OFFICE OF THE DIRECTOR OF NATIONAL INTELLIGENCE

Examination of the Adjudicative Guidelines

Appendix B Part 3
Adjudicative Guidelines Literature Review: the "Psychosocial Considerations" Cluster

LEADING INTELLIGENCE INTEGRATION

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EXECUTIVE SUMMARY

Purpose

A review of current social science research was undertaken to provide evidence about the meaning and effectiveness of the Adjudicative Guidelines for making security clearance decisions. This White Paper reviews that evidence for four related Guidelines, D. (Disordered) Sexual Behavior, G. Alcohol Consumption, H. Drug Involvement, and I. Psychological Conditions. These four Guidelines focus on different types of evidence of problematic psychosocial behavior that may manifest personal attributes predictive of future security violation behavior.

Approach

The literature review covered a wide range of social science literatures including counterproductive work behavior, workplace safety behavior, professional sexual misconduct and case studies of espionage cases. Given the almost complete lack of research on national security behavior itself, the primary strategy of this review was to evaluate research in other work behavior domains similar to security behavior to draw inferences about the Guidelines as measures of antecedents of security behavior.

Key Findings

- ♦ Evidence across a range of types of workplace behavior shows that alcohol and drug abuse and psychopathological conditions are predictors of future counter-normative workplace behavior. There is no direct experimental evidence, however, showing the magnitude of this effect on security violation behavior.
  - o Little research shows a direct relationship between (disordered) sexual behavior and future counter-normative behavior analogous to security violation behavior.
  - o Substantial evidence shows a compelling linkage between drug abuse, alcohol abuse, and psychopathological conditions and future counterproductive workplace behavior analogous to security violation behavior.
- ♦ A common core of personality attributes underlies the behaviors of all four psychosocial Guidelines. The most important of these personality attributes include low Self-Control / Impulsivity, Excitement-Seeking, Neuroticism / Emotional Instability, Conscientiousness and Agreeableness.
- ♦ Common patterns of psychopathological conditions are antecedents to counter-normative work behavior including, chiefly, Narcissism, Psychopathy and Antisocial Personality Disorder.

♦ The effects of personality and psychopathological conditions on counter-normative work behavior depend to a significant extent on circumstances in the workplace as experienced by the individual.
  o Stressors, failures, disappointments, perceived unfairness, personal crises and significant events often create a context in which preexisting personality and psychopathology determine the specific form of behavior exhibited in response to the changing contexts.
  o Personality and psychopathology alone are unlikely to predict security violation behavior in the absence of situational factors that trigger cognitive and affective responses.
♦ Evidence from several sources suggests that a general deviance factor, deviance proneness, explains and predicts counter-normative, problematic work behavior.
  o Effects of alcohol and drug use on problematic work behavior may be largely mediated by a general deviance factor, more than functional impairment.
♦ No one profile of personality and psychopathology describes people at high risk for security violations. A picture of several profiles has emerged from a variety of work behaviors that are analogous to security violation behavior
  o Cunningly planful, narcissistic psychopaths
  o Hostile, revenge-seeking antisocial isolates
  o Emotionally unstable neurotics, vulnerable to inducement / recruitment
  o Impulsively immature excitement seekers who misjudge risks
  o Rational responders who, in the face of opportunity, choose money / family / etc over U.S. national interests

THE PSYCHOSOCIAL CONSIDERATIONS CLUSTER

> **G. Alcohol Consumption**
> **H. Drug Involvement**
> **I. Psychological Conditions**
> **D. Sexual Behavior (Disorder)**

Introduction

This paper evaluates the social science research literature relevant to the effectiveness of the four "psychosocial consideration" Adjudicative Guidelines. This evaluation describes the extent to which research evidence provides rationales supporting or questioning the current meaning and use of these Guidelines. In addition, potential modifications and alternatives are described where the research evidence points to such adjustments.

This white paper refers to these four Guidelines as "psychosocial" for two reasons. First, the evidence gathered under these Guidelines reflects behavior that, itself, poses a risk for the individual's personal well-being. Second, such behavior can be a sign or symptom of underlying psychological attributes that dispose the individual to behave in ways that risk the security of information and technology for which the person has accountability. The social science research reviewed here explores, among other things, the evidence that the psychological attributes underlying these psychosocial behaviors are related to subsequent security violation behavior.

Purpose

The purpose of this project is to evaluate social science-based evidence about the meaning and use of the Guidelines. The questions being answered by this project are (a) "Does current social science evidence support the meaning and use of the Adjudicative Guidelines?" and (b) "What changes does the evidence suggest to improve the meaning and use of the Guidelines?"

The Policy Bases for the Psychosocial Consideration Guidelines

This project is not intended to evaluate social science research support for those portions of the psychosocial behavior Guidelines that depend on a policy foundation. As with the other Guidelines, some psychosocial conditions specified in the Guidelines (2005) rely on policy positions. In general, a Guideline has a policy basis where one or more of the Guideline conditions enforces a policy about basic qualifications for a security clearance. For example, all of the Drug Involvement conditions may be supported in part by a drug-free workplace policy. In this example, evidence of current drug abuse or dependency may be sufficient on it's own to disqualify an applicant in order to avoid drug use in the work place. The policy-based justification of such a Guideline may have no need for social science evidence about the predictive value of drug abuse or dependency for later security violations. The policy bases of the psychosocial Guidelines are summarized below in Tables 1-4. Only those conditions that rely, at least in part, on a rationale grounded in social science will be targeted in this white paper.

In an effort to capture the extent to which social science evidence is relevant to the psychosocial Guidelines, a table is presented below for each psychosocial Guideline. Each table lists the conditions (evidence) within that Guideline that could raise security concerns. The conditions are taken from the Adjudicative Guidelines for Determining Eligibility for Access to Classified Information (2005). For each condition, the table also indicates whether the presumed supporting rationale for that condition rests primarily on social science evidence or primarily on an apparent underlying policy position or both. The judgment about the supporting rationale was made by the author based on a review of the social science evidence and the nature of the condition. These judgments were not made by national security clearance officials or experts.

The authors inferred a policy basis for a condition if any one of a number of factors were present. These factors include illegal behaviors, evidence of deception or non-compliance with requirements relevant to the behaviors in question, behaviors that are inappropriate in the workplace such as alcohol or illegal drug use, and behaviors that may pose a risk to others in the workplace. Such conditions are given some weight against a security clearance independent of any social science evidence that may link such behavior to future security violations.

In contrast, a condition may imply risk for future security violation behavior based on the assumption that the psychological and/or situational factors that gave rise to the condition will also *increase the likelihood* of security violations. The weight given to such conditions should depend to some extent on the social science evidence supporting the assumed relationships between psychological and situations factors and security violation behavior. These conditions grounded in social science evidence are the primary focus of this project. It should also be noted that policy and evidence-based rationales are not mutually exclusive. The weight given to some conditions may be influenced by both the policy rationale as well as the social science evidence rationale.

Table 1. Supporting Rationales for Guideline G. Alcohol Consumption

Condition triggering security concern	Important Supporting Rationale	
	Evidence-based	Policy-based
(a) Alcohol-related incidents *away from work*, such as driving while under the influence, fighting…or other incidents of concern, regardless of whether the individual is diagnosed as an alcohol abuser or alcohol dependent	X	
(b) Alcohol incidents at work, such as reporting for work or duty in an intoxicated or impaired condition, or drinking on the job, regardless of whether the individual is diagnosed as an alcohol abuser or alcohol dependent	X	X
(c) Habitual or binge consumption of alcohol to the point of impaired judgment, regardless of whether the individual is diagnosed as an alcohol abuser or alcohol dependent	X	
(d) Diagnosis by a duly qualified medical professional … of alcohol abuse or alcohol dependence	X	X
(e) Evaluation of alcohol abuse or alcohol dependence by a licensed clinical social worker who is a staff member of a recognized treatment program	X	X
(f) Relapse after diagnosis of alcohol abuse or dependence and completion of an alcohol rehabilitation program	X	
(g) Failure to follow any court order regarding alcohol education, evaluation, treatment, or abstinence	X	X

Table 1 shows that four of the seven potentially disqualifying conditions associated with Guideline G, Alcohol Consumption may be supported by a policy rationale. However, all conditions also depend on an important social science rationale. The conditions that appear to have some basis in policy include conditions about workplace use of alcohol, evidence based on relevant professional expertise, and evidence about non-compliance or non-cooperation with court mandates. Nevertheless, all Guideline G conditions rely, at least in part, on a social science rationale. As a result, all Guideline G conditions are targeted by this literature review.

Table 2 summarizes the supporting rationales for Guideline H, Drug Involvement. All conditions are shown to have some reliance on policy because employers are encouraged by law to support drug-free work environments. As a result, employers have a policy-based interest in excluding applicants who show evidence of drug abuse/dependence However, all conditions are also shown to have some reliance on social science evidence that drug abuse/dependence creates some amount of risk for future security violations. As a result, all Guideline H conditions are targeted by this literature review.

Table 2. Supporting Rationales for Guideline H. Drug Involvement

Condition triggering security concern	Important Supporting Rationale	
	Evidence-based	Policy-based
(a) Any drug abuse	X	X
(b) Testing positive for illegal drug use	X	X
(c) Illegal drug possession, including cultivation, processing, manufacture, purchase, sales, or distribution; or possession of drug paraphernalia	X	X
(d) Diagnosis by a duly qualified medical professional… of drug abuse or drug dependence	X	X
(e) Evaluation of drug abuse or drug dependence by a licensed clinical social worker who is a staff member of a recognized drug treatment program	X	X
(f) Failure to successfully complete a drug treatment program prescribed by a duly qualified medical professional	X	X
(g) Any illegal drug use after being granted a security clearance	X	X
(h) Expressed intent to continue illegal drug use, or failure to clearly and convincingly commit to discontinue drug use	X	X

Table 3 shows that none of the three Guideline I conditions appears to have a significant policy rationale.

Table 3. Supporting Rationales for Guideline I, Psychological Conditions

Condition triggering security concern	Important Supporting Rationale	
	Evidence-based	Policy-based
(a) Behavior that casts doubt on an individual's judgment, reliability, or trustworthiness that is not covered under any other guideline, including but not limited to emotionally unstable, irresponsible, dysfunctional, violent, paranoid, or bizarre behavior	X	--
(b) An opinion by a duly qualified mental health professional that the individual has a condition not covered under any other guideline that may impair judgment, reliability or trustworthiness	X	--
(c) The individual has failed to follow treatment advice related to a diagnosed emotional, mental, or personality condition, e.g., failure to take prescribed medication	X	--

Similarly, Table 4 shows that none of the Guideline D conditions relating to disordered Sexual Behavior appears to rely on a policy rationale.

Table 4. Supporting Rationales for Guideline D. Sexual Behavior (Disorder-Relevant)

Condition triggering security concern	Important Supporting Rationale	
	Evidence-based	Policy-based
(a) Sexual behavior of a criminal nature, whether or not the individual has been prosecuted	NA	NA
(b) A pattern of compulsive , self-destructive, or high risk sexual behavior that the person is unable to stop or that may be symptomatic of a personality disorder	X	--
(c) Sexual behavior that causes an individual to be vulnerable to coercion, exploitation, or duress	X	--
(d) Sexual behavior of a public nature and/or that reflects lack of discretion or judgment	X	--

Because all conditions associated with the psychosocial Guidelines rely, at least in part, on a rationale grounded in social science, the following literature review addresses all conditions.

Approach Used in the Literature Review

As noted above, the overall purpose of this literature review is to describe and evaluate the extent to which the social science literature supports the current meaning and use of the psychosocial behavior Guidelines. The approach taken to accomplish this purpose is defined by five features.

1. Prediction Perspective

This literature review adopts the prediction perspective of social science. A Guideline is viewed as related to security behavior to the extent there is evidence that the behaviors targeted by a Guideline *predict* future security behavior. This prediction perspective underlies the large majority of behavioral, social science research investigating relationships between psychological attributes and outcomes. Evidence of prediction is the primary type of evidence used to infer or conclude that a particular psychological attribute leads to or causes a subsequent outcome. However, evidence of prediction does not require empirical evidence. Prediction may be demonstrated by both empirical data as well as compelling, plausible conceptual arguments. Since there is virtually no direct empirical evidence about the predictive relationship between these Guidelines and subsequent security behavior, this review will focus on indirect evidence of prediction that is sometimes empirical and sometimes conceptual.

Finally, this review will not report analyses of individual case studies of spies. Rather, this review will report about a small number of studies that summarize findings across multiple individual case studies of spy characteristics. While these summaries of case studies are no more predictive of future espionage behavior any individual case study, they are useful for identifying personal attributes for which predictive studies may have been reported.

2. Three Levels of Evidence and Other Evidence

As with the other White Papers produced in this project, this review and evaluation of social science research related to the psychosocial Guidelines will review three levels of evidence. These three levels of evidence are described in detail in the Foundations paper that accompanies the four White Papers in this project. Unique to this White paper on Psychosocial Considerations, however, is that an additional category of evidence is introduced that does not provide evidence about the prediction of security behavior but provides supplementary information that may be of value to the reader. This Other category of evidence includes three research topics, which are reviewed in Appendices A-C.

Level 1 Evidence

Level 1 evidence addresses direct relationships between Guidelines-based behaviors such as alcohol abuse and the security-related behavior targeted by the Guidelines. For example, Thompson (2003) compared caught spies to non-spies on past alcohol and drug behaviors.

Although this is not a true experiment, it does evaluate the extent to which spies differed from non-spies on Guidelines-based behaviors. Very little Level 1 evidence is available for the psychosocial Guidelines. The prime Level 1 sources are analyses of espionage case studies and Thompson (2003).

Level 2 Evidence

Level 2 evidence addresses relationships between Guidelines-based behaviors such as alcohol abuse and outcome behaviors that are not themselves security behaviors but are workplace behaviors that are analogous to security behaviors. For example, evidence showing that drug abuse is linked to police corruption is Level 2 evidence. Such evidence links drug abuse – a Guidelines-based behavior – to an analog to security violations, police corruption. While Level 2 evidence does not provide direct evidence about security behavior, it does have implications for security behavior to the extent that the analog behavior has important features in common with security behavior. Considerably more Level 2 evidence is available than Level 1 evidence.

Level 3 Evidence

Level 3 evidence addresses relationships between personal attributes that underlie Guidelines-based behaviors and outcome behaviors that are analogs to security behavior. For example, evidence showing that lack of self-control (a personal attribute underlying of alcohol abuse) is associated with workplace theft (an analog to security violation behavior) is Level 3 evidence. Considerably more Level 3 evidence is available than either Level 1 or 2 evidence. In order to search for and report Level 3 evidence, it is necessary to identify those personal attributes that underlie the behaviors associated with the Guidelines. Two sources of information are used to identify these underlying personal attributes. First, in many cases, studies reporting Level 1 and 2 evidence may identify personal attributes that underlie the Guidelines behaviors. For example, Level 2 studies about the relationship between alcohol dependency and counterproductive work behavior may also demonstrate that low self-control is characteristic of alcohol abusers. A second source of information about personal attributes that underlie Guidelines behaviors is research about the Guidelines behaviors themselves. For example, for Guideline I, Psychological Conditions, Antisocial Personality Disorder is an example of a Guidelines "behavior." Substantial research has been conducted to identify the personal attributes underlying the Antisocial Personality Disorder diagnosis. These sources of evidence that identify the underlying personal attributes are briefly summarized at the beginning of the Level 3 section.

We also note that several relevant prediction studies reviewed in this report do not fit easily into one Level of evidence or another. (This point only applies to Level 2 and 3 categories of evidence. All studies reviewed as Level 1 evidence clearly satisfy the definition of that category.) Research about the Psychosocial Considerations cluster of Guidelines is especially

prone to this ambiguity. A primary reason is that the personal attributes and behaviors represented by these Guidelines are treated as predictors in some studies and as criteria (the outcome to be predicted) in other studies. For example, several studies about workplace sexual misconduct are reported in this White Paper. Many of these studies treat sexual misconduct as an outcome variable of interest. To the extent that sexual misconduct in the workplace can be regarded as an analog of security violation behavior, such research could be classified as Level 3 evidence. But sexual misconduct is also a behavior associated with Guideline D as a predictor of subsequent security violation behavior. As a predictor, evidence about sexual misconduct might better fit with Level 2 evidence. Where the classification of such research is ambiguous, we will explicitly describe our rationale for assigning it to level 2 or 3.

Other Evidence

In addition to the Level 1, 2 and 3 categories of prediction evidence, research about three other topics is reported in Appendices. These research topics provide background or supplementary information to improve the reader's understanding of the Level 1, 2 and 3 evidence. They do not provide prediction evidence of the sort described in the Level 1, 2 or 3 categories. These three topics are (Appendix A) the professional clinical distinction between Antisocial Personality Disorder and Psychopathy; (Appendix B) post-traumatic stress disorder; and (Appendix C) organization citizenship behavior as a potential analog to positive security behavior.

3. Grouping the Four Guidelines

The four psychosocial Guidelines will be grouped differently for the Levels 1 and 2 sections compared to the Level 3 section. In the Levels 1 and 2 sections, evidence relating to Sexual Behavior (Disorder) and Psychological Conditions will be treated separately. Alcohol Consumption and Drug Involvement will be treated together because a substantial portion of the Level 1 and 2 evidence relevant to these is about substance abuse, which typically combines alcohol and drug use. Also, the explanatory mechanisms underlying the two Guidelines are frequently similar.

In contrast, the literature review of Level 3 evidence is integrated across all four Guidelines as a group. The primary focus of Level 3 evidence is the relationship between general personality attributes and analogs to national security behavior. To a great extent, a common core of personality attributes underpins the four psychosocial Guidelines' relevance to security behavior and its analogs. For this reason, much of the relevant Level 3 social science literature has similar implications for all four Guidelines. As a result, a more coherent summary of Level 3 evidence can be provided by focusing on all four Guidelines collectively rather than independently reviewing literatures for each Guideline separately. However, the Level 3 review will note those cases where some literature has implications unique to a specific Guideline.

4. Scope of Security Behavior

As with all the White Papers produced in this project, a critical consideration is the scope of security behavior to be targeted by the literature search and review. The administrative guidance surrounding the use of the psychosocial Guidelines clearly identifies two forms of security behavior the psychosocial Guidelines are intended to impact. First, as with all 13 Adjudicative Guidelines, the psychosocial Guidelines are designed to identify individuals who pose too great a risk for security violations if given responsibility for classified information or technology. The psychosocial Guidelines should operate to "select out" individuals are too risky. However, the psychosocial Guidelines are also intended to award clearances to people who are reliable, trustworthy and having good judgment.

Negative Security Behavior Only

In general, the guidance surrounding the meaning and use of these Guidelines (Guidelines, 2005) appears to view these two forms of security behavior – (a) security violations and (b) reliability, trustworthiness and good judgment – as opposite ends of the same continuum of security-related behavior. The view implies that by disqualifying those who are too risky, the remainder who are awarded clearances will be reliable, trustworthy and of good judgment. The underlying assumption for this perspective is that the same psychological and situational factors explain behavior at both ends of this continuum. For example, if lack of self-control contributes to security violations, then self-control contributes reliability, trustworthiness and good judgment. Or, more specifically, if alcohol abuse is an indicator of security violations then the absence of alcohol abuse is an indicator of reliability, trustworthiness and good judgment. But substantial research in workplace behavior shows that positive and negative workplace behaviors are not likely to be opposite ends of the same continuum(E.g., Miles, et al., 2002; Dalal, 2005). While some of the same psychological and situational factors drive both behaviors, other factors differ between the two types of behavior. One cannot assume the absence of negative workplace behavior implies the presence of positive behavior.

The adjudicative process does not provide a description of any form of positive security behavior targeted by the clearance process. While the Whole Person concept identifies reliability, trustworthiness, and good judgment as desirable qualities of those receiving clearance, no description is provided about the manner in which these attributes manifest themselves in the form of positive security behavior. Nor is any information provided showing the link between evidence and any particular form of positive security behavior that should be targeted by the adjudication process. If effect, while adjudicators are instructed to maximize reliability, trustworthiness, and good judgment, no specific meaning is given to these qualities as they apply to security behavior.

At the same time, there is no research, to our knowledge, about positive forms of security behavior and only slight evidence about one analog to positive security behavior, organization citizenship behavior. For these two reasons – no definition of positive security behavior and no

evidence about predictors of positive security behavior – we do not report any evidence within the body of this White Paper that specifically addresses positive security behavior. The summaries of research reported here make no assumption that the absence of sexually disordered behavior, or alcohol abuse, or drug abuse, or psychological conditions is predictive of positive security behavior.

However, Appendix C does report Level 3 evidence about relationships between personal attributes linked to Guidelines behaviors and positive workplace behaviors such as citizenship and organization commitment. This evidence is reported to provide an empirical foundation for any future consideration of the manner in which the adjudicative process might target specific positive security behaviors.

Analogs to Security Behavior

Little social science research addresses national security behavior directly. But significantly more research investigates other workplace behaviors that are similar to security behavior in certain important ways. This White Paper reports social science research about workplace behaviors that are analogous to security behaviors so that insights about security behavior may be gained from these "neighboring" domains of counter-normative work behavior.

All four White Papers in this project report evidence about work behaviors that are close analogs to security behavior. For the purposes of these White Papers, a domain of work behavior is regarded as a close analog to security behavior if it is: (a) in an organization context; (b) counter-normative in its negative form; (c) intentional (voluntary); and (d) directed toward a person or entity for harm or for good. It should be noted that, for this project, "betrayal of trust" is not a necessary feature of an analog to security behavior. There is one primary reason for this. As a practical matter, few other work behaviors share a "public trust" obligation similar to that of national security behavior. Perhaps only civil service and licensed professional service work, such as health care, share a "public trust" obligation similar to that of national security behavior where national safety may be at stake.

In this White Paper about Guidelines relating to Psychosocial Considerations, Level 2 and Level 3 evidence is reported for some outcome behaviors that do not fully satisfy all four analog requirements. For example, Level 2 evidence about the role of pornography use (a Guideline D behavior) as a predictor of later criminal sexual behavior is reported. Similarly, Level 2 evidence is reported about psychological conditions such as narcissism as predictors of sexual misconduct in professional work. Neither criminal sexual behavior nor professional sexual misconduct satisfies the four conditions to be an analog to security violation behavior. Criminal sexual behavior often does not take place in an organization context. Professional sexual misconduct – e.g., a sexual relationship between a therapist and client – is often not intended to cause harm. Criminal sexual behavior and professional sexual misconduct are partial analogs to security violation behavior.

Two primary considerations led to the decision to report some Level 2 and 3 evidence for partial analogs to security violation behavior. First, social science research in the domains

relating to Psychosocial Considerations – sexual disorder, substance abuse and clinical psychological conditions, rarely investigates relationships between these types of attributes and workplace behavior. Compared to the social science research domains relevant to Financial Considerations and to Criminal Behavior, workplace behavior is less relevant to the theoretical interests of researchers investigating the more clinical concerns associated with Psychosocial Considerations. So there is simply less research relating to workplace behavior for Psychosocial Considerations than for Financial Considerations or for Criminal Behavior. Second, the likely relationships between sexual disorder, substance abuse and clinical psychological conditions and subsequent security violation behaviors are often less direct than between past criminal behavior or past financial misbehavior and later security violations. For example, it is unlikely that there is a direct relation between, say, pornography use and later security violation behavior. If there is any predictive relationship at all it is more likely that pornography use is related to other personal attributes or behaviors, such as sexual misbehavior, that may be more directly related to security violations. For these two reasons, the judgment was made in a few cases to report Level 2 or 3 evidence about a partial analog to security violation behavior where that evidence provided some unique or worthwhile insight into the possible predictive linkage to later security violations. Wherever research about partial analogs is reported, special note is made to clarify for the reader that the outcome measure is not a full analog.

5. Effect Sizes

The literature reviews presented in this White Paper include information about effect sizes reported in the individual studies where such information is provided in the original study and meaningfully contributes to an understanding of the conclusions from the study. Effect sizes are statistical estimates of the size of a relationship.

To describe the strength of relationships reported in Level 3 evidence, three different measures will be used throughout this report. One measure that gives information about the strength of relationships is d, which represents the standardized difference between the means or averages of two groups. Values of d of .20 are considered small, .50 medium / moderate, and .80 large (Cohen, 1988). A d-value is interpreted as the increase (positive d-values) or decrease (negative d-values) of d standard deviations of one group compared to another group. The correlation coefficient (r) is another measure that represents the magnitude and direction (i.e., positive or negative) of the relationship between two constructs that ranges between -1 and +1. For the social sciences, Cohen (1992) proposed *absolute* Pearson r values of .10-.23, .24-.36, and .37 or larger as "weak," "moderate" and "strong" relationships, respectively. Positive correlations mean that the values or scores of both variables are increasing. Negative correlations mean that the value or score of one variable is increasing while the other variable is decreasing. Rho (ρ) is the last measure that gives information about the strength of bivariate relationships used in this report. Rho is the mean-estimate of the true correlation coefficient in meta-analyses. Rho has similar conventions as to what is considered small, medium, and large as the correlation coefficient (i.e., .10 is small, .30 medium / moderate, and .50 strong).

However, such conventions are somewhat less relevant to rho values because they are all estimated in meta-analyses spanning many studies and samples than single-study correlation coefficients.

In some studies, effect sizes measures such as r are tested for statistical significance. The "p value" associated with a significance test result is not an indicator of effect size. "P values" represent conventional standards for the improbability of an observed result necessary to warrant a decision that the observed result was not a function of chance alone. Because "p values" do not indicate effect size, they are not reported in this White Paper. Instead, with few exceptions, only significant results are reported as indicating that a relationship has been found in a study. Where a statistic is not significant, it is generally not reported here. In a very small number of cases, non-significant statistics are reported. In those cases, it is clear from the context that the statistic was not significant in the study in question.

