurrent model is conducted by giving a selection procedure to incumbents who are currently on the job and then correlating these scores to current measures of job performance (e.g., performance review scores, supervisor ratings, etc.). The current study used a concurrent approach to validation.

Criterion-related validity is generally based upon the concept that possessing higher levels of skills beyond some minimal competency level will result in better performance on the job. However, readers are cautioned that is not always the case. For example, employees sometimes need to be able to perform some tasks at some minimally-acceptable level, but not necessarily at any higher level. Thus, the lack of a significant relationship between test scores and job performance ratings does not automatically indicate that an ability measured by a test is not needed by employees, which is why the demonstration of content-related validity can be important.

We further note that tests that are designed to measure a single construct are sometimes not related to ratings of overall job performance unless that construct significantly contributes to overall job performance or if overall job performance is explained by other constructs that are highly correlated with the construct being measured.

Finally, we note that some test modules are more likely to predict an employee's performance early in their tenure, rather than later. For example, the ability to listen to and enter data can be dramatically improved with time and practice, and therefore people who have been employees for more than one year have likely honed that skill over time. However, failing to have this ability at the time of entry to the job can dramatically reduce a newly-hired employee's ability to succeed during training. Thus, concurrent studies of tenured employees, such as the one described herein, may not reflect the effectiveness of testing on predicting skill levels of an employee during their first year of employment. Therefore, the lack of a statistically-significant relationship between ratings of job performance of tenured employees and test scores does not automatically negate the importance of the use of those test modules for employees who are newly hired.

Validation Study Facilitator - Biddle Consulting Group, Inc.

The Biddle Consulting Group, Inc. (BCG) is affiliated with Biddle & Associates, Inc. (B&A). Biddle & Associates started in 1974 and was incorporated in 1977, and BCG was incorporated in 2001. BCG's consulting division specializes in Equal Employment Opportunity (EEO), litigation support, software development, and Affirmative Action Plan (AAP) technical support and has assisted over 1,000 employers in these areas. Our OPAC® (Office Proficiency Assessment and Certification®) division has several thousand clients with automated test sales. We have a sister corporation called Fire and Police Selection, Inc. (FPSI), which specializes in tests for firefighter/police selection and promotion procedures.

Since 1977, B&A/BCG has assisted attorneys in litigation support as consultants or experts in over one hundred EEO cases involving statistics and/or job-relatedness analyses. We have conducted sensitive statistical EEO audit analyses for employers prior to a suit to minimize the likelihood of suit. We have developed or validated selection devices in hundreds of situations, have licensed occupational census data from the 1970, 1980, and 1990 census to hundreds of clients, have licensed our test scoring and analysis, EEO/AAP analysis, and job analysis software to hundreds of clients, have trained clients on AAP development in hundreds of workshops, have developed AAPs for more than a hundred clients, have developed and licensed our tests for entry-level peace officer and firefighter to numerous cities and counties, and we have distributed self-administered and automatically scored word-processing and other administrative tests to more than a 3,000 employers and schools.

While most of our litigation support has been for defense attorneys, we have worked on the plaintiff side in more than a dozen cases and since 1989 have served as the class expert monitor in a complex case involving statistical effects and validation of practices, procedures, and custom developed tests used for entry-level selection, promotion, and assignments and transfers to 75 jobs. Over the past few years, several courts have supported our statistical

analyses or our job analysis and job-relatedness work products: our reading ability test for firefighters was supported as job related in *United States of America v. City of Torrance*, [No. 93-4142-MRP, DC CA]; our statistical analyses and job-relatedness analyses for written tests, oral interviews, and assessments of promotability were supported for three classifications in *Simmons v. The City of Kansas City, Kansas*, [No. 88-2603-0, DC KA]; our job-relatedness work involving a test was supported in *Sanchez v. City of Santa Ana*, [No. CV-79-1818-KN, DC CA]; our statistical analyses were supported in *Wunderly v. S.C. Johnson & Son, Inc.*, [828 F. Supp 801 (DC OR)], *Shelton v. SCPIE*, [No. BC 088821, 098887], and *Kelley v. Metropolitan Transportation Authority*, [No. BC 104734]. On the plaintiff side, our statistical work was supported in *Paige v. California Highway Patrol*, [No. CV-94-0083 CBM(Ctx), DC CA] and *Bouman v. Baca*, 940 F2d 1211 (9th Cir. 1991), cert. denied 12-9-91.

During the past several years, we have had professional articles published in the Personnel Journal, The Human Resources Professional, Public Personnel Journal, Public Personnel Management, California Labor & Employment Law Quarterly, and Labor Law Journal. These articles deal with statistics, disparate impact, and job-relatedness.

Some of the sensitive statistical analyses we have conducted for employers have included the effects by sex, race, ethnic origin, and age groups of possible layoff actions, performance evaluations, forced distribution ratings, pay, overtime, bonuses, raises, promotions, hiring, transfers, plant closures, mergers, false arrests claims, vice arrests, cigarette smoking and asbestos exposure, PCBs, and contracts let to minority- and female-owned businesses.

A substantial part of our practice is the determination of job-relatedness (i.e., validation of selection devices) such as written tests, skills tests, oral interviews, and performance appraisals. Establishing job-related cutoffs for tests and combining several test results into an overall list are other important components of our validation work. We also evaluate skill, effort, responsibility, and working conditions in exemption cases.

Our sister company, Fire and Police Selection, Inc., is responsible for firefighter and police selection/promotion testing. In addition to offering stock public-safety tests, we have worked with numerous departments developing and validating custom physical ability tests, oral interviews, writing ability tests, background evaluations, and psychological evaluations. Other support work we have performed include scoring tests, weighting tests, developing eligibility lists, developing models with various weights within the job related range of weights to minimize adverse impact, banding, analyzing adverse impact for each possible score, developing job related cutoff scores, and assisting in setting final weights and cutoffs.

Laws, Regulations, and Professional Standards

BCG has developed numerous pre-employment selection tests for more than 40 years and is aware that selection tests need to address federal laws and regulations including, but not limited to, the

- Civil Rights Act of 1964 (CRA 1964; Title VII)
- Civil Rights Act of 1991 (CRA 1991)
- Americans with Disabilities Act (ADA)
- Age Discrimination in Employment Act (ADEA)
- Federal Uniform Guidelines for Employee Selection Procedure
- OFCCP Federal Contractor Requirements and Regulations

We are also aware that selection tests should also address the professional standards, including, but not limited to, the

- *Principles for Validation and Use of Personnel Selection Procedures* of the Society for Industrial and Organizational Psychology (1987)
- American Educational Research Association /American Psychological Association's *Standards for Educational and Psychological Testing* (1999)

The CritiCall testing process is designed to address the relevant laws, regulations, guidelines, and professional standards.

Validity Strategies [Sections 15B and 15C]¹

There are three different types of evidence of validity that may be used when developing a selection device according to the federal Uniform Guidelines: Content, criterion, and construct validation. In the Bridgeport Guardians case (Bridgeport Guardians v. Bridgeport Police Dept., 431 F.Supp. 931 [D. Conn. 1977]), the court indicated that none of these three validation approaches is superior to another. Both a content-related and criterion-related validation strategy were used during the current study to determine the job-relatedness (validity) of CritiCall testing for the Florida Highway Patrol.

Description of the Selection Procedures [Sections 15B(7) and 15C(4)]

The following are descriptions of the CritiCall test modules that were administered to test takers during the current studies.

- **Keyboarding**

This test module measures the ability to read full written paragraphs and accurately enter those paragraphs word-for-word using a keyboard. The ability to correctly capitalize and use proper punctuation is emphasized during this test.

¹ References in brackets throughout this report refer to the sections of the federal Uniform Guidelines for Employee Selection Procedures (1978) being addressed (see www.uniformguidelines.com).

- **Data Entry MT**

This test module measures the ability to read written data (such as name, telephone number, license plate sequence, etc.) and accurately enter that data using a keyboard. Multi-tasking was also measured using a decision-making task.

- **Data Entry MT (Audio)**

This test module measures the ability to hear audible data (such as name, telephone number, license plate sequence, etc.) and accurately enter that data using a keyboard. Multi-tasking was also measured using a decision-making task.

- **Call Summarization 1**

This test module measures the ability to hear, comprehend, and summarize audible information. Test takers listen to a short story and enter notes about that story into a computer. They are then asked to summarize the story by answering a multiple-choice question. Multi-tasking was also measured using a decision-making task.

- **Call Summarization 2 - MT**

This test module measures the ability to hear and comprehend audible information while accurately entering that information using a keyboard, and to use that information. The test taker listens to a simulated telephone call and enters detailed information into the computer. They must then respond to a series of multiple-choice questions about the information that they listened to using the information they entered into the computer and /or their memory. Multi-tasking was also measured using a decision-making task.

- **Cross Referencing**

This test module measures the ability to locate information, requested in writing, on a written list and to correctly/accurately respond using a keyboard. Test takers are presented with an address book containing names, telephone numbers, and addresses on the screen. Using the address book list, they must answer written questions by cross-referencing specific information, and then entering the correct response into the space provided on the computer screen.

- **Cross Referencing (Audio)**

This test module measures the ability to locate information, requested vocally over the headset, on a written list and to correctly/accurately respond using a keyboard. Test takers are presented with an address book containing names, telephone numbers, and addresses on the screen. Using the address book list, they must answer audible questions by cross-referencing specific information, and then entering the correct response into the space provided on the computer screen.

- **Character Comparison**

This test module measures the ability to compare and contrast written data. In this multiple-choice test, test takers are presented with a series of characters and text.

They are then asked to correctly identify the matching character sequence against a group of similarly phrased alternate characters.

- **Memory Recall**

This test module measures the ability to learn and later recognize associated information. Test takers are shown several pairs of words on the computer screen, which disappear after a short time. The test taker is then provided one of the paired words and asked to choose the word that it had been paired with (e.g., red Dodge, yellow Ford, etc.).

- **Memory Recall-Numeric (Audio)**

This test module measures the ability to hear data (seven-digit telephone numbers), retain it in memory, and then use a keyboard to accurately enter the data. Test takers listen to a series of seven-digit telephone numbers and are then asked to enter the number from memory a few moments later.

- **Map Reading**

This test module measures the ability to use maps for determining routes and locations using multiple-choice questions. No previous map-reading training is required for success.

- **Spelling**

This test module assesses a test taker's ability to correctly spell words that sound similar, but are spelled differently and have different meanings depending on the context in which they are being used. These words, if misspelled, might communicate an incorrect meaning to the recipient, which could delay assistance. Test takers listen to a target word spoken in a sentence and then must correctly spell that word according to the context in which it is used. (For example, some words that sound the same when spoken have different meanings, such as -- "patients" or "patience." The test taker would need to correctly spell the word based on a phrase that specifies the meaning.

- **Sentence Clarity**

This test module measures the ability to select the sentence(s) that most clearly express a meaning. An applicant is presented with two written statements and must choose the statement that most clearly communicates the meaning.

- **Reading Comprehension**

This test module measures the ability to read and comprehend passages that are written at a job-related level. The reading passages in this test module include text adapted from the standard operating procedures and training materials of police, fire, and ambulance communication centers from around the country. During this section of the test, candidates read a written passage and then choose the best response relating to that passage from four alternatives.

Content-Related Validation Study

User, Location, and Dates of Study [Section 15C(1)]

A content-related validation study of CritiCall test modules used for selecting Florida Highway Patrol dispatcher employees was conducted in the Jacksonville and Tallahassee, Florida areas during June through September of 2012.

Problem and Setting [Section 15C(2)]

The purpose of the current study was to provide evidence of the content-related validity of CritiCall test modules to be used for selecting calltaker and/or dispatcher employees who will be working for the Florida Highway Patrol. The CritiCall test will be used to aid when making employment decisions as part of an overall selection process, which also includes a job-related interview.

Job Analysis – Content of the Job [Section 15C(3)]

A targeted job analysis and content-related validation study was conducted by the FHP using CritiCall's built-in Validation Wizard feature. During that study 66 Job Experts linked important or critical work behaviors to knowledge, skills, and/or abilities measured during CritiCall testing. A copy of the Validation Wizard Report automatically generated by the CritiCall program is available upon request.

Selection Procedure and Its Content: Test Description [Section 15C(4)]

During national job analysis studies of public-safety dispatcher and calltaker positions conducted in 2000 and 2010 by BCG, it was determined that qualified calltakers and dispatchers must possess the ability to perform a wide variety of tasks related to the job. The CritiCall testing process was developed primarily by Dr. James Kuthy, a Ph.D.-level Industrial and Organizational Psychologist who is extremely familiar with calltaker and dispatcher job functions. The CritiCall testing process was specifically designed to measure important work-related tasks identified during both the 2000 and 2010 national job analysis studies. Dr. Kuthy's professional vita can be found as [Attachment A](#).

The CritiCall test is administered using a personal computer. Test takers respond to both written and audio prompts when taking the test. Test takers have the ability to adjust the volume of the sounds they hear over their headset during testing.

