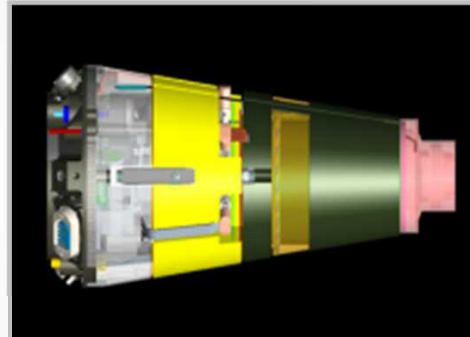
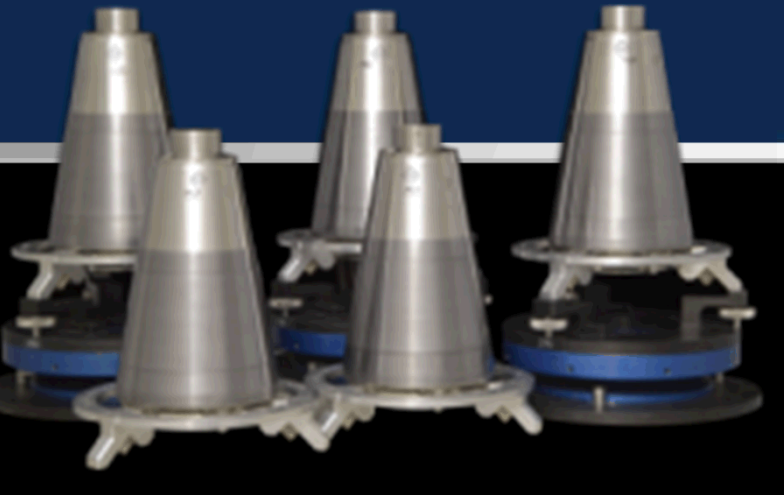


*Exceptional service in the national interest*



## Valuing Critical Review At Sandia National Laboratories

JF Nagel, Director, 400  
Surety Assessment, Engineering, and Analysis Center



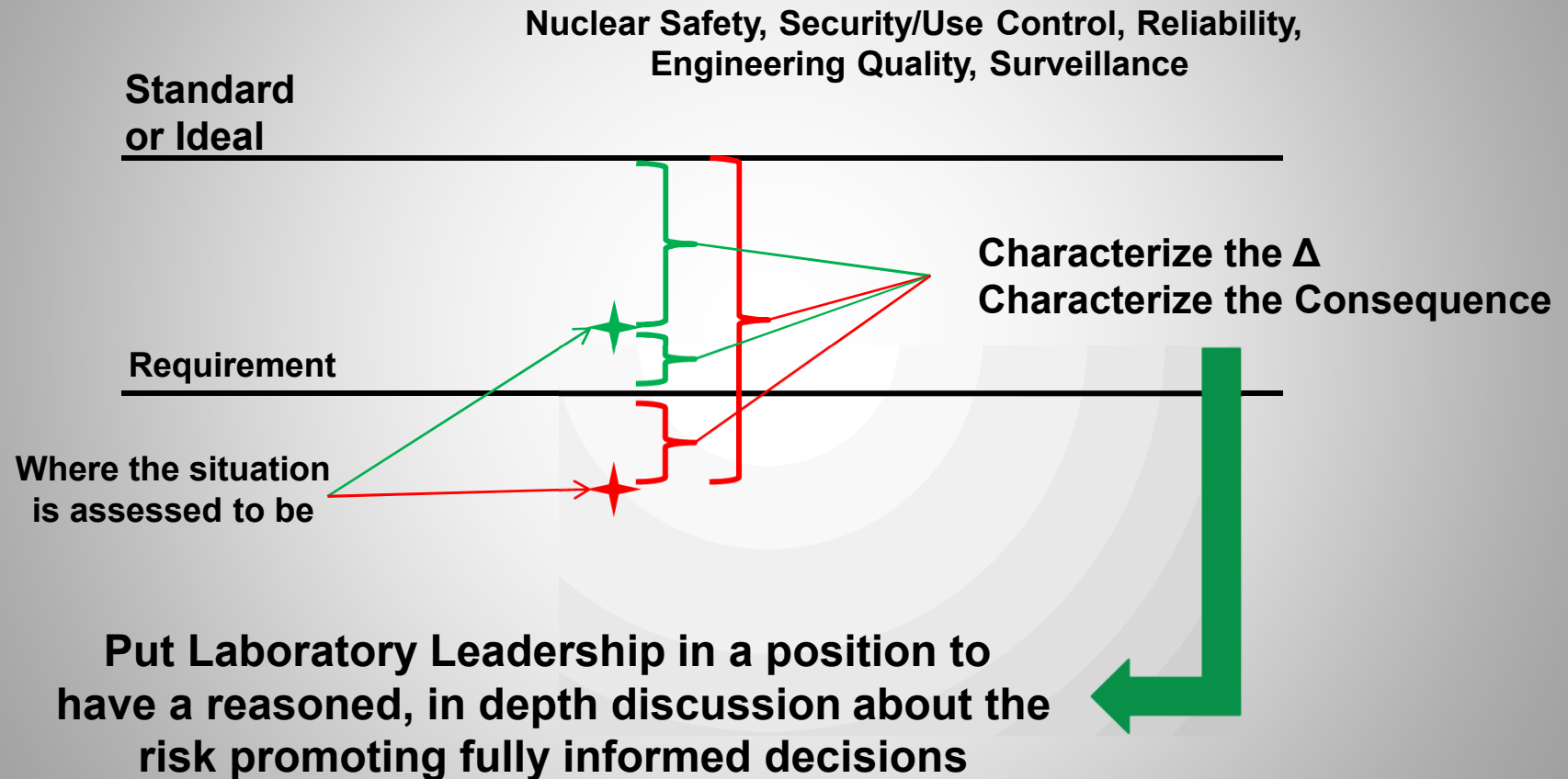
*"Success is a lousy teacher. It seduces smart people into thinking they can't lose."*

