

# ***User's Manual For The Employee Reliability Inventory***

*Gerald L. Borofsky, PhD*

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**Boston, Massachusetts**

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# EMPLOYEE RELIABILITY INVENTORY

Gerald L. Borofsky, Ph.D.<sup>1, 2</sup>

## 1. INTRODUCTION

### 1.1 PRE-EMPLOYMENT SELECTION PROGRAMS

The basic reason that there is a need for pre-employment selection programs is that people are different from one another. The ways in which people differ from one another can be critically important to an employer.

- Some people’s job performance is not disrupted by alcohol or illegal drug use while others’ is not.
- Some people are courteous and customer service oriented while others are not.
- Some people are emotionally mature while others are not.
- Some people are productive and conscientious workers while others are not.

- Some people become reliable and trusted employees while others do not.
- Some people drift from job to job, while others become valued long-term employees.
- Some people perform their work in a safe manner while others do not.

Employees who behave on the job in an unreliable or unproductive manner can have a negative effect on an organization’s efforts to carry out its objectives. For that reason, organizations have a need to assess the likelihood that job applicants will perform on the job in a reliable and productive manner, if hired. Most employers routinely use pre-employment selection procedures to:

- Identify applicants who are well suited for a particular position.
- Identify applicants who are poorly suited for a particular position.

Commonly-used pre-employment selection procedures include the use of:

- Employment Applications
- Verification of the Employment Application (Checking of References, Past Employers, Credit Checks, etc.)
- Pre-Employment Interviews

<sup>1</sup> Gerald L. Borofsky, holds a Ph.D. in Clinical Psychology from Michigan State University. He is a licensed psychologist, a Diplomate in Clinical Psychology of the American Board of Professional Psychology, and is listed in the *National Register of Health Service Providers in Psychology*.

For 15 years, Dr. Borofsky was the Director of Psychology in the Department of Psychiatry at the Massachusetts General Hospital. For over 25 years he was a member of the faculty of Harvard Medical School. Dr. Borofsky is an internationally-recognized authority on the development and use of assessment systems. He is also a nationally-recognized authority on the development of human reliability programs and forensic psychology. He has contributed to the development of Congressional policy in the area of pre-employment screening, and has also served as a consultant in the area of pre-employment assessment, for law firms, police departments, and the development of governmental programs and policies.

<sup>2</sup> The suggestions and assistance of the following individuals is gratefully acknowledged: Victor Artese, Allison Betts, Norm Fujiwara, Veronica Johnson, Arthur F. LeBlanc, Sharyn MacLean, Bruce McCormick, Mark Palmerino, Sharon Varallo, Joan Wagner, and Charles Wonderlic, Jr.

- Psychologically-Based Assessment Methods (Questionnaires and Tests)

## 1.2 UNRELIABLE AND UNPRODUCTIVE BEHAVIOR

### 1.2.1 TYPES OF UNRELIABLE AND UNPRODUCTIVE BEHAVIOR

A 1983 study sponsored by the National Institute of Justice<sup>3</sup> revealed that many organizations in this country are being negatively affected by the presence of employees whose overall performance on-the-job is characterized by unreliable and unproductive behavior. This study also found that such unreliable and unproductive behavior can be found in just about all job categories within an organization, ranging from unskilled laborers to upper level managers.

When referring to the subject of unreliable and unproductive behavior in the work place, a distinction can be made between three types of behavior: (1) Production Deviance, (2) Property Deviance,<sup>4</sup> and (3) Unplanned and Uncontrolled Turnover.

**PRODUCTION DEVIANCE** refers to behavior which conflicts with an organization's expectations of productivity. Common examples of production deviance include failure to follow standard procedures, frequent unauthorized absences, coming to work intoxicated, on-the-job use of alcohol or illegal drugs, and a higher than average number of injuries and accidents.

**PROPERTY DEVIANCE** refers to behavior which is directed against an organization's property. Common examples of property deviance include theft and vandalism.

**UNPLANNED AND UNCONTROLLED TURNOVER** refers to employees who, for a variety of

reasons, only remain on the job for a short period of time (e.g. being fired for violations of company policy or drifting from job to job). This type of behavior can seriously disrupt an organization's ongoing effectiveness. Such turnover also results in significantly increased administrative and training costs associated with the recruiting, hiring, and training of new employees.

### 1.2.2 COMMON CAUSES OF UNRELIABLE AND UNPRODUCTIVE BEHAVIOR

In order to minimize the occurrence of Production Deviance, Property Deviance, or Unplanned and Uncontrolled Turnover in the workplace, a comprehensive selection program typically assesses job applicants for each of the five common causes of unreliable behavior.

These are:

- Insufficient training or experience to adequately carry out the requirements of the job
- Presence of maladaptive personality traits
- Presence of adaptive personality traits which are nonetheless in conflict with the specific requirements of the job
- Disruptive use of alcohol or illegal drugs<sup>5</sup>
- Untrustworthiness

### 1.2.3 THE MULTIFACTORIAL NATURE OF UNRELIABLE AND UNPRODUCTIVE BEHAVIOR

A question of significance for the field of employee selection is whether there are interrelationships among these various causes of unreliable and unproductive behavior.

Consider the following example:

<sup>3</sup> John P. Clark and Richard C. Hollinger, *Theft by Employees*. (Lexington, MA: Lexington Books, 1983).

<sup>4</sup> Ibid.

<sup>5</sup> As used in this *Manual*, and in all other ERI<sup>®</sup> documentation and materials, the terms drug use and substance use refer to the current illegal use of drugs.

Pre-employment selection procedures may indicate that an applicant appears acceptable in terms of his or her training and experience, and that his/her job performance appears unlikely to be disrupted as a consequence of his/her pattern of alcohol or illegal drug use. On this basis, would it be reasonable for an employer to assume that the applicant is also likely to work cooperatively with others and to exercise good judgment on the job? Would it also be reasonable for an employer to assume that the applicant will make a long term commitment to the job?

Whether the various causes of unreliable and unproductive behavior are intercorrelated has implications for the design of pre-employment selection programs. If there are significant interrelationships between the various causes, then an employer might be able to assess job applicants for just one cause, on the assumption that he or she was concurrently assessing applicants for the other causes as well. On the other hand, if these five causes are relatively uncorrelated, it would seem advisable to include procedures which assess applicants for *each* job relevant cause.

Conventional wisdom seems to subscribe to what can be called the “*bad apple*” view of behavior. According to this point of view, all unreliable and unproductive people are more or less similar to each other, in that they are all likely to manifest multiple causes of unreliable behavior. For example, the “bad apple” perspective would predict that if a job applicant is likely to demonstrate maladaptive personality traits on the job, he or she is also likely to have disrupted job performance as a consequence of his/her pattern of illegal drug or alcohol use, and is likely to perform on the job in an untrustworthy manner. For purposes of pre-employment assessment, the implication of the “bad apple” perspective is that assessing applicants for any *single* cause of unreliable or

unproductive behavior should be sufficient to accurately identify the “bad apples” in an applicant pool.

An alternative perspective can be called the *multifactorial* view of behavior. According to this point of view, different individuals perform unproductively or unreliably for different reasons. For example, one job applicant may have personality traits which are well suited to the requirements of the job, but may be vulnerable to performing unreliably on the job as a consequence of his/her pattern of illegal drug or alcohol use. Another job applicant may be trustworthy but may be vulnerable to performing unreliably on the job as a result of personality traits which conflict with the requirements of the job.

The multifactorial perspective accepts that there may be some degree of intercorrelation among the various causes of unreliable and unproductive behavior. However, unlike the “bad apple” viewpoint, the conclusion to be drawn from the multifactorial perspective is that a comprehensive pre-employment selection program should assess job applicants for *all* of the job-relevant causes of unreliable behavior. According to the multifactorial view, it is quite unlikely that assessing job applicants for just one cause of unreliable behavior will adequately call attention to applicants who may be likely to perform unreliably on the job due to other causes.

Preliminary studies, including the correlation matrix for the scales of the Employee Reliability Inventory (ERI<sup>®</sup>) shown in Section 8.3 of this *Manual*, seem to favor the validity of the multifactorial perspective over the “bad apple” point of view.<sup>6</sup>

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<sup>6</sup> Evans, M.A., McGee, M.P., and Borofsky, G.L. Psychological evaluation and illicit drug use in an industrial population. *Proceedings. American Academy of Forensic Science.* 1986.; Borofsky, G.L., Friedman, J., and Pignato, J. C., *Interrelationships Among Various Causes Of Unreliable Behavior In The Workplace*, Research Bulletin, Number 400-9. Groton, MA: Human Reliability Institute, 1987



## 2. ERI® - EMPLOYEE RELIABILITY INVENTORY

### 2.1 DESCRIPTION

The ERI® is a criterion-keyed, self-administered, “True - False” type of behavior inventory. It contains 81 statements, which are worded at a sixth grade reading level. Results for each scale are presented in an easy to understand format designed to add flexibility to your selection process. Results provide an estimate of the likelihood that a job applicant will perform, on the job, in a reliable and productive manner.

The ERI® consists of seven (7) separate scales. Each scale assesses job applicants with respect to a different dimension of reliable and productive behavior<sup>7</sup>. The seven (7) ERI® scales are described on the following page.

### 2.2 RECOMMENDED USE OF THE ERI®

The ERI® was designed and developed to be used as one part of a company’s pre-employment selection program. The purpose of the ERI® is to assist employers in their efforts to hire reliable and productive employees. It was designed to be used where production deviance, property deviance, and unplanned and uncontrolled turnover are important job concerns. Accordingly, the ERI® should be used where such behaviors are related to job performance in the position for which the applicant is being considered.

The ERI® was designed to be used as a pre-interview questionnaire. For this reason, it is recommended that the ERI® be administered to job applicants immediately after they have

completed the employment application and before they are interviewed or references are verified. When used in this manner, the ERI® can serve as an objective method for assessing issues related to job performance, which can then be explored further during interviews and reference verification. If an applicant’s score on one or more scales suggests a possible problem area, subsequent interviews and the verification process can be used to develop additional information, which will clarify, confirm or call into question the ERI® results. Coordinated use of the ERI® with focused inquiries during interviews and verification, should increase the likelihood of identifying reliable and productive individuals prior to making a hiring decision.

**Because it was validated as a pre-employment questionnaire, the ERI® should not be used to evaluate current employees or for any purpose other than as an aid in the pre-employment selection process.**

The ERI® is not a medical examination, nor should it be administered in a medical setting. It is not a psychological stress evaluator, is not invasive, and does not measure physiological or psychological responses in the subject being assessed.

## 3. PROCEDURES AND INSTRUCTIONS FOR THE USE, ADMINISTRATION AND SCORING OF THE ERI®

### 3.1 GENERAL INFORMATION REGARDING THE USE OF THE ERI®

1. The ERI® user materials include documentation, technical information, business information as well as various printed materials, which are collectively referred to as “ERI® documentation and materials”.

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<sup>7</sup> Each of the ERI® scales assesses job applicants with respect to a different behavioral dimension. The scales estimate the likelihood that an applicant, if hired, would perform on the job in a reliable and productive manner.

However, you should be aware that subsequent changes in a person’s life and work environment (both positive and negative) can affect his/her performance on the job. Supervisory knowledge of employees and supervisory observation of on the job behavior are commonly - used techniques for monitoring and helping to enhance job performance, once an applicant is hired.