Setting the Stage: Incidents of Psychosocial Issues in SSBI Investigations

As reported in the Foundations Paper (2009) preceding these White Papers, Castelda's (2009) analysis of SSBI issues in two recent samples of individuals seeking clearances showed that three of the four Guidelines in this cluster have been among the most common types of risk issues. Among issues rated as "Significant" or more important, only Financial Considerations, Criminal Conduct and Personal Conduct resulted in more SSBI issues than Alcohol Consumption, Drug Involvement or Psychological Conditions. At the same time, Sexual Behavior was among the least common types of important issues. Also, perhaps surprisingly, the important issues associated with the Psychosocial Guidelines tend to be mutually exclusive as are all other Guidelines' issues. Individuals who reveal important issues on one Guideline tend not to reveal important issues on other Guidelines.

LEVEL 1 EVIDENCE

Level 1 evidence is any evidence directly linking behaviors targeted by the Guidelines with national security violation behavior. This evidence would provide the most direct indication of the extent to which the behaviors / experiences captured by the Guidelines are risk factors for future security violations. Only three sources of Level 1 evidence have been located for the Psychosocial Guidelines. Herbig (2008) analyzed the case histories of 173 caught spies from 1947 through 2007. Thompson (2003) compared 40 spies with 40 matched non-spies on risk factors associated with many, but not all, of the adjudicative guidelines. Stone (1992) analyzed Guidelines-related characteristics of 100 caught spies. The findings of each of these three Level 1 studies are presented below for each of the Psychosocial Guidelines. Before presenting these results, a brief summary of the strengths and weaknesses of each of the three studies will be described.

Finally, it is noted that this White Paper focuses on prediction evidence. Case studies of individual spies, while valuable in many ways, do not provide prediction evidence. For that reason, this White Paper does not analyze or describe the characteristics of individual spies. Excellent integrative reviews of espionage case studies are available, especially those compiled by Herbig and her colleagues. This White Paper briefly cites such reviews where they aggregate case study information across multiple cases, where a rigorous methodology was used document information about the cases, and where a clearly reported method was used to integrate information across multiple cases to draw plausible inferences about shared characteristics of spies.

Methodological Evaluation of the Three Major Studies

Herbig (2008)

Herbig's study focuses on the characteristics of caught spies. The purpose of Herbig's study was to improve our understanding of individual who have chosen to engage in espionage. The purpose was not to identify the characteristic that are predictive of future espionage. This limitation is largely due to two primary factors. First, all the information reported about the caught spies was gathered after the fact and does not represent information that was known at the time the spies were evaluated for security clearances. Indeed, many of the caught spies held no clearance. Second, Herbig did not compare spies to non-spies. There is no method within Herbig's analysis to know which characteristics distinguish spies from non-spies. Nevertheless, Herbig's analyses are extraordinarily useful in that they provide the clearest available evidence about the nature of spies and how that has changed over the past six decades. The same limitations apply to Brown (1988).

Stone (1992)

Like Herbig, Stone's study analyzed characteristics of caught spies without comparing spies to non-spies. The 100 spies included in Stone's analyses appear to have been sampled from the entire known population of caught spies from 1945 through 1989, approximately. There are two primary advantages of Stone's methodology compared to Herbig's. First, Stone attempted to gather information about spies' characteristics that could have been known at the time these individuals might have applied for clearances. Second, Stone used a systematic, quantitative method of analysis, canonical correlation, for aggregating the information about the spies, whereas Herbig relied on qualitative and counting methods. Notwithstanding these strengths, two major weaknesses greatly limit the contribution and interpretability of Stone's results. First, Stone himself derived the characteristics of each spy from his own analysis of the personal histories of each spy from various sources. No effort was made to confirm the meaning or accuracy of Stone's assessments. Second, the statistical methodology of canonical correlation is likely to produce unstable results from the tetrachoric correlations used by Stone. These correlations likely were based on highly skewed dichotomous data. As Stone acknowledged, the incidents that indicated the presence of a characteristics, say for example, sexual misconduct, were "extremely small (in) number." That is, for each of the 10 characteristics of the spies, the vast majority of spies showed no indication of the characteristics in question. This is typical even of SSBI investigations so this limitation is not unique to Stone. Nevertheless, this feature of the data, extreme skew, is known to lead to unstable correlation analyses such as canonical correlation. Results from Stone's study are reported here in spite of these limitations because they can provide some high-level insight about central themes in his dataset.

Thompson (2003)

Thompson's dissertation compared the characteristics of 40 caught spies to 40 matched, non-spies. Although the characteristics were assessed after the fact, like Herbig, the distinctive strength of Thompson's method was that spies were compared to non-spies on the same characteristics. This quasi-experimental design provides the most persuasive information currently available about factors that distinguish spies from non-spies. For this reason, Thompson's results have the strongest implications for the personal attributes most likely to be predictive of future security violation. However, even Thompson's study is not a true experiment so causal inferences cannot be drawn about characteristics that predict security violations. Thompson's study is also unique in that the personal characteristics are self-reported. But it is not clear whether this self-report feature implies that the assessment of the personal characteristics is to be preferred to Herbig and Stone's. Our own professional judgment is that Thompson's self-report methodology is preferable to Stone's author-based methodology. But we are unsure of the relative strengths of Thompson's assessment method compared to Herbig's.

Guideline D – Sexual Behavior (Disorder)

Although homosexuality is no longer considered a risk factor in and of itself and is no longer classified as a psychological disorder (DSM-IV, American Psychiatric Association, 1994), a brief examination of sexual orientation in a sample of spies was undertaken by Herbig (2008). She reported the percentages of homosexuals involved in espionage from 1947-1979 was 7%, 4% from 1980-1989, and 0% from 1990 to 2007. Herbig's conclusion was that the incidence of homosexuality among spies was no greater than in the general population, which suggested that homosexuality is not likely to be a risk factor for security violations.

Stone (1992) assessed "sexual misconduct" in the publicly reported histories of 100 spies among nine other Guidelines-related characteristics. His subsequent canonical correlation analyses showed no relevance of this measure of sexual behavior to any of four motivations to engage in espionage – money, ideology, disaffection (with the US) and "other." Although this study is flawed, the implication is that factors associated with disordered sexual behavior are not significant components of spies' motives for their espionage.

Thompson (2003) does not assess sexual behavior and, so, provides no information about the extent to which spies and matched non-spies are distinguished by their sexual behaviors.

Beyond these three sources of Level 1 evidence, two other studies investigated data relevant to the policy considerations relating to homosexuality as a possible risk factor for security violations. While these are not Level 1 evidence, they do provide additional information about the relevance of homosexuality to security behavior.

Jones and Koshes (1995) reviewed the history of the policy of the US military to exclude homosexuals from serving in the armed forces. They cite a review of court cases ultimately concluding that homosexuals in the military posed no documented threat to national security (McCrary & Gutierrez, 1980).

Herek (1990) found similar results after reviewing social science data relevant to the prior policies that often resulted in denied security clearances or unusually lengthy and intensive investigations for homosexual applicants in the intelligence field. Herek concluded that a) homosexuals are no more likely than heterosexuals to suffer from a personality disorder or emotional stress or to be psychologically unstable, b) homosexuals are not more likely than heterosexuals to be unduly sensitive to coercion, blackmail, or duress, and c) homosexuals are no more likely than heterosexuals to be unwilling to respect or uphold laws or regulations, or to be unreliable or untrustworthy. Indeed, Herek speculated that homosexuals may be better suited, on average, to protect classified information due to their experience with stigma that may increase their ability to maintain secrecy.

Guidelines G and H – Alcohol Consumption and Drug Involvement

We combine the review of Level 1 evidence for Alcohol Consumption and Drug Use because of the similarity in the likely mechanisms by which either may be a risk factor for security violations.

Herbig (2008) found a decline in alcohol abuse among known spies over the 6 decades of history about spy cases. During the period from 1947-1979, 30% of espionage offenders exhibited issues related to alcohol consumption. In the 1980s, the percentage dropped to 24% and in the most recent years from 1990-2007, only 8% exhibited alcohol related issues. It is particularly noteworthy that not only has the percentage of espionage cases involving alcohol decreased but the absolute number of alcohol-related cases has decreased as well down to a mere 3 from 1990-2007.

With regard to use of drugs, Herbig (2008) found that 15% of spies from 1947 to 1970 misused drugs or used illegal drugs. This percentage rose to 41% in the 1980's when the spy population shifted somewhat to younger, lower-ranking military men. Of the 37 American spies examined since 1990, only one (3%) were known to have used illegal drugs. Herbig speculates that the use of drug tests in employment screening and as a continuing evaluation measure may be responsible for the decline in the role of drug involvement in security violation behavior. While the pattern of drug use among spies was different (sharp increase) than the pattern of alcohol use (modest decrease) through the 1980's, both appear to have become virtual non-factors in spy cases from 1990-2007.

Thompson (2003) examined both non-medicinal drug use and high alcohol use among spies and matched non-spies. Spies were nearly five times more likely to be heavy alcohol users than non-spies, .48 and .10, respectively. They were less different with respect to drug use with spies being nearly three time more likely to engage in non-medicinal drug use that non-spies, .62 and .22, respectively. It is notable that Thompson's rates of reported alcohol use and drug use among spies in 2002, .48 and .62, respectively were significantly higher than Herbig's reported alcohol and drug use rates from 1990 – 2007, .08 and .03, respectively. It is not clear why these two studies reported such discrepant levels of alcohol and drug use in similar time periods.

Stone (1992) assessed evidence of earlier alcohol abuse and drug abuse among 100 spies and found that both drug abuse and alcohol abuse were the most distinctive characteristics of spies who reported "disaffection" with the US as a primary motive for their espionage. Drug abuse was nearly twice as relevant as alcohol abuse, .77 and .46, respectively, to the disaffection motivation for spying. Neither drug abuse nor alcohol abuse was relevant to the more frequent motives relating to ideology or money.

Guideline I – Psychological Conditions

Prevalence of Psychological Conditions in Spies

Thompson (2003) examined vulnerability factors that enhance the risk of espionage. The factors examined in this survey-based study included: use of illegal drugs, financial responsibility, crime (prior to and not including the espionage), **emotional issues**, and alcohol use/abuse.

The survey assessed emotional problems with the following questions: "Have you ever undergone:" family counseling, marital counseling, grief counseling, or individual counseling. "Have you ever been diagnosed with a psychiatric disorder? Have you ever been on any medication for psychological issues? If yes, please provide the name of medications and dosages. If yes to any of the above, please describe." The results of the study indicated a greater frequency of drugs, crime, **emotional issues**, financial problems and alcohol misuse in the spy sample. Of the 40 spies, 31 had emotional issues, while only 2 of the 40 non-spies had psychological problems. Spies were 15 times more likely to have emotional issues than non-spies.

In a paper summarizing the research of the US government on spies, Gelles (2006) describes the US spy as one who is not "crazy," but suffering from an emotional disorder, including one or more personality disorders. In particular, the antisocial personality disorder and narcissistic personality disorder are the most common personality disorders found in spies. Both personality disorders share common characteristics and are often found to coincide. In 2001, Pertman also noted the presence of anti-social personalities in a sample of incarcerated spies.

However, these disorders might not necessarily lead to a more serious offense. Gelles (2006) proposes three factors necessary before a trustworthy and loyal individual is likely to engage in security violation behavior. First is a personality or character weakness that serves as a predisposition to maladjusted counterproductive behavior. Second, some form of personal crisis puts these individuals under significant stress, which triggers counterproductive behavior often observed by others. Third, the individuals who observe the counterproductive behavior in the at-risk employee fail to recognize the signs of the serious problem, or they do nothing about it. The observer may assume that someone else will address the problem or they themselves may not want to get involved in the matter. When this failure to act on obvious counterproductive behavior occurs, the individual's behavior may further deteriorate. Because many spies tend to evidence an inability to accept responsibility for their actions, they may either minimize their mistakes or behavior, or blame others for their problems (Gelles, 2006). This, of course, distracts the potential offender away from his own behavior, minimizing the chances that the individual will, in fact, act on his own behalf in getting help with the problem behaviors.

Gambling addiction is a psychological condition that may impact the likelihood of security violation behavior. Herbig (2008) reported that of offenders in 1947-1979, 18% evidenced problematic gambling, while only 1% had such problems in the 1980s. The steep decline in gambling problems in known espionage offenders indicates that this is not a primary

or even significant motive for such security violation behavior. It is more likely to act as a contributor to financial problems that may motivate such behavior.

Kramer and Heuer (2007) identified trends that might contribute to the motivation to commit espionage. One of these trends was the increasing prevalence of compulsive gambling. In moderation, gambling is not a problem in today's culture in the U.S. If gambling increases to the point where funds are limited and there is a need to secure money to pay off debts and to continue gambling, compulsive gamblers can become so desperate that they resort to criminal behavior to meet their financial and emotional needs.

In Herbig's (2008) analysis of known espionage cases, she points to the presence of specific psychological traits and diagnoses in the most recent 11 cases of espionage. Specifically, serious psychological conditions played a role in four recent offenders' behavior: Smith was diagnosed with severe alcohol addiction and mental instability while awaiting trial; Weinmann was diagnosed as brittle, immature and impulsive; Anderson was diagnosed with bipolar disorder and Asperger's syndrome; Mehalba was also diagnosed with bipolar disorder as well as various attention deficit problems.

Psychological Conditions and Motivations to Spy

Brown (1988 as cited in Parker & Wiskoff, 1991) reviewed 92 cases of American espionage and identified seven motivational factors: greed, revenge, ideology, adventure (ego), messiah complex, emotional or romantic involvement, and national pride. In addition, Brown identified three personality types that are represented in espionage cases: the "wimps," the "wheeler-dealers," and the "world savers." "Wimps" are individuals who suffer from feelings of inadequacy and have difficulty coping with stress in their lives. Brown suggests that "wimps" become involved in espionage as a vengeful or compensatory act. "Wheeler-dealers" are conceited and focused on satisfying their hedonistic desires for the good life. "World savers" are attempting to correct social wrongs in our political system. Brown's conclusion that is most meaningful for the purposes of this paper, however, is that many of the people involved in espionage had serious character flaws.

Stone (1992) examined the relationship between security clearance adjudication variables and four major motivations for espionage behavior in 100 uncovered U.S. citizen spies. Stone's results indicated that the major motivations for spying were money, ideology and disaffection (in decreasing order of importance). Correlations between the adjudication guideline variables and the motivation variables indicated that mental and emotional disorders were not significantly related to any of the four motivation variables assessed in this study.

LEVEL 2 EVIDENCE

As noted in the Level 1 Evidence section, a review of the literature indicated that there were very few studies providing evidence that sexual behavior, alcohol or drug use, or psychological conditions were associated with, or predictive of, security violation behavior itself. A much larger number of studies reviewed below provides evidence linking behaviors associated with these Guidelines to analogs of security violation behavior. For the purposes of this project, evidence about the predictive link between Guidelines' behavior and analogs of security violations is classified as Level 2 Evidence. These analog behaviors include a wide range of counter-normative workplace behaviors such as workplace theft, counterproductivity, absence/tardiness, workplace aggression, workplace misconduct, use of internet pornography, and workplace safety.

A distinctive feature of these four psychosocial Guidelines is that the same behaviors that are treated as potential antecedents of security risk are also measured as outcome variables in some studies we chose to classify as Level 2 evidence. For example, evidence that a psychological condition associated with Guideline I, such as antisocial personality disorder, is an antecedent of workplace alcohol abuse could be classified as Level 2 evidence. Such a study could provide Level 2 evidence if the study treated workplace alcohol abuse as an outcome measure and if workplace alcohol abuse were regarded as an analog to security violation behavior. In this case, the same behavior, workplace alcohol abuse, is regarded as a security violation analog even though it is also regarded in other research as a Guideline behavior.

A special example of this type of evidence is the research about sexual misconduct among professionals providing human services such as therapists, physicians, clergy, and lawyers. The vast majority of this research addresses professional and ethical standards, actuarial evidence about frequency and patterns of such misconduct, and legal/forensic considerations. This type of research is not relevant to the question whether disordered sexual behavior predicts future security violations. But some research in this domain is indirectly relevant to an understanding of how sexual behavior may be predictive of security violation behavior. Research in this domain that identifies the psychological antecedents of professional sexual misconduct may be relevant in two ways. First, it provides insight into the types of personal history evidence among professionals that may be indicative of the types of sexual behavior intended by Guideline D. Second, it may provide evidence about psychological attributes that are predictive of later sexual misconduct. The potential value of this second type of evidence rests on the assumption that sexual misconduct is an analog to security violation behavior. But sexual misconduct is, at best, only a partial analog to security violation behavior. Its strongest association to security violation behavior is that it is a betrayal of trust. It also takes place in an organizational/workplace context and is intentional. However, except in extreme cases such as rape, it is ambiguous whether professional sexual misconduct is intended to be

harmful, although harm is frequently the result. For this reason, sexual misconduct is only a partial analog to security violation behavior.

At best it is unclear whether research about professional sexual misconduct strictly satisfies the definitions of Level 2 evidence or, for that matter Level 3 evidence. In spite of this ambiguity, this evidence provides potential insight about the role of psychological attributes as antecedents to sexual misconduct, which is a betrayal of trust. Because of this potential value, such evidence is included in this section about Level 2 evidence. This evidence is positioned as Level 2 evidence relating to Psychological Conditions, Guideline I, and treating professional sexual misconduct as a partial-analog to security violation behavior.

Many studies focused on evidence about the rates and incidence of Guideline behaviors or on treatments to minimize the incidence of one or more Guideline behaviors. Research of this sort is regarded as evidence of possible mitigators associated with such behaviors and is reviewed in the Mitigator section following the Level 1, 2 and 3 Evidence sections.

The domain of Guideline I Psychological Conditions is generally considered to encompass *clinically* diagnosed psychological conditions. These personal attributes, such as psychopathy or impulse control disorders, represent dysfunctional behavior patterns that are extreme enough to interfere with "normal," effective functioning. Diagnostic tools and treatment protocols have been developed within the profession of clinical psychology to assess and treat these dysfunctional behavior patterns. Within the adjudicative process, clinical psychologists are called upon to provide an evaluation of such attributes where investigative evidence indicates the possibility of such concerns.

In contrast, considerable research has addressed personality attributes that describe the "normal" range of effective, functional behavior patterns. These personality attributes include characteristics such as achievement orientation, orderliness, agreeableness, extraversion, locus of control, and self-efficacy among many others. These "normal" range attributes are most often assessed by standardized inventories or questionnaires that may be administered and scored by non-clinical professionals. Further, behavior that is seen as falling toward the ends of these behavioral continua is usually not regarded as being dysfunctional to the extent that it interferes with major life activities or that treatment would be called for. For example, highly conscientious people might be viewed as, say, extremely meticulous and careful about their work, and may even be viewed as unusual, but would not generally be viewed as dysfunctionally obsessive and likely to benefit from psychological treatment..

To be sure, the boundary between functionally extreme and clinically dysfunctional is fuzzy and shifting. Nevertheless, the psychosocial Guidelines and this review rely on this distinction. Research evidence about the link between clinical disorders is regarded as Level 2 evidence because the Psychological Conditions Guideline focuses on clinically defined behavior patterns. In contrast, research evidence about "normal" range personality attributes is regarded as Level 3 evidence because such attributes describing the functional range of normal behavior are not the target of Guideline I but are considered to be psychological variables that can be antecedents to security violation behavior and/or analogs to such security behavior.

This review of Level 2 evidence also includes reviews of literature about the meaning of the clinical psychological concepts of psychopathy and antisocial personality disorder. This review is intended to clarify the sometimes ambiguous distinction between these two constructs that are central to understanding the psychology of extreme counter-normative behavior.

Guideline D – Sexual Behavior

Pornography Use and Harmful Behavior

No evidence was located linking pornography use to a true analog to security violation behavior. However, a small amount of research was located linking pornography use to partial analogs – juvenile sexual aggression, adult sexual aggression, and criminal sexual behavior. This evidence provides some insight into the predictive relevance of pornography use to later intentional, harmful, counter-normative behavior.

Harries and Knight (2008) examined risk factors, including pornography use, for sexual aggression in juveniles. The sample included 307 juvenile sexual offenders who had been adjudicated for at least one serious sexual crime. Several risk factors for criminal sexual behavior were assessed including substance abuse, childhood sexual abuse five facets of pornography use - early exposure to pornography, heterosexual pornography use, homosexual pornography use, child pornography use, and violent pornography use. Results indicated that sexual abuse and substance abuse significantly predicted later sexually coercive behavior, but the use of violent pornography did not account for any additional variance. Pornography use did not emerge in these findings as predictive of sexually coercive behavior. These findings were in contrast of those of Malamuth and Huppin (2005) who found that when hostile masculinity and sexualization were entered along with pornography use, pornography was still a significant predictor of sexually aggressive behavior. This discrepancy may be explained by Harris and Knight's reliance on a sample of juveniles and the possibility that antecedents of sexually coercive behavior could vary as a function of age.

Tiefenwerth (2008) explored the extent to which exposure to pornography in general and to cyber-pornography in particular was a contributory risk factor in the psychopathologies of a sample of incarcerated male sex offenders. The degree of exposure to pornography was also explored in relation to the psycho-social development of the sample interviewed. The sample included 25 male sex offenders convicted of felony offenses. The interviews also considered the following variables: psychopathy, violence, sexual fantasy, paraphilias, alcohol abuse and other types of substance abuse or dependency, behavioral addictions, childhood sexual abuse or trauma, and negative gender-based attitudes. Findings indicated that among the offenders interviewed, the link between pornography, criminal sexuality and psychopathology differed, early developmental exposure to violent pornography exacerbated other forms of psychopathology, regular use of pornography as an adult did not precipitate a behavioral sex addiction, the use of alcohol and/or other drugs increased the violence of sexual offenders, and the use of psychological defense mechanisms was more common among older offenders.

Guidelines G and H – Alcohol Consumption and Drug Involvement

This section will examine the relationship between alcohol and drug use and counterproductive workplace behaviors and workplace aggression, which are analogs to security violation behavior. Research will also be reported about the prediction of workplace injuries from substance abuse. Workplace injuries are partial analogs because, in general, they are not intentional nor are they intend harm. However, this research is reported because it provides some additional insight into the likely role of general deviance proneness (general problem behavior) in predicting counter-normative work behavior.

Substance Use and Workplace Injuries

Frone (1998) explored predictors of workplace injuries in a sample of 319 individuals age 16 to 19. Results for substance use and its relationship to work injuries indicated that on-the-job substance use was positively related to frequency of work injuries. There was no significant relationship between general substance use and such workplace injuries.

Spicer, Miller and Smith (2003) examined the tendency toward problem behavior as an explanation for the relationship between problem substance use and occupational injury. The sample was a matched case-control study nested in a cohort of 26,413 workers, 3,994 of whom were workers who sustained an occupational injury. Every injury case was matched with 5 controls (n=19,970) who were cohorts working on the same day as the injury and in the same type of job. Results indicated that the odds of injury for a worker with an indicator of problem substance use was 1.35 (p=.015) times greater than the odds among workers without an indicator (controlling for job type, demographics and exposure). Similarly histories of minor and serious problem behaviors increased the odds of occupational injury, 1.73 and 2.19, respectively. The authors concluded that the relationship between problematic substance use and occupational injury was weak when problem behaviors were controlled for, suggesting that a worker's tendency toward problem behaviors has a larger direct effect on injuries than substance abuse. The authors concluded that it is the element of risk-taking and a disregard for safety policies that contributes to the relationship between injury and deviant behaviors, including the problematic use of substances.

Cherpitel (1999) examined alcohol consumption, illicit drug use, and risk-taking dispositions on all types of injuries. The sample consisted of 4,925 respondents from the 1995 National Alcohol Survey. Data on risk perception, risk-taking, sensation seeking, alcohol and drug use, demographic characteristics, and injury over the last year were examined. Moderate drinking, alcohol treatment, drug use, simultaneous use of drugs and alcohol and risk-taking dispositions were all positively associated with the report of an injury.

Substance Use and Counterproductive Workplace Behaviors

Bass et al.(1996) investigated the extent to which self-reported and urine-screened drug use accounted for variance in several types of absenteeism and tardiness, above and beyond the

influence of demographic and work reaction variables. Overall, drug use assessed by means of both urinalysis and self-report was associated with increased employee absenteeism as well as tardiness. Bass et al. concluded that employees who use drugs have a relatively persistent pattern of absenteeism as well as tardiness. When demographics and employee reactions to the work environment are taken into account, employee drug use accounts for additional variance in overall absenteeism and absenteeism due to injuries, suspensions and tardiness.

Mastrangelo and Jolton (2001) studied the effects of workplace substance abuse on three categories of counterproductive behaviors. Substance abuse was defined as any on-the-job use of alcohol or illegal drugs. Three different categories of work behavior were examined: time theft, antagonistic behaviors (including taking property from the employer without permission and sharing confidential information with unauthorized people), and helping behavior. Results indicated that those who admitted substance abuse on-the-job were more likely to engage in antagonistic behavior.

Sarchione, Cuttler, Muchinsky and Nelson-Gray (1998) examined the predictability of dysfunctional job behaviors among law-enforcement officers. They matched two groups (n=109 each) of officers, one of whom was disciplined, the other of whom served as a control group. Six predictors were examined: three facets of conscientiousness (responsibility, socialization, and self-control), and three life history indices (drug use, criminal, and work). The disciplinary group consisted of law enforcement officers who were involved in situations requiring formal disciplinary or departmental action as a result of their behavior on the job after hiring. Examples include: use of excessive force, sexual misconduct, substance use, insubordination, embezzlement of property, lying, multiple motor vehicle violations, inappropriate verbal conduct toward the public, and multiple duty responsibility violations. The control group did not evidence any of the above behaviors. All three life indices (work, drug, and criminal history) significantly differentiated the two groups of officers. The corrected effect sizes for the life history indices ranged from $r = .40$ (drug use) to $r = .74$ (work).

Sarchione et al. proposed the principle of behavioral consistency to explain the results that all life-history indices predicted dysfunctional police behavior. Officers with a history of prior employment problems, drug use, and criminal behavior were more likely to have disciplinary problems as law enforcement officers resulting in formal discipline than those who did not exhibit this pattern of behavior. These results suggest that past dysfunctional behavior predicts future dysfunctional behavior.

