



**FY2008**

**Environment, Safety, and Health:  
Gradients and Protocol Document**

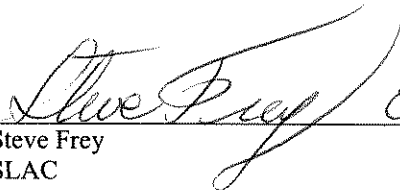
**Stanford Linear Accelerator Center**

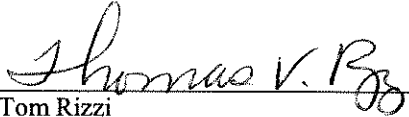
**February 11, 2008**

**FY2008 PEMP Gradient Protocol  
Stanford Linear Accelerator Center**

Prepared for the Department of Energy  
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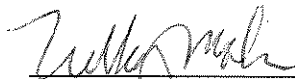
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The Environment, Safety, and Health Functional Managers from the Stanford Linear Accelerator Center (SLAC) and the Department of Energy (DOE) have agreed to assess FY2008 ES&H performance in reference to Goal 5.0 and Objective 8.3 according to the methodology described in this document.

**FY2008 PEMP Gradient Protocol  
Stanford Linear Accelerator Center**

**5.0 Goal: Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health, and Environmental Protection**

**The Contractor sustains and enhances the effectiveness of integrated safety, health and environmental protection through a strong and well deployed system.**

**5.1 Objective:** Provide a Work Environment that Protects Worker Safety, Health and the Environment.

**5.1.1 Measure:** The Contractor’s progress in meeting the Office of Science FY2008 safety goal for days away, restricted or transferred (DART) case rate. In addition to the Office of Science goal, the Contractor shows continuous improvement against its historical DART performance.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
DART Rate	<0.15	0.10–0.15	0.15–0.24	0.25 <sup>1</sup>	0.26–0.70	0.70–1.00	1.00–1.25	1.25–1.50	1.50–1.75	1.75–2.0	>2.0
Score	4.3–4.1	4.0–3.8	3.7–3.5	3.4–3.1	3.0–2.8	2.7–2.5	2.4–2.1	2.0–1.8	1.7–1.1	1.0–0.8	0.7–0

5.1.1.1 Target:

B+ = The DART rate for FY2008 is equal to the SC safety goal of 0.25.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
DART Rate v. avg. rate previous 5 years	<85%	80–85%	85–90%	90–95%	95–100%	100–110%	110–125%	125–150%	150–175%	175–200%	>200%
Score	4.3–4.1	4.0–3.8	3.7–3.5	3.4–3.1	3.0–2.8	2.7–2.5	2.4–2.1	2.0–1.8	1.7–1.1	1.0–0.8	0.7–0

5.1.1.2 Target:

B+ = Demonstrating a process of continuous improvement, the Contractor shows reductions against its historical DART rates as compared to a five year baseline. The DART rate for FY2008 is equal to or less than 90% of the DART rate over the previous 5 fiscal years.

Gradient:

A = SLAC has no Type A or B injury or exposure incidents. This may be mitigated/excluded if there is an incident where the investigation determines that the Contractor’s program did not contribute to the severity of the incident. (Score 4.3–3.5)

B+ = SLAC has no Type A or B injury or exposure incidents. (Score 3.4–2.5)

C = SLAC has no Type A and no more than one Type B injury or exposure incidents. This may be mitigated/excluded if there is an incident where the investigation determines that the Contractor’s program did not contribute to the severity of the incident. (Score 2.4–1.1)

<sup>1</sup> DOE SC Headquarter expectation for the DART rate is 0.25.

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5.1.1.3 Target:

B+ = SLAC has no Type A or B accidents. This may be mitigated/excluded if there is an incident where the investigation determines that the Contractor's program did not contribute to the severity of the incident.

