HUMAN RELIABILITY PROGRAM DRAFT WORKSHOP AGENDA

Background

A Human Reliability Program (HRP) is designed to protect national security as well as worker and public safety by continuously evaluating the reliability of those who have access to sensitive materials, facilities, and programs. Some elements of a site HRP include systematic (1) supervisory reviews, (2) medical and psychological assessments, (3) management evaluations, (4) personnel security reviews, and (4) training of HRP staff and critical positions. Over the years of implementing an HRP, the Department of Energy (DOE) has faced various challenges and overcome obstacles.

During this 4-day activity, participants will examine programs that mitigate threats to nuclear security and the insider threat to include HRP, Nuclear Security Culture (NSC) Enhancement, and Employee Assistance Programs. The focus will be to develop an understanding of the need for a systematic HRP and to discuss challenges and best practices associated with mitigating the insider threat.

DAY 1

Time	Module	Presenter
0900 - 0930	Welcome and Opening Remarks; Introduction of	Government of Israel
	Participants	(GOI)/Department of
		Energy (DOE)
0930 – 1045	Overview of GOI Programs	GOI
1045 – 1100	Break	All
1100 – 1200	Program Development	Julian Atencio, Los Alamos
		National Laboratory (LANL)
1200 – 1300	Lunch	All
1300 – 1400	Insider Threat	Dr. John Landers, Pacific
		Northwest National
		Laboratory (PNNL)
1400 – 1445	What is Security?	Julian Atencio, LANL
1445 – 1500	Break	All
1500 – 1530	Introduction to Administrative Programs that Mitigate	Erin Rogers, Gregg
	Insider Threat	Protection Services
		(GPS)/PNNL
1530 – 1600	Concepts of Human Reliability Program (HRP)	Julian Atencio, LANL
1600 – 1700	Organizational Structure of DOE, Department of	Michael Bodin,
	Defense (DOD) and Nuclear Regulatory Commission	DOE/National Nuclear
	(NRC) Programs	Security Administration
		(NNSA)
1700	Round Table Discussion	All

DAY 2

Time	Module	Presenter
0900 - 0915	Summary of Day 1 – Questions & Answers (Q&A)	GOI/DOE
0915 – 1000	U.S. DOE Human Reliability Program Overview	Michael Bodin, DOE/NNSA
1000 – 1045	Personnel Security Process	Michael Bodin, DOE/NNSA
1045 – 1100	Break	All
1100 – 1145	Incidents of Security Concern	Julian Atencio, DOE/NNSA
1145 – 1300	Integration of Security Areas	Michael Bodin, DOE/NNSA
1300 – 1400	Lunch	All
1400 – 1445	Identification of Critical Positions	Michael Bodin, DOE/NNSA
1445 – 1530	Psychological Profiles of the Malicious Insider	Dr. John Landers, PNNL
1530 – 1545	Break	All
1545 – 1700	Psychological Profiles of the Malicious Insider	Dr. John Landers, PNNL
	(Continued)	
1700	Round Table Discussion	All

DAY 3

Time	Module	Presenter
0900 - 0915	Summary of Day 2 – Q&A	GOI/DOE
0915 – 1045	Detecting the Malicious Insider Through Behavioral Science	Dr. John Landers, PNNL
1045 – 1100	Break	All
1100 – 1200	Detecting the Malicious Insider Through Behavioral Science (Continued)	Dr. John Landers, PNNL
1200 – 1300	Lunch	All
1300 – 1445	Detecting the Malicious Insider Through Behavioral Science (Continued)	Dr. John Landers, PNNL
1445 – 1500	Break	All
1500 – 1700	Psychological Barriers to Effective Nuclear Security	Dr. John Landers, PNNL
1700	Round Table Discussion	All

DAY 4

Time	Module	Presenter
0900 - 0915	Summary of Day 3 – Q&A	GOI/DOE
0915 – 1030	Medical Aspects of Reliability	Julian Atencio, LANL
1030 – 1045	Break	All
1045 – 1200	HRP Certification/Decertification	Michael Bodin, DOE/NNSA
1200 – 1300	Lunch	All
1300 – 1400	Due Process	Michael Bodin, DOE/NNSA
1400 – 1445	Monitoring/Retirees	Michael Bodin, DOE/NNSA
1445 – 1500	Break	All
1500 – 1545	LANL 4D Database	Julian Atencio, LANL
1545 – 1630	Site Implementation	Julian Atencio, LANL
1630 – 1700	Managing Change	Erin Rogers, GPS/PNNL
1700	Summary of Workshop, Q&A, Close Out Activities	All