Lehman and Simpson (1992) reported a relationship between substance use and counterproductive job behaviors in a sample of 1,325 municipal employees. The job behaviors of interest included: psychological and physical withdrawal, positive work behaviors and antagonistic work behaviors. Results indicate that employees who reported substance use either at or away from work were more likely to engage in withdrawal activities and antagonistic work behaviors than nonusers. Interestingly, users and nonusers were not different in terms of positive work behavior. After controlling for personal and job background characteristics, substance use

was found to incrementally improve the prediction of psychological and physical withdrawal behaviors, but not positive or antagonistic work behaviors.

Ames et al. (1997) examined the relationship between alcohol drinking patterns and workplace problems in a manufacturing facility. Results indicated that overall drinking, heavy drinking outside of work, drinking at work or just before work, and coming to work hung over were related to the overall number of work problems experienced by the sample and to specific problems such as conflict with supervisors and falling asleep on the job. Results also showed that workplace drinking and coming to work hung over predicted workplace problems even after usual drinking patterns, heavy drinking and significant job characteristics and background variables were controlled. The results supported the hypothesis that work-related drinking and hangovers at work are related to problems in the workplace and this may contribute ultimately to lower productivity and morale.

Mangione et al. (1999) examined the effects of several drinking indicators and drug use on self-reported work performance in a sample of 6,540 managers, supervisors and workers at 16 worksites. Results indicated that the frequency of self-reported work performance problems increased with all drinking measures. Moderate-heavy and heavy drinkers reported more work performance problems than very light, light or moderate drinkers. The overall number of work performance problems increased as a function of increasing drinking level category.

Mangione et al. suggest that the effects of drinking on work-related problems are the result of a broad deviant lifestyle syndrome (Normand et al., 1994). People who have deviant lifestyles would be likely to break rules, abuse alcohol and drugs, hold deviant attitudes, and engage in other norm violating behaviors. The authors cite several studies supporting this viewpoint (See e.g., Donovan & Jessor, 1985; Gillmore et al., 1991; Newcomb and Bentler, 1988).

Stein et al.(1993) conducted a longitudinal study of the effects of adolescent drug use on later adult job behaviors, job satisfaction, and adverse terminations while controlling for concurrent adult drug use, years of drug use, and adolescent achievement motivation. The sample of usable data included 785 individuals, 53% of whom were female. The subjects were originally assessed while in the 10th, 11th, or 12th grades. They were mostly white and from middle-class families. The mean age of the follow-up sample was 26 years; 82% were conventionally employed in full-time jobs.

The conclusions reveal little or no relationship between adolescent drug use and later indicators of job behaviors and satisfaction. These results support the findings of Newcomb and Bentler (1988) that adolescent drug use has at most, only a weak influence on later job satisfaction and job behaviors, especially when concurrent drug use is controlled. There was, however, a very strong stability effect of drug use across the years and adult drug use was significantly related to job-related problems and low job satisfaction. Long-term drug use, which reflected early onset of substance use, was also associated with negative job behaviors. There was only a weak relationship between adolescent achievement orientation and adult drug use in the path model, suggesting that "an amotivational, nonconforming personality as an adolescent

does not necessarily predict later drug use unless it is accompanied by drug use in adolescence" (p.472). The personality trait of achievement orientation was most predictive of adult job behaviors and job satisfaction. There was also a strong relationship between adolescent achievement and drug use in adolescence.

The general propensity to use drugs (adult polydrug use) was significantly associated with low job satisfaction and negative job behaviors and was predicted by adolescent drug use. In addition, adult hard-drug use was related to adverse job terminations and negative job behaviors, above and beyond the effects of polydrug use and long-term drug use.

Substance Use and Workplace Aggression

McFarlin et al. (2001) explored the relationship between alcohol use and workplace aggression. Specifically, the relationship between frequency of alcohol use over the past year and the relationship with victimization from and perpetration of workplace aggression between coworkers was explored in a sample of 300 civilian employees. Results indicated that both the percentage of days of any drinking and percentage of days of heavy drinking during the past year were positively related to victimization from verbal and physical aggression at work and the perpetration of verbal and physical aggression at work.

McFarlin et al. speculate that the relationship between alcohol and workplace aggression is likely moderated by other employee and organizational factors. They specifically cite the following situational and dispositional traits as predictors of aggressive behavior: presence of personality traits such as sociopathy (Olweus, 1979), frustration resulting from exposure to aversive situations (e.g., Berkowitz, 1974), lack of social awareness (Hull, 1981), and deindividuation ((Prentice-Dunn & Rogers, 1982). The authors further speculate that adding alcohol to any of the above variables might increase the likelihood of aggressive behavior. In fact, researchers have found such relationships. Gustafson (1991, 1993) found that frustration was likely to lead to aggressiveness if the individuals involved are intoxicated. Baily & Taylor (1991) found that individuals with aggressive personality traits (e.g., sociopathy, impulsivity, and hyperactivity) are more likely to retaliate with they are intoxicated. Finally, Jeavons & Taylor (1985) found that individuals who have consumed alcohol are likely to be aggressive if they are exposed to aversive stimuli, such as noise.

Mignone et al.(2009) explored the effects of alcohol relapse on violence in men who have engaged in intimate partner violence. The researchers were also interested in the potential moderating effects of female partner drinking and the diagnosis of anti-social personality disorder. Results indicated that those who relapsed to alcohol were much more likely to relapse to physical aggression. For men diagnosed with ASPD, the effect for relapse to drinking was more prominent for nonsevere intimate partner violence. The conclusion is that when partner violent men who complete alcoholism treatment relapse to alcohol, they are also likely to relapse to violence.

Guideline I – Psychological Conditions

This section reports evidence examining the predictive relationship between clinical psychological conditions referenced in Guideline I and analogs or partial analogs to security violation behavior. Guideline I does not prescribe a finite list of clinical psychological conditions. Rather, it provides a mechanism by which a licensed clinical psychologist may provide input to the adjudication process about evidence of clinical conditions that, in the psychologist's judgment, may constitute a risk for security violation behavior. As a result, virtually any clinical psychological condition (disorder) potentially could be part of the psychologist's assessment of risk under Guideline I. Of course, some disorders are far more likely than others to be viewed as risk factors.

To ensure a thorough literature search, a comprehensive list of clinical disorders was identified and a comprehensive list of key words associated with security behaviors and analogs was developed. The search strategy was to search for literature about the clinical disorders in combination with the security behavior key words. The judgment and clinical expertise of the search analysts limited the possible combinations to those that were plausible. For example, no search was requested for research that combined Frotteurism and Embezzlement. Table 5 shows the lists of clinical disorders and security behavior key words. This table arranges the list of clinical disorders into two columns, one showing the disorders for which relevant evidence was located, the other showing the disorders for which no relevant evidence was located.

Table 5. Clinical Disorders and Security Behavior Key Words Used in the Guideline I Literature Search

Clinical Disorders with Level 2 evidence	Clinical Disorders with No Level 2 evidence	Security Behavior Key Words

♦ Depression
♦ Impulse Control Disorder
♦ Psychopathy
♦ Antisocial Personality Disorder
♦ Narcissistic Personality Disorder
	♦ Bipolar Disorder
	♦ Mania
	♦ Mood Disorder
	♦ Anxiety
	♦ Post-Traumatic Stress Disorder
	♦ Magical Thinking
	♦ Obsessive-Compulsive Disorder
	♦ Panic Disorder
	♦ Specific Phobia
	♦ Agoraphobia
	♦ Paraphilia
	  o Fetish
	  o Sadism
	  o Masochism
	  o Frotteurism
	  o Exhibitionism
	  o Pedophilia
	♦ Paranoid
	♦ Schizoid
	♦ Schizotypal
		♦ Spy
		♦ Espionage
		♦ Informant
		♦ Employee
		♦ Workplace
		♦ Aggression
		♦ Violence
		♦ Work
		♦ Work Stress
		♦ Fraud
		♦ Embezzlement
		♦ White Collar Crime
		♦ Sabotage
		♦ Crime
		♦ Police
		♦ Lying
		♦ Deviance
		♦ Interpersonal Conflict
		♦ Interpersonal Functioning
		♦ Interpersonal Disputes/Offense

Clinical Disorders with Level 2 evidence	Clinical Disorders with No Level 2 evidence	Security Behavior Key Words
	♦ Borderline ♦ Histrionic ♦ Delusional Disorder ♦ Schizophrenia ♦ Schizophreniform ♦ Schizoaffective ♦ Psychotic ♦ Dissociative	

As Table 5 shows, the large majority of clinical disorders have no research evidence about their predictive relationship to analogs of security violation behavior or, for that, matter, security violation behavior itself.

"Occupational Functioning"

A primary reason for the relative paucity of research about clinical disorders as predictors of security analogs is that clinically oriented research is most often oriented toward theoretical relationships and outcomes measures associated with outcomes of interest in the therapeutic context. The clinical interest in workplace behavior tends to be limited to indicators of "occupational functioning." For example, a handful of studies about bipolar disorder (BD) provide evidence about BD's effect on occupational or employment 'functioning." (See, e.g., Hajek, Slaney, Garnham,, Ruzickova, Passmore. & Alda, 2005; Waghorn, Chant & Jaeger, 2007; Michalak, Yatham, Maxwell, Hale & Lam, 2007; Rosa, et al. 2009.) But occupational "functioning" in these studies refers, in general, to one's ability or qualifications required to perform work. Such abilities / qualifications include intelligence, memory, work skills, and attendance. These "functioning" attributes relate to the person's ability to perform or keep a job. Such measures of work behavior have virtually no implications or relationship to security violation behavior or its analogs. The same point can be made about research on the effects of Post-Traumatic Stress Disorder (PTSD) on occupational functioning, which is described in Appendix B. (See, e.g., Geuze et al., 2009, Taylor et al., 2006; Evans et al., 2006; Mathews, 2005; Bleich & Solomon, 2004).

Partial Analogs to Security Violation Behavior

A further consequence of the lack of clinical research focusing on workplace behavior is that very few studies of Guideline I psychological conditions investigated true analogs to security violation behavior. While several studies reported about intentional, harmful and counter-normative outcome behaviors, such as aggression and criminal behavior, few satisfied the analog requirement that the behavior be in an organization context. For this reason, a relaxed standard for analog behavior was applied for Level 2 evidence about Guideline I psychological conditions. Research about partial analog outcome behaviors is reported for psychological

conditions. The most common partial analogs are direct and indirect aggression, violence and criminal behavior.

PTSD (Appendix B)

Research on PTSD is given special treatment in this White Paper. A review of research about PTSD including information about its meaning, its correlates, treatment strategies as well as work-related outcomes is provided in Appendix B. This review is provided in this White Paper because a rapid increase is expected in the number of PTSD cases who are presented for security clearance adjudication and this review provides a foundation for the reader's understanding of PTSD in spite of the absence of PTSD research relating to its prediction of security violation behavior or its analogs.

Evidence of Psychological Conditions' Prediction of Analogs of Security Violation Behavior

Depression and Workplace Injury (Partial Analog)

In a study of predictors of workplace injuries in adolescents, age 16-19, Frone (1998) examined 5 general categories of risk factors, one of which was emotional and physical health. Prior research in an adult sample found that high levels of depression adversely affect the ability to process information (Sullivan & Conway, 1989, as cited in Frone, 1998) and interferes with general role functioning (Broadhead, Blazer, George, & Tse, 1990; Wells et al., 1989 and job performance (Cooper & Sutherland, 1987; Holcom et al., 1993; Zwerling et al., 1996). In this study, depression was measured by a 20 item scale assessing symptoms and their frequency in the past week. While depression was found to be correlated with negative affectivity, rebelliousness, impulsivity, physical hazards, workload, role ambiguity, supervisor conflict, coworker conflict, work-school conflict, and job dissatisfaction, it was not related to work injuries when entered into the regression equations.

Impulse Control Disorders and Criminal Behavior (Partial Analog)

Meyer and Stadler (1999) explored the relationship between pathological gambling and criminal behavior in a sample of German residents. The sample consisted of two groups, 300 pathological gamblers drawn from both inpatient and outpatient treatment centers and self-help groups, and 274 high and low frequency gamblers from the general population and the army. With regard to intensity of criminal behavior in both gambling groups, 89.3% of pathological gamblers reported having committed at least one crime in their lifetime whereas only 51.8% of the high and low frequency gamblers reported the same. The percentages of the two groups reporting committing at least one criminal act within the past year was 59.3% of the pathological group and 22.3% of the high-low frequency group.

The relationship between gambling and different types of criminal offenses committed during the previous 12 months was also examined. Eighteen different criminal offenses were examined. With the exception of 5 crimes (driving without a license, tax evasion, theft from/of cars, burglary, and driving under influence of alcohol), pathological gamblers report greater frequencies of criminal behaviors than those in the high-low frequency group. For pathological gamblers, the following crimes occurred in high percentages of the group: fraud (37.7%), embezzlement (21.7%), theft at work (23.3%), theft in family (21%), travel without paying (26.7%), driving under the influence of alcohol (20.7%), consumption of soft drugs (18%), and shoplifting (13%).

It should be noted that additional evidence about the relationship between self-control, which is very close in meaning to impulse control disorder, and security violation analogs is reported in the White Paper on criminal behavior. The research reported regarding criminal behavior is largely reported in research outlets for studies of criminal behavior. In those studies, self-control is typically measured as a "normal range" personality trait, not as a clinical disorder, which is how impulse control disorder typically is assessed in the clinical literature..

An Important Distinction between Psychopathy and Antisocial Personality Disorder

The next two sections review research on Psychopathy and Antisocial Personality Disorder (ASPD). Prior to those two reviews, however, a brief overview is provided of the professional distinction between these two disorders. (A more detailed description of the distinction between them is provided in Appendix A for the interested reader.) Within the clinical profession Psychopathy and ASPD are viewed as representing largely the same set of underlying personal attributes. These include interpersonal characteristics of grandiose, arrogant, callous, superficial and manipulative; affective attributes of short-tempered, unable to form strong emotional bonds with others, and lacking in empathy, guilt or remorse. Behaviorally, they are irresponsible, impulsive, and prone to violate social and legal norms and expectations. The current DSM-IV describes ASPD as "this pattern has also been referred to a psychopathy, sociopathy, or dissocial personality disorder" (p. 645).

DSM-IV provides diagnostic criteria only for ASPD, not for Psychopathy. These diagnostic criteria include the requirement that there must be evidence of conduct disorder prior to age 15. In effect, the DSM-IV based diagnosis of ASPD relies heavily on behavioral evidence of disordered conduct. Hare (1980; 1991) and others have noted that considerable research evidence exists for a stable pattern of personality attributes associated with Psychopathy and that this psychopathic cluster of attributes does not necessarily result in disordered conduct. As a result, DSM-IV based diagnoses of ASPD emphasizing behavior disorder may systematically underdiagnose the psychopathological personality. Not all psychopaths are behavioral offenders. Assessment tools have been developed such as Hare's (1991) Psychopathy Checklist-Revised (PCL-R) to measure psychopathic personality patterns. These assessments of Psychopathy are not equivalent to DSM-IV based diagnoses of ASPD. Furthermore, ASPD is not viewed as simply that subset of psychopaths who engage in disordered behavior. Given the distinct

differences in assessment approaches, the diagnosis of ASPD may be distinct from the meaning of Psychopathy in other nuanced ways depending on the particular measure of Psychopathy.

For the interested reader, more information about the distinction between ASPD and Psychopathy is provided in Appendix A.

Antisocial Personality Disorder (ASPD) and Deviance Proneness (Partial Analog)

Surprisingly little research about ASPD investigated its predictive link to analogs or even partial analogs (outside the work context) of security violation behavior. The relevance of the two studies described here may be captured by the concept of deviance proneness, which has been suggested in the criminal and workplace injury literatures as a primary factor in intentionally harmful, counter-normative behavior both in work contexts and outside work contexts. Neither the Pietrzak et al. (2005) and Crocker et al. (2005) studies reported below measure an outcome behavior that is clearly a partial analog to security violation behavior. However, the outcome behaviors in both studies represent the types of problem behaviors that characterize deviance proneness. Standing alone, neither study has clear or direct implications for security violation behavior or even close analogs. However, both studies provide additional empirical instances of psychological conditions, ASPD in this case, associated with a constellation of problem behaviors regarded as deviance proneness, which has been shown to have strong predictive relationships to criminal behavior (Gottfredson & Hirschi, 1990).

Pietrzak et al.(2005) examined whether pathological gamblers with antisocial personality disorder (ASPD) experienced increased severity of gambling, medical, psychiatric, substance use and psychosocial problems compared with pathological gamblers without ASPD. The sample included 237 pathological gamblers entering an outpatient treatment study for pathological gamblers. Results indicated that 16.5% of the pathological gamblers met DSM-IV criteria for ASPD. When compared with pathological gamblers without ASPD, pathological gamblers with ASPD were younger, more likely to be male, divorced/separated, and less educated. Pathological gamblers with ASPD also began gambling earlier in life, reported increased severity of gambling, medical and drug problems, all of which are specific examples of problem behavior.

Crocker et al.(2005) examined the correlates of antisocial personality disorder (ASPD) and psychopathy in a sample of individuals with dual disorders (i.e., severe mental illness and co-occurring substance use disorder). The authors specifically examined the reliability and validity of measures of ASPD and psychopathy among 203 clients with dual diagnoses and their relationship with criminality and violence over 3 years. Results indicated that the psychopathy measure had limited relationships with criminality and violence. However, ASPD, thought disturbance, negative affect, and earlier age at psychiatric hospitalization were predictive of aggressive behavior.

Psychopathy and Partial Analogs

SETTING THE STAGE: AN ANALYSIS OF PSYCHOPATHS IN ORGANIZATIONS. Before describing prediction evidence linking Psychopathy to partial analogs of security violation behavior, it is helpful to describe Babiak's (1995) description of the manner in which psychopaths may sustain functional behavior in organizational settings. This insightful description provides a context for interpreting the following research evidence about Psychopathy as a predictor of intentional, harmful and counter-normative behavior in an organization context.

Babiak (1995) describes an *industrial* psychopath as an individual who displays psychopathic personality characteristics but does not display a progression of increasing antisocial behavior and deviant lifestyle. In non-institutionalized psychopaths, antisocial behaviors are often covered by a veneer of charm. Babiak proposes that often the psychopath's manipulative nature is only discovered after prolonged exposure. Their convincing stories and explanations may create an environment of trust among co-workers, which after realization of the manipulative nature of the individual, is replaced by self-doubt or shame about being conned. This self-questioning reaction to awareness of the true nature of the psychopathic individual may contribute to a lack of confrontation or exposure of the individual. Babiak stresses that the problem with researching subcriminal psychopaths is of "adequately and accurately identifying and diagnosing psychopathic tendencies earlier on, prior to the documentation of antisocial activity" (p. 174).

In an unusual research design in which data were gathered about functional employees in an organization context Babiak (2000) summarized the findings of longitudinal studies of Psychopathy among employees in six organizations. Each participating employee completed Hare's PCL-R to assessment Psychopathy. Those who were identified as (functional) psychopaths scored high on the Factor 1 component (i.e., aggressive narcissism) and moderate on Factor 2 (i.e., antisocial behavior). These individuals demonstrated the personality traits of psychopaths, without the antisocial acts of criminal psychopaths.

To understand industrial psychopaths Babiak emphasizes the manner in which they often enter an organization and what happens once they settle in. First and foremost, Babiak asserts the psychopaths' ability to deceive cannot be overestimated. In addition, human resource professionals and colleagues are not trained to identify these master manipulators and are often taken in by their charm and apparent intelligence. Attracting subcriminal psychopaths may also depend on how an organization advertises their job openings. Appealing to their high need for stimulation, Widom (1977) successfully attracted noncriminal psychopaths by placing advertisements in a counterculture newspaper using words and phrases that capture the nature of psychopaths and their lifestyles (i.e., "…charming, aggressive, carefree people who are impulsively irresponsible but good at handling people" (p. 675). A plausible inference, which has not been investigated to our knowledge, is that industrial psychopaths may be attracted to the imagined stimulation, excitement and range of experience offered by many jobs requiring the special safe guard of a security clearance.

Babiak further suggests that subcriminal psychopaths are successful primarily because of their ability to avoid apprehension. Changing jobs or moving about the country may contribute to the apparent success of subcriminal psychopaths, but their success within an organization can be limited by the fact that they are in a closed social order. The longer a psychopath is with an organization, the greater the likelihood that antisocial behavior and pathological lying will emerge from daily interactions, breaking through the veneer of charm. In fact, Vaillant (1975) notes that psychopaths exhibit anxiety when they lose their freedom, and circumstances that threaten this freedom in an organization likely lead to overtly negative behavior noticed by others.

EMPIRICAL EVIDENCE. Warren and Clarbour (2009) examined the relationship between Psychopathy and direct and indirect aggression in a noncriminal population. The authors' measure of Psychopathy was based on Cooke and Michie's (2001) three-factor model. Factor 1, the affective factor, assesses shallow affective reactions, lack of empathy and guilt; Factor 2, the interpersonal factor, includes superficial charm and narcissistic manipulation; Factor 3, the behavioral factor, reflects the psychopath's impulsivity, irresponsibility, and lack of long-term planning. Indirect aggression, which is also known as social or relational aggression, refers to aggressive behavior designed to cause harm to the victim by attacking them either directly through social groups and relationships, or more directly but in a way that their actions are perceived as nonaggressive (Archer & Coyne, 2005). Examples of such behaviors include: malicious gossiping, spreading rumors, social group exclusion, use of relationships for emotional manipulation, and malicious use of teasing and ridicule in order to humiliate or isolate others. The use of indirect aggression has been strongly associated with increased levels of social skills and low levels of empathy (Kaukiainen et al., 1999).

Study 1 consisted of 103 British undergraduates; 84 were female, mean age was 18.65 years, 79% were Caucasian, and 85% were native English speakers. Psychopathy predicted all three forms of indirect aggression: social exclusionary behaviors (r=.26), malicious humor (r=.52), and guilt induction (r=.32). All 3 psychopathy factor scales were also significantly associated with total indirect aggression scores: coldheartedness (Factor 1) (r=.20), fearless dominance (Factor 2) (r=.24), and impulsive antisociality (Factor 3) (r=.35). These findings suggest a significant association between psychopathy and indirect aggression.

Study 2 included 201 British university subjects; 83 were male, mean age was 21.9 years, 69% were Caucasian, and 78% were native English speakers. In addition to the psychopathy and indirect aggression measures a measure of direct aggression was also administered. As in Study 1, psychopathy predicted indirect aggression. In addition, psychopathy was correlated with both physical and verbal direct aggression. Coldheartedness (r=.22), and impulsive antisociality (r=.35) both predicted indirect aggression. Total psychopathy scores predicted both physical (r=.34) and verbal (r=.32) aggression.

The authors developed a path analytic model to describe the relationship between the three psychopathy factors and both direct and indirect aggression. Direct and indirect aggression

levels were equally influenced by the presence of psychopathic personality traits, specifically the affective and impulsive factors. Impulsive antisociality exhibited the largest influence and this appeared greater for direct as opposed to indirect aggression. Coldheartedness also had a significant (but smaller) effect on both direct and indirect aggression, though its effect was equal for both forms of aggression.

Forth, Brown, Hart and Hare (1996) examined the extent to which Psychopathy predicted violence, criminal behavior and substance abuse in a sample of 150 university students. The base rate for Psychopathy in this sample was 1.03%. Psychopathy scores were significantly higher among males than females. Psychopathy predicted alcohol and drug abuse as well as violence in the male sample. Interestingly, Psychopathy was not correlated with either depression or anxiety in the males or females. In sum, Psychopathy was significantly associated with Antisocial Personality Disorder symptoms, substance use, and self-reported criminal activity.

Hare (1996) reviewed psychopathy research from 1974-94, focusing on assessment, diagnosis and implications for both the mental health and criminal justice systems. His conclusions suggest that while the personality of a psychopath has the propensity to violate social rules and expectations, changes as a result of age in antisocial behavior are not accompanied by changes in fundamental psychopathic traits. In fact, psychopathic traits in forensic populations were significant predictors of recidivism and violence. Similarly, Salekin, Rogers and Sewell's (1996) review of 18 empirical studies exploring the relationship between Psychopathy violent and non-violent recidivism among prison releasees concluded that Psychopathy was a strong predictor of violence as a factor in recidivism.

Preston (1998) explored effects of Psychopathy in a sample of 56 undergraduate males, 41 minimum security male inmates, and 33 maximum security male inmates. Findings relevant to this section of the paper indicated that psychopathy (+), agreeableness (-) and conscientiousness (-) were positively associated with self-reported delinquency, delinquent behavior, and reactive violence in the student sample. In the inmate sample, the coldheartedness facet of psychopathy was associated with violent and nonviolent convictions as well as institutional misconduct.

Leistico et al.(2008) conducted a meta-analysis of Hare's psychopathy measures and its relationship with criminal recidivism and institutional misconduct. The authors examined 95 overlapping studies with an N=15,826. The studies examined used the Hare Psychopathy Checklist (PCL) which posits two factors of psychopathy: Factor 1 includes interpersonal and affective features while Factor 2 contains socially deviant behaviors. The authors calculated the mean weighted effect sizes across the studies for the total PCL score as well as the Factor 1 and 2 scores. Factor 2 had the largest effect size, $r = .60$, followed by Total PCL, $r = .55$, and Factor 1, $r = .38$.

These studies provide compelling evidence that Psychopathy is a predictor of various forms of aggression and violence in criminal populations as well as noncriminal student populations. While none of these studies measured violence or aggression in a work context,

they confirm a theoretical framework about the role of Psychopathy in counter-normative, aggressive, antisocial behavior that suggests psychopaths are likely to be at substantially higher risk for security violation behavior. Further, Babiak's analysis of the typical pattern of a psychopath's time course in an organization suggests that psychopaths may be attracted to the imagined adventure and excitement of national intelligence work and that the emergence of security violation behavior may take place over a period of time marked by key events that change the psychopath's behavior patterns.