**5.1.2 Measure:** The Contractor's progress in meeting the Office of Science FY2008 safety goal for total reportable case (TRC) rate. In addition to the Office of Science goal, the Contractor shows continuous improvement against its historical TRC performance.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
TRC Rate	< 0.50	0.40–0.50	0.50–0.64	0.65 <sup>2</sup>	0.66–1.00	1.00–1.50	1.50–2.00	2.00–2.50	2.50–3.00	3.00–4.00	>4.0
Score	4.3–4.1	4.0–3.8	3.7–3.5	3.4–3.1	3.0–2.8	2.7–2.5	2.4–2.1	2.0–1.8	1.7–1.1	1.0–0.8	0.7–0

5.1.2.1 Target:

B+ = TRC rate for FY2008 is equal to the SC safety goal of 0.65.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
TRC Rate v. avg. rate previous 5 years	< 85%	80–85%	85–90%	90–95%	95–100%	100–110%	110–125%	125–150%	150–175%	175–200%	>200%
Score	4.3–4.1	4.0–3.8	3.7–3.5	3.4–3.1	3.0–2.8	2.7–2.5	2.4–2.1	2.0–1.8	1.7–1.1	1.0–0.8	0.7–0

5.1.2.2 Target:

B+ = Demonstrating a process of continuous improvement, the Contractor shows improvement over historical TRC rates as compared to a five year baseline. The TRC rate for FY2008 is equal to or less than 90% of the TRC rate of FY2007.

**5.1.3 Measure:** The number of reportable occurrences of release(s) to the environment.

Gradient:

Grade	A	B+	C	D	F
	There are no reportable occurrences of releases to the environment and all 4 of the milestones listed below are completed.	There is no more than one reportable occurrence of releases to the environment and 4 of the 4 milestones listed below are completed.	There are no more than two reportable occurrences of releases to the environment and at least 3 <sup>3</sup> of the 4 milestones listed below are completed.	There are no more than three reportable occurrences of releases to the environment and at least 2 <sup>3</sup> of the 4 milestones listed below are completed.	There are four or more reportable occurrences of releases to the environment and one <sup>3</sup> or none <sup>3</sup> of the 4 milestones listed below are completed.
Score	4.3–3.5	3.4–2.5	2.4–1.1	1.0–0.8	0.7–0

<sup>2</sup> DOE SC Headquarter expectation for the TRC rate is 0.65.

<sup>3</sup> An additional half grade is awarded for each additional milestone completed beyond the minimum number listed (e.g., grade changed from a C to C+ if two reportable occurrences of releases to the environment and 4 of the 4 milestones listed below are completed).

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Milestones:

1. Update Spill Prevention Controls and Countermeasure Plan (SPCC) per 40CFR112 Final Rule.
2. Complete and document monthly above-ground tank inspection.
3. Perform annual site-wide stormwater compliance inspection.
4. Perform annual review of the SLAC Stormwater Pollution Prevention Plan.

Definition: A reportable occurrence of release is an incident that releases pollutants to the environment to the extent that non-routine written notification to regulatory agencies is required. This does not include courtesy calls to local agencies or historical releases discovered in the current reporting year.

5.1.3.1 Target:

B+ = There are no more than one reportable occurrence of releases to the environment and 4 of the 4 milestones listed above are completed.

**5.1.6 Measure:** Corrective Action follow-up and closure tracking mechanisms. This includes on-time notification to the DOE/SSO on safety ES&H corrective actions.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Percentage	100-98	97-95	94-91	90-88	87-85	84-80	79-75	74-70	69-65	64-60	<60
Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0

5.1.6.1 Target:

B+ = 90% of the ES&H safety-related corrective actions are tracked and closed within the original SLAC target completion date.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Percentage	100-98	97-95	94-91	90-88	87-85	84-80	79-75	74-70	69-65	64-60	<60
Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0

5.1.6.2 Target:

B+ = 90% of the SLAC closed findings from Facility Walkthroughs conducted by SSO are validated by the Office of Assurance.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Percentage	100-98	97-95	94-91	90-88	87-85	84-80	79-75	74-70	69-65	64-60	<60
Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0

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**5.2 Objective:** Provide Efficient and Effective Implementation of Integrated Safety, Health and Environmental Management.