Psychological Profiles of the Malicious Insider

John E. Landers, Ph.D. Clinical Psychologist





A.Q. Khan Case Study

- Take 5 Minutes to Review A.Q. Khan Handout
- We will discuss case together as a group





Case Study: A. Q. Khan Network

- Abdul Qadeer Khan or A. Q. Khan
- Born April 27, 1936 in Bhopal, British India is a Pakistani nuclear scientist and metallurgical engineer
- Widely regarded as the founder of Pakistan's nuclear program. Known for involvement in acquiring critical nuclear technology designs and using them to build Pakistan's nuclear arsenal
- Also known for selling this technology to Libya, Iran and North Korea





A. Q. Khan – Gaining Trust

- In 1972, the year he received his PhD, Khan joined the staff of the Physical Dynamics Research Laboratory (FDO) in Amsterdam, the Netherlands. FDO was a subcontractor for URENCO, the uranium enrichment facility at Almelo in the Netherlands
- In May 1974, India carried out its first nuclear test, to the great alarm of the Government of Pakistan
- Around this time, Khan having a distinguished career and being one of the most senior scientists at the nuclear plant he worked at, had privileged access to the most restricted areas of the URENCO facility as well as to documentation on the gas centrifuge technology





A. Q. Khan – Known Malicious Insider

- Investigation by the Dutch authorities found that he had passed highly-sensitive material to a network of Pakistani intelligence agents
- Netherlands knew of Khan "stealing" the secrets of nuclear technology but let him go on at least two occasions in order to continue monitoring his movements
- A coworker, Fritz Veerman, later testified that he had seen sensitive papers lying about in Khan's home, but did not report this to the company
- In December 1974, Khan came back to Pakistan to meet Prime Minister Bhutto and PAEC Chairman Munir Ahmad Khan, where Bhutto decided to place Khan in charge of the HEU program
- In December 1975, after having stolen the gas centrifuge blueprints, Khan suddenly left the Netherlands; he returned to Pakistan in 1976





A. Q. Khan – Making Use of Connections

- Obtained sensitive information and material assistance from those with access and in positions of trust
- Investigation by Dutch government revealed that two Pakistani nationals employed as quality inspectors in the Dutch URENCO effort were "active helpers of Khan."
- Network relied on intermediaries in Austria, Dubai, Germany, Japan, Malaysia, the Netherlands, Singapore, South Africa, Switzerland, Turkey and possibly other places. It was made up of Khan's past schoolmates, colleagues, and contacts
- Fritz Veerman, former Urenco coworker and office mate, became target of concerted efforts by Khan to obtain sensitive information and materials
- Rudolf Ortmayer, a German engineer and a manager at the West German firm Nukleartechnik GmbH, illegally exported nuclear goods to Pakistan via the Khan network
- Gotthard Lerch, sales manager of the German firm Leybold Heraeus, sold equipment to Khan needed for Pakistan's nuclear weapons program. Khan knew of the company because it had supplied such equipment to the Dutch firm URENCO





A. Q. Khan – Conclusions

- Malicious behavior may be latent until crisis (e.g., India's Nuclear Test) or opportunity (e.g., Financial Windfall) presents itself
- State sponsored efforts are most likely to be organized, have adequate finances and infrastructure, and have an identified "end-user" (demand driven)
- Connections to potential "buyers" significantly increases risk of trusted employees becoming malicious insiders
- Success of this network could have been stopped many times, as there were many clues, but observers failed to take action
- States sponsoring proliferation efforts are high risk for furthering proliferation through exporting technology to other non-nuclear states or terrorist organizations
- None of these events would have been possible without assistance from malicious insiders





Types of Malicious Insiders

- Individuals responsible for insider betrayals can be labeled as one or more of four different types of actors:
 - 1. Psychologically-impaired, disgruntled, or alienated employees
 - Ideological or religious radicals
 - 3. Criminals
 - 4. Compelled





Motivations of Malicious Insiders

- Individuals responsible for insider betrayals will be driven by one or more of four different types of motivations:
 - Revenge for a perceived wrong
 - 2. Advancement of religious or ideological objectives
 - 3. Illicit financial gain
 - 4. Coerced