Bill Gates

# Topics

- Why Am I Interested in This
  - Independent Assessment Org Culture Change
  - Mindset Change Required
- What am I referring to
- The Dynamic – getting better at giving and receiving
- Seeking Out Critical Review

# Defining Success With Respect to Assessment



# What do I mean by “Critical Review”

- critical: *adjective* 1. ~~Inclined to judge severely and adversely.~~  
2. Characterized by careful and exact evaluation and judgment.....
- review: *verb* 1. ~~To look over, study, or examine again.~~  
2. ~~To consider retrospectively; look back on.~~  
3. To examine with an eye towards criticism or correction.....

# Why is Critical Review so Important?

- High consequence nature of our work
- We can get too close to our work (“confirmation bias”)
  - Set on a path – alternatives become harder to see (Referred to as “ballistic thinking”), and investments become harder to give up over time
  - We all have the goal to put the best product forward – critical review can help eliminate mistakes & make good product better
- Build confidence in the result – review by objective outsiders with appropriate experience/knowledge strengthens your argument that you have it right
- Measure of the strength of an individual or organization
  - Ability to absorb critical input and adjust as appropriate
  - Willingness to subject self/org to review for opportunity to improve both current and future product
- Required in our engineering processes and our contract with the Federal Government

# “Plan-Do-Check-Act”

- **Integrated Lab Management System – Performance Assurance System**
- **Critical Review is part of the “Check” step**
  - Includes both verification and validation
  - May include both the “what” and the “how”
  - Leads to improvement/correction in both ongoing and future efforts



**Critical Review Extends Beyond Our Product!**

# Types of Critical Review We Experience

- Technical
  - Requirements/Design/Qualification Planning and Execution Review
- Programmatic
  - Cost / Schedule / Risk / Resource
  - Status
- Operational
  - Readiness (Technical, Production, Safety, Security, Facility ...)
  - Post Activity
  - Document Review and Approval (Format, Classification, Technical Content)
- Team/Individual Performance and Comportment
  - Performance Review
  - Various forms of self-initiated e.g. “360° Feedback...”
- Self-Assessments
- External – Audits, Legal, Investigations,....
- Others????