**5.2.1 Measure:** Safety and environmental training and other competence requirements for SLAC employees, and SLAC contractors, are fully identified. Training for SLAC employees is tracked in SLAC's Training Database Metrics Reporting. SLAC contractors are responsible for ensuring training identified by the contract UTR or Point of Contact and are required to provide written confirmation that their workers at SLAC are compliant with the training requirements.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Percentage	100-98	97-95	94-91	90-88	87-85	84-80	79-75	74-70	69-65	64-60	<60
Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0

5.2.1.1 Target:

B+ = Mandatory ES&H training requirements for SLAC employees (defined as safety training as required by regulation) are completed to a level of 90% per the SLAC Training Database Metrics Reporting System.

5.2.1.2 Target:

B+ = Reviews of subcontractor Site-Specific Safety Plans indicates that training requirements for SLAC contractors are maintained current to a level of 90%.

**5.2.2 Measure:** Safety management systems are developed and implemented that enhance the process for work planning, identifying hazards, and ensuring that controls and formal written procedures are in place prior to authorizing and conducting work, including construction activities.

Gradient:

A = In FY2008, greater than 95% of the corrective actions from ISM reviews and DOE Assessments that are tracked in either the SLAC Corrective Tracking System (CATS) database or the Office of Health, Safety and Security (HSS) CATS database are completed by the SSO approved completion dates, or have a revised completion date approved by SSO. (Score 4.3-3.5)

B+ = In FY2008, 95% of the corrective actions from ISM reviews and DOE Assessments that are tracked in either the SLAC Corrective Tracking System (CATS) database or the Office of Health, Safety and Security (HSS) CATS database are completed by the SSO approved completion dates. (Score 3.4-2.5)

C = In FY2008, less than 95% of the corrective actions from ISM reviews and DOE Assessments that are tracked in either the SLAC Corrective Tracking System (CATS) database or the Office of Health, Safety and Security (HSS) CATS database are completed by the SSO approved completion dates. (Score 2.4-1.1)

5.2.2.1 Target:

B+ = In FY2008, 95% of the corrective actions from ISM reviews and DOE Assessments that are tracked in either the SLAC Corrective Tracking System (CATS) database or the Office of Health, Safety and Security (HSS) CATS database are completed by the SSO approved completion dates, or have a revised completion date approved by SSO.

**5.2.3 Measure:** Contractor shall provide ES&H trending analysis as it relates to injuries, illness, and safety events in an effort to provide a causal analysis and proactive identification of any systemic safety or programmatic gaps or weaknesses.

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Gradient:

A = A formal, pro-active safety campaign (like ‘Safe 07’) is implemented, and all quarterly reports on trending and causal factors related to safety occurrences are submitted to DOE. (Score 4.3–3.5)

B+ = All quarterly reports on trending and causal factors related to safety occurrences are submitted to DOE. (Score 3.4–2.5)

C = A formal, pro-active safety campaign is not implemented and at least one quarterly report on trending and causal factors related to safety occurrences is not submitted to DOE. (Score 2.4–1.1)

5.2.3.1 Target:

B+ = All quarterly reports on trending and causal factors related to safety occurrences are submitted to DOE.

**5.3 Objective:** Provide Efficient and Effective Waste Management, Minimization, and Pollution Prevention.

**5.3.2 Measure:** For designated projects, identification of waste minimization, emission reduction, and/or resource conservation opportunities.

Protocol:

SLAC will review potential candidate projects and their technical feasibility and SLAC’s ability to implement these projects based on available funding and other project priorities. Implementations will be conducted as feasible. Examples of projects include sustainable building design measures such as white roofing; procurement of environmental friendly products such as product substitutes for wood decking and carpets with recycled content; toxic chemical substitutions and waste prevention measures such as cyanide and sulfur hexafluoride reduction; composting of cafeteria wastes; replacement of cafeteria food packaging with biodegradable or more sustainable materials. One full grade score (i.e., B+ to A+; C+ to B+) will be added for each additional candidate project that is implemented beyond the number of implementations specified below, including pilot scale implementations, in the same year or placed in the budget cycle for later years.