# ERI<sup>®</sup> SCALES

| SCALE NAME | WORK BEHAVIOR SKILLS ASSESSED   |
|------------|---|
| <b>A</b>   | <p><b>Freedom From Disrupted Job Performance</b></p> <p>Assesses the likelihood that an applicant's work performance will be reliable, in that his/her performance will not be disrupted by behaviors such as inattentiveness, unauthorized absence/lateness, failing to follow through on assignments, or other inappropriate work behaviors.</p> <p>It is important to emphasize that this scale does not assess the extent of prior or current alcohol or illegal drug use. Similarly, it is not designed to reveal, nor should it be used for the purpose of revealing, the existence, nature, or severity of a disability.</p> |
| <b>C</b>   | <p><b>Courtesy</b></p> <p>Assesses the likelihood that an applicant's interactions with customers/guests will be characterized by a high level of courtesy and commitment to service.</p>   |
| <b>E</b>   | <p><b>Emotional Maturity</b></p> <p>Assesses the likelihood that an applicant's work performance will be characterized by mature behavior, and that it will not be disrupted due to the presence of maladaptive personality traits such as irresponsibility, poor judgement, difficulty in working cooperatively with others, poor frustration tolerance or poor impulse control.</p> <p>It is important to emphasize that this scale does not assess, nor should it be used to assess, for the presence of a mental or psychological impairment or disorder, or an applicant's general physical or psychological health.</p>       |
| <b>F</b>   | <p><b>Conscientiousness</b></p> <p>Assesses the likelihood that a candidate will perform on the job in a productive and conscientious manner and will not be fired.</p>   |
| <b>H</b>   | <p><b>Trustworthiness</b></p> <p>Assesses the likelihood that a candidate will perform in a trustworthy manner and will not engage in various forms of property deviant behavior.</p>   |
| <b>Q</b>   | <p><b>Long Term Job Commitment</b></p> <p>Assesses the likelihood that a candidate will make a long term commitment to the job and will not quit.</p>   |
| <b>S</b>   | <p><b>Safe Job Performance</b></p> <p>Assesses the likelihood that a candidate will perform on the job in a safe manner and will not have a significant on-the-job accident.</p>  |

2. ERI<sup>®</sup> documentation and materials should be used solely for pre-employment purposes. They should not be used to assess existing employees or for any other purpose.
3. In order for the ERI<sup>®</sup> to be effective as a pre-interview questionnaire, it is necessary to insure that you, your employees (or representatives), and job applicants, fully comply with all of the procedures and instructions contained in the ERI<sup>®</sup> documentation and materials, including, but not limited to those contained in this User's Manual.
 

ERI<sup>®</sup> documentation and materials should not be reproduced or copied, in whole or in part, except as necessary for use by you, as authorized in this Manual.

You and your authorized employees or representatives should not mark, alter or deface ERI<sup>®</sup> documentation and materials other than in accordance with the Procedures and Instructions contained in this Manual.
4. The ERI<sup>®</sup> should be used, administered and scored only by your authorized employees or representatives who have read and are thoroughly familiar with the procedures and instructions contained in this Manual, and in other ERI<sup>®</sup> documentation and materials.
5. Only ERI<sup>®</sup> scale scores should be used. Answers to the individual statements contained in the ERI<sup>®</sup> should never be used as part of the selection process.
6. At no time should ERI<sup>®</sup> results be discussed with applicants, regardless of the selection outcome. For reasons of security and confidentiality, ERI<sup>®</sup> results should never be discussed with unauthorized employees or representatives.
7. A job applicant's failure or refusal to completely follow the instructions given to him/her should not be the basis for making any inferences regarding that individual's future job performance.
8. You and your authorized employees or representatives should be aware that access to ERI<sup>®</sup> results which are part of an employee's personnel, medical or other records, may be governed by specific laws in your state. For this reason, only authorized individuals should have access to ERI<sup>®</sup> results.
9. BSPA has developed certain trade secrets, confidential and proprietary information in the development and use of the ERI<sup>®</sup> documentation and materials, including but not limited to, scoring and ERI<sup>®</sup> results, information procedures, systems, techniques, forms, methods and the like which are unique to BSPA and its business and are not of general public knowledge.

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<sup>8</sup> For your convenience, an additional copy of the appropriate User Authorization Form is contained in Appendix E of this *Manual*. Please make a copy of this, if needed.

All such ERI<sup>®</sup> documentation and materials furnished to users should be considered confidential. Because of the nature of BSPA's business and the nature of the ERI<sup>®</sup>, disclosure or dissemination of the ERI<sup>®</sup> documentation and materials could damage the effectiveness of the ERI<sup>®</sup> as a pre-employment questionnaire and/or compromise the competitive position of BSPA in the marketplace.

10. In making the ERI<sup>®</sup> available to users and their authorized employees or representatives, BSPA is granting the user a personal, nontransferable and non-exclusive license to use in the United States, North America and/or South America, without the right to sublicense, any or all ERI<sup>®</sup> documentation and materials, in whatever form recorded, which are furnished, including any revisions or updates to these materials.
11. It is expected that users and their authorized employees or representatives will use their best efforts to ensure that all ERI<sup>®</sup> documentation and materials are treated as confidential. This information must be maintained with the same level of care and discretion as that used for similar data which users designate as confidential. Users should instruct their authorized employees or representatives regarding the appropriate measures required to safeguard the confidentiality of this information.

12. BSPA reserves the right to revoke or cancel, without advance notice, a user's license to use the ERI<sup>®</sup> documentation and materials if the user or the user's employees or representatives fail to comply with all of the Procedures and Instructions contained in the ERI<sup>®</sup> documentation and materials, including, but not limited to those contained in the ERI<sup>®</sup> User's Manual, the ERI<sup>®</sup> Guide For Computer Scoring, as well as any subsequent revisions or updates, sent to you by BSPA.

### 3.2 LIMITATIONS TO THE USE OF THE ERI®

1. The ERI® was developed and validated to be used as a pre-employment assessment tool. It is to be used for the assessment of new job applicants. Under no circumstances should the ERI® be administered to current employees, or used for any purpose other than as an aid in the pre-employment selection process.
2. The ERI® is not designed to reveal, nor should it be used for the purpose of revealing, the existence, nature, or severity of a disability, as defined under the Canadian Human Rights Act.<sup>3</sup> The decision to hire or not hire a specific applicant should not be based solely on the applicant's ERI® scores. Hiring decisions should be based on a review of ALL information collected during the conduct of the total selection process
4. Laws regarding questionnaires such as the ERI® vary from province to province. Users are responsible for the monitoring of any such laws.

### 3.3 ERI® USER AUTHORIZATION

In order to maximize proper use, confidentiality, and security, Bay State Psychological Associates, Inc. (BSPA) requires that only properly trained and authorized individuals have access to ERI® documentation, materials, and results. Accordingly, please ensure that all individuals who will have access to ERI® documentation, materials, and results have read and have been fully trained to administer, score, interpret, and use the ERI® according to the Procedures and Instructions contained in all of the ERI® documentation and materials, including, but not limited to those contained in the ERI® User's Manual.

Computer Scoring, as well as any subsequent revisions or updates, sent to you by BSPA.

In order to document the above requirements, it is necessary that BSPA have a completed and signed User Authorization Form (Computer Scoring or Template Scoring version) on file for all companies using the ERI®. A copy of the appropriate version of this form is sent to you with your order. If for any reason you are unable to locate this form, please make a copy of the sample form included as Appendix E of this Manual, and use this copy to complete and send to BSPA.

### 3.4 ADMINISTRATION OF THE ERI®

THE ERI® CAN BE COMPLETED THROUGH YOUR CAREERID SITE.

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<sup>9</sup> See sample contained in Appendix A of this *Manual*. Users should make copies of this Scoresheet, as needed

PREPARING THE APPLICANT TO  
TAKE THE ERI®

1. Be sure that the ERI® is administered in a quiet and well-lit location, which is as free from distractions as possible. Please be sure that the administration of the ERI® is conducted in a professional manner and that, among other things, the applicant is encouraged to adopt a serious and thoughtful approach to answering all statements.

Research has shown that use of the ERI® does not result in discrimination on the basis of race, gender, or age (Please refer to Section 9 of this Manual for detailed information). Nonetheless, please be sure to assess each individual applicant to determine if cultural, ethnic, or language factors are likely to interfere with his/her ability to understand the ERI® instructions and statements. Needless to say, a failure to accurately understand the instructions and statements, due to cultural, ethnic, or educational causes, can significantly affect the accuracy and usefulness of the ERI®. In this regard, please note that in addition to English, the ERI® is available in Spanish and French translations.

2. In ALL cases, the applicant should be advised as to the purpose of the ERI®, BEFORE it is administered to him/her.

(E.G. "This questionnaire is being administered to you as one part of your application for employment with [Your Company's Name]. I would like you to carefully read and follow all of the directions.")

APPLICANT'S COMPLETION OF THE ERI®

If applicants have questions about answering a particular statement, instruct them to use the guidelines contained in the test instructions, as the basis for coming up with their answer. If an applicant states that he/she is unable to answer a particular statement because it does not apply to him/her (e.g., statement 60, because he/she never goes into bars), the applicant should be told to answer the statement as being "False".

You may not tell the applicant how to answer a statement. However, if the applicant does not understand the meaning of certain words or expressions, you may explain what the word or expression means.

***INSTRUCT APPLICANTS THAT ALL 81 STATEMENTS MUST BE ANSWERED AND THAT THEY SHOULD GIVE ONLY ONE ANSWER FOR EACH STATEMENT.***

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<sup>10</sup> Completion of information regarding age, sex, and race is voluntary and does not affect an applicant's questionnaire results in any way. Similarly, the process of scoring of the questionnaire does not adjust the scores, use different cutoff scores for, or otherwise alter the results on the basis of race, color, religion, sex, or national origin.

4. REPORTING AND INTERPRETING ERI<sup>®</sup> RESULTS

4.1 REPORTING ERI<sup>®</sup> RESULTS

For purposes of communicating ERI<sup>®</sup> results, scores are reported in terms of a system of four (4) arithmetically equal-sized zones (designated 1 through 4). Each of the four zones is further subdivided into two (2) arithmetically equal-sized zones (A and B). Results for each of the ERI<sup>®</sup> scales are reported as falling into one of the eight (8) zones, as shown in the diagram below.

1. The applicant’s score on each scale is shown as a horizontal line extending from left to right. Shorter lines indicate a higher likelihood of unreliable behavior. Longer lines indicate a higher likelihood of reliable behavior.
2. For each scale, different applicants can be compared, based on the “zone” into which their results fall. Results in Zone 1 indicate there is a higher likelihood the applicant will behave in a reliable manner. Results in Zone 4 indicate there is a higher likelihood the applicant will behave in an unreliable manner. Results in Zone 3A indicate there is a higher likelihood of reliable behavior than results in Zone 3B.

|        |   |             |   |        |   |         |   |
|--------|---|-------------|---|--------|---|---------|---|
| LOWEST |   | RELIABILITY |   |        |   | HIGHEST |   |
| ZONE 4 |   | ZONE 3      |   | ZONE 2 |   | ZONE 1  |   |
| B      | A | B           | A | B      | A | B       | A |

Appendices C and D of this Manual contains samples of how this system of zones appears on the written report of results which is sent to Template Scoring users, at the end of each day. A similar, but less graphically elaborate representation of the eight zones appears on your computer screen, each time you score an ERI<sup>®</sup> using the in-house computer scoring option.

4.2 SOME INTERPRETIVE GUIDELINES

PLEASE NOTE: Because of the variability inherent in any type of scores, small differences in ERI<sup>®</sup> results should never be used as the basis for making decisions about applicants or for comparing applicants.

As you read the following guides for interpreting applicant’s ERI<sup>®</sup> results, please make reference to either Appendix C or D at the back of the Manual.

You can also use this system of zones to get an approximate idea of how “low” or “high” the applicant’s score is on each scale, relative to the range of possible scores that can be obtained on that scale.

1. The table on the back side of these forms can also be used to help you approximate where an applicant’s results fit, relative to scores obtained by other job applicants. A copy of this table is also shown on page 15.

The table shows the approximate percentage of job applicants who fall into each zone. The table also shows the cumulative percentage of job applicants who fall into that zone plus the zones to the left of that zone.

