

Safeguards and Security Performance Indicators

Background

As part of an effort to upgrade Safeguards and Security performance, I used the ECFOG working sub-group for Performance Measurement to identify what indicators were in use at other DOE sites. The table below summarizes the responses received and makes comments or recommendations on each indicator.

The University of California Director of Safeguards and Security for the Los Alamos and Livermore laboratories has a good set of indicators; they are explained in detail in Attachment 1. Most sites use a set of indicators significantly smaller than RFETS; many sites have only one or two indicators. The current set of RFETS indicators is included as Attachment 2.

My recommendations for use were based on demonstrating compliance with the DOE order, as well as providing meaningful information upon which management can make some decisions. The indicator should not merely report data if the data is not going to be used for improvement.

The table below summarizes the results of the survey.

Performance Indicators currently used at DOE sites:

<u>Indicator</u>	<u>Sub-set</u>	<u>Currently in use at RFETS?</u>	<u>Recommended</u>	<u>Comments</u>
DOE Order Performance Matrix		Yes	Yes	
	% Inventory released on time	Yes	Yes	
	Access Control Goal	Yes	Yes	
	Accounting System goal	Yes	Yes	
	Surveillance Goal	Yes	Yes	
	TID Accuracy	Yes	Yes	
Inventory Discrepancies				
	Pre-list Accuracy	Yes	No	Note 2
	Location	Yes	Yes	
	Identification	Yes	Yes	IDC Not Req'd
	TID	Yes	Yes	
MC&A Inventory Verification Measurements		No	No	
Moves During Inventory		Yes	No	Notes 2, 4
NMMSS Transaction Error Rate		Yes	Yes	

Unmeasured Backlog		Yes	Yes	
	Cat I, II, & III, Greater than 30 days	Yes	Yes	
	Cat IV, Greater than 45 days	Yes	Yes	
Anomalous Condition Investigations		Yes	No	Notes 2, 4
Moves During Inventory		Yes	No	Notes 2, 4
Overdue Corrective Actions (PATS)		Yes	Yes	
Protected Area Intrusion Detection Capability		Yes	Yes	Note 3
Protected Area Entry Control Systems		Yes	Yes	Note 3
Protective Force Alarm Response		Yes	Yes	Note 3
Protective Force Training & Performance		Yes	Yes	Note 3
Unauthorized Disclosure of Classified Matter & Infractions		Yes	Yes	Note 1
Classified Computing Programs	Systems re-accredited in a timely manner	No	No	
Number of Unsecured Facilities		Yes	Yes	Note 3
Number of False Alarms		Yes	Yes	Note 3
Lost/Stolen Property Incidents		Yes	Yes	Note 3
Motor Vehicle Incidents		Yes	Yes	Note 3

Notes:

1. Used internally, not reported routinely to Executive Management.
2. Currently tracked – not useful for senior managers’ decision making
3. Currently tracked – used by senior WSI managers
4. Useful for Division Manager

PAST LOS ALAMOS & LAWRENCE LIVERMORE LABS PERFORMANCE MEASURES

Performance Objective #1 Protection of Assets

The Laboratory will conduct Safeguards and Security operations to ensure effective protection of national security interests, proprietary information, personnel, property and the general public

Criteria:**Protection of Nuclear Materials**

The nuclear materials safeguards and security program shall ensure that nuclear material is protected, is in its assigned location, that any unauthorized removal is detected, and response to anomalies is provided

Performance Measures:

1. MC&A Physical Inventory. Percentage of items in their stated location and correctly identified as described in the gradients

Assumptions:

“Authorized Location” is defined by the organization and identified on MASS for LANL and on COMATS for LLNL. An “identified location” for LLNL is synonymous with “authorized location” as used by LANL.

The level of difficulty for LANL and LLNL gradients is equivalent, but the gradients are constructed to reflect differences in inventory operations.

