

10 CFR 851 Implementation Plan Gap Analysis
Fermilab
05/15/2007

Rule Section		Fermilab Program	
Section Number	Section Subject	Brief Description of Level of Compliance	Evidence of Implementation
851.20	Management responsibilities and worker rights and responsibilities.	<p>Fermilab is in compliance. Policies and goals have been written. Highly qualified staff manages the worker safety and health program (WSH). Responsibilities of all employees up to, and including the Fermilab Director have been established. This includes the ability to stop work and raise concerns without fear of reprisal. Personnel are held accountable through a performance review process that evaluates the employees' and supervisors' contribution to the WSH program. ES&H concerns programs or ES&H program implementation document review processes have been established to involve employees in the WSH program. Information on ES&H is made available to employees, visitors, and subcontractors through training, the ES&H Website, and the employee newsletter, FermiToday, the meeting minutes of the Laboratory Safety Committee and its technical subcommittees, and the Lessons Learned website. Employees are allowed to participate in ES&H activities on official time.</p>	<p>Laboratory Director's Policy Manual – Policy #3: http://www.fnal.gov/directorate/Policy_Manual.html#No_3 Fermilab Integrated ES&H Management (IES&HM) Plan: http://www-esh.fnal.gov/workersafetyandhealthplan/wshp_ieshm_%20plan_010107.pdf Fermilab ES&H Manual (FESHM) – 1030, 1040, 1060. 3010, 3020: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=10 Fermilab Radiation Control Manual: Personnel Policy & Procedures Manual: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=900 New Employee Orientation, Subcontractor Orientation Fermilab ES&H website: http://www-esh.fnal.gov/pls/default/esh_home_page.html Fermilab Leading Lagging Indicators: http://www-esh.fnal.gov/owa_user/fnal_indicators.html Fermilab Concerns Program: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=21594 Fermilab Draft Review Comment Process: http://www-esh.fnal.gov/pls/default/esh_drafts.html LSC minutes: http://www-esh.fnal.gov/owa_user/lsc.html Lessons Learned website: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=500</p>

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

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851.21	Hazard identification and assessment.	<p>Fermilab is in compliance. Assessments and inspections by ES&H professionals, including certified safety professionals, certified industrial hygienists, and occupational medicine professionals are routinely performed as part of Fermilab's safety and health program. These include industrial hygiene assessments, walkdown of work area as part of the hazard analysis (HA) process, emergency planning, building inspections and ES&H Tripartite Assessments conducted as part of Fermilab's ES&H self-assessment program. The practice of industrial hygiene follows the AREC process. Anticipation, Recognition, Evaluation and Control. Fermilab is no different than any other industry in this approach. Industrial Hygienists review construction plans, chemical requisitions, Safety Assessment Documents (SADs), Hazard Assessment Documents (HADs), Operational Readiness Clearances (ORCs), HAs, etc. Because of the IH representative's strong field presence, they are often actively pursued to participate in the early planning stages of many activities. Standardized exposure monitoring methods produced by OSHA, NIOSH, etc., and only use AIHA certified laboratories. Monitoring results are recorded through a wide range of IH databases to document the results (IH Assessments, IH Samples, Respirator Fit-testing, Exhaust System Surveys, etc.). Results are shared with employees. Safety and health experience information is shared through all the technical safety subcommittees of the Laboratory Safety Committee. There are currently no closure facilities at Fermilab.</p>	<p>Laboratory Director's Policy Manual – Policy #18 Fermilab Integrated ES&H Management (IES&HM) Plan Fermilab ES&H Manual (FESHM) – 1030, 2060, 5000 series, 7010, 7011, 7020: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=10 Minutes of the LSC and its technical subcommittees: http://www-esh.fnal.gov/owa_user/lsc.html</p>

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

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851.22	Hazard prevention and abatement	Fermilab is in compliance. Fermilab has a hazard prevention and abatement process. As hazards are identified, they are abated either by substitution with a less hazardous process or chemical, engineering out the hazard, procedures are developed as appropriate, and if necessary personal protective equipment is mandated. If the hazard cannot be quickly abated interim actions are implemented, up to and including work stoppage. ES&H reviews are conducted in the design phase for facilities, experiments, etc. Procedures are in place to assure hazards are addressed when selecting or purchasing equipment, products, and services.	Laboratory Director's Policy Manual – Policy #18 Fermilab Integrated ES&H Management (IES&HM) Plan Fermilab ES&H Manual (FESHM) – 1040, 2010, 2060, 5000 series, 7010, 7011, 7020: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=10

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

Rule Section		Fermilab Program	
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851.23	Safety and health standards 10 CFR 850 Beryllium 29 CFR 1904.4 through 1904.11 – Recordkeeping 29CFR1910 29CFR1915 29CFR1917 29CFR1918 29CFR 1926 29CFR1928 ACGIH TLV Z88.2 (2004) A136.1 (2000) Z49.1 (1999) NFPA 70 (2005) NFPA 70E (2004)	<p>Fermilab is compliant. The health and safety standards listed in this section are all included in Fermilab’s Work Smart Set of Standards. They are reviewed annually and updated as necessary.</p>	<p>Work Smart Set of Standards: http://www-esh.fnal.gov/FESHM/1000/1070.htm</p>