The table is based on a group of over 60,000 job applicants who completed the ERI<sup>®</sup> as part of their pre-employment processing. This normative group of job applicants is drawn from all

regions of the country, represents all 10 Standard Industrial Classification (SIC) Code Divisions, 54 Major SIC Groups, and a wide range of job categories. In looking at this table, one can see that applicants' results are distributed continuously along each of the behavioral - psychological dimensions measured by the ERI<sup>®</sup>.

**Eight Zone Frequency Distributions For The Seven ERI<sup>®</sup> Scales  
By Percent and Cumulative Percent  
Based on a General Group of Job Applicants (N=60670)**

| <b>Likelihood of Unreliable Behavior</b> |  |                    |                |                |                |                |                |                |              |
|--|--|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|
|  |  | <b>RELIABILITY</b> |                |                |                |                |                |                |              |
|  |  | <b>LOWEST</b>      |                |                |                | <b>HIGHEST</b> |                |                |              |
|  |  | <b>ZONE 4</b>      |                | <b>ZONE 3</b>  |                | <b>ZONE 2</b>  |                | <b>ZONE 1</b>  |              |
| <b>SCALE</b>                             |  | <b>B</b>           | <b>A</b>       | <b>B</b>       | <b>A</b>       | <b>B</b>       | <b>A</b>       | <b>B</b>       | <b>A</b>     |
| <b>A</b>                                 |  | (2.3)<br>100.0     | (4.2)<br>97.8  | (11.9)<br>93.6 | (20.1)<br>81.7 | (24.5)<br>61.6 | (19.9)<br>37.1 | (13.0)<br>17.2 | (4.2)<br>4.2 |
| <b>C</b>                                 |  | (2.5)<br>100.0     | (12.5)<br>97.5 | (4.9)<br>85.0  | (14.3)<br>80.1 | (20.2)<br>65.8 | (28.6)<br>45.6 | (12.2)<br>17.0 | (4.8)<br>4.8 |
| <b>E</b>                                 |  | (4.9)<br>100.0     | (3.6)<br>95.0  | (4.9)<br>91.4  | (8.9)<br>86.5  | (22.3)<br>77.6 | (34.1)<br>55.3 | (16.4)<br>21.2 | (4.8)<br>4.8 |
| <b>F</b>                                 |  | (7.0)<br>100.0     | (1.1)<br>93.0  | (1.7)<br>91.9  | (2.8)<br>90.2  | (18.7)<br>87.4 | (36.1)<br>68.7 | (23.8)<br>32.6 | (8.8)<br>8.8 |
| <b>H</b>                                 |  | (1.9)<br>100.0     | (1.6)<br>98.2  | (3.1)<br>96.6  | (7.5)<br>93.5  | (18.8)<br>86.0 | (32.8)<br>67.2 | (25.8)<br>34.4 | (8.6)<br>8.6 |
| <b>Q</b>                                 |  | (13.1)<br>100.0    | (1.4)<br>86.9  | (1.4)<br>85.4  | (1.7)<br>84.0  | (18.1)<br>82.3 | (36.5)<br>64.2 | (20.9)<br>27.7 | (6.8)<br>6.8 |
| <b>S</b>                                 |  | (6.0)<br>100.0     | (4.8)<br>94.0  | (11.5)<br>89.2 | (7.1)<br>77.7  | (25.1)<br>70.6 | (24.0)<br>45.5 | (14.4)<br>21.5 | (7.1)<br>7.1 |

**NOTES:**

The upper number in parentheses represents the percentage of job applicants in the normative sample who fall into that particular zone.

The lower number with no parentheses represents the percentage of job applicants in the normative sample who fall into that zone, plus the zones to the left of that zone - i.e., they represent the *cumulative* percentage.

For example on the **F** scale 2.8% of job applicants in the normative sample fall into zone 3A, and 90.2% of job applicants in the normative sample fall into zone 3A or one of the lower zones (i.e., zones 1A, 1B, 2A, and 2B). Put slightly differently, 90.2% of job applicants in the normative sample get a score in zone 3A or a better score. Only 9.8% (100.0% - 90.2%) get a poorer score.



The table shown below, like the one on the previous page, shows the distribution of scores on each of the seven ERI<sup>®</sup> scales, for the same sample of over 60,000 job applicants. In

contrast to the previous table, however, here the cells indicate the approximate *percentile* distributions for each of the seven ERI<sup>®</sup> scales.

**Eight Zone Frequency Distributions For The Seven ERI<sup>®</sup> Scales  
By Approximate Percentile  
Based on a General Group of Job Applicants (N = 60670)**

| Likelihood of Unreliable Behavior |  |             |     |        |     |        |     |        |         |
|-----------------------------------|--|-------------|-----|--------|-----|--------|-----|--------|---------|
|                                   |  | RELIABILITY |     |        |     |        |     | LOWEST | HIGHEST |
|                                   |  | ZONE 4      |     | ZONE 3 |     | ZONE 2 |     | ZONE 1 |         |
| SCALE                             |  | B           | A   | B      | A   | B      | A   | B      | A       |
| A                                 |  | 0%          | 2%  | 6%     | 18% | 38%    | 63% | 83%    | 96%     |
| C                                 |  | 0%          | 2%  | 15%    | 20% | 34%    | 54% | 2%     | 95%     |
| E                                 |  | 7%          | 5%  | 8%     | 13% | 22%    | 45% | 79%    | 95%     |
| F                                 |  | 0%          | 7%  | 8%     | 10% | 13%    | 31% | 67%    | 91%     |
| H                                 |  | 0%          | 2%  | 3%     | 7%  | 14%    | 33% | 66%    | 91%     |
| Q                                 |  | 0%          | 13% | 14%    | 16% | 18%    | 36% | 72%    | 93%     |
| S                                 |  | 0%          | 6%  | 11%    | 22% | 29%    | 54% | 78%    | 93%     |

**NOTES:**

The number in each cell represents the approximate percentage of job applicants in the normative sample who obtained scores on that scale which were "**poorer**" than the job applicant's.

As an illustration of how to use this table, please note that in the normative sample, the number **10** appears in zone 3A for the **F** scale. This indicates that scores in this zone are at approximately the 10th percentile (i.e., approximately 10% of the job applicants in the normative sample obtained scores on the **F** scale that were "**poorer**" than zone 3A, or put slightly differently, approximately 10% of the normative sample obtained **F** scale scores in zones 3B, 4A, or 4B).

## 5. MAKING USE OF ERI<sup>®</sup> RESULTS

### 5.1 SOME IMPORTANT PRINCIPLES OF ERI<sup>®</sup> USE

When making use of an applicant's ERI<sup>®</sup> results, please remember that the ERI<sup>®</sup> is a pre-employment questionnaire which is designed to help employers systematically identify reliable and productive individuals prior to making a hiring decision. The questionnaire assesses factors related to job performance which can then be explored further during interviews and reference verification. Please adhere to each of the following principles when using the ERI<sup>®</sup>.

1. In order to make effective and accurate use of an applicant's ERI<sup>®</sup> results, it is necessary that you be thoroughly familiar with what each ERI<sup>®</sup> scale assesses, the limitations to the use of the ERI<sup>®</sup>, and the manner in which the ERI<sup>®</sup> was validated. These are covered in Sections 2 through 9 of this Manual.
2. The ERI<sup>®</sup> was developed and validated as a pre-employment assessment tool. For that reason, it is to be used only for the assessment of new job applicants. Under no circumstances should the ERI<sup>®</sup> be administered to current employees or individuals other than actual job applicants, nor should it be used for any purpose other than as an aid in the pre-employment selection process.

3. The seven ERI<sup>®</sup> scales estimate the likelihood that an applicant, if hired, would perform on the job in a reliable and productive manner. However, you should be aware that subsequent changes in a person's life and work environment (both positive and negative) can affect his/her performance on the job. Supervisory knowledge of employees and supervisory observation of on the job behavior are commonly used techniques for monitoring and helping to enhance job performance, once an applicant is hired.
4. Because it is a pre-employment questionnaire, it is recommended that the ERI<sup>®</sup> be administered to job applicants immediately after they have completed the application for employment and before they are interviewed or references are verified. When utilized in this manner, the ERI<sup>®</sup> can serve as an objective method for assessing issues related to job performance, which can then be explored further during interviews and reference verification.

5. Under no circumstances should the decision to hire or not hire an applicant be based solely on his/her ERI<sup>®</sup> results. Hiring decisions should be based on a review of *ALL* information collected by you during the applicant evaluation process.

## 5.2 AN IMPORTANT NOTE REGARDING SMALL DIFFERENCES IN RESULTS

Because of the variability inherent in any type of scores, small differences in ERI<sup>®</sup> results should never be used as the basis for making decisions about applicants or for comparing applicants.

## 5.3 REVIEWING RESULTS FOR POSSIBLE PROBLEMS

The failure of an applicant to carefully read and understand each of the 81 statements can significantly affect the accuracy and usefulness of the ERI<sup>®</sup>. Invalid results may be produced under two different sets of circumstances.

1. Although statements are worded at a sixth grade reading level, cultural, ethnic, language, or educational factors could theoretically contribute to reading comprehension difficulties for some applicants. In spite of having assessed each individual applicant to determine his/her ability to understand the ERI<sup>®</sup> instructions and statements (as noted in Section 3.4.2), it is possible that an applicant may have encountered reading comprehension difficulties, without the administrator being aware of this fact. Under such circumstances the applicant has had to *guess* when answering those statements which he/she did not understand.

2. An applicant who is able to read and understand the ERI<sup>®</sup> statements may nonetheless, choose to not read the statements carefully, or to not read the statements at all, before answering. Under these circumstances, as well, the applicant has functionally *guessed* when answering the statements.

Under either of these circumstances, it is highly likely that the applicant's results will have a characteristic form to them. Typically, there will be **two or more scales which have scores in Zone 4**. Routinely examining each applicant's results for this pattern will provide you with an additional check as to the validity of the results.<sup>13</sup>

If you discover that an applicant's results have two or more scores in zone 4, it is necessary to speak with the applicant, in order to determine the specific cause of these scores.

If, upon inquiry, the applicant acknowledges a difficulty in reading comprehension, you should review the questionnaire with the applicant, in order to determine the specific statements where this difficulty was encountered. As noted earlier, you may not tell the applicant how to answer a statement, however, if the applicant does not understand the meaning of certain words or expressions, you may explain what the word or expression means.

If the applicant states that he/she was able to understand all of the 81 statements, then you should urge the applicant to review his/her answers, to insure that each response is based on a careful reading and consideration of the statement.

Once this has been done, the ERI<sup>®</sup> should then be rescored. Our experience has been that most

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<sup>13</sup> In most samples of job applicants greater than 500, when the proper administration and scoring procedures are followed, the proportion of scores with this pattern typically falls between 12% and 15%.

of the time, the above-described approach resolves the matter. **However, if there are still two or more scores in Zone 4, then caution should be used when interpreting the results, unless there is corroborating information from other sources to support the hypothesis that the applicant is virtually certain to perform on the job in an unreliable manner, if hired.**

**5.4 “FAKING GOOD” AND ERI® RESULTS**

So-called “faking good” or response distortion is an issue of relevance to the use of psychological assessment techniques in pre-employment settings. In contrast to some pre-employment

instruments, the ERI® does not use a response distortion scale or “faking” scale. For this reason it is of interest to examine whether results on any of the seven scales are significantly affected by an applicant’s attempts to “fake good”.

This issue has been examined in some detail.<sup>14</sup> In brief, correlation coefficients were computed between each of the seven ERI® scales and three putative measures of response distortion - the 16PF *Motivational Distortion* scale (N=420), and the MMPI *Lie*, and *K* scales (N=194). The results are shown in the following table. As can be seen, these data strongly support the conclusion that all seven ERI® scales are free from the potentially confounding effects of response distortion.

| <b>ERI®<br/>SCALE</b> |                           |                     |                   |
|-----------------------|---------------------------|---------------------|-------------------|
| <b>A</b>              | -05                       | -01                 | .10               |
| <b>C</b>              | -01                       | -03                 | .11               |
| <b>E</b>              | -09                       | -09                 | -.29              |
| <b>F</b>              | .05                       | .04                 | -.03              |
| <b>H</b>              | .01                       | .04                 | .04               |
| <b>Q</b>              | -05                       | .01                 | .15               |
| <b>S</b>              | .06                       | .00                 | .15               |
|                       | <b>16PF<br/>FAKE GOOD</b> | <b>MMPI<br/>LIE</b> | <b>MMPI<br/>K</b> |

<sup>14</sup> Borofsky, G. L. (1992) Assessing the likelihood of reliable workplace behavior: Further contributions to the validation of the Employee Reliability Inventory. *Psychological Reports*, 70, 563-592.