“Correctly Identified” means an item label consisting of the material balance area (MBA), material type and lot identification, or as specified in the currently approved MBA operating procedure. The accounting system and label must agree to be considered correctly identified.

LLNL does a shut down inventory

LANL does a working inventory

During a working inventory, items are allowed to move; therefore, the listing used by auditors may not coincide with the actual location of the item. This is acceptable so long as transaction on MASS has been performed and the auditor verifies the new location for the item during the course of the inventory.

Gradient:

LLNL Gradients

Unsatisfactory: <98.9 percent

Marginal: 99.0 – 99.1 percent of the SNM items are in their identified location and correctly identified.

Good: 99.2 – 99.3 percent of the SNM items are in their identified location
And correctly identified

Excellent: 99.4 – 99.5 percent of the SNM items are in their identified location
And correctly identified.

Outstanding: 99.6 percent or more of the SNM items are in their identified location and correctly identified.

LANL Gradients

Unsatisfactory: < 60%

Marginal: 60% -69%

Good: 70% - 79%

Excellent: 80% - 89%

Outstanding: 90+%

	Items in Authorized Location >99.5%	Items in Authorized Location 99.3 – 99.5%	Items in Authorized Location 99.0 – 99.3%	Items in Authorized Location <99.0%
Items Correctly Identified >99.5%	98	88	78	<50
Items Correctly Identified 99.3 – 99.5%	95	85	75	<50
Items Correctly Identified 99.0 – 99.3%	92	82	72	<50
Items Correctly Identified <99.0%	<69	<69	<69	<50

“Items in Authorized Location” is that percentage of SNM items in their authorized location on the first inventory attempt. “Items Correctly Identified” is that percentage of SNM items that are correctly identified. No credit for this measure will be given if a SNM item, Category III or higher, is lost from the inventory. Loss of an item from inventory is determined at the conclusion of an MBA inventory (to include special inventories).

2. MC&A Verification Measurements. Demonstration of meeting verification measurements during physical inventories and reduction in non-TID and/or poorly measured population.

Assumptions:

Verification measurements are those in support of the physical inventory program. Items identified for verification measurements are predetermined based on a Statistical Sampling Plan (Protected Areas as separate populations) as approved by DOE. The Statistical Sampling Plan

will define sample size and defects in advance of the inventory. Measurement results must fall within accepted and established limits of error.

The number and scope of items measured for purposes of reducing the non-TID and/or poorly measured population is determined by the joint DOE/LANL Safeguards Steering Group. The selection of additional items shall be based on category and attractiveness level (i.e., most attractive items considered before less attractive items).

Measurement of all non-TID and/or poorly measured items at TA-18 shall be completed by the end of FY 99. Completing all TA-18 measurements is acceptable for meeting and exceeding the 95/90-confidence level. If TA-18 is predictably unable to complete all measurements in FY 99, then the 95/90 confidence level is required.

Gradient:

Unsatisfactory	Number of verification measurements is less than 95% confidence that 90% of the items are without defects
Marginal	Number of verification measurements meet a 95% confidence that 90% of the items are without defects
Good	Number of verification measurements meet 95% confidence that 90% of the items are without defects; 480 additional items (40/month average) from TA-55 and CMR populations are measured in support of reducing the non-TID and/or poorly measured population, or as modified by the joint LANL/DOE Safeguards and Security Group
Excellent	Number of verification measurements meet a 95% confidence that 90% of the items are without defects; Additional measures are at the "Good Level" plus 25%
Outstanding	Number of verification measurements meet a 95% confidence that 90% of the items are without defects; Additional items measured are at the "Good Level" plus 50%

3. MC&A Inventory Verification Measurements. All required measurements in support of the physical inventory program are performed.

Assumptions:

Required measurements are all unmeasured items that are amenable to measurement as approved by DOE/OAK. Items selected for confirmatory measurement are predetermined on a statistical sampling plan approved by DOE/OAK. "Booked" refers to the process of entering verification measurement results into a database.