Narcissistic Personality Disorder and Counterproductive Work Behavior (Analog)

Penney and Spector (2002) examined the relationship between Narcissism and counterproductive work behavior (CWB) among 215 employed university students. Narcissism was measured by the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979), which assesses seven facets of Narcissism: authority, self-sufficiency, superiority, exhibitionism, exploitativeness, vanity and entitlement. CWB included a number of specific counter-normative workplace behaviors including theft, tardiness, organization disloyalty, and workplace aggression. Because CWB consists of intentional, harmful and counter-normative behavior in an organization context it is classified as an analog to security violation behavior.

Results indicate that those scoring high on Narcissism engaged in more CWB (r= .27). Students who scored high on trait anger were also more likely to engage in CWB (r = .46). Trait anger mediated the relationship between narcissism and CWB such that the affective state of anger increased the likelihood that narcissists would respond to disappointments, frustrations, setbacks and disgruntlements at work by acting out in the form of one or another manifestation of CWB.

Situational constraints moderated the relationship between Narcissism and CWB. Students scoring high on narcissism were more likely to perceive that there were situational constraints (situations or conditions that prevent individuals from using their abilities and motivation to perform). All else the same, narcissists engaged in more CWB to the extent they perceived high levels of situational constraints on their own work behavior. There was a consistent lower level of engagement in CWB for individuals scoring low on narcissism across all levels of constraints.

Unlike ASPD and Psychopathy, Narcissism does not include a disposition to engage in counter-normative or antisocial behavior. Penney and Spector's study suggests that the link between Narcissism and CWB requires mediating psychological conditions including negative emotion (anger) and perceived limitations on organizationally acceptable behavior. The resulting affective state of frustration, disgruntlement, or felt unfairness may be the more direct antecedent of CWB, where Narcissism may be a more distal antecedent of CWB.

Psychological Conditions as Antecedents of Sexual Misconduct in Professional Work Contexts

As noted in the introduction to Level 2 Evidence, evidence about psychological conditions as precursors to sexual misconduct in professional work settings is reported here as Level 2 evidence. For the purpose of this section, sexual misconduct is being treated as an analog o security violation behavior in spite of the ambiguity about intention to harm. We are making this choice primarily because sexual misconduct in professional work contexts almost always represents a betrayal of trust and very few of the analogs reported in this White Paper share this feature with security violations. For this reason, sexual misconduct evidence may provide unique insight into the ways psychological conditions lead to betrayal of trust in a work context.

The literature search supporting this section covered a wide range of professions in which the person committing the sexual misconduct has a professional relationship to the other person which precludes a sexual relationship. The searched literature focused primarily on medical, mental health, legal, management, policing, teaching and clergy professions. Each of these professions is governed in some fashion by ethical, professional, legal and/or organizational standards about inappropriate relationships with the individuals being served by the professional. Research was sought about sexual misbehavior that violated these standards. Isolated studies about sexual misconduct in teaching, management, law and policing were located but provided little or no information about psychological conditions as antecedents of sexual misconduct. More studies were located for the medical, mental health and clergy professions. Most of the sexual misconduct studies in these professions focused on issues that were not relevant to the role of psychological attributes as antecedents of sexual misconduct. Instead, they focused on the ethical, legal or professional issues associated with sexual misconduct, effects on victims, organizational context for such behavior, or surveys of practitioner s to estimate the prevalence and characteristics of such behavior.

However, a modest amount of research was located about psychological attributes as predictors of sexual misconduct among professionals. This type of relevant research was most common, by far, in the mental health domain. A small number of relevant studies were located in the medical and clergy domains. The review below is organized around these three domains with a more substantial review for the mental health domain.

SEXUAL MISCONDUCT BY MENTAL HEALTH PROFESSIONALS Gabbard (1996) analyzed 80 cases of his own therapy clients who themselves engaged in therapist sexual misconduct with clients. Based on these cases, Gabbard described a number of factors associated with sexual misconduct; (a) psychological disorders, (b) clinical error, (c) poor training, (d) personal vulnerabilities, and (e) the secrecy of the therapy sessions themselves . Gabbard observed that sexual misconduct in this context often results from a series of errors of technique, judgment, and clinical assessment that occur along what is referred to as the "slippery slope." Those who cannot set limits are seen as particularly at risk for boundary violations. A common pattern is

that when no disaster results after one boundary crossing, the therapist develops a false sense of security that leads to a progressive slide down the slope.

Aside from contextual factors, Gabbard proposes four categories of antecedent psychological conditions: psychotic disorders, predatory psychopathy and paraphilias, lovesickness and masochistic surrender. The psychotic disorders were the least common disorders including bipolar affective disorder, paranoid psychosis, schizophrenia, and psychotic organic brain syndrome. The second group, those with predatory psychopathy and paraphilias, includes not only antisocial personality disorders but also severe narcissistic personality disorders with prominent antisocial features. Gabbard described those with paraphilic impulses as having a severely compromised superego and character pathology on the narcissistic to antisocial continuum. When these individuals are caught, they may pretend to be remorseful and claim love for their client. Since they are masters at manipulation, they often escape severe legal or ethical sanctions. Because these individuals lack empathy or concern for the victim, they do not feel remorse or guilt for what they have done. Some of these therapists have a profound history of abuse or neglect and their exploitation of others is an effort to achieve mastery of passively received trauma (Schwartz, 1992).

The third category is described as lovesick, and includes therapists with a less severe form of narcissistic personality disorder that lacks the antisocial features typical of the predatory group just described. These individuals have a desperate need for validation, a hunger to be idealized, and a tendency to use patients to regulate their self-esteem. Gabbard reports that some of these lovesick offenders are essentially "normal" individuals with neurotic problems who are in the midst of a life crisis.

The last category of offender is the therapist with fundamentally masochistic and self-destructive tendencies who allows himself to be intimidated or controlled by a patient, despite awareness of the negative consequences of such behavior. These therapists have difficulty controlling their anger and setting limits with the patient. When the patient challenges the therapist to the point of intense resentment, the therapist acts out to reduce the anger that both parties feel. These therapists over-identify with the patient; both typically have abuse histories.

Similar to Gabbard, Schoener (1995) developed a typology of 6 types of offenders based on evaluations of impaired practitioners: 1) psychotic and severe borderline disorders, 1a) manic disorders, 2) sociopaths and severe narcissistic personality disorders, 3) impulse control disorders, 4) chronic neurotic and isolated, 5) situational offenders, and 6) naïve. Category 1, the psychotic and severe borderline disorders group, represents only a small number of impaired providers; they have boundary difficulties due to problems with both impulse control and thinking. Category 1a, manic disorders, includes those diagnosed with manic conditions who discontinue medication and act out impulsively. Category 2, sociopaths and severe narcissistic personality disorders, are self-centered exploiters who violate boundaries whenever it meets their needs. Category 3, impulse control disorders, includes providers with a wide range of diagnoses including paraphilias and other impulse control disorders. Category 4, chronic neurotic and isolated providers, are those who are chronically emotionally needy; they meet their emotional

needs through their relationships with their clients. Category 5, situational offenders, are providers who are generally healthy with a problem-free practice history and absence of boundary problems; however, a situational breakdown in judgment or control occurs in response to a life crisis. The final category, the naïve offender, has no pathology, but has deficits in social judgment that cause difficulty understanding and operating within professional boundaries.

Jackson and Nuttal (2001) identified several factors that place therapists at risk for engaging in sexual behavior with clients. They studied 323 mental health professionals who were randomly drawn from a national sample of social workers, psychiatrists, and psychologists. Of the professionals who had been sexually abused as children, 21% had engaged in sex with their clients. Only 6% of those with no sexual abuse history reported such violations. There was no relationship between childhood physical abuse and professional sexual boundary violations. Additional analyses revealed that those who reported a history of severe childhood sexual abuse were more than 4 times as likely as those in the no sexual abuse category to have committed sexual misconduct and more than 3 times as likely as those in the moderately sexually abused category to have sexually violated their clients. The following significant correlations were found for sexual activity with a client: paranoid ideation (.25), anxiety (.22), psychoticism (.22), depression (.21), hostility (.21), interpersonal sensitivity (.20), somatization (.20), obsessive-compulsive disorder (.18), and phobic anxiety (.18). These results provide further support for the conclusions that diverse types of psychological conditions are associated with sexual misconduct.

Hamilton and Spruill (1999) addressed the issue of sexual misconduct involving therapists-in-training and their clients. In addressing trainee characteristics that serve as risk factors of sexual misconduct, loneliness was a prominent factor. Loneliness and problems with personal relationships have been previously cited as factors in the development of sexual relationships with clients (e.g., Gabbard, 1994; Glasser & Thorpe, 1986). Hamilton and Spruill note that "In all cases of sexual intimacy with a client about which we have known, the offender, whether a student or a professional, seemed somewhat isolated and not part of the "group" of their peers" (p. 318).

Folman (1991) reviewed the research on sexual misconduct between therapists and their clients. She observed that a large proportion of sexual misconduct offenders are character-disordered or have drinking problems. Folman also reported a smaller proportion of offending therapists who are at a critical time in their lives, when critical life events combine to increase vulnerability and risk for acting out sexually. Examples include a therapists who is in his mid-forties who is lacking intimacy in his life, feels lonely, is perhaps separated or divorced, and feels isolated at the time of the sexual misconduct.

Folman points to the erosion of boundaries as the most consistent precipitant of sexual misconduct. Sexual offenders have been quoted as saying, "I found myself doing things I do not normally do with other patients" (p. 170). If these warning signs are ignored, the therapist can progress to more overt behavioral changes in the way therapy is conducted (e.g., lengthening sessions, giving rides home, arranging for meetings outside therapy hours). Further blurring of

boundaries occurs and the client frequently starts taking care of the therapist. At this point, boundaries are essentially non-existent and exploitation can occur easily.

PSYCHOLOGICAL CONDITIONS AS ANTECEDENTS OF SEXUAL MISCONDUCT BY MEDICAL PROFESSIONALS. Research of a variety of types has addressed sexual misconduct among medical professionals. The majority of this research focuses on sexual misconduct of physicians/psychiatrists and on professional, legal, ethical, training, actuarial profiles of misconduct, and treatment issues (See, e.g., Bloom, Nadelson & Notman, 1999). This review describes the small amount of empirical research that has addressed psychological conditions as antecedents of sexual misconduct.

Roback, Strassberg, Iannelli, Finlayson, Blanco and Neufeld (2007) investigated the psychological conditions associated with three samples of physicians referred for professional behavioral misconduct – "sexual boundary violators" (n = 25), "behaviorally disruptive" (n = 39) and "other misconduct" (n = 24). The MMPI-2 and the Personality Assessment Inventory (PAI) were administered to referrals. Results clearly distinguished the sexual violators from both the behaviorally disruptive (uncontrolled anger and demeaning conduct) and others (substance abuse, emotional instability, professional irresponsibility). On both the MMPI-2 and PAI, sexual violators were half as likely to show "normal" profiles. Their profiles showed stronger indications of character/personality disorders. On the MMPI-2, 35% of the sexual violators showed indications of "characterological" features, which include antisocial attitudes/behaviors, impulsivity, poor judgment, suspiciousness, cynicism, anger, and hypersensitivity to criticism. Only half as many, 18%, of the behaviorally disruptive and other misconduct physician showed MMPI-2 characterological features. Similarly, 40% of the sexual violators showed antisocial profiles of results (antisocial features, antisocial behaviors, mania, grandiosity, and alcohol and drug problems) whereas only 8% of the others showed antisocial profiles.

These results were consistent with the much smaller study by Garfinkle, Bagby and Waring (1997) showing 2 psychiatrists with licenses revoked for sexual misconduct to demonstrate higher MMPI levels of antisocial and narcissistic traits and higher defensiveness compared to 38 psychiatrists without such allegations. Roback et al's results were modestly similar to Langevin, Glancy and Curnoe's (1999) results in a somewhat different type of study in which 19 physicians who committed sexual assault against patients/staff showed high MMPI levels of defensiveness as well as depression and anxiety.

Although this review does not report summaries of clinical findings, it is worth noting that the results from Roback et al. and Garfinkle et al. are consistent with the clinical findings reported by Abel and Osborn (1999) in, perhaps the most comprehensive summary of physician sexual misconduct treatment outcomes within a homogeneous treatment program (cognitive-behavioral treatment). Abel and Osborn noted that physician sexual violators have minimal empathy for their victims and tend to neutralize their actions by cognitive distortion, justifications and rationalizations. Similarly, in a theoretical analysis of case study information

Sealy (2002) described the cognitive distortions of physician sexual violators to include denial, entitlement, negotiable boundaries, minimization and narcissism.

While the empirical evidence is slight, it is clear. Physicians who commit sexual misconduct in their work context show indications of Antisocial PD and psychopathic traits.

PSYCHOLOGICAL CONDITIONS AS ANTECEDENTS OF SEXUAL MISCONDUCT BY CLERGY. Consistent with research in the medical profession, few studies of clergy sexual misconduct have empirically evaluated psychological conditions as predictors of such misconduct. Two studies stand out. Gafford (2001) and Irons and Laaser (1994) reported clinical assessments of clergy referred for sexual misconduct where the assessments were based on MMPI results as well as other assessments. Gifford reported clinical assessments of a diverse group of 192 Roman Catholic clergy, 61 nuns and 131 priests, who had been referred for a range of behavioral misconduct, including sexual misconduct, and /or emotional distress. This sample included priests whose misconduct included child sexual abuse. Two clusters of assessment profiles emerged for the child sexual abusers – severely psychiatrically disturbed and characterological clusters. For non-abusers, other clusters emerged including emotionally undeveloped and maldeveloped clusters.

In contrast to the sample in the Gafford study, which included diverse forms of behavioral misconduct, Irons and Laaser (1994) reported clinical assessments of 25 clergy (including 13 Episcopalian and 6 Roman Catholic priests) all of whom had been referred for sexual misconduct. The forms of sexual misconduct in this sample were primarily extra-marital and/or "consensual" adult sexual relationships with church members. Only 3 cases involved sex with minors and no cases involved physical force or threat of force to obtain sexual contact. In this relatively homogeneous sample, 60% (15) were diagnosed as having a sexual disorder and 24% (6) were diagnosed with a personality disorder, half of whom were narcissistic. When considering non-disordered personality traits 11 showed narcissistic tendencies, 9 dependent and 8 obsessive-compulsive. Only 1 showed antisocial tendencies.

Gafford noted that compared to the general sex offender population, this sample of 25 clergy showed very little evidence of antisocial or psychopathic features. Given Irons and Laaser's result that clerical child sex abusers are characterized as severely psychiatrically disturbed and "characterological" (antisocial features and behaviors), the implication is that the psychological conditions that are antecedent to forced, violent child sex abuse are quite different than the antecedent conditions for non-forced, "consensual" sexual misconduct.

Unlike the more homogeneous results for physician misconduct, results for clergy and psychologist misconduct demonstrate a more diverse range of psychological antecedents. While all forms and psychologist, clergy and physician sexual misconduct represent betrayals of trust, it is unclear which form of sexual misconduct provides a better fitting model of security violation behavior.

OVERALL OBSERVATIONS ABOUT PROFESSIONAL SEXUAL MISCONDUCT AS AN ANALOG TO SECURITY VIOLATION BEHAVIOR. A pattern emerges from the evidence about sexual misconduct by professionals. This pattern emphasizes the importance of psychological conditions ranging from narcissism, lack of empathy, paraphilias, loneliness/lovesickness, antisocial personality disorders, impulse control disorders in combination with and the dynamic of progressive boundary violations that go unpunished brought about by errors in judgment, poor clinical skills and/or other local contextual factors. While the severity of some of psychological conditions is beyond conditions reported in cases of espionage, a similar pattern of psychological characteristics and local events or circumstances leading to progressive boundary violations is frequently noted in reviews of espionage cases.

LEVEL 3 EVIDENCE

This review of Level 3 evidence focuses on the relationships between personality attributes that underlie behaviors encompassed by the Psychosocial Guidelines and counterproductive work behavior as an analog of security violation behavior. To ensure that readers have a common understanding of the meaning of personality attributes as they are described in this research literature, a brief overview of personality traits is provided here. Following this overview, recent research is reviewed that identifies the personality attributes underlying the clinical psychological attributes captured by Guidelines D (Sexual Behavior – Disorder), G (Alcohol Consumption), H (Drug Involvement), and especially I (Psychological Conditions).

Personality Traits: An Overview

Personality traits have at least three important characteristics. First, they are continuous. Personality psychologists conceive of people as situated along a given trait in a relatively normal distribution, with the bulk of people falling toward the center and fewer lying at the extremes (McAdams, 2001). Traits are also bipolar. The poles of a trait continuum are marked by descriptors opposite in meaning. For example, the trait of sociability is characterized by adjectives such as outgoing or talkative at one pole and reserved or shy at the other pole. As with other traits, most of the population falls toward the middle of this continuum, with very few people described as extremely outgoing or painfully shy.

A second important characteristic of personality traits is they describe, and are thought to explain or cause, stability in thoughts, feelings, and behavior. Personality researchers have found that individuals' personalities are remarkably stable over the course of their lives. This stability is due, at least in part, to the genetic basis of personality traits, which researchers have estimated at around 40% (Dunn & Plomin, 1990). Heritability estimates do vary, however, with the trait under consideration. Estimates can range from 37% to 65% (Jang, Lively, & Vernon, 1996; Tellegen, Lykken, Bouchard, Wilcox, Segal, & Rich, 1988).

Though personality is consistent over the course of one's life, there is evidence for at least some change, with the greatest stability reached around age 30 (Costa & McCrae, 2002). For example, research has shown that people become more responsible and demonstrate higher levels of self-control as they get older (Helson & Moane, 1987). Such malleability is likely due to environmental influences which Dunn and Plomin (1990) estimate to be in the neighborhood of 40%. While a person's standing on a trait may change slightly over the course of his life, his ranking relative to others in his own age cohort is quite stable (McAdams, 2001). That is, a person high in responsibility will remain high relative to others in the cohort, even as the entire cohort population experiences change in this trait.

A third characteristic of traits is their structure or organization. Over the past few decades, personality researchers have sought to identify the most fundamental traits. This work

shows that traits can be organized hierarchically, with the narrowest and most specific traits at the bottom of the hierarchy and the broadest and most general traits at the top (e.g., Costa & McCrae, 1992; Goldberg, 1990; Tellegen, 1985). To illustrate, the hierarchical organization of Extraversion is presented in Figure 1.
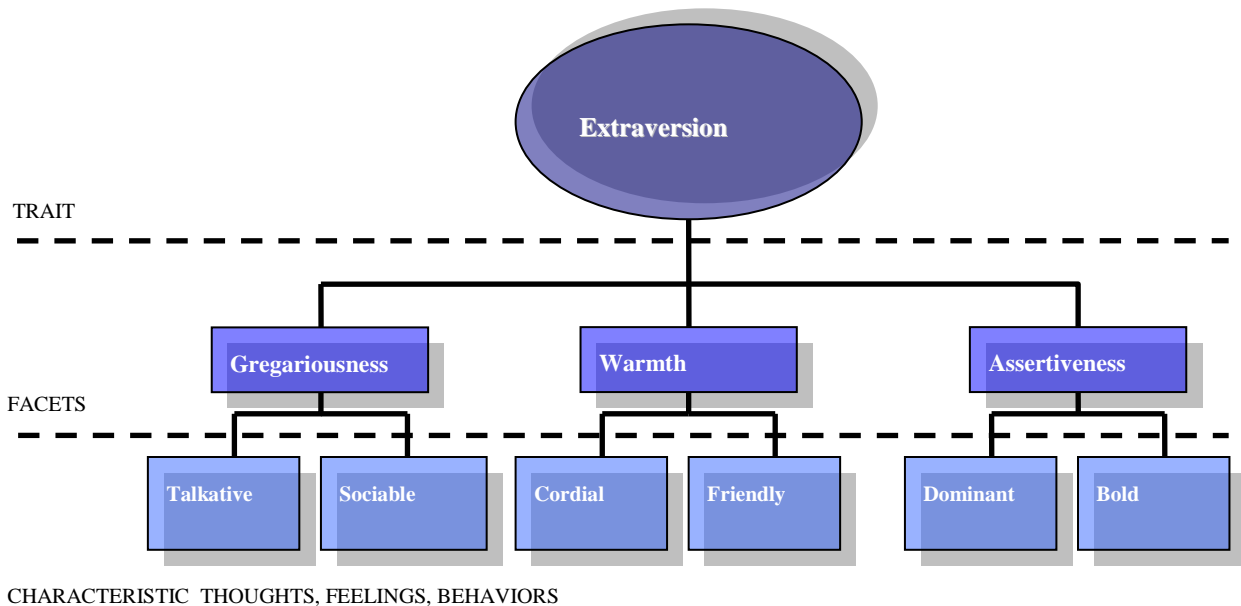
Figure 1. Structure of Personality Traits: The Example of Extraversion

At the bottom of this hierarchy are *Characteristic Thoughts, Feelings and Behaviors* such as talkative and dominant. Typically, characteristic thoughts, feelings, and behaviors are captured by items that a person uses to describe themselves or significant others. For example, a person may be asked to respond to a survey item reading "I am happiest when I am alone" by indicating the extent to which it describes him or her. At the next level are *Facets*. Facets represent clusters of characteristic thoughts, feelings and behaviors. These clusters are based on underlying commonalities among characteristic thoughts, feelings, and behaviors. For example, a person describing himself as talkative is also likely to indicate that he prefers social interaction and that he does not like to be alone. At the next level are *Traits* which are clusters of facets. As with clusters of characteristic thoughts, feelings, and behaviors, these clusters are based on underlying commonalities. With Traits, however, these groupings are based on commonalities among facets. For example, a person that describes herself as high in the facet of Gregariousness is also likely to describe herself high in the facets of Warmth and Assertiveness.

While the hierarchical structure of personality has been replicated consistently across studies, the number and content of traits and facets has been the subject of considerable debate. Some personality psychologists have found evidence for three traits (e.g., Eysenck, 1967; Tellegen, 1985), while others have found evidence for five (Costa & McCrae, 1992). There has

also been disagreement about the number of facet dimensions. Tellegen (1985) has found evidence for 10 facets, while Costa and McCrae (1992) have found evidence for 30. While there has been some controversy over the number and content of traits and facets, empirical comparisons of alternative taxonomies have indicated that the differences are more apparent than real. Research indicates that major personality taxonomies overlap considerably, and differences are due primarily to measurement issues, such as differential emphasis on trait content or the blending of traits more clearly delineated in alternative taxonomies (Church, 1994; Costa & McCrae, 1995).

A review of the available literature indicates that several personality traits are linked to both psychosocial behaviors behavior and one or more of the analogs of security violation behavior. In the following section, these traits are briefly described and evidence linking them to analogs of security behavior is summarized. This research provides a clearer picture of the personality attributes associated with workplace behaviors that are similar to national security behavior and may ultimately inform the development and/or provision of better/additional indicators for risk assessment.

Personality Traits Associated with clinical psychological conditions

Level 3 evidence is about the predictive relationships between personal attributes underlying the Psychosocial Considerations Guidelines and analogs to security violation behavior. In order to organize and summarize Level 3 evidence it is necessary to identify the personal attributes that underlie the Psychosocial Considerations Guidelines. The approach taken to this task in this White Paper is to summarize research linking personality traits associated with the Five Factor Model (FFM; Big Five) of personality to the taxonomy of clinical disorders relevant to Guideline I Psychological Conditions. We use the FFM of personality for two primary reasons. First, it has attained the status as the most comprehensive model of personality differences that is consistently supported by empirical research. Second, the vast majority of research about personality and workplace behavior in the previous 20 years has relied on the FFM model for describing the key personality attributes. We focus on Guideline I behaviors because, effectively, Guideline I encompasses the full range of diagnostic psychological conditions, including those that are relevant to disordered sexual behavior, alcohol consumption and drug involvement. For those personality attributes shown to underlie the meaning of the clinical psychological conditions represented by Guideline I, research will be reviewed that investigated their predictive relationships to analogs of security violation behavior.

Several empirical research efforts have sought to describe the linkage between FFM personality traits and one or more clinical psychological conditions (See, e.g., Blair, 1997; Furnham & Crump, 2005; Lyman & Widiger, 2007). These diverse studies typically show consistent patterns of relationship between the FFM traits (Conscientiousness, Extraversion, Openness, Neuroticism (Emotional Stability) and Agreeableness) and the targeted clinical psychological diagnostic conditions, such as ASPD, Psychopathy, and Narcissism.

Recently, however, Widiger, Livesley and Clark (2009) aggregated theoretical and empirical analyses to propose a fully integrated model of the linkage between FFM normal, adaptive personality traits and abnormal, maladaptive personality traits used to describe personality disorders (PD). A primary conclusion of Widiger et al's research is that a dimensional model of abnormal, maladaptive personality traits representing information captured in the 10 DSM-IV personality disorders is closely linked to the dimensions of meaning underlying FFM. The clearest representation of this relationship was provided by Lynam and Widiger (2001) in their theoretical analysis of the overlap in meaning between the FFM traits and the 10 DSM-IV personality disorders. Table 6 summarizes Lynam and Widiger's results in a format relevant to this White Paper. For each of the FFM traits, Table 6 names the DSM-IV personality disorders judged to overlap in meaning by a panel of 197 clinical experts. At least 23 experts provided judgments of overlap for each personality disorder. For each personality disorder, experts judged the relevance of each of six facets for each FFM. The facets use for each FFM trait were those associated with the NEO-PI inventory of personality (Costa & McCrae, 1992). The minus and plus signs in parentheses to the right of each personality disorder indicate the judged direction of the relationship between each facet within an FFM trait and the

disorder. In several cases, most often with Neuroticism, there is both a minus and a plus sign. This pattern indicates that different facets within a FFM trait were judged to relate in opposite directions with a personality disorder. For example, experts judged the Anxiousness facet of Neuroticism to be negatively related to Antisocial PD and the Angry Hostility facet to be positively related to Antisocial PD.