## 5.5 USING THE ERI<sup>®</sup> AS A PRE-INTERVIEW QUESTIONNAIRE

As noted earlier, use of the ERI<sup>®</sup> is an objective method for identifying issues related to job performance which may require further exploration during interviews and reference verification. Use of the ERI<sup>®</sup> can help you to make the most effective use of your time during interviews and reference verification by helping you to selectively focus your questions in those specific areas of reliable and productive behavior which are important in the particular job setting for which the applicant is being considered. Coordinated use of the ERI<sup>®</sup> with focused inquiries during interviews and reference verification, should greatly increase the likelihood of your identifying reliable and productive individuals prior to making a hiring decision.

If an applicant's score on one or more of the ERI<sup>®</sup> scales suggests a possible problem area, the applicant can be questioned in greater detail than usual about their past record of on-the-job performance, in the specific area(s) of behavior where a question has been raised by the ERI<sup>®</sup> results. In similar fashion, questions asked of past employers can focus in greater detail than usual on the applicant's job performance in the specific area(s) of behavior where a question has been raised by the results.

### 5.5.1 SOME GENERAL GUIDELINES FOR ASKING FOLLOW-UP QUESTIONS

It should be understood that the sample questions being referred to are only intended as examples of the types of questions that could be asked. You should ensure that the particular wording you choose for your questions does not violate any applicable statutory or regulatory restrictions, including the provisions of the Americans With Disabilities Act (ADA).

In asking follow-up questions you also should keep the following guidelines in mind:

- Questions should not be accusatory.
- Questions should be limited to content areas which are relevant and necessary for the performance of the specific job for which the applicant is applying.
- There should be a direct relationship between the information being sought and the specific requirements of the job for which the applicant is applying. For example, you should not ask questions dealing with religious beliefs, or affiliations, racial matters, sexual behavior, political beliefs and affiliations, or beliefs or opinions regarding unions or labor organizations.
- Questions should be non-discriminatory and should not be used to disclose a disability, its nature, or its extent.

This issue is given greater coverage in the Technical Bulletin, Use of the Employee Reliability Inventory (ERI<sup>®</sup>) as a Pre-Interview Questionnaire, and in the Manual which accompanies the ERI<sup>®</sup> Americans With Disabilities (ADA) Kit.

## 5.6 TECHNICAL SUPPORT

If you have questions about any aspect of ERI administration, scoring, interpretation, use, or if you would like to discuss the interpretation of a specific applicant's ERI<sup>®</sup> results, with a member of our staff, please call ERI<sup>®</sup> Technical Support at the numbers listed below.

### **PSYCHOMETRICS CANADA 1-800-661-5158**

## 6. CONSTRUCTION AND VALIDATION OF THE ERI<sup>®</sup>

### 6.1 ORIGINAL CONSTRUCTION OF THE ERI<sup>®</sup>

The ERI<sup>®</sup> was constructed using a criterion-based methodology for attempting to predict the likelihood of the target behaviors, rather than attempting to predict them indirectly, through the assessment of personality traits, values, beliefs, tendencies or attitudes.

The first step in the criterion-based method is the identification of groups of individuals who have actually exhibited the criterion or target behaviors that are to be assessed. The Uniform Guidelines on Employee Selection Procedures<sup>15</sup> (Section 14b(3)) indicate that the specific criterion behaviors being assessed should represent "important or critical work behavior(s) or work outcomes." Several of the specific examples contained in the Uniform Guidelines represent common forms of unreliable/unproductive behavior.

In the case of the initial version of the ERI<sup>®</sup>, the relevant criterion behaviors were determined to be:

1. Impaired on-the-job performance as a consequence of the person's pattern of alcohol or illegal drug use.
2. Having been found guilty of a theft offense.
3. Absence of a history of unreliable and unproductive behavior - that is, no history of impaired on-the-job performance as a consequence of the person's pattern of alcohol or illegal drug use, and no history of having been found guilty of theft offenses.

The next step was the writing of an initial pool of over 500 "True - False" type statements which, it was believed, would be likely to differentiate reliable and productive individuals from those who were unreliable and unproductive.

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<sup>15</sup> Bureau of National Affairs, Inc., *Uniform Guidelines on Employee Selection Procedures*. (Washington, D.C.: BNA Education Systems, 1979), pp.34

This initial form of the ERI<sup>®</sup> was administered to individuals in each of the three criterion groups described above. Using Discriminant Function Analysis, with the stepwise minimization of residuals method, contained in *Statistical Package For The Social Sciences* (SPSS<sup>X</sup>),<sup>16</sup> answers were analyzed to determine which of the over 500 statements were most effective in differentiating subjects whose behavior was reliable and productive from those whose behavior was unproductive or unreliable. By this procedure, the number of items in the ERI<sup>®</sup> was reduced to 81.

## 6.2 ORIGINAL VALIDATION OF THE ERI<sup>®</sup>

The *Uniform Guidelines on Employee Selection Procedures* and accepted scientific standards<sup>17</sup> require that questionnaires such as the ERI<sup>®</sup> demonstrate what is known as *validity*. That is, there must be scientifically sound evidence that the questionnaire actually measures what it claims to measure. Approaches to validation typically fall into one of three categories: 1) Construct-Related Validity; 2) Content-Related Validity; and 3) Criterion-Related Validity.

### 6.2.1 CONSTRUCT-RELATED VALIDITY AND THE ERI<sup>®</sup>

**Construct-Related Validity** refers primarily to the assessment of a particular concept or construct. Examples of psychological constructs are: need for achievement, affiliative drive, self esteem, locus of control, and time urgency. As noted earlier, the ERI<sup>®</sup> does not use the measurement of such constructs in assessing job applicants. The ERI<sup>®</sup> directly assesses the likelihood of specific behaviors, rather than indirectly inferring their likelihood from the assessment of psychological con-

structs. For this reason, the construct-related approach to validation was not considered to be a preferred method for validating the ERI<sup>®</sup>.

It should be noted however, that factor analysis of each of the seven (7) ERI<sup>®</sup> scales reveals the presence of an underlying structure to each scale.<sup>18</sup> For each scale, this underlying structure is discernible in the form of psychological constructs.

### 6.2.2 CONTENT-RELATED VALIDITY AND THE ERI<sup>®</sup>

**Content-related Validity** refers to the degree to which the content of the individual items in a questionnaire or test are representative of what the questionnaire is purporting to assess. In the case of the ERI<sup>®</sup>, the issue is whether the content of the individual items in the ERI<sup>®</sup> is representative of, or related to, the prediction of reliable and productive behavior. Content-related validity is usually most relevant during the initial development of a test or questionnaire.

Typically, judgments of content-related validity are made on the basis of expert judgments as to what is the appropriate content for predicting the specific behavior being assessed. During the initial development of the ERI<sup>®</sup>, an initial pool of over 500 statements was created, which, it was believed, were related to the specific aspects of reliable and productive behavior that were being studied.

### 6.2.3 CRITERION-RELATED VALIDITY AND THE ERI<sup>®</sup>

**Criterion-related Validity** refers to the degree to which a questionnaire or test is able to accurately assess individuals with respect to a specific *criterion* behavior such as reliable or productive behavior. More specifically, the ERI<sup>®</sup> could be said to have demonstrated

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<sup>16</sup> SPSS. (Norman H. Nie, ed.) *SPSS<sup>®</sup> User's Guide*. Chicago: 1983

<sup>17</sup> American Psychological Association, *Standards For Educational And Psychological Testing*, (Washington, D.C.: Author, 1985).

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<sup>18</sup> Borofsky, G. L. (1992) A preliminary investigation into the structure of reliable and productive workplace behavior: Factor analysis of the Employee Reliability Inventory. Boston, MA: Bay State Psychological Associates.

criterion-related validity if it could be shown to be empirically accurate in differentiating reliable and productive individuals from those who are not.

The most common method of demonstrating criterion-related validity is through the use of a variety of comparison or criterion groups, each of which manifests one or more of the specific behaviors of interest.

The initial step in the validation of the ERI<sup>®</sup> was to determine whether or not it was technically feasible (as defined in Section 16U of the *Uniform Guidelines*) to conduct criterion-related validity studies. This was done following the procedures contained in Section 14b(1) of the *Uniform Guidelines*. Using these procedures, it was determined that it was, in fact, technically feasible to utilize the criterion-related method for studying the validity of the ERI<sup>®</sup>.

The results of a number of criterion-related validation and cross-validation studies are reported here, and in Section 7, below.

### **6.3 R SCALE**

The original form of the ERI<sup>®</sup> contained one scale, which was designated as the **R** scale. The **R** scale was intended to provide an overall measure of the likelihood that an applicant would perform on-the-job in a reliable and productive manner.

#### **6.3.1 CRITERION GROUPS**

Three criterion groups were used in the development, validation and cross-validation of the **R** Scale. These were:

1. Individuals who had been unable to perform effectively on the job as a consequence of their pattern of alcohol or illegal drug use, and who required treatment for this condition.

This criterion group of subjects was administered the ERI<sup>®</sup> at the outset of their admission to a private hospital. All subjects in this group were patients on one of the alcohol/substance treatment units. These individuals had been hospitalized as a result of their being unable to perform effectively on the job, as a consequence of their pattern of alcohol or illegal drug use.

2. Individuals found guilty of theft offenses.

This criterion group of subjects was administered the ERI<sup>®</sup> at a Municipal Court. The procedure was to administer the ERI<sup>®</sup> immediately after there was a finding of guilt made by the presiding judge.

3. Individuals with no history of disrupted productivity as a consequence of their pattern of alcohol or illegal drug use, and no history of having been found guilty of theft offenses.

For the construction and validation of the **R** Scale, the subjects in this criterion group were administered the questionnaire at a variety of locations. In all cases the absence of a history of production deviant behavior as a consequence of their pattern of alcohol or illegal drug use and the absence of a history of theft offense convictions was confirmed by the subjects' answers to a questionnaire designed to evaluate these factors.

For the cross-validation study reported below, the subjects in this criterion



group were administered the ERI<sup>®</sup> as one part of the pre-employment selection process used by a restaurant chain. In all cases, the absence of a history of production deviant behavior was confirmed by the subjects' answers to questions during the conduct of the company's regular application interview. In addition, the subjects in this group had been rated by their respective restaurant managers as being among the top 50% of the restaurant's employees, in terms of their actual performance on the job.

### 6.3.2 VALIDATION

Individuals in criterion groups (1) and (2) above, were pooled together and operationally defined as unreliable, while individuals in criterion group (3) above, were operationally defined as being reliable.

Sample sizes for this validation study were as follows:

|                      |         |
|----------------------|---------|
| Total Sample Size:   | N = 117 |
| Reliable Subjects:   | N = 38  |
| Unreliable Subjects: | N = 79  |

Discriminant Function Analysis, with the stepwise minimization of residuals method contained in *SPSS*<sup>X</sup>, was utilized in this analysis.

For the discriminant function derived in this study, the canonical correlation coefficient was 0.9677, the Wilks' Lambda value was 0.0636, and the Chi Square value was 181.845, with 38 degrees of freedom. This is statistically significant at the  $p < 0.00001$  level of significance.

That is, this result has a probability of less than one in one hundred thousand of having oc-

curred by chance. This far exceeds the level of statistical significance (one in twenty) recommended in Section 14B(5) of the *Uniform Guidelines*.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **R** scale scores, the ERI<sup>®</sup> correctly classified group membership in 94% of the cases.