The validation study described herein determined that knowledge, skill, and/or abilities that are measured during testing are used in, and are a necessary prerequisite to, performance of critical or important work behavior(s), as specified by Section 14C(4) of the federal Uniform Guidelines.

Since the test modules described in this report will be actively used for the selection of employees, the actual test questions/events are not provided with this report in order to help maintain test security.

Validation Process for the CritiCall Test [Sections 15C(4 & 5)]

During the CritiCall validation process, the Job Experts responded to the various CritiCall test modules as if they were a job applicant. Then, following each test module they took, the Job Experts responded to each the following validation questions.

1. Is some level of the knowledge, skill, or ability measured by this test essential for job performance for the Sample Dispatcher Test job?
 - a. At least 50% of Job Experts must say "Yes" for validity.
 - b. Test takers were asked to provide text supporting their rating.
2. Is the knowledge, skill, or ability measured by this test required at the time of entry (hire, promotion, or transfer) into this job?
 - a. At least 50% of Job Experts must say "Yes" for validity.
3. Indicate the level of importance that the knowledge, skill, or ability has to job performance.
 - a. At least 50% of Job Experts must agree that the knowledge, skill, or ability is Important, Critical, or Extremely Critical for validity
4. Record the MOST important task requiring the knowledge, skill, or ability measured by this test. (Task 1)
 - a. Rate the importance of Task 1.
5. Record the NEXT MOST important task requiring the knowledge, skill, or ability measured by this test. (Task 2)
 - a. Rate the importance of Task 2.
 - b. At least 50% of Job Experts must agree that either Task 1 or 2 is important, critical, or extremely critical for validity.
6. This task is typically performed at least once every (frequency rating).
7. Does this test require more, the same, or less knowledge, skill, or ability than is required for similar tasks on the job? (To determine that the test is not any more difficult than the job itself)
8. Think about how well you perform the parts of this job which require the knowledge, skill, or ability this test measures. Then consider the amount of training and experience you have using the knowledge, skill, and ability. Base upon all of this, record the minimum score which, in your opinion, a minimally qualified applicant should obtain on this test in order to pass it and be considered for hiring into this job classification.
9. Above-minimum performance of this duty makes (choose one) difference in overall performance of the job this test will be used for. (To determine whether test takers can be ranked ordered based on their test performance).

Content-Related Validation Process Job Expert Participants

Validation data was gathered from a total of 66 FHP Job Experts (i.e., experienced FHP communications employees) using the CritiCall Test Validation Wizard data-collection system. The following information indicates the diversity of the Job Experts who participated in the content-related validity data collection portion of the study.

Gender of Job Experts

The number of each gender of the Job Experts who participated in the current study can be found in Table 2-1.

Table 2-1.

	Male	Female	Declined to Answer
Job Experts	22	43	1

Ethnicity/Race of Job Experts

The number of each ethnic background of the Job Experts that participated in the current study can be found in Table 2-2.

Table 2-2.

	White	Black/African American	Hispanic/Latino	Asian / Pacific Islander	Native American /Alaskan Native	Declined to Answer
Job Experts	49	14	1	0	1	1

Job Experts who Supervised and/or Trained Employees

The average number of years of experience the Job Experts who participated in the content-related validation study be found in Table 2-3. The range of experience was from one year to 30 years.

Table 2-3.

	Work Experience
Job Experts	8.37 years

How many Job Experts are necessary to include in the validation process to produce reliable results? Some courts have relied on as few as seven to ten Job Experts for providing judgments

and ratings about job and selection procedure characteristics (e.g., *Contreras v. City of Los Angeles*, 656 F.2d 1267. 9th Cir. 1981; *US v. South Carolina*, 434 US 1026, 1978). The number of Job Experts that initially participated in the current study greatly exceeds the seven to ten experts allowed under those decisions.

Relationship between the Selection Procedure and the Job [Sections 15C(5)]

The federal Guidelines require in Section 15C(5) that “The evidence demonstrating that the selection procedure is a representative work sample, a representative sample of the work behavior(s), or a representative sample of a knowledge, skill, or ability is used as a part of a work behavior and necessary for that behavior should be provided.”

During the 2010 national Job Analysis study, the knowledge, skills, abilities, and personal characteristics (KSAPCs) associated with the dispatcher/calltaker position were linked by Job Experts to critical or important job duties. Then, during the CritiCall Validation process, each of the test modules were linked by the FHP Job Experts to one or more important or critical KSAPCs measured during testing. The work-behavior (job duty)-to-test event linkage can be inferred from the aforementioned KSAPC-to-Job-Duty linkages (see Binning & Barrett, 1989, for information about this inference).

Uses and Applications: Normal Expectation of Proficiency for the Job [Section 15C(7)]

An Angoff approach was used to determine the normal expectations of proficiency within the workforce. This required each of the Job Experts to provide their estimate of the minimum test module score that a minimally-qualified job candidate should be allowed to achieve on each test module prior to any training being given by the FHP (see Biddle, 2006 for a full explanation of this process). An average of these item percentages was then computed to form a recommended normal expectation of proficiency score for each test module (see Table 1-1 below). We note that the relatively large number of Job Experts who participated in the current study ($N = 66$) provides support of the appropriateness of the suggested cutoff scores.

The CritiCall program also automatically calculates three adjusted cutoff scores using the Standard Error of Measurement (SEM) for each of the test modules. We generally recommend to our clients using the adjusted cutoff scores (i.e., the average suggested cutoff scores less one, two, or three SEMs) unless the adjusted cutoff scores are dramatically lower than those suggested during our national validation study. Why do we recommend using adjusted cutoff scores? Because no test has perfect reliability; the adjustments give the benefit of the doubt to the test taker.

Table 2-1

Average Cutoff Scores Suggested by Job Experts					
	Unadjusted Average	Less 1 SEM	Less 2 SEM	Less 3 SEM	N
Keyboarding	33.470	31	29	27	66
Data Entry MT*	4037.985	3632	3227	2821	66
Data Entry MT (Audio)*	2206.682	1754	1301	849	66
Call Summarization 1	68.227	56	44	31	66
Call Summarization 2 MT*	68.273	61	53	46	66
Cross Referencing	66.955	55	43	30	66
Cross Referencing (Audio)	69.231	53	37	21	65
Character Comparison	79.831	70	59	49	65
Memory Recall	77.292	71	65	58	65
Memory Recall - Numeric (Audio)*	73.000	63	54	44	65
Prioritization	72.600	62	52	42	65
Map Reading*	70.429	60	50	39	65
Spelling (& Use of Words)*	75.615	69	63	56	65
Sentence Clarity*	68.031	57	47	36	64
Reading Comprehension*	65.891	55	44	32	64

These cutoff scores will be used for determining whether a test taker passes or fails test modules that have sufficient reliability to “stand alone” as employment selection devices as specified by the U. S. Department of Labor (2000). Stand alone test modules are indicated in the table above with a “*” symbol.

If a test taker scores lower than the chosen cutoff score on one or more of the stand alone test modules, they will be removed from the selection process since they have indicated they do not possess a knowledge, skill, or ability that is needed to succeed either on the job, during training, or both.

Criterion-Related Validation Study

The Elements of a Criterion-Related Validity Study that are Typically Evaluated in Title VII Situations

When the courts evaluate criterion-related validity evidence, four basic elements are typically brought under inspection: Statistical significance, practical significance, the type and relevance of the job criteria, and evidence available to support the specific use of the testing practice. If any of these elements are missing or do not meet certain standards, courts often infer that discrimination has taken place because adverse impact is not justified without validity evidence. Each of these elements is discussed in more detail below.

Statistical significance. The courts, Uniform Guidelines, and professional standards are in agreement when it comes to the issue of statistical significance thresholds and criterion-related validity. The $p < 0.05$ threshold is used on both sides of adverse impact litigation for determining statistically-significant adverse impact (using hypergeometric probability distributions for testing cases) as well as determining the statistical significance of the correlation coefficient obtained in the validation study.

Practical significance. Just like statistical significance, the concept of practical significance has also been applied to both the adverse impact and validity side of Title VII cases. In the realm of adverse impact, the courts have sometimes evaluated the practical significance or “stability” and effect size of the adverse impact.² This is typically done by evaluating what happens to the statistical significance finding when two applicants are hypothetically changed from failing to passing status on the selection procedure that exhibited adverse impact. If this changes the statistically significant finding from “significant” ($p < 0.05$) to “non-significant” ($p > 0.05$), the finding is not practically significant.

In the realm of criterion-related validity studies, practical significance relates to the strength of the validity coefficient (i.e., its raw value and actual utility in the specific setting). This is important in litigation settings because the square of the validity coefficient represents the percentage of variance explained on the criterion used in the study. For example, a validity coefficient of 0.15 explains only 2.3% of the criterion variance, whereas coefficients of 0.25 and 0.35 explain 6.3% and 12.3% respectively. Some cases have included lengthy deliberations about these “squared coefficient” values to argue the extent to which the test validity is practically significant. A few examples are provided below.

- Dickerson v. U. S. Steel Corporation (1978): A validity study was inadequate where the correlation level was less than 0.30, the adverse impact on minorities from the use of the selection procedure was severe, and no evidence was presented regarding the evaluation of alternative selection procedures. Regarding the validity coefficients in the

² For example, Contreras v. City of Los Angeles (656 F.2d 1267, 9th Cir., 1981), U.S. v. Commonwealth of Virginia (569 F.2d 1300, CA-4 1978, 454 F. Supp. 1077), Waisome v. Port Authority (948 F.2d 1370, 1376, 2d Cir., 1991).

case, the judge noted, “a low coefficient, even though statistically significant, may indicate a low practical utility” and further stated, “. . . one can readily see that even on the statistically significant correlations of 0.30 or so, only 9% of the success on the job is attributable to success on the (test) batteries. This is a very low level, which does not justify use of these batteries, where correlations are all below 0.30. In conclusion, based upon the guidelines and statistical analysis . . . *the Court cannot find that these tests have any real practical utility.* The Guidelines do not permit a finding of job-relatedness where *statistical but not practical significance is shown.* On this final ground as well, therefore, the test batteries must be rejected” (emphasis added)

- NAACP Ensley Branch v. Seibels (1980): Judge Pointer rejected statistically significant correlations of 0.21, because they were too small to be meaningful.
- EEOC v. Atlas Paper (1989): The judge weighed the decision heavily based on the strength of the validity coefficient: “There are other problems with Hunter’s theory which further highlight the invalidity of the Atlas argument. Petty computed the average correlation for the studies to be 0.25 when concurrent and 0.15 when predictive. A correlation of 0.25 means that a test explains only 5% to 6% of job performance. Yet, Courts generally accept correlation coefficients above 0.30 as reliable . . . This Court need not rule at this juncture on the figure that it will adopt as the bare minimum correlation. Nonetheless, the Court also notes that higher correlations are often sought when there is great adverse impact (Clady v. County of Los Angeles, id; Guardians Assn. of New York City v. Civil Service, 630 F.2d at 105-06). Thus, despite the great adverse impact here, the correlations fall significantly below those generally accepted (FN24).”
- U.S. v. City of Garland (2004): The court debated the level of the validity coefficients extensively: “As discussed supra at n. 25, whether the correlation between the Alert (test) and performance should be characterized as “low” or “moderate” is a matter of earnest contention between the parties. (See D.I. 302 at p. 11, 35-40.) In a standard statistical text cited at trial, correlations of .1 are described as “low” and correlations of 0.30 described as “moderate.”

In addition to the courts, the Uniform Guidelines (15B6), U.S. Department of Labor (2000, p. 3-10; see Table 2-1 below), and SIOP Principles (p. 48) are in concert regarding the importance of taking the strength of the validity coefficient into practical consideration.

Table 3-1.

U. S. Department of Labor's Guidelines for Interpreting Correlations	
Coefficient Value	Interpretation
Above .35	Very beneficial
.21 - .35	Likely to be useful
.11 - .20	Depends on circumstances
Below .11	Unlikely to be useful

Type and relevance of the job criteria. There are many cases that have deliberated the type and relevance of the job criteria included as part of a validity study, including *Garland, Lanning*, and others cited herein. The Uniform Guidelines (15B5) and SIOP Principles (p. 16) also include discussion on this topic. Tests that have significant correlations with job criteria that are reliable and constitute critical aspects of the job will obviously be given more weight when evaluated.

Considering the validity coefficient level and the specific use of the testing practice. Some cases have set minimum thresholds for validity coefficients that are necessary to justify the particular use of a test (e.g., ranking versus using a pass/fail cutoff). Conceptually speaking, tests that have high levels of reliability (i.e., accuracy in defining true ability levels of applicants) and high validity can be used at a higher degree of specificity than tests that do not have such characteristics (e.g., Guardians Association of the New York City Police Dept. v. Civil Service Commission, 1981). When tests are used as ranking devices, they are typically subjected to a stricter validity standard than when pass/fail cutoffs are used. The cases below placed minimum thresholds on the validity coefficient necessary for strict rank ordering on a test:

- Brunet v. City of Columbus (1993): This case involved an entry-level firefighter Physical Capacities Test (PCT) that had adverse impact against women. The court stated, "The correlation coefficient for the overall PCT is 0.29. Other courts have found such correlation coefficients to be predictive of job performance, thus indicating the appropriateness of ranking where the correlation coefficient value is 0.30 or better."
- Boston Chapter, NAACP Inc. v. Beecher (1974): This case involved an entry-level written test for firefighters. Regarding the correlation values, the court stated: "The objective portion of the study produced several correlations that were statistically significant (likely to occur by chance in fewer than five of one hundred similar cases) and practically significant (correlation of 0.30 or higher, thus explaining more than 9% or more of the observed variation)."
- Clady v. County of Los Angeles (1985): This case involved an entry-level written test for firefighters. The court stated: "In conclusion, the County's validation studies demonstrate legally sufficient correlation to success at the Academy and performance

on the job. Courts generally accept correlation coefficients above 0.30 as reliable ... As a general principle, the greater the test's adverse impact, the higher the correlation which will be required."