Table 6. Lyman and Widiger (2001) linkage between FFM Traits and DSM-IV Personality Disorders

Conscientiousness	Agreeableness	Openness	Extraversion	Neuroticism
Compulsive (+)	Paranoid (-)	Paranoid (-)	Paranoid (-)	Paranoid (-)
Schizotypal (-)	Antisocial (-)	Schizoid (-)	Schizoid (-)	Schizotypal (+)
Antisocial (-)	Histrionic (+)	Schizotypal (+)	Schizotypal (-)	Antisocial (-/+)
Borderline(-)	Narcissistic (-)	Antisocial (+)	Antisocial (+)	Borderline (+)
Histrionic (-)	Avoidant (+)	Borderline (+)	Histrionic (+)	Histrionic (-/+)
	Dependent (+)	Histrionic (+)	Narcissistic (-/+)	Narcissistic (-/+)
		Narcissistic (-/+)	Avoidant (-)	Avoidant (-/+)
		Avoidant (-)	Dependant (-)	Dependent (-)
		Compulsive (-)	Compulsive (-)	Compulsive (-/+)

The clear conclusion from this mapping is that all FFM traits bear some overlap in meaning with several, and often most, DSM-IV personality disorders. This is a manifestation of the multi-dimensionality of meaning associated with the personality disorder constructs embedded in DSM-IV.

Table 6 does not provide direct evidence of the linkage between FFM traits and Psychopathy because it is not classified as a personality disorder in DSM-IV. However, additional research by Lynam and Widiger (2007) and others has demonstrated empirical relationships between Psychopathy assessments and all five FFM traits.

For the purposes of this White paper, the conclusion to be drawn is that all five FFM traits have been shown to underlie the meaning of key DSM-IV personality disorders and, consequently, diagnostic conditions. Given that result, Level 3 evidence is reviewed below for each FFM trait for which there is meaningful evidence available linking it an analog of security violation behavior.

Personality Traits as Predictors of Counterproductive Work Behavior (CWB)

In this section on Level 3 evidence, research is reviewed for each FFM trait for which meaningful research is available regarding CWB. No research is presented for Openness because the CWB research shows no meaningful evidence linking it to negative work behaviors. In addition, research is reviewed for three non-FFM personality attributes - self-control, locus of control and affect. We make this choice because the research reporting about these personality attributes does not use labels typical of the FFM framework. Finally, we review a small amount of research about moral identity, which is not a personality trait but is a social cognitive self-identity individuals rely on in making decisions about intentional workplace behavior (and other behavior) that has moral/ethical aspects. Many forms of counterproductive work behavior have moral/ethical aspects because they involve intentional behavior that causes harm to individuals or the organization. Examples of such workplace behavior include time/materials theft, interpersonal sabotage, and deliberately unproductive work.

Counterproductive Work Behavior

Counterproductive work behavior is "any intentional behavior on the part of an organization member viewed by the organization as contrary to its legitimate interests" (Sackett, 2002, p. 5). Counterproductive work behavior includes acts of aggression (physical and verbal), hostility, sabotage, theft and withdrawal (e.g., absence, lateness, turnover). Counterproductive work behavior is relevant to the security context as an analog of security violation behavior. Some examples of counterproductive work behavior could also be considered security violations, such as sabotage, theft, stealing, misuse of information (reveal confidential information, falsify records), and failure to follow safety procedures. Other examples of counterproductive work behavior are directly relevant to the adjudicative guidelines, such as alcohol use, drug use, and computer fraud. Counterproductive work behavior is commonly divided into two dimensions: behaviors that are intended to harm the organization and behaviors that are intended to harm individuals (Gruys, 1999; Robinson & Bennett, 2000). Spector and Fox (2005) describe two distinct motives states for counterproductive work behavior: volition of behavior and intentionality of the harmful outcome. Human aggression research has addressed the motive of intentional harm for counterproductive work behavior and has found relationships with anger and other negative emotions.

This report uses counterproductive work behavior as a broad term that refers to all negative extra-role organizational behavior which includes workplace deviance and workplace aggression. Workplace deviance is a similar psychological construct to counterproductive work behavior as both constructs capture the same types of behavior, but workplace deviance is more narrowly defined (i.e., behavior has to violate norms). Robinson and Bennett (1995) have defined workplace deviance as "voluntary behavior that violates significant organizational norms

and, in so doing, threatens the well-being of the organization or its members, or both" (p. 556). Because workplace deviance does not specify an underlying motive, it is unlike aggression (causing harm), retaliation (causing harm) or revenge (restoring social order). Workplace aggression is limited to behavior that is intended to harm organizations and the people in them (Neuman & Baron, 1997, 1998). Counterproductive work behavior does not require specific intent to harm; however, the behavior must be intentional. Because these behaviors have been examined within an organization and involve workplace behavior that causes harm to the organization or people in the organization, counterproductive work behavior, workplace deviance, and workplace aggression are considered analogs of SVB for the purposes of this paper.

Individuals who engage in one type of counterproductive work behavior are likely to engage in another type of counterproductive work behavior. Sackett (2002) supports this idea of co-occurrence among types of counterproductive work behaviors. Sackett found from other published research that there is a moderate relationship between individual counterproductive behaviors and strong relationships between interpersonal and organizational dimensions of counterproductive work behavior. Gruys and Sackett (2003) present the argument that since all the categories of counterproductive work behavior are positively related, if an individual engages in one type of counterproductive work behavior then they are likely to engage in another type of counterproductive work behavior. This suggests that the types of counterproductive work behavior have shared antecedents. Those shared antecedents of counterproductive work behavior are grouped in three categories: personality traits, attitudes, and work environment/situations/context.

Conscientiousness

Conscientiousness is a tendency to be dutiful, achievement-oriented, and disciplined. Individuals who are low on conscientiousness tend to be careless, unorganized, spontaneous, and lack self-discipline. Of the Big Five personality traits (conscientiousness, agreeableness, emotional stability, extraversion, and openness to experience), conscientiousness had the strongest relationship to counterproductive work behavior (Sackett & DeVore, 2001). Individuals low on conscientiousness are more likely to engage in counterproductive work behaviors.

Sarchione, Cuttler, Muchinsky and Nelson-Gray (1998) examined the predictability of dysfunctional job behaviors among law-enforcement officers. The dysfunctional behaviors included use of excessive force, sexual misconduct, substance use, insubordination, embezzlement of property, lying, multiple motor vehicle violations, inappropriate verbal conduct toward the public, and multiple duty responsibility violations. The six predictors included three facets of conscientiousness (responsibility, socialization, and self-control), and three life history indices (drug use, criminal, and work). Results indicated that all facets of conscientiousness predicted dysfunctional behavior and that responsibility was the strongest predictor of the three facets. Low scorers were seen as careless, impulsive and having little sense of duty. The

socialization subscale assessed integrity and compliance with rules and regulations; low scores on this scale reflect a tendency to engage in risk-taking or rebellious behavior. The third conscientiousness facet, self-control, reflected a freedom from impulsivity; low scores tend to reflect unpredictability and excitement seeking. These findings are consistent with those of Ones et al. (1993) who found that conscientiousness was a valid predictor of counterproductive behavior such as theft, absenteeism, tardiness, and disciplinary problems.

Black (2000) explored a sample of New Zealand police recruits who were screened with the NEO-PI-R (Schinka, Kinder, & Kremer, 1997), a comprehensive instrument assessing the Big Five constructs of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness and their performance in training. Results indicate that conscientiousness was the best predictor of overall training performance.

The dependability (tendency to be reliable and someone that others can trust) and achievement (tendency to strive to be successful in life) facets of conscientiousness are also negatively related to counterproductive work behavior (Sackett & DeVore, 2001). Individuals low on dependability or achievement are more likely to engage in counterproductive work behavior. Cullen and Sackett (2003) argue that the subjective norm component of behavioral intentions will be weakened for individuals low on the dutifulness facet of conscientiousness (tendency to meet obligations and act in accordance to rules and/or norms) and these individuals will be more likely to engage in counterproductive work behavior. Cullen and Sackett argue that conscientiousness is one of the main moderators between cognitive, affective, and emotional reactions to counterproductive work behaviors.

Integrity

Research about integrity is presented here as a subset of Conscientiousness research because Integrity is a work-oriented composite of personality traits that depends more on Conscientiousness than any other trait.

Individuals who have integrity are honest and ethical. Integrity tests are often used to inform selection decisions as integrity predicts counterproductive work behavior, an analog to security violation behavior (Mastrangelo & Jolton, 2001; Ones, Viswesvaran, & Schmidt, 1993, 2003). Ones, Viswesvaran, and Schmidt (1993) showed in their meta-analysis that integrity tests are useful in predicting job performance ($\rho = .34$, k = 222) and counterproductive behaviors (i.e., theft, disciplinary problems, and absenteeism; $\rho = .47$, k = 443). There are two types of integrity tests: (1) overt integrity tests which measures both attitudes toward theft and admissions of theft (Sackett & Wanek, 1996) and (2) personality-based integrity tests which measures the personality traits of conscientiousness, agreeableness, and emotional stability (Ones et al., 1993; Sackett & Wanek, 1996). Some overt integrity tests include items specifically asking individuals about substance use. Substance use is then treated as a predictor of counterproductive work behavior in those overt integrity tests. Substance use is also commonly treated as a specific type of counterproductive work behavior. In a meta-analysis, Ones et al. (2003) supported using personality-based integrity tests to predict absenteeism, a specific type of counterproductive

work behavior ($\rho = .33$, $k = 18$). Conscientiousness was found to account for the most variance in personality-based integrity tests compared to agreeableness and emotional stability (Ones et al., 1993).

Mastrangelo and Jolton (2001) assessed two forms of counterproductive work behavior, antagonistic behavior and time theft in their study. Antagonistic behavior includes: accidentally damaged property without reporting it, damaged company property on purpose, acted unsafely (didn't clean up, lifted unsafely), taken property from employer without permission, done work badly or inaccurately on purpose, hurt or injured yourself at work, shared confidential information with unauthorized people, and argued with your supervisor. Time theft includes: come late to work without permission, been absent from work without legitimate excuse, faked an illness and called in sick, extended your breaks or lunches without permission, and taken money from your employer without permission. They demonstrated that the participants who admitted to on-the-job substance abuse through an overt integrity test were more likely to engage in antagonistic behavior ($r = 0.27$) and time theft ($r = 0.18$), which are forms of counterproductive work behavior, when substance abuse is scored dichotomously (abuser versus non-abuser). When substance abuse is scored continuously, participants who admitted to substance abuse were more likely to engage in antagonistic behavior ($r = 0.33$) but not more likely to engage in time theft (Mastrangelo & Jolton, 2001). Mastrangelo and Jolton also found that individuals who engaged in both time theft and antagonistic behaviors also self-reported more negative behaviors on each of the scales of the integrity test (honesty, drug avoidance, customer relations, safety, work values, supervision attitudes, and tenure).

Dishonest (e.g., taking merchandise) and counterproductive/borderline (e.g., leaving work a few minutes early) behaviors were negatively related to integrity test scores, drug avoidance, customer relations, safety, work values, supervision attitudes, and employability index but were positively related to theft admissions (Ryan, Schmit, Daum, Brutus, McCormick, & Brodke, 1997). Individuals who were classified as dishonest by their integrity test scores also perceived behaviors and situations (deterrents, policies, and risks/facilitators) differently from individuals who were classified as honest by their integrity test scores (Ryan et al., 1997).

Casillas, Robbins, McKinniss, Postlethwaite, and Oh (2009) found that the personality traits thought to underlie integrity (conscientiousness, agreeableness, and emotional stability) are negatively related to counterproductive work behaviors and counterproductive work behaviors are related to workplace safety. Casillas et al. also showed that individuals who score high on integrity also tend to have more positive work attitudes while individuals who engage in counterproductive work behaviors also engage in unsafe or risky behaviors.

Agreeableness

Agreeableness is a tendency to be cooperative, helpful, easy to get along with, and compassionate. Individuals who are low on agreeableness tend to be suspicious, unfriendly, uncooperative, and not concerned with the feelings of others. Agreeableness is related to counterproductive work behavior such that individuals who are low on agreeableness are more

likely to engage in counterproductive work behavior (Sackett & DeVore, 2001). Cullen and Sackett (2003) argue that the subjective norm component of behavioral intentions will be weakened for individuals low on the compliance facet of agreeableness (tendency to conform) and these individuals will be more likely to engage in counterproductive work behavior. Flaherty and Moss (2007) showed that when agreeableness was low, distributive justice (the fairness of received outcomes) reduced counterproductive work behaviors. When agreeableness was high, distributive justice increased counterproductive work behaviors (Flaherty & Moss, 2007).

Neuroticism (Emotional Stability)

Neuroticism is a tendency to easily experience unpleasant emotions, such as guilt, anger, anxiety, and depression. Neuroticism and emotional stability are two names for the same construct and represent opposing ends on a single continuum. Neuroticism represents the negative aspect of this trait while emotional stability represents the positive aspect. Individuals high on neuroticism/low on emotional stability tend to be emotionally reactive, more likely to interpret situations as threatening, and vulnerable to stress.

In their comprehensive review of research on CWB and personality antecedents Sackett and Devore (2001) concluded that Neuroticism was related to CWB with a low effect size (r = .14). This conclusion was based on summary analyses of 24 studies of the Neuroticism – CWB relationship. Similarly, Martinko, Gundlach, and Douglas (2002) found that individuals high on Neuroticism may be more likely to show a hostile attribution style, in which "individuals attribute failures to external stable and intentional causes" (p. 44). This attribution style may provide an explanation for the relationship that more neurotic workers tend to exhibit more CWBs. Individuals high on Neuroticism may be more inclined to focus on the negative aspects of their work environment and disregard the positive which tends to leads to more negative behavior in the workplace (Cullen & Sackett, 2003). Individuals who are high on Neuroticism are also predisposed to react more dysfunctionally to stressors (Spielberger, Gorsuch, & Lushene, 1970). Flaherty and Moss (2007) found that among workers low in Neuroticism, their perception of the degree to which other workgroups receive fair treatment reduced their own likelihood of CWBs. In contrast, among workers higher in Neuroticism, the perception that other workers were receiving fair treatment increased their tendency to exhibit CWBs (Flaherty & Moss, 2007).

Extraversion

Several studies have provided evidence suggesting that those higher in Extraversion or Excitement-Seeking are more likely to engage in counterproductive work.

Salgado (2002) conducted a meta-analysis of 17 CWB studies appearing in the literature between 1990 and 1999. . The results showed that Extraversion was unrelated to a measure of CWB encompassing workplace theft, admissions of workplace theft, disciplinary problems,

substance abuse, property damage, and organizational rule-breaking (ρ = -.01). Though Salgado's (2002) work suggests that Extraversion is unrelated to CWB, Berry, Sackett, and Ones (2007) found evidence suggesting that Salgado's use of a general measure of CWB may have masked Extraversion's differential relationships with interpersonal and organizational CWB. In particular, Berry et al. conducted a meta-analysis of 31 published and unpublished CWB studies and found evidence that Extraversion was negatively related to organizational CWB (ρ = -.09) but was unrelated to interpersonal CWB (ρ = .02). Extraversion was more strongly related to organizational deviance than interpersonal deviance. Furthermore, the results indicate that highly extraverted people are less likely to engage in organizational CWBs, such as intentionally withholding effort, stealing from the company, and sharing classified company information, than those lower in Extraversion.

Three studies have provided data on the relationship between the primary traits subsumed by Extraversion and CWB. Hastings and O'Neill (2009) asked 189 college students to complete a personality measure and indicate how often they engaged in a number of CWBs. Correlation analysis indicated that Extraversion was unrelated to CWB (r = .12, ns). However, Excitement-Seeking was positively related to CWB (r = .17). Hastings and O'Neill also found evidence that Warmth was negatively related to CWB (r = -.15). That Excitement-Seeking and Warmth were related to CWB in opposing ways might explain why Extraversion is not consistently associated with CWB, as their effects may cancel each other out. Marcus and Schuler (2004) found evidence that Excitement-Seeking was positively related to a general measure of CWB (r = .27) in a sample of 174 employees from two organizations in Germany. Diefendorff and Mehta (2007) tested a series of hypotheses proposing that different motivational traits are related to counterproductive work behavior. Included among these traits was Behavioral Activation System (BAS) Sensitivity. The BAS is a physiologically-based system manifest in perceptual readiness for and strong emotional reactions to cues of nonpunishment or reward (Gray, 1982). Individuals high in BAS sensitivity are chronically under stimulated and seek novel activities that will increase their arousal (Carver & White, 1994). Activation of the BAS is associated with impulsivity, sensation seeking, a strong drive to attain goals, and the experience of positive emotions (Torrubia, Avila, Motto, & Caseras, 2001). BAS sensitivity overlaps both conceptually and empirically with the primary trait of Excitement-Seeking. Diefendorff and Mehta hypothesized that BAS sensitivity would be positively related to both interpersonal and organizational deviance because such behaviors, being risky in nature, increase arousal and can provide one with a sense of novelty. The results indicated that BAS sensitivity was positively related to both interpersonally- and organizationally-targeted CWB (r = .36, and r = .23, respectively) in a sample of 392 employed undergraduates. These relationships accounted for organizational frustrations and other motivational traits, such as feelings of personal mastery and competitiveness.

Locus of control

Locus of control is one's belief about who has control over reinforcement. Individuals with an external locus of control believe other people or outside forces control what happens to them. Individuals with an internal locus of control believe they control reinforcement.

In an examination of Locus of Control as a predictor of employee termination for assaulting patients in a residential treatment facility (an extreme form of CWB), Perlow and Latham (1993) found that external Locus of Control predicted the likelihood of termination. Similarly, Fox and Spector (1999) used the work-specific Work Locus of Control Scale (Spector, 1988) to measure Locus of Control and found external Locus of Control was related to both organizational ($r = .32$) and interpersonal ($r = .19$) CWB. Martinko et al. (2002) also demonstrated that workers with an external Locus of Control were more likely to engage in counterproductive behaviors. External Locus of Control increases the likelihood that frustrating, negative or challenging events in the workplace will lead to more emotional and more impulsive responses to those events.

Research has also investigated a possible moderating role for Locus of Control. Storms and Spector (1987) found that the relationship between perceived frustration and sabotage (e.g., damage equipment or property of the organization on purpose) changed depending on whether individuals had an external or internal Locus of Control. Behavioral reactions for individuals with an internal locus of control were not affected by frustration, but individuals with an external locus of control were likely to respond to frustration with emotional, impulsive counterproductive behavior. (As a cautionary note, Spector and Fox (1999) were unable to replicate this moderator effect.) They also found a significant but moderately small correlation between Work Locus of Control and overall CWB ($r = .16$). .

Self-control

Self-Control is the ability and tendency to regulate one's behavior based on normative influences as well as a consideration of the consequences of one's behavior. Low Self-Control manifests itself as a tendency to engage in behaviors providing immediate satisfaction without regard for long-term consequences.

The research on CWB largely takes place within the scientific discipline of industrial-organizational psychology. The vast majority of research within that discipline that focuses on personality factors underlying CWD uses "Big 5" oriented personality assessment tools, which do *not* include a Self-Control factor in their model of personality. For example, in Sackett and Devore's (2001) extensive review of studies of personality and CWB in the I-O psychology domain, no personality attribute was described as Self-Control. For this reason, there is little research that specifically evaluates the relationship between measures of Self-Control and CWBs. (This stands in stark contrast to the research in the criminal behavior domain in which a large number of studies have addressed the relationship between Self-Control and criminality.) However, Robinson and Greenberg (2003) have proposed a rational argument based on criminal

behavior research that Self-Control is related to CWB. Robinson and Greenberg's rationale is based on two sets of findings. First research on criminal behavior has conclusively demonstrated that low Self-Control is perhaps the most important antecedent of criminal behavior. (See Gottfredson & Hirschi, (1990) for a thorough review.) Also, Gibbs (1991) has shown that low Self-Control is associated with stunted moral development. Similarly, Bordia, Restubog, & Tang, (2008) demonstrated that Self-control predicts interpersonal and organizational deviance. Both sets of results suggest that low Self-Control is associated with a reduced importance for social norms and a reduced interest in or ability to anticipate future consequences of one's actions. Robinson and Greenberg (2003) argue that these factors will lead to an increased rate of CWBs when low Self-Control individuals are in a work context and see opportunities for immediate gain or gratification or are responding the emotional, negative events.

Moral Identity

Moral identity is the degree that the moral self is important to one's identity and self-concept (Aquino & Reed, 2002). Evidence shows that moral identity is organized in two dimensions - Internalization and symbolization. Internalization is the degree to which a set of moral principles is central to one's self-concept; symbolization is the extent to which one's responses to moral issues are expressed publicly through one's actions.

Skarlicki, van Jaarsveld, and Walker (2008) proposed that individuals high on moral identity are likely to be sensitized to opportunities for moral violations and motivated by a sense of duty or obligation to restore injustice. The context of counterproductive work behavior provides such opportunities because many forms of CWB such as time/materials theft and sabotage of one's co-worker involve intentional harm toward individuals in an organization or toward the organization itself. In a study of workplace behavior, they reported evidence that moral identity was indirectly related to sabotage. They found that the combination of an individual who is high on symbolization and low on internalization results in the highest likelihood of sabotage in response to interpersonal injustice.

In a similar study, Bennett, Aquino, Reed, and Thau (2005) demonstrated that moral identity moderates the relationship between situational/contextual factors and deviant behavior. Strong moral identity reduces the magnitude of the relationship contextual factors and deviance. The self-regulating effects of internalized moral identity discourage behavior inconsistent with one's self-concept.

Affect

Spector and Fox (2005) organize the personality variables relevant to their model of counterproductive work behavior into affective or control-oriented attributes. The affective attributes included trait anger, trait anxiety, negative affectivity, and emotional stability. These traits describe *tendencies* to experience certain emotions or multiple emotions.

Trait anger is the tendency to respond to situations with anger (Spielberger, Krasner, & Solomon, 1988). Individuals high in trait anger report more frequent experiences of anger and tend to be hypersensitive to provocation. Trait anxiety is the tendency to respond to situations with anxiety. Negative affectivity (NA; Watson & Clark, 1984) is the tendency to experience negative emotions across situations and time. The final affective trait, emotional stability, is the FFM Neuroticism trait and is a composite of Anxiousness, Angry Hostility, Depressiveness, Self-Consciousness, Impulsiveness and Vulnerability. Despite the overlap of these affective traits, they are all conceptually and operationally distinct (Spector & Fox, 2005).

Spector and Fox's (2005) model suggests that negative emotions are a precursor to CWB. Consistent with that hypothesis, the literature on workplace aggression consistently has shown trait anger to be directly related to CWB (Douglas & Martinko, 2001; Fox & Spector, 1999; Fox et al., 2001; Miles et al., 2002; Penney & Spector, 2002).

Spielberger and colleagues (Spielberger, Reheiser, & Sydeman, 1995; Spielberger & Sydeman, 1994) refined the meaning of trait anger by distinguishing two correlated factors: angry temperament and angry reaction. Angry temperament describes a general disposition to experience anger, which is demonstrated by quick temper, outward expressions of unprovoked anger, and impulsiveness. Angry reaction, in contrast, consists of anger in response to specific situations involving frustration or criticism; these reactions may either be expressed or suppressed. When Fox and Spector (1999) explored these two factors in relationship with CWB, they found angry temperament to be more strongly related to CWB targeting individuals, while angry reaction was related to organizational CWB.

Research on trait anxiety has also found a relationship with CWB, though the relationships were somewhat smaller than those for trait anger (Fox & Spector, 1999) and Fox et al. (2001).

Narcissism has also been explored in research on CWB. Penney and Spector (2002) predicted that narcissistic individuals would be more likely to engage in CWB, especially in response to threat. This was based on Baumeister, Smart and Boden's (1996) theory of threatened egotism and aggression which posits that some individuals are hypersensitive to ego threat and respond with exaggerated anger responses and aggression. Because a narcissist is an individual with an unrealistically positive view of his/her capabilities, any threat that disconfirms their self view may lead to anger responses and possible CWB. Consistent with that expectation, Penney and Spector (2002) found that narcissism was significantly correlated with CWB. Further analysis revealed that narcissism was a significant moderator in the relationship between organizational constraints (stressors) with CWB. Those high on narcissism were more likely to respond to constraints (stressors) with CWB.

The role of frustration in counterproductive work behavior has received attention in several studies. In their review of several counterproductivity studies, Sackett & DeVore (2001) found that frustration is directly related to counterproductive work behavior. Storms and Spector (1987) found that individuals experiencing greater frustration were more likely to engage in overall negative behavioral reactions ($r = .40$) and in each dimension of reactions (aggression: r

= .29, sabotage: r = .20, hostility and complaining: r = .47, withdrawal: r = .38, and intent to quit: r = .43). Bennett and Robinson (2000) also found that experiencing frustration was related to interpersonal (r = .21) but not organizational deviance. Spector and Fox's (2005) model suggests that counterproductive work behavior is a response to emotion-arousing situations in organizations especially where the emotion is experienced as anger or frustration.

Chen and Spector (1992) found feelings of *frustration* to be associated with feelings of anger, feelings of stress, job satisfaction (negative), interpersonal aggression, hostility and complaints, and intention to quit in a sample of 400 employees who were mostly white-collar and employed full-time in a wide variety of occupations. They also found *anger* to be associated with feelings of frustration, feelings of stress, job satisfaction (negative), sabotage, interpersonal aggression, hostility and complaints, theft, absenteeism and intention to quit. The authors note that the relationship between anger and the aggressive behaviors assessed are consistent with the frustration literature (e.g.. Geen, 1968). Chen and Spector also investigated the relative strength of anger and frustration and found that workplace anger was more strongly related to counterproductive work behavior than was frustration. Frustration, however, was related to aggression and hostility, but not sabotage or theft.