Probability by Motivation - Revenge/Disgruntlement

- Historically, has been an initial motivator of malicious insider behavior
- Will only be a motivator for malicious insider behavior if the individual has some type of psychological impairment or criminal mindset
- Will likely only result in success if there is vulnerability to a single point failure
- Medium probability





Probability by Motivation - Religious or Ideological

- Historically, has been a motivator of malicious insider behavior
- Radicalization is present
- Relationships with foreign nationals or other radicals is also present
- Will likely only result in success if there is vulnerability to a single point failure
- Medium probability





Probability by Motivation - Illicit Financial Gain

- Historically, has been most probable motivator of malicious insider behavior
- Will only be a motivator for malicious insider behavior if the individual has some type of psychological impairment or criminal mindset
- Will likely only result in success if there is vulnerability to a single point failure
- High probability





Probability by Motivation - Coercion

- Historically, has not been a motivator of malicious insider behavior
- By its nature, does not lead to loyalty
- Will likely only result in success if there is vulnerability to a single point failure
- Low probability





 Many employees with motivation (e.g., disgruntled) and malicious intent (e.g., desire for revenge) never commit acts of betrayal





- Potential insiders are difficult employee with several characteristics that indicate a predisposition for insider betrayal (inability to adapt to or handle stress in a normal manner):
 - Poor social skills
 - History of poor decision-making
 - History of rule violations
 - Social network risks
 - History of psychiatric illness

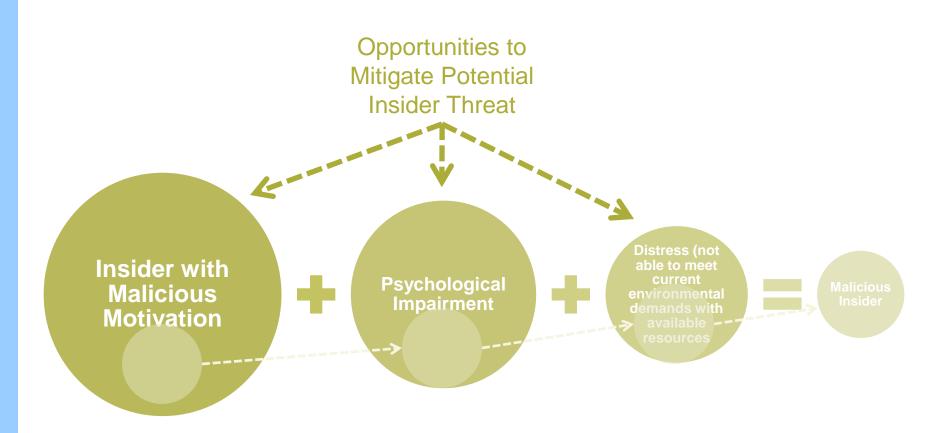




 Precipitating circumstance leads to distress and potential for malicious insider behavior as a "solution"











Opportunities to Mitigate Potential Insider Threats

- Knowing the psychological profile of a malicious insider provides opportunity to mitigate threat
- No single profile can account for all malicious insider activity
- Successful profiling may yield false positives but must avoid false negatives
- Disrupting the path to betrayal of trust is the goal of profiling





Opportunities to Mitigate Potential Insider Threats

 In cases where betrayals occur, management and/or human resources are usually well aware of the employees and their issues in advance of the incident.





Psychological Profile

Traits of the Malicious Insider





Basic Belief Structure

- Special, even unique. Deserving
- Situation is not satisfactory
- No other (easier) option (than to engage in espionage)
- Only doing what others frequently do
- Not a bad person
- Job performance is separate from malicious activity
- Security procedures do not apply to him
- Security programs have no meaning for her





Feels Isolated From the Consequences of Own Actions

- Malicious activity seems reasonable
- Sees malicious activity as a "victimless" crime
- Spends great deal of time considering how he could commit crime successfully prior to taking action
- She finds that it is easy to go around security safeguards
- He justifies to himself that if the material/information was really important theft would be hard to accomplish
- The apparent ease of accomplishing her plan further reinforces her resolve





Sense of Entitlement

- A key trait of many insiders is a sense of personal entitlement, that one is special and owed corresponding recognition or privilege
- When combined with a preexisting anger toward authority figures, this sense of entitlement motivates a desire for revenge, in reaction to perceived slights or setbacks





History of Personal and Social Frustrations

- Some individuals exhibit "revenge syndrome"
- These individuals often have a history of personal and social frustrations, often including childhood abuse and neglect.
- They tend to exhibit anger, alienation from authority, fewer social skills than peers, and an inclination to "strike out at the system"