- Zamlen v. City of Cleveland (1988): This case involved several different entry-level firefighter physical ability tests that had various correlation coefficients with job performance. The judge noted that, "Correlation coefficients of 0.30 or greater are considered high by industrial psychologists" and set a criteria of 0.30 to endorse the City's option of using the physical ability test as a ranking device.

The Uniform Guidelines (3B, 5G, and 15B6) and Society for Industrial and Organizational Psychology (SIOP) Principles (p. 49) also advise taking the level of validity into consideration when considering how to *use* a test in a selection process. Test usage is such a critical consideration because validity has to do with the *interpretation of individual scores*. Tests, *per se*, are not necessarily generally valid; rather, specific scores may or may not be valid given consideration of how closely they are aligned with the true needs of the job. For example, a keyboarding speed and accuracy test may be valid for both the positions of a personnel psychologist and a legal secretary; but the cutoff of 50 words per minute is certainly more valid for the legal secretary position than it is for the personnel psychologist position.

User, Location, and date of study [Section 15B(1)]³

Test score data was collected from 62 employees who work for the Florida Highway Patrol in the Jacksonville and Tallahassee, Florida areas during May through June of 2012. The test-takers' job performance ratings were also collected from employee supervisors during the same time period as the test data.

Problem and Setting [Section 15B(2)]

Section 5 of the federal Uniform Guidelines indicates that an employer can provide evidence of validity using "empirical data demonstrating that the selection procedure is predictive of or correlated with important elements of job performance." With that in mind, statistical analyses were conducted by Biddle Consulting Group, Inc. (BCG) to determine whether the relationship between CritiCall test scores and job performance criteria were statistically significant. The results of this study are provided later in this current report.

Job Analysis or Review of Job Information [15B(3)]

A BCG Principal Consultant conducted a national job analysis studies of calltaker and dispatcher positions in 2010. Based on that study, it was determined that a standardized rating of job performance by employees' supervisors could be legitimately used as the criteria in the

³ Section notations refer to the related sections of the Uniform Guidelines on Employee Selection Procedures (1978).

current study. Furthermore, it was determined that job performance ratings of key performance areas that contribute to overall job performance could also be used as criteria during the current study. It is noted that the relationship of both the overall job performance ratings and individual job-performance area ratings to CritiCall composite and individual test module scores are provided in the current report.

Job Title and Code [Section 15B(4)]

The Uniform Guidelines indicate it is desirable to provide the test user's corresponding job title and code from the U. S. Employment Service's Dictionary of Occupational Titles (DOT). However, the DOT was replaced by the O-Net system several years ago. According to the O-Net database, the corresponding Standard Occupational Classification job title is Police, Fire, and Ambulance Dispatchers (#43-5301.00)

Criterion Measures [Section 15B(5)]

Section 14B(3) of the Uniform Guidelines states, in part, "Whatever criteria are used should represent important or critical work behavior(s) or work outcomes. Certain criteria may be used without a full job analysis if the user can show the importance of the criteria to the particular employment context. These criteria include but are not limited to production rate, error rate, tardiness, absenteeism, and length of service. A standardized rating of overall work performance may be used where a study of the job shows that it is an appropriate criterion."

In compliance with Section 14B(3) of the Uniform Guidelines, each of 13 criteria utilized in the current study were designed to represent important or critical work behaviors and/or work outcomes. The 14th criteria asked the Supervisors to rate the employees' overall job performance. The following is the list of the job performance criteria for which ratings of test-taking employees were collected from supervisors during the current study.

1. Reading/Comprehending: Accurately reads and understands information provided on printed pages, such as technical or training manuals, standard operating procedures, and/or other work-related documents.
2. Computer Use: Navigates on a computer effortlessly using a keyboard and mouse.
3. Data Entry: Enters bits of information/data, such as names, telephone numbers, radio numbers, addresses, and operating device numbers, with complete accuracy into a computer using a keyboard.
4. Audio Comprehension: Understands information provided verbally over a telephone or radio, even when that information is sometimes hard to hear.
5. Data Location/Recognition: Locates and uses information provided on lists easily and accurately, such as lists of names, addresses, switch numbers, and radio and telephone numbers found in resources such as database listings, computer applications, telephone books, or callout lists.

6. Call Summarization: Writes clearly and effectively using a keyboard, including clearly and accurately summarizing information reported from field personnel and from other control centers.
7. Memory Recall Written Info: Recalls information accurately, such as descriptions of people or things, that has been provided in writing a few moments earlier (i.e., short-term memory of written information).
8. Memory Recall Verbal Info: Recalls information accurately, such as telephone numbers, and device operating numbers, that has been heard a few moments earlier (i.e., short-term memory of verbal information).
9. Map Reading: Easily and accurately uses maps to find locations and/or to provide geographic directions.
10. Spelling: Uses and/or spells word(s) correctly when attempting to convey ideas in writing (e.g., patience vs. patients, where vs. ware, bale vs. bail, etc.)
11. Task Prioritization: Prioritizes job tasks to maximize productivity.
12. Math Skills: Exhibits basic mathematics skills with the ability to interpret data.
13. Reasoning: Applies reasoning from a set of rules.
14. Overall: Provides superior overall job performance.

The following steps were taken to help ensure that the criterion measures would be free from factors which would unfairly influence the ratings:

- The supervisors were informed in writing that their ratings would be used exclusively for test validation purposes.
- They were further informed that the ratings would not be disclosed to the employer or employees, except in anonymous, aggregate form to reveal the overall results of the study.
- In addition, they were informed that the rating data would be compiled and securely maintained by BCG.
- Finally, the data was collected using an automated, online data-collection tool, which minimized the potential for error during preparation for the analysis portion of this study.

During the job-performance rating process, supervisors were asked to assign the employees under their supervision into 10 separate categories, with each category containing about 10% of the employees they supervised. This required that their ratings be spread somewhat evenly across the 10 rating categories. For example, if they supervised 100 employees, each of the 10 rating categories should include about 10 employees: 10 in the "HIGHER 91-100%," 10 in the "HIGHER 81-90%" and so forth for the remaining 8 categories. However, they were not

required to have an exactly even number of employees in each of the ten categories.

A copy of the appraisal form and instructions are available in Attachment B.

Participant Description [Section 15B(6)]

Test performance data and job performance ratings were collected from 62 FHP communications employees. The following tables describe the participants in terms of gender, race/ethnicity, and age grouping.

Gender of Participants

The number of each gender of the participants who participated in the current study can be found in the Table 4-1 below.

Table 4-1.

	Male	Female	Declined to Answer
Participants	20	39	3

Ethnicity/Race of Participants

The number of each race/ethnicity background of the participants who participated in the current study can be found in Table 4-2.

Table 4-2.

	White	Black/African American	Hispanic/Latino	Asian / Pacific Islander	Native American/Alaskan Native	Declined to Answer
Participants	42	14	1	0	1	4

Age of Participants

The age groupings of those employees who participated in the current study can be found in Table 4-3.

Table 4-3.

	20 – 29 years of age	30 – 39 years of age	40 - 49 years of age	50 or more years of age	Declined to Answer
Participants	13	13	18	18	3

Uses and Applications: Selection Device Description [Section 15B(7)]

Descriptions of the test modules are shown in the introductory portion of this report. The version of the test was used during the Validation Study is CritiCall Version 5.0, developed and distributed by Biddle Consulting Group, Inc. of Folsom, CA.

Uses and Applications: Test Reliability [Section 15B(7)]

Data from previous studies of CritiCall test takers were used to determine the test-retest reliability of the combinations of the test modules that will be used by the FHP. It is noted that the U.S. Department of Labor (2000) indicates that reliability coefficients greater than 0.90 are considered "excellent" (page 3-3) (see Table 5-1).

Table 5-1: Test-Retest Reliabilities of Combinations of CritiCall Test Modules

Test Scoring Metric Groups	Reliability
Keyboarding module (Words-per-Minutes scores)	0.976
Composite of Data Entry modules (Keystrokes-per-Hour scores)	0.876
Composite of percentage-scored test modules (% scores)	0.945

Techniques and Results [Section 15B(8)]

The following describes the outcomes of the various statistical analyses that were conducted during the current study. All analyses were computed using SPSS Version 15.0.0.

Relationship of the Test to the Job

Section 14B(6) of the federal Uniform Guidelines on Employee Selection Procedures indicates, "The appropriateness of a selection procedure is best evaluated in each particular situation and there are no minimum correlation coefficients applicable to all employment situations." That being said, many courts have ruled that if the correlation coefficient equals or exceeds $r = 0.20$, it means the test is sufficiently related to job performance to make judgments about a candidate's likelihood of job success based on his or her test score. Furthermore, the U.S. Department of Labor (2000; page 3-10) specifies that it "depends on the circumstances" for validity coefficients of .11 to .20 to be interpreted as being valid, whereas a validity coefficient of .21 to .35 is "likely to be useful." In other words, a statistically-significant correlation of $r > 0.20$ is generally considered the minimum that should be considered acceptable for making hiring decisions.

Table 6-1 shows the relationships (i.e., correlations) between each of the test modules and the average of the 13 skill-specific criteria ratings, as well as the average of the overall job-performance ratings. The statistical significant levels of the uncorrected relationships are also indicated.

Table 6-2 shows the relationship between the weighted composite scores for AutoTest Code that will be used for testing purposes and the average of the criteria ratings.

Table 6-1: Relationships between Test Module Scores and Job-Performance Criteria

Test Modules		Job Performance Ratings													
		Reading/Comprehending	Computer Use	Data Entry	Audio Comprehension	Data Location	Call Summarization	Memory Recall Written	Memory Recall Verbal	Map Reading	Spelling	Task Prioritization	Multi-Tasking	Reasoning	Overall Performance
Keyboarding	Pearson Correlation	0.26	0.18	0.14	0.12	0.20	0.27	0.25	0.21	0.24	0.33	0.25	0.30	0.23	0.26
	Sig. (2-tailed)	0.04	0.16	0.28	0.35	0.13	0.03	0.05	0.10	0.06	0.01	0.05	0.02	0.08	0.04
	N	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Data Entry MT	Pearson Correlation	0.18	0.21	0.14	0.18	0.19	0.26	0.30	0.22	0.23	0.22	0.26	0.38	0.24	0.30
	Sig. (2-tailed)	0.16	0.10	0.28	0.16	0.13	0.04	0.02	0.09	0.07	0.09	0.04	0.00	0.06	0.02
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Data Entry Audio MT	Pearson Correlation	0.35	0.24	0.26	0.30	0.31	0.40	0.36	0.31	0.29	0.34	0.36	0.28	0.30	0.34
	Sig. (2-tailed)	0.01	0.06	0.05	0.02	0.02	0.00	0.00	0.02	0.02	0.01	0.00	0.03	0.02	0.01
	N	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Call Summarization 1	Pearson Correlation	0.00	0.01	0.04	0.02	0.10	0.19	0.08	0.09	0.06	0.16	0.03	0.01	0.12	0.02
	Sig. (2-tailed)	0.97	0.92	0.76	0.89	0.43	0.13	0.55	0.48	0.65	0.22	0.80	0.94	0.35	0.88
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Call Summarization 2 MT	Pearson Correlation	0.17	0.11	0.09	0.05	0.08	0.14	0.17	0.10	0.10	0.17	0.18	0.15	0.12	0.15
	Sig. (2-tailed)	0.19	0.39	0.47	0.72	0.55	0.28	0.20	0.44	0.42	0.19	0.16	0.25	0.33	0.24
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Cross Reference	Pearson Correlation	0.04	-0.03	0.04	-0.01	-0.06	-0.03	-0.04	-0.05	-0.02	-0.09	-0.05	-0.11	-0.14	-0.11
	Sig. (2-tailed)	0.75	0.81	0.78	0.95	0.64	0.82	0.74	0.70	0.87	0.50	0.72	0.40	0.29	0.38
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Cross Reference Audio	Pearson Correlation	0.18	0.13	0.10	0.09	0.09	0.17	0.09	0.10	0.08	0.11	0.14	0.17	0.15	0.10
	Sig. (2-tailed)	0.16	0.33	0.44	0.51	0.48	0.20	0.49	0.42	0.54	0.40	0.30	0.20	0.25	0.43
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Character Comparison	Pearson Correlation	0.28	0.17	0.15	0.17	0.20	0.18	0.19	0.19	0.14	0.11	0.22	0.17	0.20	0.13
	Sig. (2-tailed)	0.03	0.19	0.25	0.18	0.11	0.17	0.14	0.14	0.29	0.38	0.08	0.18	0.11	0.31
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Memory Recall	Pearson Correlation	0.12	-0.03	0.00	-0.07	-0.03	-0.01	-0.04	-0.05	-0.06	-0.02	-0.05	-0.10	-0.04	-0.10
	Sig. (2-tailed)	0.34	0.79	0.97	0.60	0.84	0.96	0.78	0.70	0.66	0.90	0.70	0.44	0.76	0.45
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Memory Recall Numeric Audio	Pearson Correlation	0.04	0.12	0.10	0.14	0.18	0.13	0.14	0.12	0.15	0.13	0.15	0.17	0.14	0.16
	Sig. (2-tailed)	0.76	0.34	0.46	0.27	0.16	0.32	0.26	0.36	0.25	0.33	0.25	0.20	0.29	0.23
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Prioritization	Pearson Correlation	0.10	0.03	-0.01	0.03	0.12	0.11	0.05	0.13	0.08	0.31	0.10	-0.01	0.15	0.07
	Sig. (2-tailed)	0.45	0.82	0.95	0.81	0.35	0.42	0.69	0.32	0.53	0.01	0.43	0.92	0.24	0.61
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Map Reading	Pearson Correlation	0.28	0.31	0.17	0.26	0.30	0.30	0.39	0.33	0.26	0.36	0.37	0.35	0.39	0.34
	Sig. (2-tailed)	0.03	0.02	0.19	0.04	0.02	0.02	0.00	0.01	0.05	0.00	0.00	0.01	0.00	0.01
	N	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Spelling	Pearson Correlation	0.18	0.30	0.37	0.27	0.30	0.38	0.24	0.25	0.31	0.36	0.24	0.19	0.20	0.26
	Sig. (2-tailed)	0.16	0.02	0.00	0.04	0.02	0.00	0.06	0.05	0.02	0.00	0.07	0.14	0.12	0.04
	N	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Sentence Clarity	Pearson Correlation	0.17	0.17	0.18	0.13	0.17	0.16	0.14	0.12	0.12	0.33	0.18	0.12	0.21	0.11
	Sig. (2-tailed)	0.20	0.20	0.18	0.31	0.20	0.22	0.30	0.35	0.37	0.01	0.16	0.34	0.10	0.41
	N	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Reading Comprehension	Pearson Correlation	0.24	0.14	0.15	0.11	0.18	0.12	0.19	0.23	0.13	0.26	0.24	0.04	0.26	0.16
	Sig. (2-tailed)	0.07	0.30	0.25	0.39	0.16	0.35	0.14	0.08	0.33	0.05	0.07	0.75	0.05	0.22
	N	60	60	60	60	60	60	60	60	60	60	60	60	60	60