Negative affectivity is the extent to which individuals experience high levels of distressing emotions like anger, fear, hostility, and anxiety. Individuals high on negative affectivity are more likely to (1) perceive disequilibria and make pessimistic attributions and (2) dwell on negative aspects of themselves and their world (Martinko et al., 2002). Aquino, Lewis, and Bradfield (1999) found that negative affectivity predicted both organizational deviance and interpersonal deviance. Negative affect is related to stress and stress is related to withdrawal, turnover intentions, and sabotage (Cullen & Sackett, 2003). Individuals high on negative affect were more likely to perceive their work environment as being more stressful than individuals low on negative affect (Parkes, 1990). The relationship between control over the work environment, time constraints, and symptoms of stress was stronger for individuals high on negative affect (Moyle, 1995). Several studies explored the relationship between counterproductive work behavior and more general measures of positive and negative emotions at work. Two studies found significant correlations between negative emotions and counterproductive work behavior (Fox, Spector, & Miles, 2001; Miles, Borman, Spector, & Fox, 2002). Fox et al. (2001) found that negative emotion was related to counterproductive work behaviors directed at the organization (r = .45) and at individuals (r = .30). Miles et al. (2002) reported a moderate correlation between negative emotions and counterproductive work behavior (r = .35). In addition, Miles et al. found that counterproductive work behavior was negatively associated with positive emotional experience (r = -.22) and Fox et al. found a negative relationship between organizationally directed counterproductive work behavior and positive emotion (r = .16).

Summary of Evidence for Counterproductive Work Behavior

The evidence for counterproductive work behavior points to certain personality traits as major explanatory and prediction factors. These traits are Conscientiousness, Agreeableness, Emotional Stability (Neuroticism) and Extraversion. In addition, traits of positive and negative affect influence workplace behavior directly and indirectly by influencing perceptions of work environments or situations. Individuals who have a tendency to experience negative affect are more likely to interpret events as violations of justice and focus on the negative aspects of a situation. Negative affect was shown to be linked to negative organization behavior, which may generalize to security violation behaviors in a work context in which the person has responsibility for the protection of classified technology and information.

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SUMMARY OF FINDINGS FROM LEVEL 1, 2, AND 3 EVIDENCE

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No evidence provided a direct causal link between behaviors associated with any of the psychosocial Guidelines and security violation behavior. However, considerable evidence across a range of psychological science domains provides conceptually and empirically persuasive indirect evidence that psychological attributes underlying the four psychosocial Guidelines are likely to be antecedents of security violation behavior. Key findings include:

Sexual Behavior
1. No evidence shows a strong link between disordered sexual behavior and future security violations.
   a. Evidence about the relationships between one's history of pornography use and future deviant workplace behavior is ambiguous.
2. Available evidence shows no linkage between sexual orientation and later security violations
3. Professional sexual misconduct takes many forms with a variety of antecedents. More coercive, forced sexual misconduct shares antecedents (often elements of Narcissism, Antisocial Personality Disorder, Psychopathy) with other aggressive, violent counter-normative behavior.

Alcohol Consumption and Drug Involvement (Substance Abuse)
1. In the past two decades, few espionage cases show a pattern of alcohol or drug abuse as contributing factors.
2. Extensive evidence shows a strong link between alcohol and drug use and deviant and counter-productive work behavior.
   a. The mechanism by which substance abuse influences work behavior has more to do with substance abuse as an indicator of a more general "deviance proneness" than with substance abuse as a cause of impairment..
   b. Psychological factors underlying substance abuse such as low self-control, impulsivity, and stress response have also been shown to be antecedents of counter-normative workplace behavior.
3. Evidence shows that adolescent drug use is not predictive of later job performance or satisfaction.
   a. Continued drug abuse into adulthood is predictive of job performance and counter-normative work behavior.

Psychological Conditions

1. Evidence shows that "normal," adaptive personality traits and maladaptive disordered psychopathological attributes are antecedents to a wide range of counter-normative workplace behavior that is analogous to security violation behavior.

    a. Conscientiousness, neuroticism, agreeableness and extraversion are high-level personality attributes showing strong linkages to counter-productive work behavior.

    b. Psychopathy, antisocial personality disorder, and narcissism are major psychological disorders with strong links to counter-normative work behavior and, in case analyses, espionage cases.

        i. Psychopathy may be more difficult to identify in personal histories of work because many psychopaths are effective at masking their disorder.

    c. Key underlying facets of personality and psychological disorders shown to influence counter-normative behavior include impulsivity, low self-control, emotional instability, and excitement-seeking.

2. The roles of personality and psychological disorders are moderated by the individual's emotional orientation (positive or negative) toward the local circumstances. In general, negative emotion leads to more counter-normative aggressive behavior.

3. Situational factors influence the manner in which personality and psychological disorders influence behavior.

    a. Stressful events and circumstances may lead to increasingly dysfunctional behavior.

        i. Resistance to stress, or psychological "hardiness," relies on a strong sense of personal meaning, perceived control over one's own outcomes, and optimism about change and challenges.

    b. Loneliness and social isolation can lead to increasingly dysfunctional responses to personal hardships such as stress, failure, and significant change.

General

1. Several sources of evidence demonstrate the importance of a general deviance factor, deviance proneness, as an explanation for and predictor of problematic, counter-normative work behavior.

    a. The demonstrated effects of workplace drug and alcohol use may be mediated more by deviance proneness than by functional impairment.

2. There is no one psychosocial profile of individuals at high risk for counter-normative behavior.

    a. It appears from case studies that the vast majority of spies change over time and events from lower-risk to high-risk individuals

      i.   In many cases, such change may be characterized by incremental boundary violations, no one of which leads to failure or unacceptable jeopardy.

3. Certain profiles of attributes associated with susceptibility to high-risk have emerged across a range of psychological research domains. Described in their extreme form, these profiles include
    a. Narcissistic psychopaths who can be cunningly planful
    b. Hostile, antisocial isolates who seek revenge
    c. Neurotic, emotionally unstable individuals who can be vulnerable to coercion / inducement
    d. Impulsively immature decision makers who misjudge risk and/or seek excitement
    e. Rational, functional individuals who, often triggered by events or circumstances such as perceived injustice or unexpected opportunity, choose money / aggrandizement / competing loyalty over US national security interests

MITIGATORS OF PSYCHOSOCIAL EVIDENCE

Prevalence of Alcohol Consumption and Drug Involvement by White-Collar Employees

Matano et al. (2002) examined the prevalence of alcohol, licit (prescription), and illicit drug use in a highly educated workforce sample. A comprehensive health survey was sent to 10% of an organization (total n=8567 employees); these individuals were randomly selected to receive an anonymous survey. Of the 842 mailed surveys, 504 returned completed questionnaires. The sample had a mean age of 43.8 years, 62% were female, 29.9% had a bachelor's degree, 23.4% had a master's degree, and 27.5% had a doctoral degree, 73.3% were Caucasian, 87% were employed full-time, 17.9% were management, and 52.8% were professional.

The CAGE, which consists of 4 items, was used to measure the likelihood of alcohol dependence at any time in the respondent's lifetime. Employees who responded "yes" to two or more of the CAGE items, they were scored as likely to have lifetime alcohol dependence. The alcohol use disorders identification test (AUDIT) was used to assess current problem drinking. This measure consists of 10 items; 7 items refer to behavior within the past year and 3 items refer to current behavior. A score of 8 or more indicates a strong likelihood of hazardous or harmful alcohol consumption. The frequency of use of alcohol and other mood-altering drugs in the past 12 months was also assessed. Ten categories of drugs were assessed with several frequency categories: analgesic drugs (codeine, Darvon, Demoral, Percodan, and Tylenol with codeine), antidepressants (Elavil, Paxil, Prozac, and Zoloft), cocaine, hallucinogens, heroin, marijuana, tranquilizers (Ativan, Dalmane, Halcion, Librium, Valium, and Xanax), sedatives (barbiturates, Benadryl, Nembutal, Phenobarbital, and Seconal), stimulants (Apidex, Dexedrine, Fastin, methamphetamine, Ritalin), and other (including herbals; respondents were asked to specify the drug).

Employees who responded "yes" to two or more of the CAGE items were scored as having lifetime alcohol dependence. AUDIT scores of 8 or above were used to determine current problem drinkers. The mood-altering drug data was broken down into fours different categories: use of mood-altering prescription drugs in the past year, use of illicit drugs in the past year, weekly or more use of mood-altering prescription drugs, and weekly or more use of illicit drugs. Stimulant use was reported separately because illicit and prescribed stimulants were combined when assessing respondent's stimulant usage.

A 6-item survey was used to describe alcohol and/or drug treatment profiles. Treatment was assessed for the previous 12 months only. These items included: outpatient visits to therapists, day treatment intensive outpatient days, hospitalization (detox) days, and hospitalization (residential) days. Two additional items assessed whether the recipient received substance abuse treatment through their employee health plan during the past 6 months and whether the recipient received treatment outside of the health plan in the past 12 months.

Results from the CAGE indicated that 12% of the workforce was assessed as likely to have lifetime alcohol dependence. AUDIT results revealed that 5% of the workforce population was assessed as having a high likelihood for alcohol abuse. Only 1% reported receiving any substance abuse treatment over the past year; 3% reported that someone else had been injured as a result of their alcohol use.

Respondents who reported any drinking in the past year were significantly more likely to be males and significantly less likely to be Asian American. Binge drinking over the past 12 months, defined as having more than 6 drinks in a single session, was significantly more prevalent among males and African Americans, and significantly less prevalent among those who were older or coded as "professionals." Current problem drinking as measured by the AUDIT was significantly greater among African Americans.

With regard to mood-altering drugs, significant numbers of respondents reported use of prescription mood-altering drugs: 28% for analgesics, 12% for antidepressants, 10% for benzodiazepines, and 8% for sedatives. A total of 42% of the sample used prescription mood-altering drugs the past year when counting only once all the individuals who used any of these drugs, regardless of how many they used. Thirteen percent of the sample used mood-altering prescription drugs on a weekly or more often basis.

Substantial percentages of the sample also reported mood-altering illicit drugs in the past year. Specifically, 10% used marijuana, and 2% used cocaine. Eleven percent of the sample used an illicit drug in the past year; 2% reported weekly or more use of illicit drugs. With regard to stimulant use, prescription or illicit use was reported by 3% of the sample for the past year. One percent reported weekly or more use.

Demographic data was also examined in relation to mood-altering drugs. Use of illicit drugs in the past year was significantly greater among males and African Americans and use of illicit drugs was significantly less prevalent among those who were older. Antidepressant use was significantly greater among females and use of marijuana was significantly lower among those who were older.

Matano et al. concluded that the rates of alcohol consumption in this highly educated sample were similar to rates found for the general population. The authors conclude that there are at least two patterns of alcohol consumption that may require different prevention and treatment approaches. The first pattern is the problem binge drinker, who consumes a large number of drinks on one occasion but who may not be alcohol dependent. These individuals may still act in ways that cause impairment in social functioning and their behavior may actually present safety or potential legal issues. Continued binge drinking could also develop into alcohol dependence. The second pattern is alcohol dependence and in particular those who report some loss of control over their drinking behavior. Matano suggests a focus on both patterns, citing research from Mangione et al. (1998) suggesting the problem drinkers may create more workplace issues than those dependent on alcohol.

In a group of intelligence community members undergoing reinvestigations, Harris (2001) cites the 2001 Productivity of Sources Study of Periodic Reinvestigations as showing that

those individuals with financial issues are more than twice as likely to have alcohol-related issues and half again as likely to have drug –related issues as members of the population at large.

Sterud et al. (2007) examined the prevalence of alcohol consumption in police and ambulance personnel in Norway. They were also interested in the association of alcohol use with burnout and job stressors, with drinking-to-cope and neuroticism as two possible moderators. The authors conducted a comprehensive nationwide questionnaire survey of 2,372 police and 1,096 ambulance personnel. Alcohol use was measured with the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993).

Scores on AUDIT were used to assess the prevalence of alcohol problems in these two populations. A modified AUDIT score of 6 or more ("somewhat hazardous drinking") revealed that the prevalence of alcohol problems for men was 17.9% (police personnel) and 16.8% (ambulance personnel), while for women it was 9.4% (police personnel) and 7.4% (ambulance personnel). A cutoff of 8 or more could not be assessed in the police sample because one item was removed from the police version due to previous indications that the item was often misunderstood in Norwegian settings. However, when the AUDIT cutoff was 8 or more in the ambulance sample, rates of alcohol problems rose to 18.8% for men and 10.7% for women. Because normative data from Norway was not available on the AUDIT, the authors compared their rates to those of Norwegian physicians (Gulbrandsen & Aasland, 2002) and found that the level of alcohol consumption was not significantly different. However, their prevalence rates were much lower than those reported in a large police sample from Australia (Davey et al., 2000). With AUDIT scores of 8 or higher, 33% of the male police sample and 24% of the female police sample reported scores indicating harmful levels of alcohol consumption. The differences in these rates between the police groups could be partly explained by the use of different cut-off scores on the AUDIT.

Bourgault and Demers (1997) examined solitary drinking as a risk factor for alcohol-related problems. The following three indicates of solitary drinking were used: having had a drink alone, frequency of solitary drinking, and having had 5 drinks or more in a solitary setting. Subjects included 2,015 drinkers in Montreal, who were assessed in a telephone survey. Overall, 31% of the sample reported drinking alone, 27% of whom did so more than once a week; 17% had consumed 5 or more drinks alone at least once. Univariate analyses revealed strong positive relationships between overall alcohol-related problems and both solitary drinking and having had 5 or more drinks alone.

Workers in physically risky jobs are more likely that those in less hazardous positions to have problems associated with substance use. Holcom et al. (1993) found that employees in risky jobs (i.e., working with machinery or hazardous chemicals) were 40% more likely to have problems with alcohol and 60% more likely to admit substance use at work in the last year when compared with workers in non-risky jobs (i.e., office settings). Substance use was the best predictor of accidents among high risk workers but it was not a predictor of accidents for low-risk positions.

Lehman and Bennett (2002) present two possible theories that might explain the relationship between job risk and substance use. The first theory is that characteristics of the individual who seeks these risky positions are predisposed to substance use (Trice & Beyer , 1982). The second theory is that the working environment or reactions to the environment of these high-risk positions may contribute to substance use problems. Namely, these high risk jobs may provide more opportunity for substance use, they may be associated with a climate that is supportive of substance use, or the job itself may include stressors that lead to increased substance use (Pearlin et al., 1981; Trice et al., 1988).

Details of Lehman and Bennett's study are described here. The first sample, City 1, had the following characteristics: 61% male, 57% Anglo, 41% were over 40 yrs old, 27% had a college degree, and 29% were designated official/professional. Almost 25% reported problem drinking, 11% reported use of illicit drugs, and 8% reported marijuana use in the past year. City 1 had an EAP and employee drug testing. City 2 characteristics include: 64% male, 47% were over 40, 70% were Mexican American, 27% had a college degree, and 36% were official/professional. In terms of substance use, 20% reported problem drinking, 11% report recent illicit drug use, and 8% report marijuana use in the past year. City 2 did not have an established EAP or drug testing program.

Job risk was assessed by asking how often the employees' job entailed potentially risky activities (including operating heavy machinery, maintaining heavy machinery, working with light machinery, or working with hazardous chemicals). High-risk designation required answering "sometimes" or more often to any of the four job activities. Substance use was assessed with 3 dichotomous variables. Problem drinking included asking about the following variables: drinking at work, working under the influence of alcohol, any symptoms of problematic drinking (e.g., blacking out, remaining drunk for one or more days, drinking more than intended, experiencing shaking or tremors, drinking first thing in the morning), or any negative consequences from alcohol use (e.g., getting into fights, being arrested due to alcohol use, receiving alcohol treatment in the past year). This alcohol use assessment is one of the better ones in the studies described here and assess items that are symptomatic of alcohol abuse or dependence. Recent illicit drug use included any illicit drug use in the past year, at work or away from work, or problems related to illicit drug use. Marijuana use indicated any marijuana use in the past year.

In both cities, employees in risky jobs were substantially more likely to exhibit drinking problems, illicit drug use, or marijuana use. The authors then compared high and low-risk jobs. In both cities, employees in high-risk jobs were more than 4 times likely to be male, were less educated, and expressed higher tolerance for co-worker substance use. Those in high-risk jobs were also more likely to report an arrest history and slightly lower depression. In both cities, individuals in high-risk jobs reported less job stress but a stronger drinking climate.

In terms of personal characteristics and substance use, Lehman and Bennett (2002) found that indicators of general deviance were the most consistent predictors of substance use. Those workers reporting drinking problems were more likely to be younger males who attend religious

services less often, exhibit higher risk taking, indicate more tolerance for coworker use and have an arrest history. Employees who report drug and marijuana use exhibit greater tolerance for co-worker substance use. Overall, deviance factors were more important than psychosocial factors in predicting substance use.

In summary, compared to those in low-risk job, employees in high-risk jobs were more likely to be less educated males reporting higher levels of deviance, lower job stress, and stronger support for drinking climates. Employees with drinking problems were more likely to report deviant behavioral styles, including less frequent attendance at religious services, higher levels of risk-taking, greater likelihood of arrest history, and higher tolerance for co-worker substance use. These findings support earlier research by Plant (1978), who found that individuals predisposed to substance use may tend to be attracted to certain types of occupations that facilitate substance use and the concealment of substance use problems (e.g., working outdoors). The issue of behavioral deviance in the workplace is supported by Holcom's dissertation (as cited in Lehman and Bennett (2002)) who found associations between behavioral deviance and negative job behaviors such as absenteeism, accidents, and psychological withdrawal. Results also suggest that employee substance use may be related more to personal characteristics of the individual than to characteristics of the job. This has implications for addressing substance use, namely that efforts might be focused more on the individual (i.e., EAP) than on the organization. Employees were more likely to report substance-use problems when they met the following two criteria: 1) they reported three or more indicators of deviance (arrest, risk-taking, low church attendance, and tolerance of substance use), and 2) they encountered a drinking climate at work. This suggests that social factors in the job may precipitate substance use among those predisposed to do so (Lehman & Bennett, 2002).

Occupational Correlates of Substance Use

In a study used to examine the relationships between 8 occupational and job dimensions and workers' current and prior use of alcohol and drugs, Zhang and Snizek (2003) used occupational data from the Department of Labor (O'NET 98) and drug and alcohol use collected by the Substance Abuse and Mental Health Services Administration in their 1997 National Household Survey on Drug Abuse (NHSDA). The merged data set contained 7,477 full-time workers. The dependent variables of interest were: current use of alcohol, current heavy use of alcohol, current use of drugs, use of marijuana during the past year, and use of cocaine the past year. Current use reflected substance use in the previous 30 days. The independent variables included: workload, job independence, job variety, financial compensation, job security, working conditions, job autonomy and skills utilization. Control variables included: age, education, sex, race and annual income. There were 14 combined occupational categories, several of which represent realistic parallels to intelligence community staff (i.e., executive, administration and managerial (n=913); professional specialty (n=913); and protective service (n=165)).

Descriptive analyses found that people in less politically and socially powerful groups are more likely to use illicit drugs that those in more politically and socially powerful groups.

Managers, white-collar workers and skilled blue-collar workers have lower prevalence rates of both illicit drug use and heavy alcohol use than do workers in other occupations.

The results of the regression analyses exploring job characteristics' ability to predict substance use included the finding that job security or "level of steady employment" had the greatest impact on current alcohol use, current use of any illicit drug, and prior-year use of marijuana. Job security was inversely related to alcohol and illicit drug use. Specifically, those full-time employees in jobs with higher-than-average employment security are 0.77 times as likely to be current drinkers, 0.52 times as likely to be current users of any illicit drugs, and 0.64 times likely to be prior-year marijuana users than those who abstained from substance use. Also, job variety was associated with lower cocaine use over the previous year. Those workers with high levels of job variety are considerably less likely to have used cocaine during the past year. The odds of cocaine use by workers in occupations with greater job variety decrease by 64 percent.

Predictors of Alcohol Use Severity

Reel et al. (2009) explored the association of gender, temperament, family history of drug and alcohol problems, childhood behavior problems, personality factors, and adult psychopathology and the severity of alcohol problems in a sample of male and female alcoholics at entry into treatment. The sample consisted of 342 people with current or lifetime DSM-III-R diagnosis of alcohol abuse (4%) or dependence (96%) in one of five treatment outcome studies conducted through the Rutgers University Alcohol Research Center (ARC).

The use of path analysis resulted in three significant pathways associated with severity of alcohol use. One path was associated with difficult temperament, childhood attentional/socialization and learning problems, and adult neuroticism, anxiety and depression. The second path was associated with being male, family history of drug problems, difficult temperament, childhood hyperactivity/impulsivity, and antisocial personality. The final path linked only family history of alcohol problems to severity of alcohol use. The authors conclude that their findings are consistent with previous research involving multiple pathways to alcohol use severity in adulthood.

Sher and Littlefield (2009) examined the developmental trajectories of impulsivity and their association with substance use and other outcomes from the ages of 18-35. This longitudinal study followed 489 first year college students (46% male; 52% had paternal history of alcoholism; baseline age of 18.5 years) at the ages of 18, 25, 29, and 35. All completed measures of impulsivity. The authors used mixture modeling, which identified 5 trajectory groups that differed in both baseline levels of impulsivity and developmental patterns of change over time.

The trajectory groups that exhibited high and non-decreasing levels of impulsivity across time were less likely to decrease alcohol use compared to a trajectory group that exhibited high but decreasing levels of impulsivity across time. In addition, trajectory groups that failed to make declines in impulsivity were more likely to be male, higher in initial levels of

psychoticism, and less likely to be married at later points. These findings suggest that developmental trajectory groups characterized by either stability or change in impulsivity have an impact on changes in substance use.

O'Connor et al. (2009) examined the role of a strong behavioral inhibition system (BIS) in negative reinforcement alcohol expectancies and their relationship with mood-evoked impulsivity. Essentially, those with a strong behavioral inhibition system (Gray, 1975 as cited in O'Connor et al., 2009) tend to over-attend to potential negative consequences, which results in high levels of anxiety, and as a result they are at increased risk of using alcohol to self-medicate. This risk pathway involves anxious mood and expectation that alcohol will have negative reinforcement risks. On the other hand, a strong BIS also involves inhibited behavior in response to potential negative consequences (e.g., hangover, potential drunk driving or sexually risky behavior), which makes considering the role of mood-evoked impulsivity in this pathway an important area of exploration.

The sample consisted of 178 (55% women) undergraduates randomly assigned to either an anxious or positive mood induction procedure. Measures of self-reported BIS, impulsivity specific to emotional distress, and negative reinforcement alcohol expectancies were collected. The negative reinforcement alcohol expectancies were reassessed post-mood induction and change scores were calculated. Results revealed that for those in the anxious mood condition, a strong BIS was associated with increased negative reinforcement alcohol expectancies, and this effect occurred only in high impulsivity scoring individuals. The authors conclude that individuals who act impulsively when distressed may be at risk for alcohol misuse because they over-attend to alcohol's reinforcement effects when they are anxious. Clinical implications include targeting impulsivity and specific expectancies in treating substance use problems.

Fischer (2009) examined the effects of impulsivity and drinking motives on binge drinking, alcohol abuse, and associated negative consequences in a longitudinal sample of young adult women. At time 1, about 500 women were assessed (age range 18-24), while 387 completed follow-up data collection. Alcohol use, sensation seeking, deliberation, negative urgency, and persistence were assessed.

At Time 1, 31% of the sample were binge drinkers, which was defined as drinking four or more drinks on one occasion on more than one occasion per month. At Time 2, Time 1 binge drinkers reported more instances of sexual assault, increased restricted eating and self-induced vomiting, and more binge-drinking days. At Time 1, the only impulsivity variable associated with drinking scores was negative urgency. The impulsivity variable of deliberation was the only predictor of frequency of binge drinking, though enhancement, social, and conformity drinking motives also contributed uniquely to this behavior. After controlling for drinking scores at Time 1, coping motives at Time 1 significantly moderated the effects of urgency on drinking scores at Time 2. The interaction of baseline levels of urgency and coping motives for drinking significantly contributed to increases in drinking problems later in the year.

Treatment of Alcohol Abuse/Dependence

Houston (2009) examined impulse control, assessed both behaviorally and by self-report, and outcomes of cognitive-behavioral treatment (CBT) for alcohol dependence. The author cites research that suggests that impulse control may play an important role in the development, maintenance, and treatment of addictive disorders. In fact, for those individuals with alcohol use disorders, the decision at any point to initiate drinking is indicative of a lapse in impulse control. The sample consisted of men and women aged 25-55 who were recruited by advertisements for individuals needing help for an alcohol problem. The entire sample met DSM-IV criteria for alcohol dependence and completed two assessments at pre- and post-treatment.

Preliminary analyses found a reduction in both alcohol-related problems and self-reported impulsivity from pre- to post-treatment. A greater number of completed treatment sessions was significantly associated with changes in behavioral performance reflective of increased impulse control (i.e., slowing of response initiation). The author reports that the initial findings support changes in impulse control as a result of CBT for alcohol dependence. It is hoped that results will be used to better define the role of impulse control as a potential mechanism of behavioral change and lead to more effective treatment of alcohol use disorders.

Slaymaker and Owen (2006) examined the impact of alcohol treatment on job behaviors of gainfully employed individuals in the U.S. Participants were 212 employees entering into a residential treatment program who completed the Addiction Severity Index (ASI) at intake and at 6 and 12 months follow-up. Following treatment, significant improvements were seen in absenteeism, number of employment problem days and whether their job was at risk 12 months later. Sixty-five percent of these employees were retained by their employers. Scores on the ASI composite scores also improved. Abstinence was obtained by 65% at 6 months follow-up and 51% at 12 month follow-up. The authors note that although women were less likely to be referred to treatment by their employer, they had similar responses to treatment as the men regarding abstinence rates and overall quality of life following completion of treatment.

Walker, Cole, and Logan (2008) also examined individuals referred for treatment to a state-funded treatment center. The sample consisted of 888 clients who received treatment from July 2003 to June 2004. The authors examined treatment outcome among three referral conditions: driving under the influence (DUI) referrals, criminal justice referrals, and non-criminal justice referrals. Results indicate that more DUI referrals reported alcohol use at 12 month follow-up. The factors that predicted positive treatment outcomes (after controlling for age, gender, and race), were recovery intent at intake and participation in a 12-step program at follow-up. The one factor that predicted negative treatment outcome was persistent depression. The authors conclude that referral condition did not have an impact on treatment outcomes.