Computer Dependency

- Online activity significantly interferes with, or replaces, direct social and professional interactions
- Computer-addicted individuals are more likely than non-addicted users to be aggressive loners who make for poor team players
- They report their primary interests as exploring networks, breaking security codes, hacking into computer systems, and challenging and outfoxing security professionals





Ethical Flexibility

- Many do not view their violations as unethical; some even view them as justified under the circumstances
- They lack the moral inhibitions that prevent others from committing such acts





Reduced Loyalty

- Appear to identify more with someone or something other than with their employer, coworkers, or nation
- May have difficulty establishing any lasting or meaningful relationships
- May have difficulty with intimacy





Lack of Empathy

- Disregard for the impact of actions on others, or inability to appreciate this impact
- This characteristic is magnified as malicious behavior continues to go undiscovered, where the effect of behavior is muted by the lack of immediate apparent consequences





Case Study: Major Nidal Malik Hasan, MD

- 39-year-old U.S. Army psychiatrist of Palestinian descent
- Attended same mosque at the same time as two of the hijackers in the 9/11 attacks
- Known to have visited websites espousing radical Islamist ideas
- When giving a lecture to other psychiatrists he stated that suicide bombings were justified and that "nonbelievers" would be tortured in hell





Case Study: Major Nidal Malik Hasan, MD

- For the last six years supervisors gave him poor evaluations and warned him that he was doing substandard work
- Peers described him as "disconnected," "aloof," "paranoid," "belligerent," and "schizoid"
- Intelligence had intercepted 18 emails between him and a known radical Imam between December 2008 and June 2009





Case Study: Major Nidal Malik Hasan, MD

- Precipitating circumstances:
 - Believed soldiers he was treating should be prosecuted for "war crimes" but did not believe any action was going to be taken
 - Believed he was going to be deployed





Psychopathology

- Everyone experiences emotional suffering
- Everyone experiences stress
- For the sake of mitigating the threat of a malicious insider, we need to account for when psychological aspects of the individual go beyond stress and suffering and impact judgment and reliability





Psychopathology & Eligibility

- The presence of psychopathology requires serious consideration when considering eligibility for a position of trust
- The primary issue is, "How does the condition affect an individual's judgment and reliability?"
- Anything that has a negative impact on mental status has the potential to affect reliability and judgment in following procedures for the secure handling of documents and materials
- Some psychiatric disorders can be mitigated, others, due to severity and treatment resistance, are automatic disqualifications





Behaviors Reflective of Psychopathology

- History of psychiatric hospitalization
- History of treatment by a mental health professional
- History of attempted suicide
- History of depression
- Gender-identity problem
- Promiscuity
- Recent significant life crisis

- Excessive preoccupation with wealth/possessions
- Excessive risk taking
- Pattern of not completing tasks
- Critical or distrustful of authority
- Rebellious toward structure and organization
- No close personal relationships
- High need for recognition





Behaviors Reflective of Psychopathology (Cont.)

- Pattern of engaging in assaultive behavior
- Pattern of gambling
- Rigid
- Suspicious
- Overly altruistic
- Always irritable or angry
- Pattern of procrastination and making excuses

- Alienated, bitter, vengeful
- Membership in a cult
- Belief that he or she is special or chosen – grandiose
- Excessive need for recognition
- Cannot delay gratification immature
- Low frustration level impulsive





Attitudes Reflective of Psychopathology

- Rigid pattern of interaction
- Zealous
- Moralistic
- Need for purity
- Perfectionist
- Intolerant
- Feels ignored and frustrated
- Indiscriminate personal disclosure
- Lacking a personal philosophy





Psychological Disorders that may Impact Judgment & Reliability

Not Linked to Maliciousness





Mood Disorders

- In most cases they are manageable and have little impact on judgment and reliability when insight into illness and compliance with treatment are present
- Closer examination for eligibility is required with history of suicide attempts and gestures, psychiatric hospitalization, mania, psychotic features, substance abuse, severe or recurrent depressive episodes, and treatment noncompliance





Anxiety Disorders

- Many of the symptoms result in an unrelenting domination of thoughts, leading to compulsions to escape or avoid present circumstances
- Symptoms can occur without warning and result in behavior that may supersede rule driven behavior
- Closer examination for eligibility is required with history of severe occupational or social impairment, self-medication of anxiety with alcohol or drugs, and poor treatment compliance