Significant < .05 (two tailed test)

Significant < .05 (one tailed test)

Table 6-2: Relationships between Composite Test Scores and Job-Performance Criteria

Correlations - Two Tailed Test

Composite Scores		Job Performance Criteria													
		Reading/Comprehending	Computer Use	Data Entry	Audio Comprehension	Data Location	Call Summarization	Memory Recall Written	Memory Recall Verbal	Map Reading	Spelling	Task Prioritization	Multi-Tasking	Reasoning	Overall
Overall Non Data Entry Score	Pearson Correlation	0.32	0.29	0.23	0.27	0.34	0.30	0.34	0.34	0.30	0.41	0.40	0.30	0.38	0.34
	Sig. (2-tailed)	0.01	0.02	0.08	0.03	0.01	0.02	0.01	0.01	0.02	0.00	0.00	0.02	0.00	0.01
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Overall Data Entry Score	Pearson Correlation	0.26	0.24	0.18	0.25	0.26	0.32	0.36	0.28	0.29	0.29	0.33	0.40	0.30	0.36
	Sig. (2-tailed)	0.04	0.05	0.17	0.05	0.04	0.01	0.00	0.03	0.02	0.02	0.01	0.00	0.02	0.00
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Keyboarding Score	Pearson Correlation	0.26	0.18	0.16	0.13	0.19	0.27	0.24	0.22	0.27	0.28	0.21	0.27	0.22	0.28
	Sig. (2-tailed)	0.04	0.17	0.21	0.31	0.14	0.03	0.06	0.08	0.03	0.03	0.10	0.03	0.09	0.02
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
T-Score	Pearson Correlation	0.36	0.30	0.24	0.29	0.34	0.37	0.40	0.35	0.35	0.41	0.41	0.39	0.38	0.41
	Sig. (2-tailed)	0.00	0.02	0.06	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62

Correlation is significant at the < 0.05 level (2-tailed).

Correlations - One Tailed Test

Composite Scores		Job Performance Criteria													
		Reading/Comprehending	Computer Use	Data Entry	Audio Comprehension	Data Location	Call Summarization	Memory Recall Written	Memory Recall Verbal	Map Reading	Spelling	Task Prioritization	Multi-Tasking	Reasoning	Overall
Overall Non Data Entry Score	Pearson Correlation	0.32	0.29	0.23	0.27	0.34	0.30	0.34	0.34	0.30	0.41	0.40	0.30	0.38	0.34
	Sig. (1-tailed)	0.01	0.01	0.04	0.02	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Overall Data Entry Score	Pearson Correlation	0.26	0.24	0.18	0.25	0.26	0.32	0.36	0.28	0.29	0.29	0.33	0.40	0.30	0.36
	Sig. (1-tailed)	0.02	0.03	0.08	0.03	0.02	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Keyboarding Score	Pearson Correlation	0.26	0.18	0.16	0.13	0.19	0.27	0.24	0.22	0.27	0.28	0.21	0.27	0.22	0.28
	Sig. (1-tailed)	0.02	0.08	0.11	0.15	0.07	0.02	0.03	0.04	0.02	0.01	0.05	0.02	0.04	0.01
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62
T-Score	Pearson Correlation	0.36	0.30	0.24	0.29	0.34	0.37	0.40	0.35	0.35	0.41	0.41	0.39	0.38	0.41
	Sig. (1-tailed)	0.00	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	N	62	62	62	62	62	62	62	62	62	62	62	62	62	62

Correlation is significant at the < 0.05 level (1-tailed).

The following test modules were each significantly related to overall job performance ratings at a $p < 0.05$ level using either a two-tailed or two-tailed hypothesis test:

- Keyboarding
- Data Entry MT
- Data Entry MT Audio
- Map Reading
- Spelling (and use of words)

That being said, as indicated previously, the composite of all of the test module scores was strongly related to ratings of overall job performance.

Alternative Procedures Investigated [Sections 15B(9) and 15C(6)]

CritiCall is a custom-designed suite of tests designed to measure various aspects of a person's performance of job-related behaviors. Previous studies have demonstrated that women scored higher, on average, than men on 7 of the 18 CritiCall test modules. In addition, the previous studies found there were seven *meaningless* (i.e., trivial) and four *small* average test-score differences between men and women for the remaining test modules.

Furthermore, previous studies indicated there were ten instances where minority sub-group test takers scored higher than majority group test takers on the CritiCall test modules. In addition, there were 18 meaningless (i.e., *trivial*), 31 *small*, and 10 *moderate* average test-score differences between minority sub-group members and whites. There were no large race/ethnicity-group differences found for any of the test modules previously examined. This is remarkable improvement over more traditional types of pre-employment testing, since there are typically large effect-size differences between at least one of the minority sub-groups and White test takers when cognitively-loaded abilities are measured (Roth, Bevier, Bobko, Switzer, & Tyler, 2001).

Since the purpose of the current study was to determine the efficacy of the CritiCall Pre-Employment Testing process, no other employment selection devices were examined.

Uses and Applications [Section 15B(10)]

The testing process examined during the current study is designed to (1) screen out job applicants who lack the ability to perform one or more important/critical work behaviors; and, (2) provide a list of applicants for consideration.

Uses and Applications - Rank Ordering Option [Section 15B(10)]

Based on the information collected during the current study, the correlation of the weighted composite T-scores to the average of job performance ratings by employees' supervisors was found to be strongly statistically significant ($r_{xy} = 0.41$, $p < 0.01$, $n = 62$). The

same relationship corrected for the reliability of the criteria ($r_{yy} = 0.88$)⁴ was $r_{xy} = 0.44$. According to the U.S. Department of Labor (2000), validity coefficients above 0.35 are “very beneficial,” when making hiring decisions (see Table 3-1).

Several court cases, which were mentioned earlier in this report, have set minimum thresholds on the validity coefficient necessary for strict rank ordering on a test. In keeping with those court decisions, it appears that the FHP, if it wishes, can legitimately rank-order job candidates based upon the weighted composite T-scores.

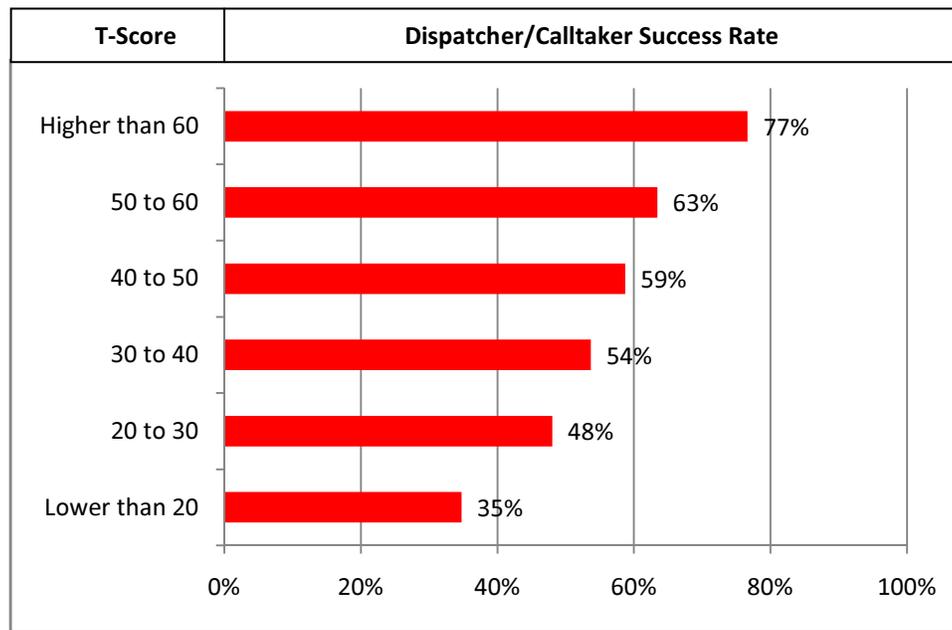
However, since the strict rank ordering of test takers can sometimes result in potentially higher levels of adverse impact than some other methods of making employment decisions, the FHP could consider using the scores for the stand-alone test modules simply as pass/fail hurdles and treat all of those who “passed” as being equivalent. Alternatively, the FHP could use a “banding” process of ranked scores for grouping test takers whose scores are statistically similar to one another and use selection from within those bands when making employment decisions. BCG is available to assist the FHP with these alternatives, if they wish.

Uses and Applications – Utility of Testing [Section 15B(10)]

The higher the overall test score, the more likely the test taker will be successful on the job. For example, let us assume that 60% of test takers would be successful on the job if there were no pre-employment screening devices used during the selection process. As can be seen in the table below, more than 76% of the test takers who score higher than the 60th percentile on the CritiCall test are likely to be successful if hired, whereas only 35% of test takers who scored lower than the 20th percentile on the test would be successful when an corrected validity coefficient of 0.44 is used.⁵ This is a dramatic improvement. Even so, we believe that the following table describes an overly conservative estimate of the utility of the CritiCall testing process since it is based on incumbent employees, all who were working at a minimally satisfactory level at the time of testing.

⁴ Correcting for criterion unreliability allows the researcher to evaluate the validity levels that would likely be exhibited by the test if the raters had perfect agreement when judging job performance.

⁵ See Lawshe, C. H., Bolda, R. A., Brune, R. L., & Auclair, G. (1958). Expectancy charts: II. Their theoretical development. *Personnel Psychology*, 11, 545-559.



Potential Limitations of Current Study

The reader should consider that the *concurrent criterion-related* validation study described in this report utilized job performance ratings of current, successful employees, which is likely to greatly limit the range of performance being considered. Specifically, unlike *predictive criterion-related* validation studies, which generally obtain job performance ratings of those ranging from extremely poor to highly successful, the current study only collected job performance information regarding those employees who were performing the job at least at a minimally competent level. It is very possible that having a full range of job performance ratings might have led to stronger relationships between test scores and job performance ratings. In other words, the relationships noted in the current report are likely to be a conservative estimate of any true relationships that might exist between test scores and job performance for job applicants.