Treatment of Pathological Gambling

Toneatto et al. (2009) completed a pilot study integrating mindfulness meditation (MM) in a brief intervention for pathological gambling. The authors posit that mindfulness meditation may be useful in this clinical disorder because it stresses a process-oriented meta-cognitive approach to cognitive pathology in contrast to content-focused approaches that characterize traditional approaches to treating cognitive psychopathology. The sample consisted of 20 DSM-IV diagnosed pathological gamblers who were randomly assigned to the mindfulness meditation treatment or wait-list control group. Measures of gambling behavior, behavioral impulsivity, and a brief measure of psychological symptoms were administered before and after the 5 week intervention as well as at a 3 month follow-up.

Results indicate that those receiving the MM intervention reported significant decreases in the frequency of gambling behavior at post-treatment that were maintained at the three-month follow up when compared with the wait-list control group. The individuals receiving MM treatment also evidenced significant increases in mindfulness skills and reduced ratings of depression and anxiety. Impulsivity was not significantly affected by the MM intervention. All participants reported that mindfulness practice was beneficial in helping with gambling behavior. The authors conclude that a brief intervention involving mindfulness meditation offered measurable benefits for the treatment of pathological gamblers.

Incidence of Workplace Internet Pornography Use

Cooper, Scherer, Boies, and Cordon (1999) assessed a sample of 9,265 men and women and found that 20% of men and 12% of women had used computers at work for online sexual activities (OSA). In a similar finding, Goldberg (1998) found that adult content sites were the fourth most visited category while at work. Carnes (1989) found that 70% of all adult content visits occurred during the 9-5 workday.

Other studies evaluated this behavior in light of the employees' knowledge of workplace policies about OSA. Cooper, Scherer & Mathy (2001) assessed 40,000 adults, and found that 63% of employees reported that their workplace had rules against OSA, 14% reported that their workplace does not forbid it, and 22% did not know the rules pertaining to OSA. Some 48% stated that their workplace does not take action to block the accessibility of these sites. While 0.4% of employees who access sexual sites at work get caught and suffer serious consequences, some 4% experience no consequences when caught.

Cooper, Delmonico and Burg (2000) devised a typology of cybersex users. The first are *recreational users*, who views online sexual material out of curiosity or entertainment purposes; they are not perceived as having problems related to their online behavior. The second group at the *at risk users*, who access sexual material a moderate amount of time for sexual activities; if the pattern continues, they could become compulsive users. The third group consists of *sexually compulsive users* who use the internet as a forum for their sexual activities. This group is thought to have a propensity for pathological sexual expression. Cooper et al. (2002) state that

compulsive internet use for sexual activity represents a legitimate clinical entity that is considered nonparaphilic hypersexuality or paraphilia related disorder (PRD). Also at issue is the problem of co-morbidity, or the presence of additional diagnoses. Previous studies of sexually compulsive males and females (Black et al., 1997) and PRDs (Kafka & Prentsky, 1994), reveal that many with these disorders have several lifetime comorbid mood, anxiety, psychoactive substance abuse, and/or other impulse control disorders.

Mastrangelo (2003) performed a series of studies exploring the misuse of work computers. The data support a distinction between computer use that is not productive, Nonproductive Computer Use (NCU), and counterproductive computer use, or Counterproductive Computer Use (CCU). NCU includes sending email and instant messaging, browsing websites, playing games and downloading music or picture files. CCU includes forwarding sexually harassing jokes and pornography to others, attempting to access confidential information, unleashing computer viruses, and trafficking drugs at work. NCU was more common than CCU. Employees who engaged in CCU also engaged in NCU, while relatively few employees who engaged in NCU engaged in CCU. CCU is considered "antisocial" behavior and occurs among only 10% or less of employees.

Ugrin et al. (2008) examined a sample of 239 employees in the United States, Asia and India through an internet survey. A cluster analyses of the internet behavior revealed 3 groups: 1) *Focused Workers*, who had the lowest rate of internet abuse and spent little time using the internet for personal purposes, 2) *Moderate e-mailers*, who spent work time e-mailing and shopping, and 3) *Super Slackers*, who spent more time on gaming, chatting, viewing pornography and viewing media. Further analyses revealed that job function (executive, mid-management, and non-management) was significantly related to group membership; namely, executives appeared most prominently in the super slacker group (42.5%) when compared with mid-level management (20.4%) and non-management employees (24.0%). No other variables significantly differentiated the groups. A review of the relative frequency of the super slacker membership by age group reveals the following (age group is followed in parentheses by % in the super slacker group): age 20-24 (31.8%), age 25-29 (46.2%), age 30-34 (34.5%), age 35-39 (20%), age 40-44 (9.1%), age 45-50 (16%), and over 50 (21.7%). The super slackers appear to contain a fairly high number of younger employees (34 and under) as well as older employees (over 50).

Williams et al. (2009) explored the role of personality and pornography consumption on sexually deviant behavior in a noncriminal sample of male undergraduates. Self-reports of 9 deviant sexual fantasies and behaviors were compared in two samples of male undergraduates. Taxonomies of sexual deviance commonly include the following paraphilias: transvestism, voyeurism, sadism, masochism, object fetishism, frotteurism, pedophilia and bondage (e.g., American Psychiatric Association, 2000). The DSM-IV defines paraphilias as intense fantasies or behaviors that involve unusual objects, activities, or situations and cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (p. 566). The definition of sexual deviance has been inconsistent in the research, but the term deviance

often include factors such as infrequency in the population, social unacceptability, the extent to which the fantasy acts are illegal, nonconsensual or harmful (Gee, Devilly, & Ward, 2004; Leitenberg & Henning, 1995). For the purposes of their study, Williams et al. defined sexual deviance in terms of an unusual arousal source, which includes behaviors that are nonaggressive (e.g., object fetishism) as well as aggressive (e.g., sexual assault). The following 9 deviance behaviors were assessed: object fetishism, transvestism, voyeurism, sadism, bondage, frotteurism, exhibitionism, pedophilia, and sexual assault. Two studies were conducted to explore the strength of the relationship between deviant sexual fantasies and corresponding behaviors.

In Study 1, Williams et al. explored the frequencies and intercorrelations between fantasies and behaviors in the nine deviance groups. The role of deviant fantasies as potential mediators of the relationship between pornography use and deviant behaviors was also examined here. The sample included 103 male undergraduates who were a mean age of 19.7 years; 56% were European, 34% East Asian, and 10% were other heritage. Deviant sexual fantasies and behaviors were assessed by the Multidimensional Assessment of Sex and Aggression (MASA: Knight, Prentky, & Cerce, 1994). One question about current pornography use resulted in a categorical yes/no response. Demographics were also collected.

Prevalence results reveal that with one exception, fantasy rates (52%) were higher than corresponding behavior rates (21%). Some 95% of the sample reported at least one deviant sexual fantasy. The most common rates (over 50%) were found for frotterusim, object fetishes and voyeurism. The least frequent fantasies involved pedophilia and transvestism. A surprisingly high number, 63%, reported at least one deviant sexual behavior. Frotteurism was the most common behavior and pedophilia and transvestism behaviors were least common. The authors' follow-up analysis revealed that a minority of fantasizers were also behavers (M=38%), while virtually all behavers were also fantasizers (M=96%).

All of the deviant fantasies and corresponding behaviors were positively correlated and statistically significant except for pedophilia. Those who reported engaging in deviant behaviors also reported more fantasies about that behavior. In every case, the deviant behavior was more highly correlated with its corresponding fantasy than with any other fantasy category. With regard to pornography, 63% of the participants reported current pornography use. Pornography users reported significantly more deviant fantasies and behaviors than those who did not report current pornography use. Overall, fantasies did mediate the relationship between pornography use and behavior.

The overall rate of deviant fantasies approaches the overall rates of having any sexual fantasy (Leitenberg & Henning, 1995). The self-reported behavior rates, including nonaggressive categories, were lower than those obtained in prison samples. While the fantasy-behavior correlations were quite high, only a small portion (M=38%) of those reporting fantasies also carried out the behavior. Pornography use is related to more frequent deviant behavior and was partially mediated by the relationship between pornography use and deviant fantasies. The authors report that this result is consistent with the perspective that pornography encourages the

translation of fantasy into behavior. Alternative perspectives also include the possibility that pornography causes deviant behavior, which then promotes deviant fantasies, or that deviant fantasies promote pornography use, which then promotes deviant behavior.

The second study assessed the role of personality in deviant sexuality. The sample included 88 male undergraduates with a mean age of 20.4 years; 58% were European, 27% were East Asian, and 15% were other heritage. The MASA was used to assess the same deviant sexual fantasies and behavior as the first study. Four personality measures were also used. The Big Five Inventory (John & Srivastava, 1999) was used to assess extraversion, agreeableness, conscientiousness, stability and openness. The Dark Triad of narcissism, psychopathy, and Machiavellianism were also assessed. The Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979) was used to assess narcissism, psychopathy was assessed with the Self Report Psychopathy Scale (SRP-III, Williams, Nathanson, & Paulhus, 2003), and Machiavellianism (primary features are manipulativeness and cynicism) was measured with the Mach-IV (Christie & Geis, 1970).

Results indicated similar findings to Study 1 with regard to the prevalence rates of the deviant fantasies and behaviors as well as the fantasy-behavior correlations. With regard to the personality variables, neuroticism (r=.23) and psychopathy (r=.23) were significantly correlated with overall deviant sexual fantasies. Specifically, neuroticism was correlated most strongly with frotteurism and bondage fantasy subscales of the MASA, while psychopathy was most strongly related to bondage and sadism fantasies. Other correlations of personality with deviant fantasies include: extraversion with transvestism fantasies (r=.23), openness to experience with frotteurism (r=.33) and pedophilia (r=.27), and narcissism with sadism (r=.31).

With regard to personality and deviant sexual behaviors, only subclinical psychopathy (r=.26) and narcissism (r=.20) were significantly associated with total deviant sexual behaviors. A review of the specific deviant behaviors finds psychopathy significantly related to bondage (r=.24), sadism (r=.24), and sexual assault (r=.21). Narcissism was significantly associated with sadism (r=.23) and sexual assault (r=.27). The only other personality variable associated with a deviant behavior was extraversion with transvestism (r=.21). Interestingly, the strength of the overall relationships between psychopathy and narcissism and deviant behavior appear due to their relationships with more aggressive sexually deviant behavior.

In summarizing their findings, Williams et al.(2009) report that the psychopathy findings supports the notion that sexual aggression and general delinquency have a common link with psychopathy in both offender and nonoffender populations. This is also the first study to link subclinical psychopathy with such a wide range of sexually deviant fantasies. Sexually deviant fantasies translated into behavior only for those scoring high in psychopathy. Essentially, deviant sexual fantasies have little association with deviant sexual behavior for those with low psychopathy scores. The authors conclude that psychopathy and deviant sexual fantasies appear necessary, but not sufficient for a link between deviant fantasies and behavior.

Also, the association of pornography and deviant sexual behavior held only for high psychopathy scorers. The results suggest that the combination of psychopathy and pornography

is especially predictive of sexually deviant behavior. Williams et al. posit that pornography may activate the deviant sexual behavior of psychopaths. Nonetheless, the authors cannot conclude that fantasies or pornography directly cause behaviors, however they do feel confident in concluding that personality traits precede sexually deviant fantasies and behavior. Previous research adds that subclinical psychopaths generally prefer violent media (Williams et al., 2007) and that they voluntarily expose themselves to violent pornography (Shim et al., 2007).

Additional research supports the relationship between pornography and negative outcomes. Kingston, Malamuth, Federoff, & Marshall (2009) reviewed the existing literature on pornography and its influence on antisocial attitudes, sexual arousal, and sexually aggressive behavior in both criminal and noncriminal samples. The authors conclude that pornography can be a risk factor for sexually aggressive outcomes, particularly for men who are high on other risk factors and for those who use pornography frequently.

Schneider (2000) assessed the negative consequences of cyber sex participants in an on-line survey of 45 men and 10 women, aged 18-64 years, who had self-identified themselves as cyber sex users who had experienced adverse consequences as a result of online sexual behavior. Almost all identified themselves as current or former sex addicts. Men identified downloading pornography as a preferred activity significantly more than women. When assessing the frequency of on-line sexual activities leading to real-life sexual encounters, women were significantly more likely to report this. In terms of the progression of sexual behavior, some subjects described a rapid progression of a previously existing compulsive sexual behavior problem, while those with no history of sexual addiction quickly became involved in an escalating pattern of compulsive cyber sex use after they discovered Internet sex. The adverse consequences associated with cyber sex included: depression and other emotional problems, social isolation, decline in quality of sexual relationship with spouse/partner, harm to marriage or primary relationship, exposure of children to online pornography or masturbation, career loss or decreased work performance, financial consequences, and in some, legal consequences.

Vega & Malamuth (2007) explored the unique relationship between pornography use and men's sexually aggressive behavior. Even after controlling for various risk factors associated with general antisocial behavior, results indicated that pornography consumption added significantly to the prediction of sexual aggression. The predictive utility of pornography was due to its discriminative ability among men classified as high risk for sexual aggression.

Stulhofer, Jelovica, and Ruzic (2008) conducted a retrospective study in order to assess the relationship between early exposure to pornography and sexual compulsivity in Croatian young adults. The sample consisted of 1,528 heterosexual men and women between the ages of 18-25. Data was collected by online survey. The authors tested the hypothesis that pornography use at the age of 14 was a marker for sexual compulsivity in late adolescence and young adulthood. The composite indicator of sexual compulsivity focused on out-of-control sexual thoughts and behaviors. High scores on sexual compulsivity was associated with sexual risk-taking, though mainly among women, decreased levels of relationship intimacy, and less sexual

contentment. There was no significant relationship between early pornography exposure and high sexual compulsivity among either men or women.

SUMMARY OF FINDINGS ABOUT MITIGATORS OF PSYCHOSOCIAL GUIDELINES

The findings summarized here rely on the evidence reviewed in the Mitigator's section as well as the evidence reviewed in the Levels 1, 2 and 3 sections. To a great extent the adjudicator is limited in his/her ability to judge the mitigator value of evidence in the case of psychosocial Guidelines. In most cases, a licensed clinical psychologist should be the primary source of judgments about mitigators for the psychosocial Guidelines.

That said, the following implications may be drawn from the mitigator reviewed here.

Psychological Conditions
1. Clinical evidence of Psychopathy will have few, if any, mitigators
2. Cognitive-behavioral treatment for treatment of compulsive or addictive conditions warrants significant consideration as a mitigator where participation has been continuous for an extended period of time.

Sexual Behavior (Disorder)
1. Young age at which behavior took place, without continuation into adulthood, mitigates against early history of disordered sexual behavior.
2. Evidence of disordered sexual behavior increases in importance where there is companion evidence of substance abuse, problems with impulse control, and evidence of other problems caused by sexual behavior such as internet pornography use.

Drug Involvement
1. Adolescent use without continuation into adulthood is not a risk.
2. Increasing weight should be given to a history of drug use with:
   a. Evidence of financial problems or other personal stressors
   b. Histories of work injuries, work absence / tardiness, arrest records
   c. Association with drug users or those tolerant of drug use
   d. Family history of drug use
   e. History of impulsive behavior in response to distressors

Alcohol Consumption
1. Patterns of persistent binge drinking have similar weight to evidence of alcohol dependence
2. Increasing weight should be given to a history of problem drinking with:
   a. Evidence of financial problems or other personal stressors
   b. History of persistent solitary drinking
   c. Histories of work injuries, work absence / tardiness, arrest records
   d. Association with heavy drinkers or those tolerant of heavy drinking

e. Family history of problem drinking

f. History of impulsive behavior in response to distressors

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APPENDIX A: ANTISOCIAL PERSONALITY DISORDER AND PSYCHOPATHY

One psychological construct that deserves attention in the examination of psychological conditions that impact the risk of security violation behavior is that of psychopathy. While many researchers consider psychopathy its own entity, others have used the term interchangeably with Antisocial Personality Disorder (ASPD), which appears in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 1994). What follows is the distinction between psychopathy and ASPD, reasons for its importance in this paper, and an evaluation of an actual espionage case with the psychopathy construct.

Cleckley's (1941) views are considered the beginning of the modern clinical construct of psychopathy. Cleckley's description of psychopathy is generally accepted to this day. Interpersonally, psychopaths are grandiose, arrogant, callous, superficial, and manipulative. Affectively, they are short-tempered, unable to form strong emotional bonds with others, and lacking in empathy, guilt or remorse. Behaviorally, they are irresponsible, impulsive, and prone to violate social and legal norms and expectations.

Significantly, Cleckley (1941) made it clear that psychopaths may or may not become involved in the criminal justice system. In fact, psychopaths could to be successful in business or other careers that offered considerable material success. Quoting Cleckley on his observations on the differences between nonoffending psychopaths and those who criminally offend:

> *The true difference between them and the psychopaths who continually go to jails or psychiatric hospitals is that they [i.e., the nonoffenders] keep up a far better and more consistent outward appearance of being normal."* (pp. 198-199).

Specifically, the psychopathic characteristics of glibness, superficial charm, emotional detachment, and lack or remorse or guilt could present as quite useful in both criminal and non-criminal or more traditional careers. A lack of concern about how their actions might affect others around them would make psychopaths less hesitant to pursue their own interests. However, Cleckley (1941) stressed that it was the *impulsive behavior* of psychopaths that would ultimately be detrimental to them.

With regard to the Diagnostic and Statistical Manual (DSM), psychopathy has never appeared as an official diagnosis. However, this is where the distinction between psychopathy and antisocial personality disorder becomes important. In the first edition of the DSM (1952), Sociopathic Personality Disturbance was used to describe a condition that included many of the personality characteristics described by Cleckley (1941) as psychopathic. The criteria included *internal* processes and personality traits (i.e., lack of guilt, anxiety or a sense of responsibility). The Sociopathic Personality Disturbance also included the existence of antisocial and dyssocial sociopaths.

When the DSM-II was published in 1968, the dyssocial sociopath distinction was eliminated. Arrigo & Shipley (2001) reported that the psychopathic personality characteristics were not conveyed in the dissocial sociopath. The antisocial classification remained, however, and it did contain similarities to Cleckley's psychopathic personality traits.

By the time the DSM-III (1980) and DSM-III-R (1987) were published, explicit diagnostic criteria were laid out and the diagnosis for psychopathy was called Antisocial Personality Disorder (ASPD). The diagnostic criteria, however, shifted from a focus on personality traits, to an emphasis on behaviors (Arrigo and Shipley, 2001). This shift appears due to the concern about the making the diagnosis more reliable; achieving this result is more likely to result from a focus on observable/measurable behaviors than the personality factors (Hare, 1996). Millon (1981, as cited in Arrigo & Shipley, 2001) was critical of the ASPD diagnosis, stating that it did not address personality characteristics at all and focused instead on antisocial behaviors that result from the personality traits. Millon also noted that the emphasis on the delinquent and criminal behaviors did not adequately capture those psychopaths who may express themselves in socially appropriate ways. The new diagnosis required the presence of Conduct Disorder or a history of deviant behavior prior to age 15. For the ASPD diagnosis in the DSM-III (APA, 1980), 4 of 10 behavioral criteria must be met and included symptoms such as: inability to sustain consistent work behavior, failure to conform to social norms with respect to lawful behavior, feelings of irritability, and aggressive behavior (e.g., physical fights or assaults). The DSM-III-R also included the following behavioral criteria: lying, impulsive conduct, inability to establish lasting, stable relationships and a disregard for personal safety (APA, 1987).

Hart and Hare (1997, as cited in Shipley & Arrigo, 2001) point out that the focus on behavioral symptoms in making the diagnosis of ASPD may lead to the over diagnosis of psychopathy in criminal populations and an underdiagnosis in noncriminal populations.

The DSM-IV (1994) reflected small changes in the diagnosis of ASPD. The text describing the diagnostic features of ASPD states that "this pattern has also been referred to as psychopathy, sociopathy, or dyssocial personality disorder" (p. 645). The core symptom is a pervasive pattern of disregard for and violation of the rights of others since the age of 15. Three of 7 criteria are required for a diagnosis and include: failure to conform to social norms with respect to lawful behaviors, deceitfulness, impulsivity or failure to plan ahead, irritability and aggressiveness, reckless disregard for the safety of self or others, consistent irresponsibility, and lack of remorse. There must also be evidence of a conduct disorder with onset prior to age 15. Hare (1998, as cited in Arrigo & Shipley, 2001) posits that greater confusion exists between ASPD and psychopathy because the DSM-IV emphasizes antisocial behavior, yet many who are diagnosed may not be psychopathic. Hare stresses that if a DSM-IV diagnosis is required (as it may in community or forensic environments), it might be more meaningful to diagnose severe ASPD with psychopathic traits for those individuals thought to be psychopathic.

In order to assess psychopathy, Hare (1980) developed the Psychopathy Clecklist (PCL) and later the PCL-R (Hare, 1991) based on Cleckley's (1941) original criteria. The PCL-R is a

20-item instrument that approaches psychopathy from a two-factor perspective. Factor 1 reflects the interactional/emotional style of the psychopath and consists of items that reflect personality traits. Items that load on Factor 1 include: glibness and superficial charm, grandiose sense of self-worth, pathological lying, conning/manipulative, lack of remorse, shallow affect, callous lack of empathy, and failure to accept responsibility for one's own actions (Hare, 1991). This factor has been referred to as aggressive narcissism (Meloy, 1988 as cited in Arrigo & Shipley, 2001).

Factor 2 addresses the behavioral style or behaviors of psychopaths. The following items are examples of these behaviors: proneness to boredom, parasitic lifestyle, poor behavioral controls, early behavioral problems, lack of realistic long-term goals, impulsivity, irresponsibility, juvenile delinquency, and revocation of conditional release (Hare, 1991).

Hare (1996) reports that Factor 1 items (interactional/emotional style) remain relatively stable over time, while Factor 2 (behavioral style) items can diminish with age. Hare's research also finds that the DSM-IV diagnostic criteria for ASPD are only correlated with Factor 2 items. The finding that Factor 2 behavioral style characteristics diminish with age is consistent with the text in the DSM-IV (1994) that the ASPD "has a chronic course but may become less evident or remit as the individual grows older, particularly by the fourth decade of life. Although this remission tends to be particularly evident with respect to engaging in criminal behavior, there is likely to be a decrease in the full spectrum of antisocial behavior and substance use" (p. 648).

In terms of making diagnoses of these similar disorders, the DSM-IV provides guidance for the ASPD diagnosis, but the PCL-R is recommended for determining whether an individual is psychopathic (Arrigo and Shipley, 2001). In addition, Shipley and Arrigo (2001) in their analysis of psychopathy and ASPD in light of forensic issues, suggest that psychopathy be included as a separate personality disorder, which should include specific guidelines on how to best assess psychopathy.

Earlier research indicates that the prevalence rate for ASPD and psychopathy are different. Hare (1991) and Hart & Hare (1997) found that 50-80% of offenders and forensic patients are diagnosed with ASPD using the DSM-IV criteria, while only 15-30% of those same individuals meet the PCL-R criteria for psychopathy.

In their conclusions about the history of psychopathy, Arrigo and Shipley (2001) find that two features of this disorder have remained relatively stable over time. First, psychopaths are in touch with reality and evidence no sign of psychosis. Second, psychopaths are considered untreatable.

In addition, psychopaths are disproportionately more likely to commit violent crime in comparison with the general population (Hare & Hart, 1993 and Monahan, 1998 as cited in Shipley & Arrigo, 2001). In fact, Hare (1993, as cited in Shipley & Arrigo, 2001) found that psychopaths commit more than 50% of all serious crimes. Yet, not all psychopaths commit serious crime and instead live within the law, instead manipulating people and the system to meet their own needs (Cleckley, 1982). Shipley and Arrigo (2001) summarize that these findings illustrate the differences between psychopaths who never interact with the criminal

justice system and are therefore not diagnosed with ASPD, and the psychopath who does break the law and is subsequently diagnosed with ASPD.

The implication of this analysis is that psychopath who has no criminal history and is not ASPD may be a high risk for committing security violation behavior. In contrast, individuals with prior criminal histories will be less likely to obtain a security clearance, therefore eliminating some proportion of those who may present with ASPD.

The importance of psychopathy for security violation behavior results from Hare's 1993 findings that while psychopaths make up only 1% of the general population, they are responsible for more than 50% of all serious crimes committed. It seems necessary, therefore, to be aware of common traits of psychopaths in the adjudicative process in order to identify those at risk for security violation behaviors in the intelligence community.

APPENDIX B: SUMMARY OF RESEARCH ON POST-TRAUMATIC STRESS DISORDER

Post-Traumatic Stress Disorder

Given the large number of security clearances required in Department of Defense positions and the increasing numbers of soldiers and civilians encountering traumatic combat or war zone experiences, the adjudicative process is likely to adjudicate an increasing number of individuals showing symptoms of post-traumatic stress disorder (PTSD).

PTSD is an anxiety disorder characterized by persistent and frightening thoughts or memories, "survivor" guilt, emotional numbness, traumatic dreams and a lack of involvement with reality. DSM-IV specifies the following criteria for a diagnosis of PTSD.

- ♦ The person has experienced a traumatic event that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others, and the person's response involved intense fear, helplessness, or horror
- ♦ The traumatic event(s) is-experienced in specific ways such as recurrent and intrusive distressing recollections or dreams of the event
- ♦ Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness
- ♦ Persistent symptoms of increased arousal, such as hyper vigilance or irritability
- ♦ Duration of the disturbance (symptoms in Criteria B, C, and D) is more than one month
- ♦ The disturbance causes clinically significant distress or impairment in functioning.

The diathesis-stress model of PTSD proposes a genetic vulnerability or predisposition (diathesis) that intereacts with the traumatic experiences to trigger the symptomatic behaviors. The greater the predisposition, the less stress is needed to trigger the behaviour/disorder.

PTSD and Aggression, Hostility, Anger and Emotional Regulation

Research has identified an association between PTSD and levels of aggression (e.g., Jakupcak & Tull, 2005), such that more severe PTSD is associated with higher levels of aggression. In a sample of civilian male college students assessing the impact of traumatic exposure and PTSD symptoms on anger, aggression, and violence, Jakupcak and Tull (2005) found that those men exposed to a potentially traumatic event (PTS) and report symptoms of PTSD report more trait anger, more internal anger and hostility, and more aggression and violence than men who do not report symptoms of PTSD.