This result indicates that the **R** scale was effective in differentiating reliable and productive individuals from those who are unreliable.

### 6.3.3 CROSS-VALIDATION

To ascertain whether or not there is an "overstatement" of a procedure's validity, Section 14B(7) of the *Uniform Guidelines* recommends the use of a cross-validation methodology.

Cross-validation involves conducting a second study using *different* individuals. The purpose is to determine if the discriminant function derived in the validation study continues to differentiate the criterion groups from each other, when new groups of subjects are assessed.

For the cross-validation of the **R** scale, the subjects in each criterion group were selected in the manner described earlier. The specific subjects in this study, however, were different individuals from those participating in the original validation study.

Sample sizes for the cross-validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 77 |
| Reliable Subjects:   | N = 38 |
| Unreliable Subjects: | N = 39 |

In conformance with standard approaches to cross-validation, the discriminant function weights derived during the original validation of the **R** scale were used to score each ERI<sup>®</sup> in this study.

Where the group membership of each individual (reliable or unreliable) was “blindly” classified, based on the individuals’ **R** scale scores, the ERI<sup>®</sup> correctly classified group membership in 90% of the cases.

This result indicates that even when the **R** scale was subjected to cross-validation, it was found to be effective in differentiating reliable individuals from those who are unreliable.

## **7. SUBSEQUENT DEVELOPMENT OF THE ERI<sup>®</sup>**

As noted above, the original **R** scale was developed and validated as an *overall* measure of the likelihood that an applicant would perform on-the-job in a reliable and productive manner. Over time, however, increased understanding of the various specific *causes* of unreliable and unproductive behavior, as well as an increased understanding of the multifactorial nature of workplace behavior, led to the conclusion that in order to be most useful to employers, the ERI<sup>®</sup> should be capable of performing a comprehensive (i.e., multifactorial) assessment of job applicants.

In order to accomplish this goal, BSPA initiated an ongoing program of research. To date, the results of this research have yielded the seven (7) scales currently contained in the ERI<sup>®</sup>. These are the **A, C, E, F, H, Q** and **S**<sup>19</sup> scales described earlier in this Manual.

### **7.1 A SCALE: CONSTRUCTION AND VALIDATION**

The **A** scale was designed to assess the likelihood that an applicant’s work performance will

be reliable, in that his/her performance will not be disrupted by behaviors such as inattentiveness, unauthorized absence/lateness, failing to follow through on assignments, or other inappropriate work behaviors. It is not designed to assess the extent of prior or current alcohol or illegal drug use. Similarly, it is not designed to reveal, nor should it be used for the purpose of revealing, the existence, nature, or severity of a disability.

#### **7.1.1 CRITERION GROUPS**

For both the validation and cross-validation of the **A** scale, the following criterion groups were used:

1. Individuals who had been unable to perform effectively on the job as a consequence of their pattern of alcohol or illegal drug use, and who required treatment for this condition.

This criterion group of subjects was administered the ERI<sup>®</sup> at the outset of their admission to a private hospital. All subjects in this group were patients on one of the alcohol/substance treatment units. These individuals had been hospitalized as a result of their being unable to perform effectively on the job, as a consequence of their pattern of alcohol or illegal drug use.

2. Individuals with no history of production deviant behavior as a consequence of their pattern of alcohol or illegal drug use.

Each member of this criterion group was a job applicant who possessed a current security clearance, enabling him/her to have access to information classified Top

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<sup>19</sup> In the current version, the R scale is no longer used.

Secret. In order to gain this level of security clearance, each individual was subjected to, and successfully passed, a full field background investigation which included, among other things, investigation of prior patterns of unreliable / unproductive behavior. The ERI<sup>®</sup> was administered as part of the pre-employment processing of each individual.

### 7.1.2 VALIDATION

Individuals in criterion group (1) above, were operationally defined as being unreliable, while individuals in criterion group (2) above, were operationally defined as being reliable.

Sample sizes for this validation study were as follows:

|                      |         |
|----------------------|---------|
| Total Sample Size:   | N = 111 |
| Unreliable Subjects: | N = 53  |
| Reliable Subjects:   | N = 58  |

Discriminant Function Analysis, with the stepwise minimization of residuals method contained in *SPSS*<sup>X</sup>, was utilized in this analysis.

For the discriminant function derived in this study, the canonical correlation coefficient was 0.9397, the Wilks' Lambda value was 0.1170, and the Chi Square value was 189.851, with 27 degrees of freedom. This is statistically significant at the  $p < 0.00001$  level of significance. That is, this result has a probability of less than one in one hundred thousand of having occurred by chance. This far exceeds the level of statistical significance (one in twenty) recommended in Section 14B(5) of the *Uniform Guidelines*.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **A** scale scores, the ERI<sup>®</sup> correctly classified group membership in 99% of the cases.

This result indicates that the **A** scale was effective in differentiating reliable and productive individuals from those whose on-the job performance was impaired as a consequence of their pattern of alcohol or illegal drug use.

### 7.1.3 CROSS-VALIDATION

For the cross-validation of the **A** scale, the subjects in each criterion group were selected in the manner described earlier. The specific subjects in this study, however, were different individuals from those participating in the original validation study of the **A** Scale.

Sample sizes for the cross-validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 44 |
| Unreliable Subjects: | N = 29 |
| Reliable Subjects:   | N = 15 |

In conformance with standard approaches to cross-validation, the discriminant function weights derived during the original validation of the **A** scale were used to score each ERI<sup>®</sup> in this study.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **A** scale scores, the ERI<sup>®</sup> correctly classified group membership in 84% of the cases.

This result indicates that even when the **A** scale was subjected to cross-validation, it was found to be effective in differentiating reliable and productive individuals from those whose on-the

job performance was impaired as a consequence of their pattern of alcohol or illegal drug use.

## 7.2 C SCALE: CONSTRUCTION AND VALIDATION

The **C** scale was designed to assess applicants with respect to the likelihood that their interactions with customers/guests will be characterized by a high level of courtesy and commitment to service.

### 7.2.1 CRITERION GROUPS

“Front of the house” employees (i.e., employees having direct face to face contact with guests as part of their duties) in 32 different departments of an East Coast resort hotel were used to construct two criterion groups. Prior to being hired, individuals in each criterion group had been administered the ERI<sup>®</sup> as part of the pre-employment selection process.

Each individual was rated by his/her supervisor as to how courteous he/she was when interacting with guests. The eight point definition of courteous behavior, shown below, was used for this purpose.

- Demonstrates courtesy, constant politeness and a positive attitude toward guests
- Presents a genuinely friendly outgoing manner
- Initiates communication with guests through greetings and cordial conversation
- Remains courteous even during difficult confrontations with guests
- Demonstrates an awareness of in-house activities and knows the physical location of public areas
- Provides service throughout the entire interaction with a guest

- Smiles
- Consistently makes eye contact as part of their communication skills

For both the validation and cross-validation of the **C** scale, the following criterion groups were used:

1. Individuals who were rated as being the **best** in each Department, in terms of meeting the above definition of courteous behavior.
2. Individuals who were rated as being the **poorest** in each Department, in terms of meeting the above definition of courteous behavior.

### 7.2.2 VALIDATION

Individuals in criterion group (1) above, were operationally defined as being *more* courteous in their behavior, while individuals in criterion group (2) above, were operationally defined as being *less* courteous.

Sample sizes for the validation study were as follows:

|                          |         |
|--------------------------|---------|
| Total Sample Size:       | N = 112 |
| More Courteous Subjects: | N = 81  |
| Less Courteous Subjects: | N = 31  |

Discriminant Function Analysis, with the stepwise minimization of residuals method contained in *SPSS<sup>x</sup>*, was utilized in this analysis.

For the discriminant function derived in this study, the canonical correlation coefficient was 0.8928 the Wilks' Lambda value was 0.2030, and the Chi Square value was 147.50, with 35 degrees of freedom. This is statistically significant at the  $p < .00001$  level of significance. That is, this result has a probability of less

than one in one hundred thousand of having occurred by chance. This far exceeds the level of statistical significance (one in twenty) recommended in Section 14B(5) of the *Uniform Guidelines*.

Where the group membership of each individual (more courteous or less courteous) was “blindly” classified, based on the individuals’ **C** scale scores, the ERI<sup>®</sup> correctly classified group membership in 98% of the cases.

This result indicates that the **C** scale was effective in differentiating individuals who performed on the job in a courteous manner, from those who did not.

### 7.2.3 CROSS-VALIDATION

For the cross-validation of the **C** scale, the subjects in each criterion group were selected in the manner described earlier. The specific subjects in this study, however, were different individuals from those participating in the original validation study of the **C** Scale.

Sample sizes for the cross-validation study were as follows:

Total Sample Size: N = 16  
More Courteous Subjects: N = 14  
Less Courteous Subjects: N = 2

In conformance with standard approaches to cross-validation, the discriminant function weights derived during the original validation of the **C** scale were used to score each ERI<sup>®</sup> in this study.

Where the group membership of each individual (more courteous or less courteous) was “blindly” classified, based on the individuals’ **C** scale scores, the ERI<sup>®</sup> correctly classified group membership in 75% of the cases.

This result indicates that even when the **C** scale

was subjected to cross-validation, it was found to be effective in differentiating individuals who performed on the job in a courteous manner, from those who did not.

## 7.3 E SCALE: CONSTRUCTION AND VALIDATION

The **E** scale was designed to assess the likelihood that an applicant’s work performance will be characterized by emotionally mature behavior, and that it will not be disrupted by the presence of maladaptive personality characteristics or traits such as irresponsibility, poor judgment, difficulty in working cooperatively with others, or poor impulse control.

It is important to emphasize that this scale is not intended to assess, nor does it in fact assess, for the presence of mental or psychological impairment or disorder, or an applicant’s general physical or psychological health.<sup>20</sup>

### 7.3.1 CRITERION GROUPS

For both the validation and cross-validation of the **E** scale, the following criterion groups were used:

1. Individuals who had been unable to perform effectively on the job and in their personal lives due to the presence of maladaptive personality traits.

This criterion group of subjects was administered the ERI<sup>®</sup> at the outset of their admission to a private hospital. The admission note for each person was reviewed, to insure that no individual with an Axis I disorder would be included in the group.

2. Individuals with no history of unreliable/unproductive behavior due to the

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<sup>20</sup> Borofsky, G. L. (1992) Assessing the likelihood of reliable workplace behavior: Further contributions to the validation of the Employee Reliability Inventory. *Psychological Reports*, 70, 563-592.

presence of maladaptive personality traits.

Each member of this criterion group was a job applicant who possessed a current security clearance, enabling him/her to have access to information classified Top Secret. In order to gain this level of security clearance, each individual was subjected to, and successfully passed, a full field background investigation, which included, among other things, investigation of prior patterns of unreliable/unproductive behavior. The ERI<sup>®</sup> was administered as part of the pre-employment processing of each individual.

### 7.3.2 VALIDATION

Individuals in criterion group (1) above, were operationally defined as being unreliable, while individuals in criterion group (2) above, were operationally defined as being reliable.

Sample sizes for this validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 91 |
| Unreliable Subjects: | N = 35 |
| Reliable Subjects:   | N = 56 |

Discriminant Function Analysis, with the stepwise minimization of residuals method contained in *SPSS*<sup>x</sup>, was utilized in this analysis.

For the discriminant function derived in this study, the canonical correlation coefficient was 0.9368, the Wilks' Lambda value was 0.1224, and the Chi Square value was 144.954, with 22 degrees of freedom. This is statistically

significant at the  $p < 0.00001$  level of significance. That is, this result has a probability of less than one in one hundred thousand of having occurred by chance. This far exceeds the level of statistical significance (one in twenty) recommended in Section 14B(5) of the *Uniform Guidelines*.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **E** scale scores, the ERI<sup>®</sup> correctly classified group membership in 92% of the cases.