Thought Disorders

- These disorders are severe and chronic. They impair the individual's ability to maintain an accurate assessment of reality, and eligibility for positions of trust is almost always contraindicated
- Onset is typically early adulthood. Symptoms may include delusions, hallucinations, disorganized speech, disorganized behavior, flat affect, and illogical thought processes.
- Though medications are available to manage symptoms, even individuals with good insight and compliance with treatment can deteriorate unpredictably
- High stress and demand environments are particularly difficult for individuals with thought disorders, compromising their ability to remain stable





Dissociative Disorders

- These disorders are rare and typically related to significant and chronic trauma. The individual's ability to maintain a stable sense of self and recall important information is impaired
- Symptoms disrupt consciousness, memory, identity, and perception
- These disorders are chronic. Treatment is typically ineffective. Thus, eligibility for positions of trust is almost always contraindicated
- High stress and demand environments are particularly difficult for individuals with dissociative disorders, compromising their ability to remain stable





Psychological Disorders that may Impact Judgment & Reliability

Linked to Maliciousness





Personality Disorders

- These individual's perceptions of the world and exhibited behaviors deviate significantly from the expectations of the individual's culture.
- Lifelong patterns of rigid and maladaptive thinking, feeling, and behaving are characteristic:
 - Difficulty in adapting to everyday demands
 - Difficulty coping adaptively with stress
 - Provokes negative reactions from others
 - Poor decisions and judgment
 - Impulsive





Personality Disorders (Cont.)

- These disorders are chronic. Treatment is typically ineffective. Thus, eligibility for positions of trust is almost always contraindicated
- Environments requiring significant interpersonal interaction or flexibility are particularly difficult for individuals with personality disorders, compromising their ability to behave appropriately
- Individuals with antisocial and narcissistic personality disorders are particularly unsuited for positions of trust





Antisocial Personality Characteristics

- Charming and intelligent
- Social relationships based in utility
- Inability to develop empathy or intimacy in relationships
- Inability to sustain consistent work behavior
- Inability to function as a responsible parent (authoritarian or neglectful)
- Failure to accept social norms with respect to lawful behavior
- Irritability and aggression
- Failure to honor financial obligations
- Failure to plan ahead
- Disregard for the truth
- Reckless/impulsive





Antisocial Beliefs & Attitudes

- I have to look out for myself.
- Force or cunning is the best way to get things done.
- We live in a jungle and the strong person is the one who survives.
- People will get at me if I don't get them first.
- It is not important to keep promises or honor debts.
- Lying and cheating are OK as long as you don't get caught.
- I have been unfairly treated and am entitled to get my fair share by whatever means I can.
- Other people are weak and deserve to be taken.
- If I don't push other people, I will get pushed around.
- I should do whatever I can get away with.
- What others think of me doesn't really matter.
- If I want something, I should do whatever is necessary to get it.
- I can get away with things so I don't need to worry about bad consequences.
- If people can't take care of themselves, that's their problem.





Narcissistic Personality Characteristics

- Exploitive
- Grandiose
- Feels unique
- Preoccupied with success
- Feels entitled
- Seeks admiration
- Lacks empathy
- Envious
- Hypersensitive to criticism





Narcissistic Beliefs & Attitudes

- I am a very special person.
- Since I am so superior, I am entitled to special treatment and privileges.
- I don't have to be bound by the rules that apply to other people.
- It is very important to get recognition, praise, and admiration.
- If others don't respect my status, they should be punished.
- Other people should satisfy my needs.
- Other people should recognize how special I am.
- It's intolerable if I'm not accorded my due respect or don't get what I'm entitled to.
- Other people don't deserve the admiration or riches that they get.
- People have no right to criticize me.
- No one's needs should interfere with my own.
- Since I am so talented, people should go out of their way to promote my career.
- Only people as brilliant as I am understand me.
- I have every reason to expect grand things.