We also note the relatively small number of people who participated ($N = 62$) in the current criterion-related study. The smaller the sample size involved in a statistical study, the lower the statistical power of a correlational comparison. Statistical power is the ability of a statistical test (in this case, a Pearson Correlation) to detect a statistically significant result *if it exists to be found*. In the case of correlations, statistical power highly depends on the size of the correlation coefficient the researcher expects to find in the population being sampled. If the researcher suspects that there is a (decent sized) correlation coefficient of 0.30 in the sample being researched (and they suspect that this correlation can only be in the favorable direction—positive—which requires a one-tail statistical test), 64 subjects are necessary to be 80% confident (i.e., to have 80% power) that the study will result in a statistically significant finding at the .05 level (if it exists in the population). If the researcher suspects a smaller, but still significant, correlation of .20 exists in the population, 150 subjects are necessary for the same levels of power. One limitation is that when scores from only few participants are used, the significance of identical correlation coefficients can change based on the inclusion or

removal of only one or two persons. For example, a coefficient of .20 is statistically significant with a sample of 69 ($p = 0.0496$ when using a one-tail test for significance), but is not significant with a sample of 68 ($p = 0.051$). Therefore, we recommend that additional studies be conducted to collect additional data to bolster the number of participants for determining the “true” criterion-related validity of the CritiCall testing process.

Source Data [Section 15B(11)]

BCG maintains records showing all pertinent information about members about individual participants and raters. Data will be made available upon request of a government compliance agency or court.

Contact Person [Sections 15B(12) and 15C(8)]

To receive further information about this validity study, contact:

James E. Kuthy, Ph.D.
Principal Consultant
Biddle Consulting Group, Inc.
193 Blue Ravine Road, Suite 270
Folsom, CA 95630
Voice (916) 294-4250 · Fax (916) 294-4255

Accuracy and Completeness [Sections 14B(13) and 15C(9)]

A BCG Principal Consultant facilitated the oversight of the validation process. Test scores were automatically collected and computed using the CritiCall Pre-Employment Testing Software. The content-related validation data was collected using CritiCall’s Validation Wizard data-collection tool. The job performance data was collected online using a custom data-collection program created by BCG. Validity and reliability coefficients were computed using SPSS software, Version 15.0. All calculations were independently double-checked and verified by BCG employees. We invite any comments you might have about this report.

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Attachment A
CritiCall Test Developer's Professional Vita

Biddle Consulting Group, Inc.
193 Blue Ravine Road, Suite 270, Folsom, CA 95630
(916) 294-4250 Fax: (916) 294-4255

James E. Kuthy, Ph.D.
Principal Consultant

Experienced consultant in Equal Employment Opportunity (EEO) field, specializing in the areas of:

- ◆ Selection/Promotion Plan Development
- ◆ Test and Structured-Oral Interview Development
- ◆ Question Item Writing and Item Analysis
- ◆ Job Analysis and Validation
- ◆ Public Safety Human Resources-Related Practices and Procedures
- ◆ Litigation Support
- ◆ Performance Evaluation
- ◆ Industrial and Organizational Development and Research

Selection Plan Development

Experienced with multiple aspects of selection plan development, including the professional and legal aspects of designing, implementing, and reviewing selection plan components. Conceived of, designed the test development process for, conducted the job analysis of, and validated the nation's first computerized professional selection testing battery for public safety dispatchers and calltakers (9-1-1 Operators). Designed selection plans for a wide variety of positions, including, Longshore supervisors, food-production facilities, call center operators, police officers, factory workers, electricians (including high-voltage and low-voltage electricians) electricians, diesel mechanics, welders, ship/pipe fitters, and more.

Promotion Plan Development

Experienced with multiple aspects of promotion plan development, including the professional and legal aspects of designing, implementing, and reviewing promotion plan components, including plans for law enforcement agencies and a large labor union.

Job Analysis Experience

Conducted job analyses and work observations for a diverse variety of classifications including, but not limited to, food production, public-safety and public transportation positions, public-works employees, attorneys, call-center representatives, airline employees, customer service

representatives, call center operators, ship builders, police officers, and Longshore Foremen. One job analysis project collected data from forty-six different employers in eight different cities for the content-related validation of a single series of pre-employment selection tests. Responsible for working with subject matter experts and management in identifying duties, importance ratings, duty statements, degrees of importance, consequence of errors, knowledge, skills, abilities, physical and other characteristics, and link-up studies between job analyses and tests. Conducted individual and group critical incident interviews to determine job tasks and the knowledge, skills, abilities, and other characteristics needed to perform those tasks. Conducted on-site job observations of job-related activities. Oversaw the development of an automated job analysis data-collection methodology implementation (AutoGOJA®).

Test Development/Validation

Experienced in selection-device development, including written testing, physical ability testing, oral interviews, non-cognitive (personality and bio-data) measures, oral briefing exercises, work-samples, and more.

Written Tests

Wrote, reviewed, and/or revised thousands of test items for multiple-choice ability tests. Wrote, reviewed, and revised materials and test items for numerous in-basket exercises. Areas of written test development included police, fire, and industrial classifications. Performed readability studies on job materials and test items, item response analyses, and other statistical and research evaluations of written tests. Tests developed for use by some of the largest United States' cities including a major metropolitan public-transit police agency with jurisdiction in two states and one district.

Physical Ability Tests

Assisted in the development of physical ability testing used for screening candidates for entry-level public safety positions, municipal electrical workers, food-processing plant workers, and more. This work includes developing cutoff times, administration methodology, and modifications.

Structured Oral Interviews and Structured Oral Work-Sample Exercises

Created structured oral interview processes, including scoring regimes, for a variety of positions, including, but not limited to, registered nurses, patient care technicians, customer assistance representatives, electrical workers, Longshore Foreman. Wrote, reviewed, and/or revised structured oral interview questions. Assisted in the creation and scoring of structured oral work-sample exercises administered to hundreds of police sergeant and lieutenant candidates for a major metropolitan city in the Midwest United States.

Computerized Tests

Conceived, developed, and authored an automated testing battery for public safety dispatchers and calltakers (CritiCall® Pre-Employment Testing Software). Oversaw the development of OPAC® (Office Proficiency and Assessment Certification®) selection software tests for administrative positions. This included the incorporation of multiple forms of media (visual and sound) for multiple-choice, fill-in-the-blank, true/false, and work-sample style (simulation) devices. Both products are designed to be self-administering and self-scoring.

Other Selection Devices/Test Development Assistance.

Developed work-sample tests for a variety of entry-level manufacturing positions. Trained a county police department in job analysis and multiple-choice item writing so they could develop their own content-related job knowledge tests for four different positions. Instructed test item writing at a three-day training session sponsored by The International Association of Chiefs of Police. Created an item-writing guide for The International Association of Chiefs of Police that was adopted as an official publication distributed by that organization.

Validation/Reliability

Conducted content- and criterion-oriented studies for validating numerous tests, including structured interviews, knowledge tests, work samples, physical ability tests, personality assessments, in-basket, and oral briefing measures. Authored content- and criterion-related validation reports for wide variety of positions. Conducted test/retest and internal consistency reliability studies of numerous employment devices.

Litigation Support

Conducted statistical analyses and methodological research in response to state/federal court cases and U.S. Department of Labor's Employment Standards Administration's *Office of Federal Contract Compliance Programs* (OFCCP) audits involving entry-level and promotional examinations and transfer practices. Served as the lead selection monitor for entry-level selection into a large law enforcement agency under a federal court mandate. Authored reports to address OFCCP audit concerns including job analysis and validation reports. Reviewed and provided feedback to attorneys concerning dozens of job analysis and validation reports submitted by other experts.

Educational Background

- Ph.D., Industrial and Organizational Psychology, The University of Akron, OH
 - Dissertation Topic: *Reducing adverse impact: An investigation of the effect of additional study time on trainability test performance.*

- Advisor: Dennis Doverspike, Ph.D.
- M.A., Industrial and Organizational Psychology, The University of Akron, OH
- B.A. Criminal Justice, King's College, PA

Membership

- Association for Psychological Science
- Society for Police and Criminal Psychology
- International Personnel Assessment Council (IPAC) (formerly known as International Personnel Management Association Assessment Counsel – IPMAAC)
- Society of Industrial and Organizational Psychology (SIOP)
- National Emergency Number Association (NENA, 9-1-1)
- Association of Public-Safety Communication Officials (APCO)

Related Work History

Biddle Consulting Group, Inc. / Biddle & Associates, Inc.

Principal Consultant and Director of Test Development 1999-present

- Organizational consulting, selection planning, test development, job analysis, item writing, human-resource related training, and test/item reviewer. Conduct job analyses and validate a wide variety of selection devices. Provide litigation support on human-resource related issues. Perform statistical and database manipulation and/or analyses of data and information. Instruct selection and validation seminars. Conceived of, designed, and validated the nation's first computerized 9-1-1 communications operator test. Act as the national spokesperson for Biddle Consulting Group in the public safety communications area. Created, and directed the programming and implementation of, new and updated tests for both OPAC® (Office Skills Proficiency and Certification) software and CritiCall® Personnel Selection software. Acted as lead employee selection monitor for a large county sheriff's office under a federal Court's mandate.

California State University, Sacramento

Adjunct Professor – Spring 2009

- Instructed in the area of psychological testing and measurement.

Independent Consultant

International Association of Chiefs of Police, Inc., Alexandria, VA (Exclusive Client) 1997-1999

- Law Enforcement promotion test development. Contributing author of certification test items for the organization's certification/training modules. Instructed test item-writing at the 1999 IACP Conference on Assessment Centers and Selection Issues. Assisted in a unique pilot project where I instructed police supervisors on how to develop their own content-valid written tests.

Barrett and Associates, Inc., Akron, OH

Test Development and Validation Associate 1993-1996

- Test planning, development, job analysis, rating, and item-writing for a wide variety of classifications with an emphasis on public safety. Served as the lead administrator for public safety testing. Primary developer for all phases of test development, including job analysis and item writing, for several job classifications within a regional rapid transit agency. Rated hundreds of oral-briefing exercises for a major police department's sergeant and lieutenant promotion testing.

The University of Akron, Akron, OH

University Faculty and Graduate Teaching Assistant 1994-1998

- Instructed undergraduate "Human Behavior at Work" course as a part-time member of the University's faculty.
- Instructed undergraduate "Introduction to Psychology" courses as a graduate assistant.
- Directed the laboratory portion of undergraduate "Experimental Psychology" courses as a graduate assistant.

Caesar's Tahoe, Lake Tahoe, NV

Lead Stage Technician/Stage Technician 1984-1993

- Acted as a Reserve Deputy Constable (on-call Peace Officer) for the Lake Tahoe, Nevada, Justice Court concurrent with this position.

Douglas County Sheriff's Office, Minden and Lake Tahoe, NV

- Criminal Investigator/Detective, Crime Lab Supervision, Crime Scene Analyst, Certified Latent Fingerprint Examiner, Traffic Accident Investigation, Traffic Enforcement Specialist, and Patrol Officer. 1978-1984
- Concurrently served as a Captain in the Sheriff's Posse, coordinating the county's search and rescue functions. 1979-1981

El Dorado County Sheriff's Office, South Lake Tahoe, CA

- Reserve and paid summer-season Deputy Sheriff assigned to the patrol division.
 - Paid Deputy Sheriff - Summer 1977, Volunteer Reserve - 1976-1978

Reviewer

- *EEO Insight*, ad hoc reviewer
 - An official publication of the *BCGi Institute for Workforce Development*
- *The Call*, ad hoc reviewer
 - An official publication of the *National Emergency Number Association*
- *Annals of Emergency Dispatch & Response*, Member of Peer-Reviewer Board
 - An official publication of the *International Academies of Emergency Dispatch*

Selected Publications and Presentations

- Arthur, W. Jr., Doverspike, D., & Kuthy, J. E. (1996). Striking gold through a deep-level organizational intervention in Ghana's mining industry. *The International Journal of Organizational Analysis*, 4, 175–186.
- Kuthy, J. E. & Svyantek, D. J. (April 26, 1996). *Probability versus statistical significance terminology when making business decisions*. Paper presented at the Eleventh Annual Conference of the Society for Industrial and Organizational Psychology, San Diego, CA.
- Arthur, W. Jr., Doverspike, D., & Kuthy, J. E. (1996). *Striking gold through a deep-level organizational intervention in Ghana's mining industry*. Paper presented at the 11th Annual Conference of the Society for Industrial and Organizational Psychology, San Diego, CA.
- Kuthy, J. E. (1998). *Senior Police Officer and Senior Detective test development and training*. Two-day session presented for the International Association of Chiefs of Police to the Chesterfield County, VA Police Department.
- Kuthy, J. E. (1999). *Item writing for job knowledge testing*. Presented at the International Association of Chiefs of Police Annual Assessment Center and Selection Issues conference, San Diego, CA.
- Kuthy, J. E. (2000, May/June). Establishing Dispatcher Selection Testing. *9-1-1 Magazine*, pages 19-20.
- Kuthy, J. E. (2000, October). *Selecting the Best Applicant for Today's Computerized Communications Workplace*. Presented at the APCO Canada (Association of Public-Safety Communication Officials, Inc.) conference, Ottawa, Canada.
- Kuthy, J. E. (2000, March). *Computerized Testing for Pre-Employment Dispatcher/Call-Taker Selection*. Presented at the APCO (Association of Public-Safety Communication Officials, Inc.) Western Regional conference, Portland, OR.
- Kuthy, J. E. (2000, April). *Selecting the Best Applicant Using Pre-Employment Testing*. Presented at the APCO (Association of Public-Safety Communication Officials, Inc.) North Central Regional conference, Columbus, OH.
- Kuthy, J. E. (2000). *National Dispatcher/Call-taker Job Analysis and CritiCall Content Validity Study*. Sacramento, CA: Biddle Consulting Group.
- Kuthy, J. E. (2001). *Reducing Employee Turnover*. Presented at the Montana State APCO Conference.