Gradient:

Unsatisfactory: Measurements in support of any of the February, April and June, 1999 inventories are not performed and booked within four months of the start date of each inventory.

- Marginal:** Measurements in support of the February and April, 1999 inventories must be performed and booked within four months of the start date of each inventory. Measurements in support of the June 1999 inventory must be performed and booked prior to October 1, 1999
- Good:** Measurements in support of the February and April, 1999 inventories must be performed and booked within four months of the start date of each inventory. Measurements in support of the June 1999 inventory must be performed and booked prior to the start of the August 1999 inventory.
- Excellent:** Measurements in support of the February, 1999 inventory must be performed and booked within four months of the start date of the inventory. Measurements in support of the April and June 1999 inventories are performed and booked prior to the start date of each subsequent bimonthly inventory.
- Outstanding:** Measurements in support of the February, April and June 1999 inventories are performed and booked prior to the start date of each subsequent bimonthly inventory. Measurements in support of the August 1999 inventory are performed and booked prior to October 1, 1999.

4. Protected Area Intrusion Detection Capability. Provide assurance that protected area intrusion detection systems will detect unauthorized penetration.

Test Program Frequency

		Annual	Semi-Annual
Satisfactory	Probability Of Detection Results	90-95	75-100
Marginal		85-89	55-69
Unsatisfactory		<84	0-54

Assumptions:

The intent of this measure is to ensure that the Laboratories meet minimum DOE requirements for maintaining a Probability of Detection (PD) of 90%, with a confidence level of 95%. Testing of the system is required annually. The 90% PD rate and annual test requirement are set forth in DOE Manual 5632.1C-1, Chapter VI, page 3, para 4.b.

Using the matrix above, a "Good" score of 20 points would be awarded by achieving a 90% -92% probability of detection (worth 10 pts) and conducting the testing annually (worth 10 pts). Increasing the PD rate, or increasing the confidence in the system by conducting semi-annual tests, results in a higher score and greater assurance that the protected area intrusion detection system will detect unauthorized penetrations.

Gradient:

Good 20-24 pts

Excellent: 30-34 pts
 Outstanding: 40-44 pts

5. Protected Area Entry Control Systems. Entry control systems will ensure only authorized personnel enter protected area portals.

Test Program Frequency

		Annual	Semi-Annual
Unsatisfactory	Probability Results Of Detection	<84	0 – 59
Marginal		85 - 89	60 -64
Good		90 – 92	70 – 74
Excellent		93 – 94	80 – 84
Outstanding		>95	90 – 94
			0 - 64
			65 - 69
			75 - 79
			85 -89
			95 - 100

Assumptions:

The intent of this measure is to ensure that the Laboratories meet minimum DOE requirements for maintaining a Probability of Detection of 90%, with a confidence level of 95%. Testing of the system is required annually.

Using the matrix above, a “Good” score of 20 points would be awarded by achieving a 90% - 92% probability of detection (worth 10 pts) and conducting the testing annually (worth 10 pts). Increasing the PD rate, or increasing the confidence in the system by conducting semi-annual tests, results in a higher score and greater assurance that only authorized personnel enter protected area portals.

Gradient:

Outstanding: 40 – 44 pts
 Excellent: 30 – 34 pts
 Good: 20 – 24 pts

6. Protective Force Alarm Response. Protective Force response times to SNM alarms will be equal to or less than the calculated time contained in the Site Safeguards and Security Plan (SSSP) vulnerability assessment report.

Assumptions:

- Alarm response times begin the moment that the alarm response notification is announced regardless of the method or means of making the announcement.
- Alarm response elapsed times end when the last required responding officer is in the required position as defined in the SSSP
- Only planned alarm response tests will be used to validate this performance measure
- DOE/Operations Office approved response force time (s), as identified in the approved SSP vulnerability assessment report (or as approved separately by the DOE Operations Office), are the only time measurement (s) to be used in this measure.