Impulse Control Disorders

- These disorders significantly impact judgment and reliability
- Behaviors are compulsive, irrational, and defy societal norms
- Common impulse control disorders include:
 - Intermittent explosive disorder (assault)
 - Kleptomania (stealing)
 - Pyromania (fire setting)
 - Pathological gambling
 - Incest
 - Pedophilia
 - Voyeurism
 - Exhibitionism
- Treatment is typically ineffective and these individuals are unsuited for positions of trust without significant time between disordered behavior and eligibility





Substance Use Disorder

- Serious condition that can return after years of remission with little warning.
- An individual who is abstinent and without incident for five years may be considered a manageable risk
- The following factors may lower risk:
 - Harmful consequence with no history of dependence
 - Single episode of abuse
 - Successful treatment
 - No history of relapse
 - Participating in aftercare program
 - Acknowledges illness
 - Established pattern of responsible mature behavior since early use
- Recent use, history of dealing, affiliation with a drug using peer group and lacking above mitigating factors makes individual ineligible for position of trust





Substance Use in Israel

- Use of illicit substances according to reported statistics is 11.4% of population (i.e., 890,000)
- The most abused substances are cannabis, inhalants, opiates, stimulants, MDMA, and hallucinogens

Source: United Nations





Link Between Psychopathology and Malicious Behavior

- Most individuals experiencing psychopathology will not engage in malicious acts
- Maliciousness comes from the nexus between having a compromised mental capacity and some form of crisis
- The crisis destabilizes the individual's ability to maintain homeostasis, or meet their needs/wants
- The compromised mental capacity leads to faulty decision making in adopting solutions
- The common motivations for malicious insider behavior can be understood as faulty solutions to concerns experienced by an individual with compromised mental capacity





Physical Disorders that May Impact Judgment & Reliability





Examples

- Unmanaged Diabetes
- Seizure Disorder
- Dementia
- Cardiovascular Disease
- Any uncontrolled illness that may impact mental status or ability to perform basic job tasks reliably and with proper judgment
- Either Prescribed or Over-the-counter Medications





Managing Change

Erin Rogers

Gregg Protection Services Pacific Northwest National Laboratory





Organizational Culture

- Three Levels
 - Artefacts and behaviors (Visible but why?)
 - Greetings, dress, architecture
 - Espoused Values (Can be Elicited)
 - Strategies, Goals
 - Example, teamwork
 - Basic Assumptions
 - Unconscious, taken for granted, thoughts and feelings
 - Ultimate source for feelings and actions
 - Extremely difficult to change





Characteristics of Culture

- Emerges in adaptive interactions (how to survive)
- Shared elements (language, team)
- Transmitted across time periods and generations





Diversity of Culture

- Property of a group with certain level of common experience
- Levels of departments, functional groups, whole organization, whole industry





Approach

- What are issues faced by organization?
- What will new way of working be?
- What new behavior and thinking is required?
- What organizational characteristics can be built on?
- What are the gaps between current state and desired state?
- What change is required for achievement of goal?











Motivation to Change

- Threat, failure, crisis that upsets equilibrium
 - Economic
 - Political
 - Technological
 - Legal
 - Scandal or accident
 - Education and training
 - Charismatic leadership





Anxiety Levels

- Learning anxiety
 - Fear of temporary incompetence
 - Fear of punishment for incompetence
 - Fear of loss of personal identity
 - Fear of loss of group membership
- Learning anxiety must be reduced so that there is less anxiety associated with new model then with old model





Psychological Safety

- Compelling positive vision that new model is better.
 Senior management committed to and communicate to others
- Formal training in new ways of thinking/working
- Involve employees in designing learning process
- Provide opportunities to practice and provide feedback (less disruption to organization)





Psychological Safety

- Informal training to groups, build new norms and assumptions collectively
- Provide positive role models so that personnel observe new behavior and attitudes in others with whom they can identify
- Form support groups so that problems can be discussed and personnel can speak openly
- Ensure that systems and structures are consistent with new way of thinking (e.g., reward and discipline systems)





Leading Change

- Creativity openness to try new ideas of others
- Team orientation rely on help of others and recognize efforts
- Listening value opinions
- Coaching
- Accountability own the change
- Appreciation as progress is made





What Makes a Great Workplace?

- 1. Do I know what is expected of me at work?
- 2. Do I have the material and equipment that I need to do my work right?
- 3. At work, do I have the opportunity to do what I do best every day?
- 4. In the last seven days, have I received recognition or praise for my work?
- 5. Does my supervisor, or someone at work, care about me as a person?
- 6. Is there someone at work who encourages my development?





What Makes a Great Workplace? (Continued)

- 7. At work, do my opinions seem to count?
- 8. Does the mission/purpose of my organization make me feel that my work is important?
- 9. Are my co-workers committed to doing quality work?
- 10. Do I have a best friend at work?
- 11. In the last six months, have I talked with someone about my progress?
- 12. At work, have I had opportunities to learn and grow?