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- Kuthy, J. E. (2001). *Reduce Employee Turnover*. Presented at the NENA National Conference, Orlando, FL.
- Kuthy, J. E. (2001). *Computerized selection testing*. Presented at the Southern California Personnel Management Association, San Diego, CA.
- Kuthy, J. E. (2002). *Selecting the Best Employee for the Computerized Communications Workplace*. Presented at the Western Regional APCO-NENA Conference, Phoenix, AZ.
- Kuthy, J. E. (2002, April). *Should we be pre-employment testing for computer-related skills? A report on the national dispatcher/call-taker job analysis study*. Presented at the Navigator Conference (National Academy of Emergency Dispatch), St. Petersburg, FL.
- Kuthy, J. E. (2002, April). *Written Test Item Analysis Study for a California County Sheriff's Office*. Sacramento, CA: Biddle Consulting Group. [Proprietary document, not for publication]
- Kuthy, J. E. (2002, June). *Update to the CritiCall Content Validity and Reliability Report*. Sacramento, CA: Biddle Consulting Group.
- Kuthy, J. E. (2002). *Conducting interviews that work*. Presented at the Annual Conference of the National Number Association, Indianapolis, IN.
- Makiney, J., Fulp, J., & Kuthy, J. (2002, June/July). *Using computerized testing to streamline hiring and certification processes*. Presented at the International Personnel Management Assessment Council's Annual Conference, New Orleans, LA.
- Kuthy, J. E. (2002, August). *Advances in Calltaker and Dispatcher Screening*. Presented at the APCO National Conference, Nashville, TN.
- Kuthy, J. E. (2002, October). *Personnel Selection Management using CritiCall*. Presented at the Atlantic Chapter APCO Conference, Manchester, NH.
- Kuthy, J. E., (2003, February). *Bilingual (English/Spanish) telecommunicator certification job analysis and test development*. Presented at the Western Regional APCO Conference, Las Vegas, NV.
- Kuthy, J. E., & Mateo, D. (April, 2003). *What have we here? Assessing dispatcher competency, skills, and language abilities*. Presented at the Navigator (National Academy of Emergency Dispatching) Conference, Anaheim, CA.

- Kuthy, J. E. (2003, May). Test your job applicants using a telephone. *Public Safety Communications*, pages 44-46.
- Kuthy, J. E. (2003, May). *Bilingual (English/Spanish) telecommunicator certification job analysis and test development*. Presented at the East Coast Regional Association of Public-Safety Communications Officials (APCO) conference, Cape Cod, MA.
- Kuthy, J. E. (2003, June). Bilingual (English/Spanish) telecommunicator testing and certification. *9-1-1 Magazine*, pages 28-29.
- Kuthy, J. E. (2003, June). *Bilingual 9-1-1 operator certification*. Presented at the International Personnel Management Association's Assessment Council Annual Conference, Baltimore, MD.
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- Kuthy, J. E. (2004, March). *It's not fair! How employees' perceptions of unfairness fuel the staffing crisis*. Presented at the Western Regional Association of Public-Safety Communications Officials (APCO) conference, Spokane, WA.
- Kuthy, J. E. (2004, June). *It's not fair! How employees' perceptions of unfairness fuel the staffing crisis*. Presented at the NENA National Annual Conference, Tampa, FL.
- Kuthy, J. E. (2005, April). *Selecting employees who can efficiently do two or more things at once*. Presented at the North-Central APCO Annual Conference, Kansas City, MO.
- Kuthy, J. E. (2005, June). *Invited speaker*. Presented an all-day session on human resource-related issues at the Royal Canadian Mounted Police National Divisional Representative Conference, Ottawa, ON.
- Kuthy, J. E. (2005, August). *Increasing the effectiveness of your training and assessment*. Presented at the APCO International Conference, Denver, CO.
- Kuthy, J. E. (2005, October). *Selecting employees who can do two (or more) things at once: It's harder than it looks*. Presented at the APCO Canada Conference, Vancouver, BC.
- Kuthy, J. E. (2006, March). *Hiring great employees who can also multitask: It's harder than it looks*. Presented at the Western Regional APCO Conference, Portland, OR.

- Kuthy, J. E. (2006, March). *Developing and conducting effective, fair, and valid employment interviews*. Presented at the Personnel Testing Council of Northern California's 20th Annual Conference, Berkeley, CA.
- Kuthy, J. E. (2006). Introduction. In D. Biddle (Ed.), *A practitioner's guide to valid and defensible employment testing, Second Edition*. Burlington, VT: Gower Publishing Company.
- Kuthy, J. E. (2007). *Research based recruiting: How to find qualified candidates that fit the job*. Presented at the Navigator (National Academy of Emergency Dispatching) Conference, Las Vegas, NV.
- Meloun, J. M., & Kuthy, J. E. (2007, Winter). Helping trainees to succeed by having them "think aloud." *Journal of the National Academy of Emergency Dispatch, Winter, 24-26*
- Kuthy, J. E. (2007, January). *Work-Sample and Trainability Tests: Less adverse impact... but are they worth the cost?* Presented at the monthly training meeting of the Personnel Testing Council of Northern California.
- Kuthy, J. E. (2008, November). *It's Not Fair. Employees' perceptions of unfairness fuels the staffing crisis*. Presented at the Wyoming State APCO Conference, Casper, WY.
- Kuthy, J. E. (2008, March). *Effective Recruiting*. Presented at the Western Regional APCO Conference, Albuquerque, NM.
- Kuthy, J. E. (2008, April). *So Sorry to See You Go: Turnover in the Workplace*. Presented at the Navigator (National Academy of Emergency Dispatching) Conference, Baltimore, MD.
- Kuthy, J. E. (2008, April). *Introduction to the AutoGOJA Job Analysis Software System*. Presented at the Northern California Personnel Testing Council Conference, Walnut Creek, CA.
- Kuthy, J. E. (2008, May). *Essentials of Test Validation: How to Find Qualified Candidates Who Fit the Job*. Presented at the Inlands Industrial Liaison Group Conference, Omaha, NE.
- Kuthy, J. E. (2008, August). *Personality matters: Now what?* Presented at the APCO International Conference, Kansas City, MO.
- Kuthy, J. E. (2008, November 6). *Developing Accurate and Legally Defensible Job Descriptions*. Presented at a Center for Competitive Management (<http://www.c4cm.com/>) online webinar.

- Kuthy, J. E. (2008, November 12). *It's not fair! Employees' perception of unfairness fuels the staffing crisis*. Presented at an Association of Public-Safety Communications Officials Institute (APCO Institute; <http://www.apcointl.org/institute/>) online webinar.
- Kuthy, J. E. (2008). *Reducing adverse impact: An investigation of the effect of additional study time on trainability test performance*. Doctoral dissertation, The University of Akron, 2008. http://www.ohiolink.edu/etd/view.cgi?acc_num=akron1225730465
- Kuthy, J. E. (2008, November). *Selecting bilingual telecommunicators: It's harder than it looks*. Presented at the APCO Canada Conference, Ottawa, ON, Canada.
- Kuthy, J. E. (2008, April). *How Title VII requirements for the investigation of alternative employment practices can lead to diversity in the workforce*. Presented at the American Association for Affirmative Action conference, Lincolnshire, IL.
- Kuthy, J. E. (2009, April). *It's not fair! How employees' perceptions of unfairness fuel the staffing crisis*. Presented at the New Jersey State NENA Conference, Atlantic City, NJ.
- Kuthy, J. E. (2009). How Title VII requirements for the investigation of alternative employment practices can lead to diversity in the workforce. *EEO Insight*, 1(2), 45-55. (Article was republished in the special Conference Edition of *EEO Insight* in August 2009 for the National Industry Liaison Group's annual conference in Atlanta, GA.)
- Kuthy, J. E. (2009, October). *Personality matters: Now what?* Presented at the APCO Canada Conference, Regina, Saskatchewan.
- Kuthy, J. E. (2009, October 21). *It's not fair! Employees' perception of unfairness fuels the staffing crisis*. Presented at an Association of Public-Safety Communications Officials Institute (APCO Institute; <http://www.apcointl.org/institute/>) online webinar.
- Kuthy, J. E. (2010, January). *Effective Recruiting*. Presented at the Western Regional APCO Conference, Denver, CO.
- Kuthy, J. E. (2010, March). *Essential of Test Validation*. Presented at Northern New Mexico Industrial liaison Group (ILG) quarterly meeting, Los Alamos, NM.
- Kuthy, J. E. (2010, April). *Using job simulations to select the best employees*. Presented at a BCGI Institute for Workforce Development (www.bcginstitute.org) online webinar.
- Nooren, P., & Kuthy, J. (2010, April). *Considering overqualified job applicants*. Presented at a BNA.com online webinar.

- Kuthy, J. E. (2010, June). *Performance Evaluations: Creating effective and defensible job performance measures*. Presented at a BCGI Institute for Workforce Development (www.bcginstitute.org) online webinar.
- Patchell, H., Yokoi, D., & Kuthy, J. E. (2010, September). *Understanding Basic Qualifications and Their Role in EEO Compliance*. Presented at a BCGI Institute for Workforce Development (www.bcginstitute.org) online webinar.
- Kuthy, J. E. (2010, September). Participated in a *test validation* panel discussion at the Arizona Affirmative Action Association Meeting in Tempe, AZ.
- Kuthy, J. (2010, November). *So sorry to see you go: Understanding and addressing turnover in the workplace*. Presented at a BCGI Institute for Workforce Development (www.bcginstitute.org) online webinar.
- Kuthy, J. E. (2011, February). *Busting pre-employment testing myths*. Presented at the APCO International Western Regional Conference in Ontario, CA.
- Biddle, D. A., Nooren, P. M., & Kuthy, J. E. (2011). How to prevent discrimination lawsuits: Shielding your agency against litigation related to selection and promotion practices. *Public Safety Communications, 77(3)*, 30-35.
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- Nooren, P. & Kuthy, J. E. (2011, January). *Record Keeping and Utilizing the Definition of an Applicant*. Presented at a BCGI Institute for Workforce Development online webinar.
- Kuthy, J. E. (2011, March). *Labor and Management Adversaries Working Together*. Presented at a BCGI Institute for Workforce Development online webinar.
- Kuthy, J. E. (2011, April). *Performance Appraisals and Terminations: Research-Based Best Practices*. Presented at the National Academy of Emergency Dispatch's Navigator Conference in Las Vegas, NV.
- Kuthy, J. E. (2011, July). *Getting your Recruitment and Selection Process up to Code*. Presented at a BCGI Institute for Workforce Development online webinar.
- Kuthy, J. E. (2011, August). *Performance Appraisals and Terminations: Best Practices – Reduced Liability*. Presented at the APCO International Conference in Philadelphia, PA.
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- Kuthy, J. E. (2012, January). *Performance Appraisals and Terminations: Best Practices – Reduced Liability*. Presented at the CALNENA Conference in San Diego, CA.
- Kuthy, J. E. (2012, January). *Adverse Impact and Test Validation: Criterion-Related Validity*. Presented at a BCGi Institute for Workforce Development online webinar.
- Kuthy, J. E. (2012, February). *Performance Appraisals and Terminations: Best Practices – Reduced Liability*. Presented at the Personnel Testing Council of Northern California in Sacramento, CA.
- Kuthy, J. E. (2012, March). *Adverse Impact and Test Validation Book Series: Chapter 4 Developing, Validating, and Analyzing Structured Interviews*. Presented at a BCGi Institute for Workforce Development online webinar.
- Kuthy, J. E. (2012, April). *Writing Multiple-Choice Test Items: Best Practices and Increased Defensibility*. Presented at a BCGi Institute for Workforce Development online webinar.
- Kuthy, J. E. & Patchell, H. J. (2012, May). *Adverse Impact and Test Validation Book Series: Chapter 6 Developing, Validating, and Analyzing Physical Ability Tests*. Presented at a BCGi Institute for Workforce Development online webinar.
- Kuthy, J. E., & Patchell, H. J. (2012, July). *Assignability of Job Duties: Marginal Functions can become Essential (and Visa Versa) Based on an Employer's Current Needs*. Presented at the International Personnel Assessment Council Conference in Las Vegas, NV.
- Kuthy, J. E. (2012, August). *The Psychology of NG911: Are Public-Safety Answering Points (PSAPs) Biting Off More than Their Employees can Chew?* Presented at the APCO International Conference in Minneapolis, MN.
- O'Keefe, C., O'Hara, C., Mason, J., Lindley, P., Kuthy, J., & Alvarez, J. (2012, October). *Best Practices in Recruiting and Hiring*. Presented at the U. S. Department of Labor, Office of Federal Uniform Guidelines on Employee Selection Procedures Contractor Compliance Programs, Workforce Solutions Conference in San Francisco, CA.
- Kuthy, J. E., & Patchell, H. J. (2012, Fall). Hire for skill and attitude. *The Call (The Official Publication of NENA, the 9-1-1 Association)*, 5, 32-37.