This result indicates that the **E** scale was effective in differentiating reliable and productive individuals from those who were unable to perform effectively due to the presence of maladaptive personality traits.

### 7.3.3 CROSS-VALIDATION

For the cross-validation of the **E** scale, the subjects in each criterion group were selected in the manner described earlier. The specific subjects in this study, however, were different individuals from those participating in the original validation study of the **E** Scale.

Sample sizes for the cross-validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 31 |
| Unreliable Subjects: | N = 14 |
| Reliable Subjects:   | N = 17 |

In conformance with standard approaches to cross-validation, the discriminant function weights derived during the original validation of the **E** scale were used to score each ERI<sup>®</sup> in this study.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **E** scale

scores, the ERI<sup>®</sup> correctly classified group membership in 84% of the cases.

This result indicates that even when the **E** scale was subjected to cross-validation, it was found to be effective in differentiating reliable and productive individuals from those who were unable to perform effectively due to the presence of maladaptive personality traits.

#### **7.4 F SCALE: CONSTRUCTION AND VALIDATION**

The **F** scale was designed to assess individuals with respect to one component of unplanned and uncontrolled turnover. The **F** scale assesses the likelihood that a job applicant will perform in a conscientious and reliable manner, will not be fired, and will remain on the job for at least 30 days.

##### **7.4.1 CRITERION GROUPS**

For both the validation and cross-validation of the **F** scale, the following criterion groups were used:

1. Individuals who had been fired from their job within thirty (30) days of being hired.
2. Individuals who neither quit nor were fired from their job within thirty (30) days of being hired; that is, they had worked at their job for more than thirty (30) days.

Prior to being hired, each individual was administered the ERI<sup>®</sup> as part of the pre-employment selection process.

##### **7.4.2 VALIDATION**

Individuals in criterion group (1) above, were operationally defined as being unreliable, while individuals in criterion group (2) above, were operationally defined as being reliable.

Sample sizes for this validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 87 |
| Unreliable Subjects: | N = 10 |
| Reliable Subjects:   | N = 77 |

Discriminant Function Analysis, with the stepwise minimization of residuals method contained in *SPSS*<sup>x</sup>, was utilized in this analysis.

For the discriminant function derived in this study, the canonical correlation coefficient was 0.7544, the Wilks' Lambda value was 0.4309, and the Chi Square value was 63.140, with 20 degrees of freedom. This is statistically significant at the  $p < 0.00001$  level of significance. That is, this result has a probability of less than one in one hundred thousand of having occurred by chance. This far exceeds the level of statistical significance (one in twenty) recommended in Section 14B(5) of the *Uniform Guidelines*.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **F** scale scores, the ERI<sup>®</sup> correctly classified group membership in 95% of the cases.

This result indicates that the **F** scale was effective in differentiating reliable and productive individuals from those who were fired from their job within 30 days of being hired.

##### **7.4.3 CROSS-VALIDATION**

For the cross-validation of the **F** scale, the subjects in each criterion group were selected in the manner described earlier. The specific subjects in this study, however, were different individuals from those participating in the original validation study of the **F** Scale.

Sample sizes for the cross-validation study were as follows:

|                      |         |
|----------------------|---------|
| Total Sample Size:   | N = 102 |
| Unreliable Subjects: | N = 9   |
| Reliable Subjects:   | N = 93  |

In conformance with standard approaches to cross-validation, the discriminant function weights derived during the original validation of the **F** scale were used to score each ERI® in this study.

Where the group membership of each individual (reliable or unreliable) was “blindly” classified, based on the individuals’ **F** scale scores, the ERI® correctly classified group membership in 84% of the cases.

This result indicates that even when the **F** scale was subjected to cross-validation, it was found to be effective in differentiating reliable and productive individuals from those who were fired from their job within thirty (30) days of being hired.

## 7.5 H SCALE: CONSTRUCTION AND VALIDATION

The **H** scale was designed to assess the likelihood that an applicant will perform in a trustworthy manner, and will not engage in various forms of property deviant behavior.

### 7.5.1 CRITERION GROUPS

For both the validation and cross-validation of the **H** scale, the following criterion groups were used:

1. Individuals who had been found guilty of theft offenses.

This criterion group of subjects was administered the ERI® at a Municipal Court. The procedure was to adminis-

ter the ERI® immediately after there was a finding of guilt made by the presiding judge.

2. Individuals with no history of having been found guilty of theft offenses.

Each member of this criterion group was a job applicant who possessed a current security clearance, enabling him/her to have access to information classified Top Secret. In order to gain this level of security clearance, each individual was subjected to, and successfully passed, a full field background investigation, which included, among other things, investigation of prior patterns of unreliable/unproductive behavior. The ERI® was administered as part of the pre-employment processing of each individual.

### 7.5.2 VALIDATION

Individuals in criterion group (1) above, were operationally defined as being unreliable, while individuals in criterion group (2) above, were operationally defined as being reliable.

Sample sizes for this validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 73 |
| Unreliable Subjects: | N = 19 |
| Reliable Subjects:   | N = 54 |

Discriminant Function Analysis, with the stepwise minimization of residuals method contained in *SPSS*<sup>X</sup>, was utilized in this analysis.

For the discriminant function derived in this study, the canonical correlation coefficient was 0.9903, the Wilks’ Lambda value was 0.0194,



and the Chi Square value was 179.404, with 31 degrees of freedom. This is statistically significant at the  $p < 0.00001$  level of significance. That is, this result has a probability of less than one in one hundred thousand of having occurred by chance. This far exceeds the level of statistical significance (one in twenty) recommended in Section 14B(5) of the *Uniform Guidelines*.

Where the group membership of each individual (reliable or unreliable) was “blindly” classified, based on the individuals’ **H** scale scores, the ERI® correctly classified group membership in 92% of the cases.

This result indicates that the **H** scale was effective in differentiating reliable and productive individuals from those who were operationally defined as unreliable, based on their documented record of property deviant behavior.

### **7.5.3 CROSS-VALIDATION**

For the cross-validation of the **H** scale, the subjects in each criterion group were selected in the manner described earlier. The specific subjects in this study, however, were different individuals from those participating in the original validation study of the **H** Scale.

Sample sizes for the cross-validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 29 |
| Unreliable Subjects: | N = 10 |
| Reliable Subjects:   | N = 19 |

In conformance with standard approaches to cross-validation, the discriminant function weights derived during the original validation of the **H** scale were used to score each ERI® in this study.

Where the group membership of each individual

(reliable or unreliable) was “blindly” classified, based on the individuals’ **H** scale scores, the ERI® correctly classified group membership in 90% of the cases.

This result indicates that even when the **H** scale was subjected to cross-validation, it was found to be effective in differentiating reliable and productive individuals from those who were operationally defined as unreliable, based on their documented record of property deviant behavior.

## **7.6 Q SCALE: CONSTRUCTION AND VALIDATION**

The **Q** scale was designed to assess individuals with respect to a second component of unplanned and uncontrolled turnover. The **Q** scale assesses the likelihood that a job applicant will not quit and will remain on the job for at least 30 days.

### **7.6.1 CRITERION GROUPS**

For both the validation and cross-validation of the **Q** scale, the following criterion groups were used:

1. Individuals who had quit their jobs within thirty (30) days of being hired.
2. Individuals who neither quit nor were fired from their job within thirty (30) days of being hired; that is, they had worked at their job for more than thirty (30) days.

Prior to being hired, each individual was administered the ERI® as part of the pre-employment selection process.

### **7.6.2 VALIDATION**

Individuals in criterion group (1) above, were operationally defined as being unreliable, while

individuals in criterion group (2) above, were operationally defined as being reliable.

Sample sizes for this validation study were as follows:

|                      |         |
|----------------------|---------|
| Total Sample Size:   | N = 126 |
| Unreliable Subjects: | N = 22  |
| Reliable Subjects:   | N = 104 |

Discriminant Function Analysis, with the stepwise minimization of residuals method contained in *SPSS*<sup>x</sup>, was utilized in this analysis.

For the discriminant function derived in this study, the canonical correlation coefficient was 0.6388, the Wilks' Lambda value was 0.5919, and the Chi Square value was 61.358, with 14 degrees of freedom. This is statistically significant at the  $p < 0.00001$  level of significance. That is, this result has a probability of less than one in one hundred thousand of having occurred by chance. This far exceeds the level of statistical significance (one in twenty) recommended in Section 14B(5) of the *Uniform Guidelines*.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **Q** scale scores, the ERI<sup>®</sup> correctly classified group membership in 90% of the cases.

This result indicates that the **Q** scale was effective in differentiating individuals who remained on the job for more than 30 days, from those who quit their jobs within 30 days of being hired.

### 7.6.3 CROSS-VALIDATION

For the cross-validation of the **Q** scale, the subjects in each criterion group were selected in the manner described earlier. The specific

subjects in this study, however, were different individuals from those participating in the original validation study of the **Q** Scale.

Sample sizes for the cross-validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 83 |
| Unreliable Subjects: | N = 17 |
| Reliable Subjects:   | N = 66 |

In conformance with standard approaches to cross-validation, the discriminant function weights derived during the original validation of the **Q** scale were used to score each ERI<sup>®</sup> in this study.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **Q** scale scores, the ERI<sup>®</sup> correctly classified group membership in 76% of the cases.

This result indicates that even when the **Q** scale was subjected to cross-validation, it was found to be effective in differentiating individuals who remained on the job for more than 30 days, from those who quit their jobs within 30 days of being hired.

### 7.7 S SCALE: CONSTRUCTION AND VALIDATION

The **S** scale was designed to assess individuals with respect to one component of production deviance. The **S** scale assesses the likelihood that a job applicant will perform on the job in a safe manner, and will not have a significant on-the-job accident in the first four months of employment. <sup>21</sup>

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<sup>21</sup> For present purposes, a significant on-the-job accident is defined as one in which the costs involved exceed \$300.00.

### 7.7.1 CRITERION GROUPS

For both the validation and cross-validation of the **S** scale, the following criterion groups were used:

1. Individuals who had a significant on-the-job accident in the first four months of employment.
2. Individuals who did not have a significant on-the-job accident in the first four months of employment.

Prior to being hired, each individual was administered the ERI<sup>®</sup> as part of the pre-employment selection process.

### 7.7.2 VALIDATION

Individuals in criterion group (1) above, were operationally defined as being unreliable, while individuals in criterion group (2) above, were operationally defined as being reliable.

Sample sizes for this validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 59 |
| Unreliable Subjects: | N = 14 |
| Reliable Subjects:   | N = 45 |

Discriminant Function Analysis, with the stepwise minimization of residuals method contained in *SPSS*<sup>x</sup>, was utilized in this analysis.

For the discriminant function derived in this study, the canonical correlation coefficient was 0.9997 the Wilks' Lambda value was 0.0005, and the Chi Square value was 253.72, with 48 degrees of freedom. This is statistically significant at the  $p < .00001$  level of significance. That is, this result has a probability of less than one in one hundred thousand of having oc-

curred by chance. This far exceeds the level of statistical significance (one in twenty) recommended in Section 14B(5) of the *Uniform Guidelines*.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **S** scale scores, the ERI<sup>®</sup> correctly classified group membership in 100% of the cases.

This result indicates that the **S** scale was effective in differentiating individuals who performed on the job in a safe manner, from those who had a significant on-the-job accident in the first four months of employment.

### 7.7.3 CROSS-VALIDATION

For the cross-validation of the **S** scale, the subjects in each criterion group were selected in the manner described earlier. The specific subjects in this study, however, were different individuals from those participating in the original validation study of the **S** Scale.

Sample sizes for the cross-validation study were as follows:

|                      |        |
|----------------------|--------|
| Total Sample Size:   | N = 26 |
| Unreliable Subjects: | N = 5  |
| Reliable Subjects:   | N = 21 |

In conformance with standard approaches to cross-validation, the discriminant function weights derived during the original validation of the **S** scale were used to score each ERI<sup>®</sup> in this study.