Tull et al. (2007) investigated whether the way one responds to emotions accounts for the relationship between PTSD symptom severity and self-reported aggressive behavior in a sample

of 113 men with past exposure to interpersonal violence. They found that experiential avoidance (responding to emotions with avoidance) and emotional inexpressivity (active suppression of emotional expression) each accounted for a significant amount of unique variance in aggressive behavior, above and beyond PTSD symptom severity and trait anger. The authors suggested that aggressive behavior may function as a means of regulating emotions and that experiential avoidance and emotional inexpressivity may heighten emotional dysregulation, increasing the risk of aggressive behavior as individuals attempt to regulate their emotional state.

Tull et al. (2007) also examined the relationship between emotional regulation difficulties and posttraumatic stress symptoms. The sample consisted of 198 ethnically diverse trauma-exposed undergraduates from an urban university. Results indicate that PTS symptom severity was associated with lack of emotional acceptance, difficulty engaging in goal-directed behavior when upset, impulse-control difficulties, limited access to effective emotion regulation strategies and lack of emotional clarity. After controlling for negative affect, overall difficulties in emotional regulation were associated with PTSD symptom severity. In addition, those who reported PTS symptoms indicative of a PTSD diagnosis reported greater difficulty with emotion regulation than did those reporting sub-threshold PTSD symptomatology.

Meffert et al.(2008) examined the relationship between anger and PTSD in a sample of 180 police recruits. Trait anger and PTSD symptoms were assessed during training and again one year later. Results indicated that greater trait anger during training predicted greater PTSD symptoms at one year and that greater PTSD symptoms at one year predicted greater state anger at one year. The authors conclude that trait anger is a risk factor for PTSD symptoms and PTSD symptoms are also associated with an increase in state anger.

Bracken and McDevitt-Murphy (2009) also examined the role of experiential avoidance (EA) in the relationship between PTSD and aggression but in a sample of 43 trauma-exposed undergraduates. The authors defined experiential avoidance as having a negative evaluation of unwanted thoughts, feelings or somatic experiences and subsequently attempting to control or escape these experiences. The mean age of the sample was 23 years, 83.7% were women, and 41% were Caucasian. Again, significant correlations were found between PTSD symptom severity and aggression (r=.55) and EA (r=.35). Aggression was also correlated with EA (r=.45). Regression analyses revealed that PTSD and EA contributed unique variance in the prediction of aggression. An overall negative evaluation and unwillingness to experience unwanted negative events contributes to the development of aggressive behavior above and beyond PTSD symptom severity.

PTSD and "Hardiness"

Sutker et al.(1995) examined the relationship between personal and environmental resources and psychological outcomes following exposure to war zone stress. Specifically, the authors studied stress vulnerability against the backdrop of stress resistance by comparing two groups of Persian Gulf returnees: 97 troop members with self-reported PTSD symptoms sufficient to meet PTSD diagnosis, and 484 troop members who did not report symptoms of

PTSD or other psychological distress. Following discriminant function analyses, the following variables consistently predicted which subjects received a PTSD diagnosis: hardiness (commitment), avoidance coping, and perceived family cohesion.

Of particular interest to us was the concept of personal hardiness examined in this study. Personality hardiness was introduced by Kobasa (1979; Kobasa et al., 1982) to explain childhood-derived personal resilience to stress and adversity. In this study it was measured by the Dispositional Resilience Scale (DRS; Bartone et al., 1989), which is a 45-item scale that assesses the characteristic manner in which individuals interpret and approach experiences. Three scale scores assess the following three facets: 1) *commitment*, or sense of meaning, purpose and perseverance attributed to one's existence, 2) *control*, or sense of autonomy and ability to influence one's destiny and manage experiences, and 3) *challenge*, or perception of change as an exciting growth opportunity. The measure has been effective in differentiating Army disaster workers who remained healthy from those who developed stress-related symptoms (Bartone et al., 1989).

The total sample consisted of 775 troops assigned to Marine, Air Force, Navy, Army Reserve, and National Guard units deployed to combat in the Persian Gulf as part of Operation Desert Storm (ODS). This subsample completed assessment instruments during debriefing exercises completed within a year of returning from the Persian Gulf. The sample was 61% White, 13 % female, 90% were enlisted personnel, mean age was 30 years, and average years of formal education was 13.5 years. The sample consisted of troops in a variety of functions, such as members of a mobile surgical hospital, fighter pilots, military police, infantry, and graves registration units. Mean days of Persian Gulf duty was 151. The types of stressors included: risk of SCUD missile and other enemy attack, exposure to injury and death, and the discomforts of the war environment. All troops were at risk of injury and death and were exposed at a minimum to the baseline stress of war zone duty. As a whole, the participants viewed their stress as moderately severe.

The personality characteristics and resources assessed in this study included: hardiness (commitment, control, challenge), coping strategies (problem focused, self-blaming, seeking social support, wishful thinking, and avoidance coping), intellectual sophistication, social support and satisfaction, and family support (cohesion, expressiveness, and conflict). PTSD and psychological distress were each measured with two different measures. Stress severity was measured by the number of days in the war zone and by a 10-item measure specific to Persian Gulf veterans.

Two subsets were identified for comparison: those with symptoms of PTSD and those free of PTSD and other symptoms of psychological distress. Some 194 troops who did not fall into either category were excluded from the analyses. The two groups were predominantly men, and minorities were overrepresented in the PTSD group. Group members with PTSD included fewer officers and individuals with less formal schooling than the no distress group. Those classified with PTSD reported greater perceived stress and scored higher on global measures of negative affect and psychological discomfort.

Results indicate that the Persian Gulf troops showed minimal psychological distress overall. Troops with PTSD showed more avoidance, wishful thinking, and self-blame coping and less problem-focused coping strategies than those who reported no psychological distress. The PTSD group also had lower scores on the hardiness dimensions of commitment, control and challenge. These individuals also reported fewer social supports and less satisfaction with that support; they also reported less perceived family cohesion and expressiveness than those with no psychological distress.

Discriminant function analyses were conducted to identify the variables that contributed significantly to subset membership. Four variables differentiated the subgroups: hardiness commitment (26% of the variance), avoidance coping (9%), family cohesion (4%) and satisfaction with social support (1%). Use of all four variables resulted in correct assignment of 87% of the sample.

Overall, PTSD diagnosis was associated with less commitment, more avoidance coping, less family cohesion, and lower satisfaction with social support. The authors conclude that personal resource variables were more strongly related to psychological vulnerability or resistance to the negative impact of war zone stress than the environmental variables they selected. The results also support the conclusions of Kobasa et al. (1982) and Bartone et al. (1989) that the commitment component of hardiness exhibited by involving oneself in activities and experiencing purposefulness may offer protection from the negative impact of stressful events. Kobasa et al. (1982) explain that those high in commitment exhibit a sense of purpose that allows them to find meaning in life experiences. They hypothesize that their perceptions of events render experiences as less stressful, lead to more active coping strategies, and have an impact on social support. Sutker et al. report that the association of PTSD and avoidance strategies has been found in Vietnam combat veterans and WWII POW survivors. Wolfe et al. (1993) examined non-treatment-seeking Vietnam combat vets who perceived they had adjusted well and noted that those veterans who reported externalization, wishful thinking, and extreme avoidance coping strategies were more symptomatic than whose who used more active forms of coping. In a sample of former POWs with PTSD, Fairbank et al. (1991) found that these vets reported less control over their traumatic memories and more frequent use of self-isolation, wishful thinking, self-blame and social support to cope with their memories. Along similar lines, Solomon and her colleagues (Solomon, Mikuliner, & Avitzur, 1988; Solomon, Mikulincer, & Benbenishty, 1989) found that soldiers who used problem-focused coping were less likely to suffer from PTSD.

The findings of this study support the diathesis-stress model of PTSD. The presence of stress alone is not sufficient to trigger psychopathology; some individuals are more inclined to mental health stability than others. It appears that hardiness and cohesive family relationships may have functioned to inoculate the non-PTSD group from developing PTSD and other psychopathology.

Sutker et al. site the work of Funk (1992) who argued that hardiness scales actually measure neuroticism, the underlying disposition toward negative affectivity, and that neuroticism

has been identified as a risk factor for developing PTSD following traumatic events (Breslau, Davis, Andreski, & Peterson, 1991).

PTSD and Social Support

Koucky, Blain, and Galovski (2009) examined the role of perceived support as a moderator of the relationship between trauma-related guilt and posttraumatic distress. The authors cite a meta-analysis by Brewin, Andrews and Valentine (2000) examining risk factors that predict PTSD. They found that lack of social support had the strongest weighted average effect size (r = .40) of the 14 commonly studied variables. The issue of trauma-related guilt has also been explored and found to be significantly correlated with PTSD symptoms (Kubany et al., 1996) and as a clinically relevant factor in decreasing distress following trauma (Resick et al., 2008). Koucky et al. examined the potential interaction between these two variables in predicting PTSD. The sample consisted of 47 participants from a larger, NIMH-funded grant evaluating the effectiveness of Cognitive Processing Therapy.

Results indicated that posttraumatic symptom severity and perceived social support significantly predicted trauma-related distress/guilt. The authors conclude that the data thus far indicate that social support may serve as a protective factor against the development of PTSD.

PTSD and Occupational Functioning

Geuze et al. (2009) examined the role of deficits associated with PTSD and social and occupational functioning. Their sample consisted of 50 Dutch veterans of UN peacekeeping missions (25 with PTSD and 25 without PTSD) who were free of medication and substance abuse. Results indicated that the veterans with PTSD had similar total intelligence quotient scores as controls, but they displayed deficits of figural and logical memory. Those with PTSD also performed significantly lower on measures of learning and immediate and delayed verbal memory. Of significance was the finding that memory performance accurately predicted current social and occupational functioning. Deficits in memory performance were not related to intelligence quotient, length of trauma exposure, or time since trauma exposure. The authors conclude that cognitive performance accurately predicted current social and occupational functioning in veterans with PTSD.

Taylor et al. (2006) examined predictors of occupational impairment in 60 individuals seeking cognitive-behavioral treatment for PTSD. Results indicated that symptoms of reexperiencing, hyperarousal, and depression predicted occupational impairment. Following completion of treatment, reductions in reexperiencing, hyperarousal, and depression were also associated with improvements in occupational functioning. These results point the success of CBT in reducing PTSD symptoms that interfere with work performance.

Evans et al.(2006) explored the role of anger and its relationship with distress and occupational functioning in a sample of disaster relief workers with PTSD symptoms who were deployed to the World Trade Center after September 11, 2001. The sample consisted of 626

utility workers, most of whom were male (96%), who completed measures of anger, distress, PTSD symptoms, and social/occupational functioning. Results indicated that workers with PTSD symptoms had higher anger scores and in this group, anger, distress, PTSD severity and social/occupational functioning were significantly correlated.

In assessing work potential in those with PTSD, Matthews (2005) evaluated adult survivors of road accidents. Accident survivors with and without PTSD were examined at a mean of 8.6 months post accident. All had been working prior to the accident. Results indicated that those with PTSD had significantly less work potential post-accident than those without PTSD. The specific variables that contributed to problems with employability for those with PTSD included: high levels of depression, reduced time-management ability, and an over-concern or anxiety associated with physical injuries. Interestingly, those survivors with PTSD reported significantly greater extrinsic motivation to work than those without PTSD. Given the success of various forms of therapy for PTSD, in addition to the motivation to return to work, these individuals appear to have good prognosis for returning to work and functioning well.

Bleich and Solomon (2004) studied Israeli veterans applying for disability and compensation secondary to PTSD in terms of their clinical features and functional impairment. The sample consisted of 294 veterans with PTSD. Relationships between severity of PTSD, psychiatric comorbidity, and level of disability were assessed. Results indicate that 53% of the PTSD sample had psychiatric comorbidity, predominantly depression (31%) and anxiety (15%). When functional impairment was examined, these subjects had significantly more problems with occupational functioning than interpersonal or activities of daily living. Several PTSD symptoms were correlated with functional impairment in the occupational and interpersonal areas and with the global disability score, while the comorbid diagnoses were not.

APPENDIX C: EVIDENCE RELATING TO POSITIVE SECURITY BEHAVIOR

Introduction

Appendix C reviews a limited amount of research about organizational citizenship behavior (OCB), which is the only analog to positive security behavior that was located in the literature search. This Appendix addresses the issue of whether antecedents to analogs of negative security behavior, e.g., CWB, are the same as antecedents to positive security behavior such as organization citizenship behavior.

Organizational Citizenship Behavior

Organizational citizenship behavior is defined as "behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization" (Organ, 1988, p. 4). Some examples of organizational citizenship behavior include above average attendance at work, trying to prevent problems with coworkers, orient new employees, helping others who have been absent, attends non-required functions to improve the organizations image, and does not spend time complaining about trivial matters (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Because organizational citizenship behavior has been examined within an organization and involves workplace behavior that helps the organization or its members, organizational citizenship behavior is considered an analog of security citizenship behavior for the purposes of this paper. Similar to counterproductive work behavior, organizational citizenship behavior is commonly divided into behaviors that are intended to help the organization and behaviors that are intended to help individuals (Smith, Organ, & Near, 1983; Williams & Anderson, 1991). Organizational citizenship behavior is also commonly divided into five dimensions: altruism, courtesy, conscientiousness, civic virtue, and sportsmanship (Organ, 1988). These five dimensions can also be grouped into two dimensions which are analogous to the models advocated by Smith et al. (1983) and Williams and Anderson (1991): interpersonal (altruism, courtesy, and conscientiousness) and generalized compliance or organizational (civic virtue and sportsmanship) (Coleman & Borman, 2000).

The antecedents of organizational citizenship behavior are grouped in three categories: personality traits, attitudes, and work environment/situations/context.

Personality Traits

Conscientiousness

Conscientiousness is a tendency to be dutiful, achievement-oriented, and disciplined. Individuals who are high on conscientiousness tend to be careful, organized, deliberate, and self-disciplined. Individuals who are high on conscientiousness are more likely to engage in organizational citizenship behaviors. Conscientiousness was positively related to both altruism and generalized compliance (Organ & Ryan, 1995; Podsakoff et al., 2000). In a meta-analysis of the attitudes and personality traits that predict organizational citizenship behavior, Organ and Ryan found moderate relationships for conscientiousness with altruism (ρ = .22, k = 11) and generalized compliance (ρ = .21, k = 10).

Agreeableness

Agreeableness is a tendency to be cooperative, helpful, easy to get along with, and compassionate. Agreeableness is related to organizational citizenship behavior such that individuals who are high on agreeableness are more likely to engage in organizational citizenship

behavior. Altruism and generalized compliance dimensions of organizational citizenship are positively related to agreeableness (Organ & Ryan, 1995; Podsakoff et al., 2000). Organ and Ryan found small relationships for agreeableness with altruism ($\rho = .13$, $k = 6$) and generalized compliance ($\rho = .11$, $k = 6$).

Extraversion

Extraversion is a tendency to be outgoing, sociable, enthusiastic, and assertive. Extroverted individuals are more likely to engage in organizational citizenship behavior. Cullen and Sackett (2003) reported that extraversion is positively related both to moods at work and helping behaviors.

Positive affect

Positive affect is the extent to which individuals experience high levels of positive emotions such as interested, determined, enthusiastic, inspired, and proud. Positive affect is thought to be related to organizational citizenship behavior because individuals will help or put forth extra effort to maintain their positive moods and emotions. Individuals who are high on positive affect are more likely to engage in organizational citizenship behavior. Positive affectivity is related specifically to the altruism dimension of organizational citizenship behavior (Organ & Ryan, 1995; Podsakoff et al., 2000). Organ and Ryan found a moderate relationship for positive affect with altruism ($\rho = .15$, $k = 7$). Organ and Konovsky (1989) supported the relationship between positive affect and both the altruism ($r = .13$) and compliance ($r = .17$) dimensions of organizational citizenship behavior.

Negative affect

Negative affectivity is the extent to which individuals experience high levels of distressing emotions like anger, fear, hostility, and anxiety. Podsakoff et al. (2000) found a small negative relationship between negative affectivity and generalized compliance ($\rho = -.12$, $k = 5$) and a small, non-significant relationship between negative affectivity and altruism ($\rho = -.06$, $k = 6$).

Integration of Counterproductive Work Behavior and Organizational Citizenship Behavior

While counterproductive work behavior and organizational citizenship behavior are both forms of extra-role organizational behavior, an important question is how these domains of behavior related. Are counterproductive work behaviors and organizational citizenship behavior opposite ends of a single continuum to represent extra-role organizational behavior? Or are counterproductive work behavior and organizational citizenship behavior separate continuums (e.g., an individual can engage in both, engage in neither, or engage in one but not the other)? Research tends to find a negative relationship between counterproductive work behavior and organizational citizenship behavior. Miles et al. (2002) showed that there was a small negative, but non-significant, relationship between counterproductive work behavior and organizational citizenship behavior ($r = -.11$). The research that has attempted to directly answer this question supports the view that counterproductive work behavior and organizational citizenship behavior are distinct constructs. Using meta-analysis, Dalal (2005) determined that organizational citizenship behavior and counterproductive work behavior are separate constructs. Sackett, Berry, Wiemann, and Laczo (2006) found that organizational citizenship behavior and counterproductive work behavior are distinct constructs and they are not the opposite ends of behavior that is represented by a single continuum. Sackett et al. also found that 8.7% of their sample engaged in both organizational citizenship behavior and counterproductive work behavior and another 8.1% was engaged in neither organizational citizenship behavior nor counterproductive work behavior. Another distinction that Sackett et al. found was concerning age; older individuals were more likely to engage in organizational citizenship behavior while younger individuals were more likely to engage in counterproductive work behavior. When considering only interpersonally directed behaviors, Venkataramani and Dalal (2007) supported organizational citizenship behavior and counterproductive work behavior as separate, independent constructs that are not opposing ends of a single continuum. O'Brien and Allen (2008) also concluded that organizational citizenship behavior and counterproductive work behavior are different constructs.

The articles that have investigated the relationship between organizational citizenship behavior and counterproductive work behavior have taken the approach that both of these global constructs can be further refined by separating behaviors that can be directed at the organization from behaviors directed at another individual. Dalal (2005) concluded that the distinction between organizational citizenship behavior and counterproductive work behavior was more important than between the targets of those behaviors (individuals or the organization). Dalal also found that organizational citizenship behavior and counterproductive work behavior were more strongly related on a global level than on a facet level, except for the relationship between organizational citizenship behavior directed toward the organization and counterproductive work behavior directed toward the organization. On the other hand, O'Brien and Allen (2008) concluded that it was useful to distinguish between behaviors directed at the organization and

behaviors directed at individuals as they have different correlates for both organizational citizenship behavior and counterproductive work behavior.

The research investigating the relationship between counterproductive work behavior and organizational citizenship behavior has focused on what psychological constructs are related to both domains of extra-role behavior. From the previous sections on counterproductive work behavior and organizational citizenship behavior, there seem to be a number of antecedents common to both domains. These antecedents appear to have somewhat different relationships to counterproductive work behavior compared to organizational citizenship behavior.

Even though research has found common antecedents which have directly opposite relationships to the forms of extra-role behavior, counterproductive work behavior and organizational citizenship behavior are separate constructs that represent different sets of behavior. Dalal (2005) noted that for two constructs to be the opposite ends of a single continuum, two conditions have to be met. The first condition is that the two constructs would have to be strongly related to each other. The research has not found a strong relationship between counterproductive work behavior and organizational citizenship behavior. Dalal (2005) and Sackett et al. (2006) found a moderate negative relationship between counterproductive work behavior and organizational citizenship behavior, whereas Miles et al. (2002) found a small negative relationship. Venkataramani and Dalal (2007) found a small positive relationship between counterproductive work behavior and organizational citizenship behavior.

The second condition is that the two constructs would need to show the same pattern of relationships to other variables. Research has found differences in the strength and pattern of the relationships between the shared antecedents and counterproductive work behavior and organizational citizenship behavior, which lead to the conclusion that counterproductive work behavior and organizational citizenship behavior are separate constructs (Dalal, 2005; O'Brien & Allen, 2008; Sackett et al., 2006; Venkataramani & Dalal, 2007). Miles et al. (2002) found that the variables that predicted organizational citizenship behavior did not also predict counterproductive work behavior and vice versa.

Research has also looked to confirmatory factor analysis to determine the relationship between counterproductive work behavior and organizational citizenship behavior (O'Brien & Allen, 2008; Sackett et al., 2006). A one-factor model would indicate that counterproductive work behavior and organizational citizenship behavior represent a single continuum of behavior. A two-factor model where counterproductive work behavior and organizational citizenship behavior are separate factors would indicate that they represent distinct constructs. Both Sackett et al. and O'Brien and Allen specifically tested models that would address this question and found that a one-factor model did not fit the data well. A two-factor model was a better fit for the data in both studies.

If counterproductive work behavior and organizational citizenship behavior represented opposite ends of behavior, then individuals would not engage in both forms of extra-role behavior. Sackett et al. reported that almost 9% of their sample engaged in both counterproductive work behavior and organizational citizenship behavior.

For each of the relevant personality traits a brief integrated summary is provided about its relationship to positive and negative workplace behavior.

Conscientiousness

In general, the research has found a positive relationship between conscientiousness and organizational citizenship behavior and a negative relationship between conscientiousness and counterproductive work behavior. In other words, individuals who are high on conscientiousness are more likely to display organizational citizenship behavior while individuals who are low on conscientiousness are more likely to display counterproductive work behavior. Dalal (2005) showed that organizational citizenship behavior and counterproductive work behavior are moderately related to conscientiousness ($\rho = .30$, k = 10 and $\rho = -.38$, k = 10, respectively). At both the global and facet level, organizational citizenship behavior (personal support, organizational support, conscientious initiative) is positively related to conscientiousness whereas counterproductive work behavior (interpersonal, organizational) is negatively related to conscientiousness (Sackett et al., 2006). O'Brien and Allen (2008) found that conscientiousness was the dominant predictor among the personality traits for both organizational citizenship behavior (organizational and interpersonal) and counterproductive work behavior directed at the organization. At the global level, Sackett et al. (2006) found that counterproductive work behavior was most strongly related to the Big Five dimensions thought to underlie integrity (conscientiousness: $r = -.41$, agreeableness: $r = -.30$, and emotional stability: $r = -.32$ vs. extraversion: $r = -.11$ and openness to experience: $r = -.06$).

Agreeableness

In general, the research has found a positive relationship between agreeableness and organizational citizenship behavior and a negative relationship between agreeableness and counterproductive work behavior. At both the global and facet level, organizational citizenship behavior (personal support, organizational support, conscientious initiative) is positively related to agreeableness whereas counterproductive work behavior (interpersonal, organizational) is negatively related (Sackett et al., 2006).

Emotional Stability (Neuroticism) and Extraversion

Research has found a positive relationship between emotional stability and extraversion to experience and organizational citizenship behavior and a negative relationship between these traits and counterproductive work behavior. At both the global and facet level, organizational citizenship behavior (personal support, organizational support, conscientious initiative) is positively related to emotional stability and extraversion whereas counterproductive work behavior (interpersonal, organizational) is negatively related (Sackett et al., 2006).

Trait anger

Trait anger has a different relationship to counterproductive work behavior and organizational citizenship behavior compared to the Big Five personality traits. Trait anger is positively related to counterproductive work behavior. On the other hand, trait anger is negatively related to organizational citizenship behavior. Miles et al. (2002) found that trait anger predicted counterproductive work behavior above and beyond work environment factors. Trait anger was the dominant predictor among the personality traits for interpersonally-directed counterproductive work behavior and supervisor ratings of organizationally-directed organizational citizenship behavior (O'Brien & Allen, 2008).

Positive affect

Positive affect is similar to the Big Five in that positive affect is positively related to organizational citizenship behavior and negatively related to counterproductive work behavior. Dalal's (2005) meta-analysis found that positive affect demonstrates a similar degree of correlation to organizational citizenship behavior and counterproductive work behavior even though the relationships were in the opposite direction ($\rho = .34$ and $\rho = -.34$, respectively). Lee and Allen (2002) showed that positive affect predicted both organizational citizenship behavior and counterproductive work behavior. Positive affect was more strongly related to interpersonal helping behaviors (organizational citizenship behavior) than to interpersonal harming behaviors (counterproductive work behavior) (Venkataramani & Dalal, 2007).

Negative affect

Negative affect is similar to trait anger in that negative affect is positively related to counterproductive work behavior and negatively related to organizational citizenship behavior. Lee and Allen (2002) concluded that organizationally-directed organizational citizenship behavior reflects planned and deliberate behavior which is motivated by reciprocity needs while interpersonally-directed organizational citizenship behavior is slightly more related to job affect (negative affect, positive affect, and emotions relating to both positive and negative affect – shyness, fatigue, serenity, and surprise) than to job cognitions (job characteristics and organizational justice – distributive, procedural, and interactional). Lee and Allen also found that different negative emotions can lead to different behaviors, such as fear for interpersonally-directed organizational citizenship behavior and hostility for workplace deviance behavior. Negative affect is more strongly related to counterproductive work behavior ($\rho = .41$) than to organizational citizenship behavior ($\rho = -.10$; Dalal, 2005). Similarly, Venkataramani and Dalal (2007) found that negative affect was more strongly related to interpersonal harming behaviors (counterproductive work behavior) than to interpersonal helping behaviors (organizational citizenship behavior).

Summary of Evidence for Extra-Role Organizational Behavior

The evidence for counterproductive work behavior and organizational citizenship behavior, points to certain psychological attributes as major factors for these guidelines and relevant security behavior. Conscientiousness, Agreeableness, positive and negative affect, job satisfaction, and organizational justice are consistently related to both forms of extra-role organizational behavior.

Positive and negative affect are relevant as the tendency to experience positive or negative emotions has been shown to influence organizational behavior directly and indirectly through influencing perceptions of work environments or situations. Individuals who have a tendency to experience negative affect are more likely to perceive violations in justice and focus on the negative aspects of a situation which may make them a greater risk for security violations.