Kuthy, J. E., Ostmann, J., Gonzalez, R., & Biddle, D. A. (2013). Predicting successful nursing performance. *Nursing Management*, 44(1), 42-52.

Kuthy, J. E., Ramon, C., Gonzalez, R., & Biddle, D. A. (2013). Practical implications of pre-employment nurse assessments. *The Health Care Manager*, 32(2), 189-192.

Selected Technical Report Reviews Prepared under Attorney/Client Privilege

Conducted in-depth reviews of job analysis and validation reports authored by other consulting organizations under Attorney/Client Privilege to determine whether those reports addressed the essential requirements of the federal Uniform Guidelines on Employee Selection Procedures (Uniform Guidelines). Conducted studies and analyses, as requested, to confirm the validity of testing developed by other consultants for the selection of employees.

Fortune Global 500 - National Chocolate Manufacturer (organization name withheld at request of client)

- Uniform Guidelines Section 15B compliance review of Isokinetic testing used for the selection of an unspecified position.
- Provided written report of findings.

National Job Placement Firm (organization name withheld at request of client)

- Review the relationship between survey response scores and overall job performance.
- Conduct standardized mean-score difference analyses and report findings for management and hourly employees.
- Provided written reports of findings.

Fortune 500 - National Food Service Company (organization name withheld at request of client)

- Uniform Guidelines Sections 7B, 15B, and 15D compliance review of cognitive and physical ability testing used for the selection of a Selector position.
- Provided written report of findings.

Fortune 1000 - International Hotel Chain (organization name withheld at request of client)

- Uniform Guidelines Sections 7B and 15B compliance review of personality and mental ability testing used for the selection of Customer Service employees.
- Conducted adverse impact analyses.
- Provided written report of findings.

International Semi-Conductor Manufacturer (organization name withheld at request of client)

- Reviewed written tests, including conducting readability analysis of test documents and statistical analysis of test responses.

Fortune 50 - Global Financial Services Firm (organization name withheld at request of client)

- Reviewed processes used for employment selection testing for conformance with Uniform Guidelines.
- Verbally provided report to attorneys.

Selected Technical Reports and/or Selection-Device Development/Validation for Government Agencies and Associations

City of Chicago Police Department, Illinois.

Police Sergeant and Lieutenant



- Created and documented evidence of the validity of numerous written job-knowledge test questions for written Sergeant and Lieutenant promotional examinations.
 - Written tests withstood legal challenges in *Brown v. Chicago* (8 F.Supp.2d 1095, 1998 U.S. Dist. Lexis 10721 and 19 F.Supp.2d 890, 1998 U.S. Dist. Lexis 14963 [N.D. Ill]), *Bryant v. Chicago* (#99-1272, 200 F.3d 1092, 2000 U.S. App. Lexis 528 [7th Cir.]) and *Adams v. Chicago* (135 F.3d 1150, 1152 [7th Cir. 1998]).
- As part of team, developed a unique scoring scheme for two “oral briefing” exercises. During these exercises job candidates prepared and gave an oral briefing, based on provided materials about gang activity. This scheme was later used to rate job candidates’ tape-recorded responses.
- As part of a team, rated hundreds of “oral briefing” exercises for Sergeant and Lieutenant candidates.

City of Minneapolis Police Department, Minnesota

Police Captain and Sergeant



- Conducted job analyses and authored job analysis reports.
- Conducted validation study of written promotion tests and authored content-related validity reports.

City of Dayton Police Department, Ohio

Police Officer



- Assisted with the job analysis of entry-level Police Officer position to comply with a U.S. Department of Justice consent decree ruling.

Washington Area Metropolitan Transit Police Department (WAMATA), D.C. Area Police Sergeant



- Created and documented evidence of validity for numerous written job-knowledge test questions for written promotional examinations.
 - This department is unique in that officers are required to know the laws and regulations of the states of Maryland and Virginia, plus those of Washington, DC.

Greater Cleveland Rapid Transit Authority Police Department, Ohio Entry-level Police Officer



- Created and documented evidence of the validity of numerous written test questions for written entry-level examination.
- Supervised the administration of a physical ability test for entry-level police officer job applicants.

City of Cleveland Police Department, Ohio Sergeant, Lieutenant, Captain, and Assistant Chief



- Created and documented evidence of the validity of numerous written job-knowledge test questions for written Sergeant, Lieutenant, Captain, and Assistant Chief promotional examinations.
- Led the on-site administration of the Sergeant's written examination process.
- As part of a team, created and administered in-basket testing.

City of Cleveland Fire Department, Ohio Lieutenant, Captain, and Battalion Chief



- Created and validated numerous written job-knowledge test questions for written Lieutenant, Captain, and Battalion Chief promotional examinations.
- Led the on-site administration of the Fire Lieutenant's written examination process.
- As part of a team, created and administered written in-basket testing.

The International Association of Chiefs of Police. International Organization. Police Sergeant, Lieutenant, Captain, Senior Officer, and Senior Detective



- Developed written job-knowledge test items for a variety of police departments for Police Sergeant, Lieutenant, and Captain's positions. (Names of agencies withheld at the request of the IACP).
- Trained a county law enforcement agency on how to develop their own defensible written tests for Senior Officer and Senior Detective positions.
- Created numerous test and review questions for the IACP's internationally-recognized *Training Key* program.

Cleveland Regional Rapid Transit Authority, Ohio

Motor-Coach Diesel Mechanic and Motor-Coach Electrician



- Conducted job analyses and developed selection plans for motor-coach diesel mechanic position as part of a team and primary associate for electrician position
- Sole author of written test items for job knowledge testing for both positions.
- Made recommendations for additional types of job-related selection testing.

Massachusetts Bay Transit Authority (MBTA), Massachusetts

Bus Inspector, Light Rail Inspector, and Heavy Rail Inspector



- Conducted job analysis of three categories of Inspector position
- Assisted with development of multiple-choice and written work-sample test items.
- Conducted content-related validation studies of multiple-choice and written work-sample test items.
- Authored job analysis and validation report.

City of Minneapolis City Attorney's Office, Minnesota

Assistant City Attorney II



- Conducted job analysis (see *Delgado-O'Neil v. City of Minneapolis* below).
- Assisted with development of updated interview and written work-sample test items.
- Conducted content-related validation studies of updated interview questions and written work-sample test items and authored job analysis and validation report.

City of Minneapolis Department of Public Works, Minnesota

Public Service Worker I and II



- Conducted job analysis of the positions.
- Developed physical ability test events.
- Conducted content-related validation study of the physical-ability test and authored job analysis and validation report.

CalPERS (California Public Employees' Retirement System), California

Four Investment Manager Positions



- Conducted a job analysis study of four Investment Manager positions.
- Co-authored a job analysis report to document the findings of the job analysis research.

Federal Detention Center, Texas (Privately operated under contract to the U.S. Marshal's Office; organization name withheld at request of client)
Correctional Officer



- Conducted job analysis of Correctional Officer position
- Conducted validity study of requirement for being able to communicate in both English and Spanish
- Authored Job Analysis and Content-Related Validity report

CritiCall® Personnel Selection Software, California
Public-Safety Dispatcher/Calltaker, Two National Research Studies



- Conducted two nationwide job analysis study of public-safety telecommunication positions (including more than 45 public-safety agencies) in 2000. Led a second nationwide job analysis study in 2010 that included dispatchers and calltakers from more than 80 agencies.
- Authored and developed computerized test content, including 24 different sub-tests.
- Conducted a content-related validity study of the CitiCall selection test.
 - Authored job analysis and validation report, and its numerous updates.
- Collected and statistically analyzed test score data from over 8,000 test takers and recommended cutoff-score based on data from over 300 job experts.
- Determined appropriate time limits for testing for several of the CitiCall test modules.

Seattle City Light, Washington
Lineworker, Electrician Constructor, and Cable Splicer positions



- As part of a team, created a selection plan for three industrial-job classifications.
- Conducted and interpreted reliability and validity statistical analyses.
- Created electrical and mechanical written test items.
- Developed physical ability and work-skills tests.
- Developed selection interview guide and behavioral characteristic measures.

Selected Technical Reports, Case Consultation, and Test Development for Private Employers

Saint Francis Medical Center, Cape Girardeau, Missouri
Registered Nurse

- Conducted criterion-related validity statistical calculations
- Authored criterion-related validation report

National Meat Processing Company (organization name withheld at request of client)
Four Food-Handling and Processing positions

- Conducted extensive analyses of potential adverse impact.
- Conducted job analysis studies of four positions
- Designed test of physical ability required to perform one of the four positions.

Beth Israel Deaconess Medical Center, Boston, Massachusetts

Patient Care Technician and Clinical Nurse Positions

- Conducted job analyses and authored job analysis reports.
 - Job analysis of Clinical Nurse Position was accepted by the OFCCP as evidence of compliance to a conciliation agreement.
- Supervised development and implementation of a selection plan for these positions.
- Developed and validated three sets of written job-knowledge tests for the Patient Care Technician position.
- Developed and validated structured interview processes for both positions.
 - Structured interview development and validation study for the use of the interview for the Clinical Nurse Position was accepted by the OFCCP as evidence of compliance to a conciliation agreement.

International Longshore Workers Union, Local 94/Pacific Maritime Association, California

Foreman/Walking Boss Position

- Conducted a job analysis and authored job analysis report.
- Supervised development and implementation of a selection plan.
- Developed and validated four sets of written job knowledge tests.
- Developed and validated three structured interview processes.
- Developed a strategic weighting scheme to incorporate scores from a unique time-in-grade measure that rewarded those incumbents who had a wide range of experience in a large number of positions, along with Written Test Scores and Interview Scores.
- Supervised the administration of more than 1,500 written tests (2003, 2005, 2007, 2011).
- Conducted interviewer rater training (2003, 2005, 2007, 2011).
- Supervised the implementation and rating of over 600 panel interviews (2003, 2005, 2007, 2011).

Humetrics, Inc., National Test Administration Firm

Customer Service Employee

- Performed statistical evaluation of personality characteristic measures for customer service position.
- Conducted and interpreted criterion-related validity analyses.
- Conducted and interpreted test reliability analyses.
- Authored confirmatory/cross-validation criterion-related validity study.

Ultramar Diamond Shamrock, National Retail Chain

Customer Service Position

- Conducted job analysis of a Customer Service position for this national company.
- Authored job analysis report.
- Conducted a concurrent criterion-related validity study of a non-cognitive pre-employment selection test.

Commercial Bakery, Southern California (organization name withheld at request of client)

- Conducted a criterion-related validation study of a work position.
- Conducted fairness analyses of data from criterion-related study.
- Authored a report that addressed the federal *Uniform Guidelines on Employee Selection Procedures* in response to a Department of Labor's Employment Standards Administration's Office of Federal Contract Compliance Programs (OFCCP) audit.

Regional Bank, Brooklyn, New York (organization name withheld at request of client)

Bank Teller

- Conducted a job analysis study of a bank teller position and created a report indicating the findings in response to a U.S. Department of Labor's Employment Standards Administration's Office of Federal Contract Compliance Programs (OFCCP) audit.
- Conducted both a content- and criterion-related validation study of a Bank Teller position and authored reports that addressed the federal *Uniform Guidelines on Employee Selection Procedures*.

Fortune 100 – Global Bank, New York (organization name withheld at request of client)

Branch Manager

- Conducted a content-related validation study of a test used to certify the competency of the Branch Managers, which included reviewing and providing feedback of more than 400 written test items.
- Authored validation report that addressed the federal *Uniform Guidelines on Employee Selection Procedures*.

Southwest Gas, Las Vegas, Nevada

Customer Service Calltaker Representative

- Conducted a job-relatedness study of a Customer Representative position training program.
- Conducted a job analysis study of a Customer Representative position.
 - Developed a list of tasks performed, and the knowledge, skills, abilities, and personal characteristics needed to perform those tasks.
 - Created a report of job analysis findings and authored associated content-related validation reports.

- Conducted a structured interview development and validation workshop.
 - Authored a content-related validity report of the structured interview process and of computerized testing.

J. R. Simplot, Idaho

Facility Sanitation Specialist

- Conducted job analysis of this position and authored job analysis report.
- Conducted a content-related “synthetic” validation study of testing to be used for selection into this position and authored validation report.

Philips Electric, New York

Production Operator

- Conducted job analysis of this position and authored job analysis report.
- Conducted a content-related validation study of work-sample testing used for selection into this position and authored validation report.

Bollinger Shipyards, Louisiana

Welder, Pipe Fitter, Ship Fitter, Welder-Tacker Trainee

- Conducted analyses of these positions and authored job analysis reports.
- Created content-valid written and work-sample tests.
- Validated selection devices and authored validation reports.