Gradient:

Grade	A	B+	C	D	F
	Identify and assess five or more opportunities with technical and economic feasibility for implementation and implement two projects in FY2008 or, placed in budget cycle for subsequent year(s) and approved by DOE.	Identify and assess four opportunities with technical and economic feasibility for implementation and implement one project in FY2008 or, placed in budget cycle for subsequent year(s) and approved by DOE.	Identify and assess three opportunities with technical and economic feasibility for implementation.	Identify and assess two opportunities with technical and economic feasibility for implementation.	Identify and assess one opportunity with technical and economic feasibility for implementation.
Score	4.3–3.5	3.4–2.5	2.4–1.1	1.0–0.8	0.7–0

5.3.2.1 Target:

B+ = SLAC will select and evaluate four waste minimization, emission reduction, and/or resource conservation opportunities and implement one project in FY2008 or, placed in budget cycle for subsequent year(s) and approved by DOE.

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**5.3.3 Measure:** Results of the Office of Assurance Independent Internal Assessment in FY2007 identified several issues in the Hazardous Materials Program for which improvements will enhance hazardous materials operations safety.

- Ensure Haz Mat/Haz Waste Training is current for handlers of Hazardous Waste.
- Ensure Chemical Hygiene Plan (CHP) is updated and accurate, and workers in covered laboratories have received lab-specific training as required by the Plan.
- Subcontractor chemical storage is compliant with applicable OSHA, Building, Fire Codes, and SLAC's ES&H Manual Chapter 40: Hazardous Materials. Inventory of subcontractor chemicals is integrated into SLAC's overall chemical inventory management
- Further reduction of legacy chemicals (i.e., those pre-dating the implementation of the Chemical Management System) will require the development and implementation of a project plan that will be completed through FY2009.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Percentage	100-98	97-95	94-91	90-88	87-85	84-80	79-75	74-70	69-65	64-60	<60
Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0

5.3.3.1 Target:

B+ = Required Hazardous Materials/Hazardous Waste Training (i.e., mandatory ES&H training) requirements are completed to a level of 90% in the SLAC Training Database Metrics Reporting.

Gradient:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Percentage	100-98	97-95	94-91	90-88	87-85	84-80	79-75	74-70	69-65	64-60	<60
Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0

5.3.3.2 Target:

B+ = CHP is updated by December 31, 2007 (Q1), and 90% of the affected lab users are trained by June 30, 2007 (Q3)

Gradient:

A = Develop project plan with implementation schedule for further reduction of legacy chemicals (i.e., those pre-dating the implementation of the Chemical Management System) by December 31, 2007 and implementation milestones met. (Score 4.3-3.5)

B+ = Develop project plan with implementation schedule for further reduction of legacy chemicals (i.e., those pre-dating the implementation of the Chemical Management System) by March 31, 2008 and implementation milestones met. (Score 3.4-2.5)

C = Develop project plan with implementation schedule for further reduction of legacy chemicals (i.e., those pre-dating the implementation of the Chemical Management System) by March 31, 2008 and at least one implementation milestone not met. (Score 2.4-1.1)

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5.3.3.4 Target:

B+ = Develop project plan with implementation schedule for further reduction of legacy chemicals (i.e., those pre-dating the implementation of the Chemical Management System) by March 31, 2008 and implementation milestones met.

**5.3.4 Measure:** SLAC actively pursues the reduction of its volume of legacy low-level radioactive waste stored on-site by preparing the waste for off-site shipment (i.e., the waste has been properly characterized & packaged, pending shipment off-site or has been shipped off-site).