- Each laboratory will have specific alarm response scenarios with a specified individual response force time approved for each scenario.
 - a. The total number of individual alarm response scenarios will vary according to site-specific requirements of each laboratory and each scenario will be identified in the laboratory's approved SSP vulnerability assessment report.
 - b. The number of alarm responses attempted each year is unlimited after the minimum responses are conducted by DOE Order.

Gradient:

Unsatisfactory: The response time is met <75% of the time

Marginal: The response time is met 75 - 79% of the time

Good: The response time is met 80 – 89% of the time

Excellent: The response time is met 90 – 95% of the time

Outstanding The response time is met more than 95% of the time

7. Protective Force Training and Performance. The Protective Force will be trained to accomplish its assigned mission.

Assumptions:

Statistical sampling, at the 95% confidence level, of Protective Force personnel will be conducted annually. Assessments will use written examinations, oral interviews, limited scope performance tests, and task proficiency examinations to determine a competency rating for the mission requirement relating to Protective Force “Critical System Elements.” Critical System elements will be identified by each Laboratory and their local DOE Office. The Composite Competency Rating is the percent of Protective Force personnel passing the written examinations, oral interviews, limited scope performance tests, and task proficiency examinations.

Gradient:

Unsatisfactory: Performance tests and associated assessments techniques demonstrate a composite competency rating of <60%

Marginal: Performance tests and associated assessment techniques demonstrate a composite competency rating of 60% - 69%

Good: Performance tests and associated assessment techniques demonstrate a composite competency rating of 70% - 79%

Excellent: Performance tests and associated assessment techniques demonstrate a composite competency rating of 80% - 89%

Outstanding: Performance tests and associated assessment techniques demonstrate a composite rating of 90% or higher

Criteria:

Protection of Classified Matter

Protection programs shall protect and control classified matter from unauthorized access, removal, damage, or destruction through the integration of security equipment, procedures, protective forces, management and supervision into a total system using design basis threat policy and local threat guidance

Performance measures:**8. Unauthorized Disclosure of Classified Matter (Compromises) and Infractions**

The number of unauthorized disclosures resulting in unauthorized individuals gaining access to classified matter will be maintained at or below the five-year rolling average.

Assumptions:

A compromise is determined as a result of an inquiry mandated and articulated in DOE 0470.1 and DOE M471.2

A five-year retrospective rolling average will be established using Laboratory statistics pertaining to unauthorized disclosure of classified matter.

To calculate the gradient score, count all confirmed incidents regarding known compromises and all incidents with a high potential of unauthorized disclosure, compromise, or loss of classified information.

Scoring will not be predicated upon whether an infraction was issued or not, the type of infraction issued, or whether multiple infractions were issued for the same incident.

Gradient:

Unsatisfactory: 20% more than the five-year rolling average

Marginal: 10% more than the five-year rolling average

Good: The number of compromises is no greater than the five-year rolling average

Excellent: The number of compromises is 10% or more below the five-year rolling average

Outstanding: The number of compromises is 20% or more below the five-year rolling average

9. Classified Computing Programs

Classified systems are re-accredited in a timely manner and operated consistent with accredited plans

Assumptions:

None

Gradient:

Unsatisfactory: System processes classified information without prior accreditation.

Marginal: System processes classified information after accreditation expires.

Good: All systems are re-accredited every three years or when there is a security significant change.

Excellent: In addition to re-accreditation, 15%-LLNL/10%-LANL of the accredited systems are inspected annually to insure configuration management and compliance with

accredited plan. Any necessary corrective actions are completed within an agreed upon time.

Outstanding:

In addition to re-accreditation, 30%-LLNL/15%-LANL of the accredited systems are inspected annually to insure configuration management and compliance with accredited plan. Any necessary corrective actions are completed within an agreed upon time.