Fortune 100 – Bottling Company, Nationwide (organization name withheld at request of client)

Delivery Driver, Loader, and Merchandiser

- Reviewed two versions of reports documenting validity of measures of physical ability test, including conducting statistical analyses of findings.
- Contributed to written reviews of reports.

Blue Cross of Idaho, Idaho

Customer Advocate

- Conducted job analysis.
- Authored job analysis report.

Fortune 500 – International Airline 1 (organization name withheld at request of client)

Gate Agent, Fleet Services (Ramp) Agent, Reservation Agent

- Conducted job analyses of three positions.
- Observed and documented employees performing Fleet Services and Reservation Agent positions.
- Validated training programs and tests associated with training programs.
- Authored job analysis and validation reports.

International Airline 2, (organization name withheld at request of client)

Flight Attendant

- Conducted job analyses of three positions.
- Observed and documented employees performing job duties.
- Authored job analysis report.

Fortune 500 – National Airline (organization name withheld at request of client)

Flight Attendant, Customer Service Agent, Ramp Agent, Operations Agent, Provisioning Agent, Freight Agent, & Customer Representative

- Conducted job analyses.
- Observed and documented employees performing jobs.
- Validated interview questions and basic qualifications for Ramp Agent position.
- Authored job analysis and validation report.

J. B. Hunt, National Trucking Firm

Final Mile Driver and Installer

- Reviewed previously-conducted job analysis documents.
- Conducted criterion-related validation analyses of physical ability testing process.
- Conducted job analysis to support content-related validity of physical ability testing.
- Conducted content-related validation study of physical ability testing.
- Authored job analysis and validation report.

Fortune 500 – National Temporary Staffing Firm (organization name withheld at request of client), Nationwide

Light Industrial Workers

- Reviewed current testing procedures.
- Participated in the creation of national job survey.
- Assisted with the redesign of job simulation selection tests.

National Aeronautics Defense Contractor, California (organization name withheld at request of client; company has federal government sales of greater than \$2.4 billion)

Avionics Technician

- Conducted job analysis.
- Conducted validation study of written test items and interview questions.
- Authored job analysis reports.
- Authored content-related validity reports.

Salesforce.com, California

Three positions involving software engineering and technical support

- Conducted job analyses and authored job analysis reports.

- Conducted content-related validation studies of numerous work-sample type tests.

ATI Allvac Specialty Metals Manufacturing Company, North Carolina

Ultrasonic Inspector

- Conducted job analysis.
- Developed numerous written test items for entry-level position.
- Conducted validation study of written test items.
- Authored job analysis and validation report.

CH2M HILL, Prudhoe Bay, Alaska

Eleven General Maintenance Technician (GMT) Positions

- Conducted onsite observations and interviews of job experts and supervisors for 11 GMT positions as part of a two-person team.
- Crafted lists of job duties and knowledge, skills, and abilities needed to perform the duties for the 11 positions as part of a team.
- Collected Job Analysis data from Job Experts and Supervisors for the 11 positions as part of a team.
- Trained GMT supervisors on Written and Work-Sample Test development.
- Led the development of two Work-Sample tests while onsite.
- Conducted a validation study of two Work-Sample Tests and one Written Test.

Sunsweet Growers, California

Production Worker

- Reviewed physical ability testing process for potential validation study.
- Conducted criterion-related validation study.

Integrity Testing Company, Israel (organization name withheld at request of client)

- Review written integrity-test items for compliance with American regulations.
- Provide formal written report to client.

Solar Turbines, California

Apprentice

- Criterion-Related validation study in process.

Selected Court Case Consultation

Paige v. California Highway Patrol, Federal District Court, California

Highway Patrol Officer

- Reviewed validity/fairness of entry level written tests.
- Disparate impact theory application and analysis.
- Drafted documents submitted to the court.

Bouman v. Pritchess; Bouman v. Block, 940 F.2d 1211 (United States Court of Appeals, Ninth Circuit)

Police Sergeant

- Provided services pertaining to validation, statistics, and EEO/AA laws and regulations including preparation of exhibits and declarations to the court.
- Conducted statistical analyses of adverse impact for entry level and promotional selection.
- Conducted qualitative analyses of potential “alternate employment practices” which may have lower adverse impact.
- Reviewed test validation procedures for numerous positions within the organization.

Stallworth/Kemp v. County of Alameda Sheriff’s Department, California

Sheriff’s Sergeant

- Conducted a content-related validation study of a written promotional examination.
- Authored validation report and made recommendations to client.

Burns v. County of San Mateo, U.S. District Court, California

Public-Safety Dispatcher/Calltaker

- Submitted a declaration as an expert concerning training and employee discipline/discharge procedures.

Naidu v. California Public Utilities Commission (CPUC) (Case No. CGC-08-481152)

Program and Project Supervisor (PPS)

- Reviewed previously-conducted job analysis documents.
- Authored job analysis and validation report based on previously-gathered data.

Enderby et al v. California Public Utilities Commission (CPUC) (Case No. CGC-07-464877)

Public Utilities Regulatory Analyst IV (PURA IV), Public Utilities Regulatory Analyst V (PURA V), and Program and Project Supervisor (PPS)

- Reviewed previously-conducted job analysis documents.
- Authored job analysis and validation report based on previously-gathered data.
- Contributed to declarations and exhibits.

Delgado-O’Neil v. City of Minneapolis, (Civil No. 08-4924 [MJD/JJK], U.S. District Court, District of Minnesota)

City Attorney II

- Conducted a series of Multiple-Event Probability Tests to determine that no adverse impact occurred over a period of several years.
- Conducted job analysis.
- Conducted content-related validation study of interview process.
- Authored job analysis and validation report.

- City was granted Summary Judgment on all counts.

Strong v. Blue Cross of California/Wellpoint Companies (Superior Court of California, County of Los Angeles Central District, BC382405)

- Litigation support

Mejias v. Executive Office of Public Safety (Superior Court of the Commonwealth of Massachusetts, Civil Action HDCV2008-00473)

- Conducted multiple adverse-impact analyses
- Prepared initial draft of Declaration

Krysel v. Intereum, Inc. (Fourth Judicial District of the State of Minnesota)

- Prepared data for analysis
- Conducted several iterations of adverse analyses
- Prepared initial draft of several reports submitted to the court

Counter-Young v. Pacific Maritime Association (Superior Court of California, County of Los Angeles, BC 479455)

- Authored declaration for Work History Evaluation selection device in support of motion for Summary Judgment
- Testified in deposition
- Summary Judgment granted by the court

Specialized Law Enforcement Training & Certification

- *State of California, Commission on Peace Officer Standards and Training (POST)* certification in "Background Investigation" – 32 hours (POST Certification #2970-30340-11002).
- *The Women in Policing Institute*, certificate in "Recruiting Women to Policing: Strategies that Work."
- *State of New Hampshire*, Customer Service in Public Safety Telecommunications.
- *National Academies of Emergency Dispatch*, Continuing Dispatch Education – 24 Hours.
- *International Association of Chiefs of Police*, "1999 Conference on Assessment Centers and Selection Issues" Certificate of Training.
- *International Association of Chiefs of Police*, "1997 Conference on Assessment Centers and Selection Issues" Certificate of Training.
- *F.B.I. Law Enforcement Officers Training School* "Advanced Latent Fingerprint Techniques" Certificate.
- *F.B.I. Law Enforcement Officers Training School* "White Collar Crime" Certificate.
- *State of California* "Reserve Police Officer Certification Award" (Achieved California Level 1 Reserve status allowing me to perform peace-officer duties without direct supervision under Penal Code 832).

- *State of California Department of Justice Training Center "Basic Fingerprints" (Latent Fingerprint Identification) Certificate.*
- *State of Nevada "Peace Officer Certification Award" (Basic Peace Officer's Standards and Training certified).*
- *State of Nevada (Highway Patrol) Certificate of Completion in "Traffic Accident Investigation."*
- *State of Nevada Department of Law Enforcement Assistance Certificate of Completion in "Combat Oriented Police Shooter."*
- *State of Nevada Department of Law Enforcement Assistance Certificate of Completion in "Terrorism, Subversive Groups and Prison Gangs."*
- *State of Nevada University System Certificate in "Police Enforcement Rider Course" (Police Motorcycle Training).*
- *State of Nevada, Douglas County District Court Expert Witness certified in "Crime Scene Evidence Collection and Chain of Custody."*
- *Commonwealth of Pennsylvania Public Service Institute Certificate of Attainment in "Auxiliary Police Procedure."*
- *Douglas County, Nevada, Sheriff's Office, Certificate in "Homicide Investigation."*
- *Douglas County, Nevada, Sheriff's Office, Certificate in "Search and Seizure."*
- *Douglas County, Nevada, Sheriff's Office, Certificate in "Report Writing."*
- *Douglas County, Nevada, Sheriff's Office, Certificate in "Baton Training."*
- *El Dorado County, California, Sheriff's Office, In-Service Training Certificate in "General Law Enforcement Training."*
- *International Association of Identification (California State Division) Certificate of Completion in Training.*
- *National Association for Search and Rescue Certificate in "Managing the Search Function."*
- *National Law Enforcement Institute Certificate in "Crime Scene Investigations."*
- *Washoe County, Nevada, Sheriff's Office Certificate in "Marijuana Identification."*
- *Western Nevada Community College Certificate in "Explosives and Bomb Disposal."*

Attachment B

INSTRUCTIONS TO SUPERVISORS FOR RATING CRITERIA

The following instructions were provided in writing to all Supervisors who participated in the current study as raters

Hello and thank you for participating in our CritiCall test validation process. One way we can tell if a test helps to select the most qualified candidates for distribution operator positions is to have current distribution operators take the test and then compare their scores to job performance ratings given by their supervisors. The test is working correctly if those who score high on the test also receive the highest ratings by their supervisors. Similarly, we expect to find that the distribution operators who score lower on the test will also have lower job performance ratings.

This is where we need your help. You will be asked to complete a web-based survey that will ask you to rate your distribution operators on several different performance areas. These several areas are not meant to represent the entirety of a distribution operator's role, but they do represent several key areas of performance that may be related to the tests we are validating.

For each of the performance areas, you will be asked to rate the distribution operators under your supervision into 10 separate categories, with each category containing about 10% of the distribution operators you supervise. This requires that your ratings are spread somewhat evenly across the 10 rating categories. For example, if you supervise 100 distribution operators, each of the 10 rating categories should include about 10 distribution operators: 10 in the "HIGHER 91-100%," 10 in the "HIGHER 81-90%" and so forth for the remaining 8 categories. You do not need to have an exactly even number of distribution operators in each of the ten categories, just approximately.

For example, consider the Job Performance area: "Easily and accurately uses maps to find locations and/or to provide geographic directions." How do your distribution operators perform in this area relevant to each other? Are there a few distribution operators who stand out above the rest when it comes to this performance area? These would be rated in the "higher 80 or 90 percent" categories. Are there some distribution operators who seem to be "middle performers" in this area? Rate these in the middle categories. Are there some who do not perform as well compared to the others? Rate these in the lower performing categories.

Let's take a look at a sample rating survey to give you a clear idea of what we're looking for [See the sample rating sheet shown below].

Rating Dimension: Managing workflow by prioritizing responsibilities in a certain order or pattern, including safely performing more than one job-related task at a time (multi-tasking).										
Employee	Rating Level									
	LOWER 1-10%	LOWER 11-20%	LOWER 21-30%	MIDDLE 31-40%	MIDDLE 41-50%	MIDDLE 51-60%	MIDDLE 61-70%	HIGHER 71-80%	HIGHER 81-90%	HIGHER 91-100%
Jane				X						
Armando	X									
Daniel			X							
Robert							X			
Mary					X					
Julie						X				X
Frank									X	
Ernesto								X		
Sarah						X				
Favian			X							
Sandra			X							
Ellie				X						
Patrick						X				
Dillion	X									
Jerome		X								X
Michael									X	
Mary					X					
Julie							X			X
Frank									X	
Ernesto								X		
RATINGS PER CATEGORY	2	1	3	2	2	3	2	2	3	3

In this example, there are 20 distribution operators being rated. Notice how this supervisor assigned ratings somewhat evenly across the 10 categories. See the bottom row for totals. The actual survey will not sum your ratings in each category; just be mindful to spread your ratings as evenly as possible.

By rating your distribution operators across these 10 categories, we are able to increase the power of our study to find out how the test may actually work to distinguish the “higher performing” distribution operators from those who are “middle performing” or “lower performing.” Please keep in mind that assigning some of your distribution operators to the lower 10%, 20%, or 30% categories DOES NOT mean that they are incompetent performers. It simply means that this is where they rate on the specific performance area (e.g., map reading) relevant to the rest of the staff that you supervise.

Please be assured that your ratings will be used exclusively for test development purposes. They will not be disclosed to any other facility, except in anonymous group form to reveal the overall results of our study. This rating data will be compiled and maintained by Biddle Consulting Group, Inc. Should you have any questions while completing this study, please do not hesitate to contact Mike Callen (email mcallen@biddle.com or call 800-999-0438 x.121 or mobile/[REDACTED]).