Gradient:

A = 420 cubic feet of legacy low-level radioactive waste (based on disposal container external volumes) has been properly packaged or shipped for disposal by September 30, 2008. (Score 4.3–3.5)

B+ = 360 cubic feet of legacy low-level radioactive waste (based on disposal container external volumes) has been properly packaged or shipped for disposal by September 30, 2008. (Score 3.4–2.5)

C = Less than 300 cubic feet of legacy low-level radioactive waste (based on disposal container external volumes) has been properly packaged or shipped for disposal by September 30, 2008. (Score 2.4–1.1)

5.3.4.1 Target:

B+ = 360 cubic feet of legacy low-level radioactive waste (based on disposal container external volumes) has been properly packaged or shipped for disposal by September 30, 2008.

**5.3.5 Measure:** SLAC conducts low-level radioactive waste (LLRW) generator training, emphasizing reduction, reuse, and recycling.

Gradient:

A = SLAC identifies a list of primary LLRW generators after November 15, 2007 and conducts 4 or more training classes to certify LLRW generators by September 30, 2008. (Score 4.3–3.5)

B+ = SLAC identifies a list of primary LLRW generators by November 15, 2007 and conducts at least 3 training classes to certify LLRW generators by September 30, 2008. (Score 3.4–2.5)

C = SLAC identifies a list of primary LLRW generators by November 15, 2007 and conducts 2 or less training classes to certify LLRW generators by September 30, 2008. (Score 2.4–1.1)

5.3.5.1 Target:

B+ = SLAC identifies a list of primary LLRW generators by November 15, 2007 and conducts 3 training classes to certify LLRW generators by September 30, 2008.

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**8.0 Goal: Sustain and Enhance the Effectiveness of Integrated Safeguards and Security Management (ISSM) and Emergency Management Systems**

**The Contractor sustains and enhances the effectiveness of integrated safeguards and security and emergency management through a strong and well-deployed system.**

**8.3 Objective:** Provide an Efficient and Effective System for the Protection of Special Nuclear Materials, and Property.

**8.3.1 Measure:** Safeguard events are reported and mitigated as necessary. Plans are developed for security of property, and inventory loss control (e.g. special nuclear materials are inventoried and property management of assets). SLAC assets reside in a database.

Gradient:

<b>Grade</b>	<b>A</b>	<b>B+</b>	<b>C</b>	<b>D</b>	<b>F</b>
	There are no safeguard events.	All Safeguard events are reported within 24 hours to DOE/SSO.	All Safeguard events except one are reported within 24 hours to DOE/SSO.	All Safeguard events except two are reported within 24 hours to DOE/SSO.	All Safeguard events except three or more are reported within 24 hours to DOE/SSO.
Score	4.3–3.5	3.4–2.5	2.4–1.1	1.0–0.8	0.7–0

8.3.1.1 Target:

B+ = All Safeguard events are reported within 24 hours to DOE/SSO.

**8.3.2 Measure:** External or internal reviews, surveys, or inspections will be conducted once per year, unless there is a significant event requiring follow-up and corrective action, which may result in additional reviews being required.

Gradient:

<b>Grade</b>	<b>A</b>	<b>B+</b>	<b>C</b>	<b>D</b>	<b>F</b>
	All correction actions resulting from external or internal reviews, surveys, or inspections are completed in advance of the agreed to schedule.	All correction actions resulting from external or internal reviews, surveys, or inspections are completed in accordance with agreed to schedule.	All correction actions resulting from external or internal reviews, surveys, or inspections except one are completed in accordance with agreed to schedule.	All correction actions resulting from external or internal reviews, surveys, or inspections except two are completed in accordance with agreed to schedule.	All correction actions resulting from external or internal reviews, surveys, or inspections except three or more are completed in accordance with agreed to schedule.
Score	4.3–3.5	3.4–2.5	2.4–1.1	1.0–0.8	0.7–0

8.3.2.1 Target:

B+ = All correction actions resulting from external or internal reviews, surveys, or inspections are completed in accordance with agreed to schedule.