Where the group membership of each individual (reliable or unreliable) was "blindly" classified, based on the individuals' **S** scale scores, the ERI<sup>®</sup> correctly classified group membership in

85% of the cases.

This result indicates that even when the **S** scale was subjected to cross-validation, it was found to be effective in differentiating individuals who performed on the job in a safe manner, from those who had a significant on-the-job accident in the first four months of employment.

### 8.0 SOME PSYCHOMETRIC PROPERTIES OF THE ERI®

The data reported below are based on a group of job applicants (N = 60,670) who completed the ERI® as part of their pre-employment processing. This normative group of job applicants is drawn from all regions of the country, represents all 10 Standard Industrial classification (SIC) Code Divisions, 54 Major SIC Groups, and a wide range of job categories. As can be seen in Section 8.2 below, applicants'

results on each scale are distributed continuously along each of the behavioral-psychological dimensions measured by the ERI®.

### 8.1 DESCRIPTIVE STATISTICS

To facilitate the use of these descriptive statistics when examining an individual applicant's results, they are reported in terms of the eight zone system of scores, rather than the discriminant scores. In reading this table, please note that for the mean, median, and mode, the values of the numbers to the left of the decimal point refer to the zone *number* in the eight zone system shown below.

For example, one can see that the mean for the **A** scale is 4.074. This indicates that the mean for this scale is in Zone 2B, but only slightly over the line from zone 2A (seven-one hundredths). Similarly, the mean for the **Q** scale is 3.572. This means that it is roughly

|               |   |                    |   |               |   |                |   |
|---------------|---|--------------------|---|---------------|---|----------------|---|
| <b>LOWEST</b> |   | <b>RELIABILITY</b> |   |               |   | <b>HIGHEST</b> |   |
| <b>ZONE 4</b> |   | <b>ZONE 3</b>      |   | <b>ZONE 2</b> |   | <b>ZONE 1</b>  |   |
| B             | A | B                  | A | B             | A | B              | A |

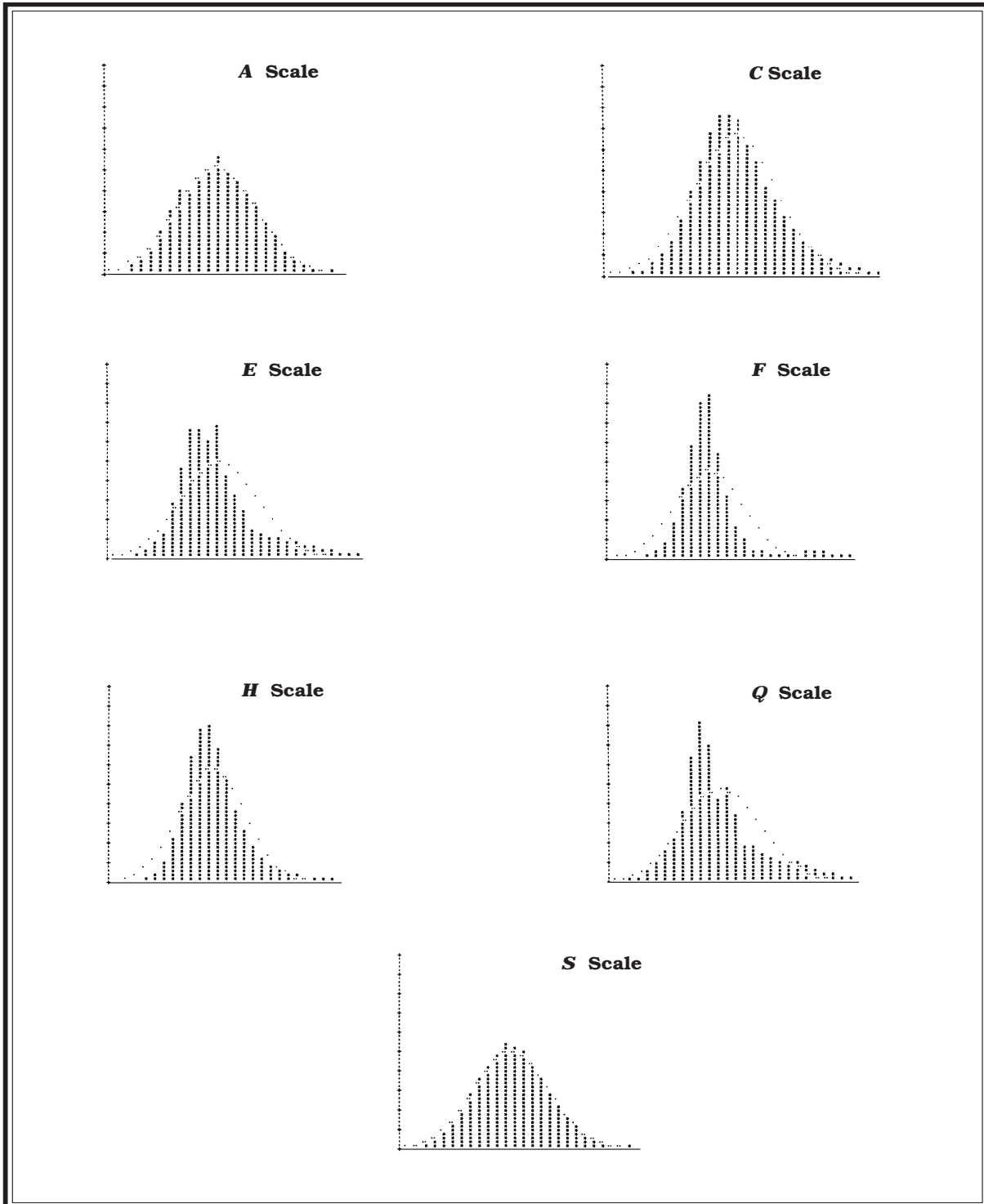
|                    | A     | C     | E     | F     | H     | Q     | S     |
|--------------------|-------|-------|-------|-------|-------|-------|-------|
| Mean               | 4.074 | 4.041 | 3.678 | 3.274 | 3.159 | 3.572 | 3.937 |
| Median             | 4.000 | 4.000 | 3.000 | 3.000 | 3.000 | 3.000 | 4.000 |
| Mode               | 4.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 4.000 |
| Standard Deviation | 1.584 | 1.750 | 1.650 | 1.698 | 1.440 | 1.949 | 1.816 |
| Variance           | 2.509 | 3.061 | 2.723 | 2.884 | 2.074 | 3.800 | 3.297 |
| Standard Error     | 0.006 | 0.007 | 0.007 | 0.007 | 0.008 | 0.008 | 0.007 |

six-tenths of the way through zone 2A. The median **E** scale value of 3.000 means that the median falls in zone 2A.

Likewise, the standard deviation of the **A** scale is 1.584. This means that the standard deviation for this scale is roughly 1.6 zones of the eight zone system.

## 8.2 FREQUENCY DISTRIBUTIONS FOR ERI® SCALES

The frequency distributions shown below are reported in terms of discriminant scores. The frequency and percentile distributions for the ERI® scales, using the *eight zone* system, are reported in Section 4.2 of this *Manual*.



### 8.3 INTERCORRELATION OF THE ERI<sup>®</sup> SCALES<sup>22,23</sup>

As discussed in Section 1.2.3 of this *Manual*, the correlation matrix of ERI<sup>®</sup> scales shown

below appears to provide some support for the multifactorial view of behavior.

| SCALE    |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>A</b> | 1.00     |          |          |          |          |          |          |
| <b>C</b> | -0.05    | 1.00     |          |          |          |          |          |
| <b>E</b> | -0.35    | -0.18    | 1.00     |          |          |          |          |
| <b>F</b> | 0.29     | -0.00    | -0.13    | 1.00     |          |          |          |
| <b>H</b> | 0.41     | 0.27     | -0.23    | 0.35     | 1.00     |          |          |
| <b>Q</b> | 0.10     | -0.11    | 0.09     | 0.07     | 0.05     | 1.00     |          |
| <b>S</b> | 0.19     | 0.25     | -0.25    | -0.01    | 0.13     | -0.17    | 1.00     |
|          | <b>A</b> | <b>C</b> | <b>E</b> | <b>F</b> | <b>H</b> | <b>Q</b> | <b>S</b> |

### 8.4. TEST-RETEST RELIABILITY OF THE ERI<sup>®</sup> SCALES

Test-retest reliability is the term used to describe the consistency of an individual's results over the course of separate administrations of a questionnaire or test. A procedure is considered to have good test-retest reliability if it gives roughly the same score or results for an individual each time. With specific reference to the scales on the ERI<sup>®</sup>, test-retest reliability provides a measure of whether a given individual's ERI<sup>®</sup> results consistently reflect his or her actual likelihood of reliable behavior or whether the ERI<sup>®</sup> results from each administration are simply due to random variation, random error, or transient fluctuations in mood.

Using the Pearson product-moment correlation coefficient (r), the test-retest reliability of each of the ERI<sup>®</sup> scales was computed, with the results shown on the following page.

These results demonstrate that the scales of the ERI<sup>®</sup> showed an acceptable degree of test-retest reliability. In all cases, the degree of test-retest reliability was statistically significant at the  $p < 0.0001$  level. That is, this result has a probability of less than one in one hundred thousand of having occurred by chance. This far exceeds the level of statistical significance (one in twenty) recommended in Section 14B(5) of the *Uniform Guidelines*.

<sup>22</sup> The apparently *inverse* relationships between some of the scales and the *E* & *Q* scales is an artifact of the scoring weights assigned by the discriminant function. In reality, these relationships are *positive* ones, as would be expected.

<sup>23</sup> Some of the correlation coefficients appear to be significant, given the normal null hypothesis assumption of zero association between variables. However, it can be argued that such an assumption is inappropriate when working with behavioral variables, such as those being assessed here, since there is invariably some degree of association between variables which assess specific aspects of human behavior. In any event, even in the case of the largest correlation above (that between the *A* and *H* scales), the coefficient of determination ( $r^2$ ) is less than 0.25. Accordingly, these data are taken as providing support for the multifactorial perspective described earlier.

SAMPLE SIZE: N = 30

TEST - RETEST INTERVAL: 7 to 21 Days

|   |          |       |
|---|----------|-------|
| A | r = 0.89 | p<.01 |
| C | r = 0.68 | p<.01 |
| E | r = 0.77 | p<.01 |
| F | r = 0.75 | p<.01 |
| H | r = 0.73 | p<.01 |
| Q | r = 0.85 | p<.01 |
| S | r = 0.83 | p<.01 |

## 9. FAIRNESS OF THE ERI® AND ADVERSE IMPACT

Research has also been conducted to ascertain if use of the ERI® results in adverse impact as defined in Section 4D of the *Uniform Guidelines*. This research has examined the relative selection rates and impact ratios for each of the seven ERI® scales, over a wide range of industry types and job categories, in terms of race,<sup>24</sup> gender, and age.

It should be noted that in order to conduct these analyses, two *basically unacceptable* assumptions must be made - *neither of which* occur in the actual course of using the ERI® as part of the selection process: (1) A fixed *cut off score* must be set for each of the seven ERI® scales; and (2) Each of the applicant's ERI® scale scores must be considered as the *sole basis* on which a selection decision is made.

### 9.1 RACE

Using the method described in the *Uniform Guidelines on Employee Selection Procedures*, the

relative selection rates and impact ratios have been compared for whites, blacks, "other races", and persons of Hispanic origin. A typical set of results is shown on the following page.

|                    |          |
|--------------------|----------|
| TOTAL SAMPLE SIZE: | N = 1350 |
| Whites             | N = 800  |
| Blacks:            | N = 400  |
| Other Races:       | N = 150  |
| Hispanic Origin:   | N = 104  |

Using this method, for each of the seven ERI® scales, it has also been consistently found that the impact ratios conform to the requirements of the "four-fifths rule of thumb" contained in the *Uniform Guidelines*. On this basis, it has also been concluded that use of the ERI® does not result in adverse impact with respect to race.