# Formal vs Informal

- **Formal Review characterized by:**
  - Required or requested to specifically address an issue/challenge
  - Defined Scope
  - Defined entrance and exit criteria
  - Defined reviewers – someone asked them to participate
  - Written determinations and observations, with potential challenges and findings that come with an expectation of resolution
- **Informal Review characterized by:**
  - Undocumented feedback/criticism with a desire for acknowledgment/consideration and sometimes action to be taken....
  - May be unsolicited
  - Usually verbal, but not always...
  - Discussions in meetings, during briefings, one-on-ones, email trails, 2<sup>nd</sup> hand information, body language, participation (or lack there-of) .....

# Who are these “Reviewers”

- Organizational and Technical Peers
- Subject Matter Experts
- Your own and other management
- Partners
- Customers
- Suppliers
- Friends and Mentors
- Regulators
- You

**Develop the network of folks you rely on to provide critical review of your activities and be willing to do the same for them**

# Giving and Receiving Critical Review – The Dynamic

- Understanding and managing the natural reaction to criticism
  - Pride of Ownership....Intellectual Threat
  - “The best and the brightest”
  - “My baby is not ugly” .....
  - How people say vs what they are saying – people are not always good at giving or receiving critical feedback...
- What is happening in the moment – Fight or Flight
- Changing your Mindset – Focus on the Goal in the moment
  - Reaching Shared Interpretation / Common Understanding of the conflicting viewpoint being offered – not agreement
  - Avoid Critical Review becoming a form of competition

# Giving and Receiving Critical Review – Giving

- Goal: Provide your assessment or perspective in a way the receiver can understand and acknowledge your input – not change their mind
- Assume a non-confrontational posture physically and verbally
  - **Stay away from intent/motivation – focus on “the thing that is at risk”**
  - Avoid confrontational positioning
  - Avoid personal language/judgmental language – insult, whether intended or unintentional is no way to help someone understand your point of view
  - Imagine how you feel on the receiving end.....
- Provide space to listen – “I have a different point of view and I want to be sure you understand my perspective” (remember whose Risk/Opportunity you are discussing)
- It can be helpful to talk in terms of risk of position or opportunity for improvement
  - Identify both +/- when appropriate - Critical Review isn’t always negative
- Provide context of your point of view – what is the basis of your feedback
- Stick to the facts – factual accuracy is crucial
  - If you don’t know all the facts or do not fully understand – admit that and use the opportunity to gain perspective and validate (or withdraw) your assessment

**Share the moment with the recipient – it is not about you**

## Giving and Receiving Critical Review – Receiving

- Your goal is to avoid the fight or flight reaction and make it easier for the provider to have conversation with you
  - Recognize and then invite the conversation
  - Remember whose risk or opportunity is being discussed....
- Seek to understand everything you can about views different than your own – why do they have a different perspective?
  - Motivation, different or lack of information, experience/knowledge, technical data....
- It is your job to explore the alternate viewpoint to the extent necessary to determine its relevance, its value to lead to improvement
- Avoid dismissing the providers point of view
  - If their view is based on a lack of information or incorrect information, help them to understand without being judgmental
  - You are assuming the role of the reviewer at that point – see “Giving”
- Going to Fight or Flight - Two bad outcomes
- **Acknowledge their point of view and thank them for their input!!!**
  - Improves odds they will be willing to engage you in the future

# Acting on Critical Review

- Conscious, deliberate response
  - Four ways to manage risk (Eliminate, Mitigate, Transfer, Accept)
- Commitment to act needs to be done in a very careful way
  - No-brainers vs need to consider further
    - Weigh the need to immediately reject vs need to think further.....
  - Risk vs reward – they may be correct but you may decide to take no action
- Communicating response/plan of action and following through on commitments to act is crucial
  - Response may include determination that your decision is to take no action – with explanation
  - If a formal review – document your response/plan of action
- Follow through on commitments to act - whether formal or informal

# Key Take-Aways for Professional Reviewers

- Strive for high quality assessments
- Recognize the critical feedback dynamic
- Eliminate judgmental/emotional language from our spoken and documented words
- Accept critical feedback to us with the grace we hope our critical feedback be accepted
- Be above reproach – inability of those we assess to accept critical feedback with grace does not give us license to digress.....

## **Critical Review needs to be an important part of Sandia's culture**

- High Consequence Nature of Our Work
- Seek out and address critical review
- Give and Receive critical review w/o judgement of intent

**How we engage in the “check” phase of our work  
can greatly enhance its value**