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<sup>24</sup> For purposes of categorizing the data, four (4) racial groupings are used: White, Black, Other races, and Hispanic origin. This classification system was chosen because it is the one used by the Department of Commerce, Bureau of the Census. It should be noted that persons of Hispanic origin may be of any race.

| <b>SCALE</b> | <b>IMPACT RATIOS</b>  | <b>%</b>                         |
|--------------|---|----------------------------------|
| A            | BLACK / WHITE<br>OTHER RACES / WHITE<br>WHITE / HISPANIC ORIGIN<br>BLACK / HISPANIC ORIGIN<br>BLACK / OTHER RACES | 83%<br>96%<br>92%<br>76%<br>87%  |
| C            | BLACK / WHITE<br>OTHER RACES / WHITE<br>HISPANIC ORIGIN / WHITE<br>BLACK / HISPANIC ORIGIN<br>BLACK / OTHER RACES | 94%<br>100%<br>95%<br>89%<br>94% |
| E            | BLACK / WHITE<br>OTHER RACES / WHITE<br>HISPANIC ORIGIN / WHITE<br>HISPANIC ORIGIN / BLACK<br>OTHER RACES / BLACK | 94%<br>87%<br>89%<br>94%<br>92%  |
| F            | WHITE / BLACK<br>OTHER RACES / WHITE<br>WHITE / HISPANIC ORIGIN<br>HISPANIC ORIGIN / BLACK<br>OTHER RACES / BLACK | 96%<br>100%<br>99%<br>97%<br>96% |
| H            | BLACK / WHITE<br>OTHER RACES / WHITE<br>HISPANIC ORIGIN / WHITE<br>HISPANIC ORIGIN / BLACK<br>OTHER RACES / BLACK | 100%<br>89%<br>93%<br>93%<br>89% |
| Q            | BLACK / WHITE<br>OTHER RACES / WHITE<br>HISPANIC ORIGIN / WHITE<br>BLACK / HISPANIC ORIGIN<br>BLACK / OTHER RACES | 94%<br>96%<br>99%<br>95%<br>98%  |
| S            | BLACK / WHITE<br>OTHER RACES / WHITE<br>WHITE / HISPANIC ORIGIN<br>BLACK / HISPANIC ORIGIN<br>BLACK / OTHER RACES | 97%<br>97%<br>98%<br>95%<br>100% |



**9.2 GENDER**

The relative selection rates and impact ratios have also been compared for females and males using the above-described method. The results for the same sample described in the previous section are shown below.

|                    |          |
|--------------------|----------|
| Total sample size: | N = 1350 |
| Males              | N = 899  |
| Females            | N = 451  |

Using this method, for each of the seven ERI<sup>®</sup> scales, it has also been consistently found that the impact ratios conform to the requirements of the “four-fifths rule of thumb” contained in the *Uniform Guidelines*. On this basis, it has also been concluded that use of the ERI<sup>®</sup> does not result in adverse impact with respect to gender.

| SCALE | IMPACT RATIOS | %   |
|-------|---------------|-----|
| A     | FEMALE / MALE | 87% |
| C     | FEMALE / MALE | 93% |
| E     | MALE / FEMALE | 93% |
| F     | MALE / FEMALE | 93% |
| H     | MALE / FEMALE | 93% |
| Q     | MALE / FEMALE | 98% |
| S     | FEMALE / MALE | 93% |

**9.3 AGE**

The relative selection rates and impact ratios have also been compared for individuals younger and older than forty (40) years of age and males using the above-described method. The results for the same sample described in Section 9.1 are shown in the following table.

|                    |          |
|--------------------|----------|
| TOTAL SAMPLE SIZE: | N = 1350 |
| UNDER 40           | N = 1060 |
| 40 AND OLDER       | N = 290  |

Using this method, for each of the seven ERI<sup>®</sup> scales, it has also been consistently found that the impact ratios conform to the requirements of the “four-fifths rule of thumb” contained in the *Uniform Guidelines*. On this basis, it has also been concluded that use of the ERI<sup>®</sup> does not result in adverse impact with respect to age.

| SCALE | IMPACT RATIOS | %   |
|-------|---------------|-----|
| A     | > = 40 / < 40 | 80% |
| C     | < 40 / > = 40 | 94% |
| E     | > = 40 / < 40 | 92% |
| F     | > = 40 / < 40 | 96% |
| H     | > = 40 / < 40 | 97% |
| Q     | > = 40 / < 40 | 96% |
| S     | > = 40 / < 40 | 96% |

**9.4 SUMMARY**

In summary, when comparing the relative selection rates and impact ratios for each of the seven ERI<sup>®</sup> scales, over a wide range of industry types and job categories, it has been consistently found that use of the ERI<sup>®</sup> does not result in adverse impact with respect to race, gender or age.

## 10. SELECTED REFERENCES

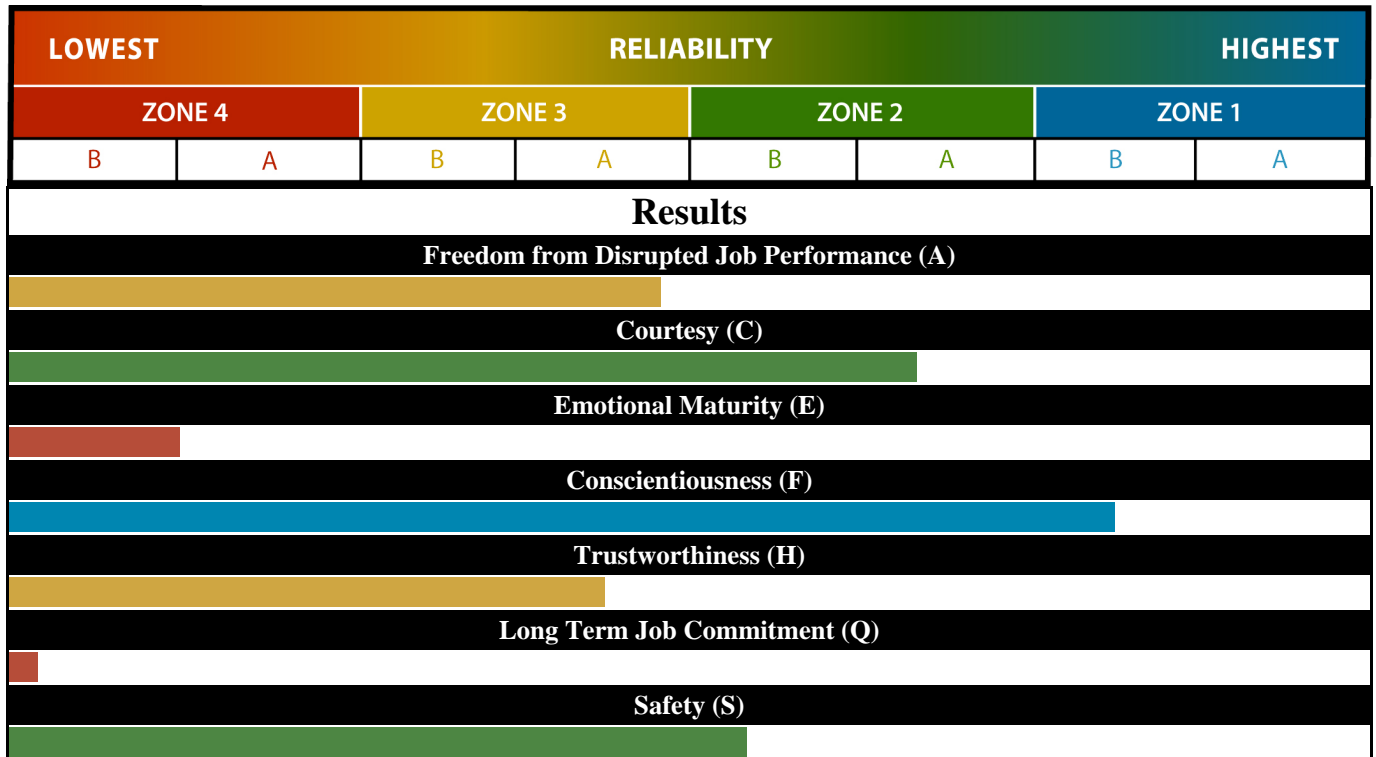
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# **APPENDICES**

# EMPLOYEE RELIABILITY INVENTORY

Applicant Name: Donald Sample  
 ID: ERITwos  
 Company: Natcon  
 Date Scored: 2 Mar 2012  
 ERI Number: 1053449



The seven ERI® scales assess the *likelihood* that -

- Freedom from Disrupted Job Performance (A)** Applicant's activities outside of work will not disrupt his/her performance and productivity through behaviors such as inattentiveness, unauthorized absence/lateness, failing to follow through on assignments, or other inappropriate work behaviors.
- Courtesy (C)** The applicant's interactions with customers/guests will be characterized by a high level of courtesy and commitment to service.
- Emotional Maturity (E)** The applicant's performance and productivity will not be disrupted due to the presence of maladaptive personality traits, such as irresponsibility, difficulty in working cooperatively with others, poor judgment, or poor impulse control, etc.
- Conscientiousness (F)** The applicant will perform on the job in a productive and conscientious manner, and will not be fired in the first 30 days of employment.
- Trustworthiness (H)** The applicant will perform on the job in a trustworthy manner and will not engage in various forms of untrustworthy behaviour.
- Long Term Job Commitment (Q)** The applicant will show a long term commitment to the job and will not quit within the first 30 days of employment.
- Safety (S)** The applicant will perform on the job in a safe manner, and will not have a significant on-the-job accident in the first 4 months of employment.

## Further interpretive information:

Under no circumstances should the decision to hire or not hire an applicant be based solely on his/her ERI® results. Hiring decisions should be based on a review of ALL information collected by you during the applicant evaluation process.

Because of the variability inherent in any type of scores, small differences in results should never be the basis for making decisions about applicants or for comparing applicants.

The following table can be used to help you approximate where an applicant's results fit, relative to scores obtained by other job applicants. This table shows the approximate percentage of job applicants who obtain **poorer** scores on that particular scale. The table is based on a group of job applicants (N=60,670) who completed the ERI® as part of their pre-employment processing. This normative group represents all 10 Standard Industrial Classification (SIC) Code Divisions, 54 Major SIC Groups, and a wide range of job categories.

| SCALE | Zone 4 |     | Zone 3 |     | Zone 2 |     | Zone 1 |     |
|-------|--------|-----|--------|-----|--------|-----|--------|-----|
|       | B      | A   | B      | A   | B      | A   | B      | A   |
| A     | 0%     | 2%  | 6%     | 18% | 38%    | 63% | 83%    | 96% |
| C     | 0%     | 2%  | 15%    | 20% | 34%    | 54% | 83%    | 95% |
| E     | 0%     | 5%  | 8%     | 13% | 22%    | 45% | 79%    | 95% |
| F     | 0%     | 7%  | 8%     | 10% | 13%    | 31% | 67%    | 91% |
| H     | 0%     | 2%  | 3%     | 7%  | 14%    | 33% | 66%    | 91% |
| Q     | 0%     | 13% | 14%    | 16% | 18%    | 36% | 72%    | 93% |
| S     | 0%     | 6%  | 11%    | 22% | 29%    | 54% | 78%    | 93% |

### NOTES:

The number in each cell represents the approximate percentage of job applicants in the normative sample who obtained scores on that scale which were **poorer** than the job applicant's.

As an illustration of how to use this table, please note that in the normative sample, the number **10** appears in zone 3A for the "F" scale. This indicates that scores in this zone are at approximately the 10th percentile (approximately 10% of the job applicants in the normative sample obtained scores on the F scale that were poorer than zone 3A, or put slightly differently, approximately 10% of the normative sample obtained F scale scores in zones 3B, 4A or 4B).

**For Help:** If you have questions regarding the administration, scoring, or interpretation of the ERI® please call Psychometrics Canada: 1-800-661-5158.

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