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

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851.24	Functional Areas	Fermilab is compliance. Currently there are no firearms, explosives, and biological hazards located at Fermilab. The Fermilab's Worker Safety and Health program will be updated and submitted for approval before operations involving these three hazards are introduced on site.	Fermilab ES&H Manual (FESHM): http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=10
851.25	Training and Information	Fermilab is in compliance. An active ES&H training program is in place to ensure that all workers exposed or potentially exposed to hazards are provided training. Newly hired employees, subcontractors and visiting scientists receive an ES&H orientation, Supervisors complete an Individual Training Needs Assessment (ITNA) that identifies all the ES&H training his/her employee is required to take. The employees training plan also identifies periodic retraining that is necessary. Supervisors are responsible to ensure employees have a training plan and are fulfilling the training requirements. As new hazards are identified training courses are developed and provided to those employees whose training plans require the training. Those employees that have health and safety program responsibilities are provided the training necessary for them to carry out their responsibilities. Employees such as firefighters, radiological control technicians, and waste management personnel have job-specific training requirements identified in their training plans. This training may be through educational coursework, OTJ training and mentoring with a senior ES&H professional, and continuing education. Training completion is documented in a database.	Fermilab ES&H Manual (FESHM) 4010: http://www-esh.fnal.gov/FESHM/4000/4010.htm

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

Rule Section		Fermilab Program	
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851.26	Recordkeeping and Reporting	Fermilab is compliant. There are a variety of databases of hazard inventory, assessments, exposure measurements, and exposure records. Examples include confined space inventory, engineering notes for pressure vessels, industrial hygiene assessments, and radiological exposures. The requirements for recordkeeping are established in FESHM. All work-related injuries and illnesses for employees, visiting scientists, and subcontractors are recorded in an online database. Work-related incidents, injuries and illnesses are investigated. Data is analyzed for trends and lessons learned are developed and promulgated.	Fermilab ES&H Manual (FESHM): http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=800 Fermilab ES&H Manual (FESHM) 3010, 3020: http://www-esh.fnal.gov/FESHM/3000.htm Lessons Learned webpage: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=500 Fermilab Records Management Program: http://bss.fnal.gov/records/handbook.html
851.27	Reference Sources	Fermilab is compliant. The health and safety standards listed in this section are all included in Fermilab's Work Smart Set of Standards. They are reviewed annually and updated as necessary.	Work Smart Set of Standards: http://www-esh.fnal.gov/FESHM/1000/1070.htm
851.30	Variances	Fermilab has no plans to submit a variance from 10 CFR 851 at this time. Fermilab has several life safety equivalencies granted for facilities such as the Main Injector, NuMI, and the Wilson Hall Stairwells. In addition, an equivalency has been granted for the Fermilab Incident Reporting Utility Systems (FIRUS).	FESHM 6013 (FIRUS): http://www-esh.fnal.gov/FESHM/6000/6013.htm
851.40	Enforcement Process	Fermilab will cooperate to any enforcement activity instituted by DOE. Fermilab will self-identify incidents and programmatic issues that meet the reporting threshold of the Non-Compliance Tracking Systems they become evident.	FESHM 3030: http://www-esh.fnal.gov/FESHM/3000/3030.htm

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

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Appendix A			
1.	Construction Safety	Fermilab is in compliance. Per the contract, all construction subcontractors are required to submit a hazard analysis for each phase of work. These phases of work are included in the supplemental terms and conditions of the contract. The hazard analysis must be approved by the construction line management prior to commencement of the work. Workers must review and formally acknowledge the HA, which identified hazards and protective measures. Contract Terms and conditions require that the subcontractor must have a designated competent person who is knowledgeable of the project's hazard and has full authority to act on behalf of the construction contractor. This individual is required to have attended an OSHA 30 hour construction safety course. The identity of the subcontractor superintendent and other responsible line personnel, as well as the subcontractor competent person is identified as part of the hazard analysis. Construction subcontractor employees must attend an orientation that emphasizes employees' rights and responsibilities, such as raising issues and concerns, and stop work authority.	Fermilab IES&HM, Section 3.2.8 Fermilab ES&H Manual (FESHM) 7010 and 7011: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=7000 Fermilab Construction Subcontract Terms and Conditions (Section 13): http://bss.fnal.gov/procurement/proctrmcon1.html
2.	Fire Protection	Fermilab is in compliance. Fermilab has established a fire safety and emergency response program to protect workers that is commensurate with the work that is performed on site. This includes facility and site-wide fire protection, fire alarms and notification system, and a fully staffed, trained, and equipped emergency response organization.	FESHM 6000 series: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=800

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

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3	Explosives safety	Not applicable at this time	
4.	Pressure Safety	Fermilab is in compliance. Fermilab has established a pressure safety program that meets the requirements of the ASME Boiler and Pressure Vessel Code. This program assures that pressure systems are designed, fabricated, tested, inspected, maintained, repaired, and operated by trained personnel. Designs are reviewed and approved by an independent review as documented in the FESHM chapters. Procedures are in place to assure that when national codes are not applicable, equivalent protection is provided. Most of the FESHM chapters associated with pressure safety are included in Fermilab's Work Smart Set of Standards.	FESHM 5030 series: http://www-esh.fnal.gov/FESHM/5000/5030.htm Pressure Vessel Engineering Notes: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=13619
5.	Firearms Safety	Not applicable at this time.	

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

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6.	Industrial Hygiene	Fermilab is in compliance. Initial baseline surveys and periodic resurveys and/or exposure monitoring is performed as determined appropriate by professionally trained Industrial Hygienists. The practice of industrial hygiene follows the AREC process. Anticipation, Recognition, Evaluation and Control. Fermilab is no different in this approach. Industrial Hygienists review construction plans, chemical requisitions, Safety Assessment Documents, Hazard Assessment Documents, Operational Readiness Clearances, etc. They routinely coordinate with other ES&H professionals. , including the medical department to identify and help mitigate the risk from identified and potential health hazards. Specific programs have been developed to address specific hazards such as carcinogens, and working in potentially oxygen deficient locations.	FSHM 5000 series, specifically, the 5030 through 5100 series: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=5000
7.	Biological Safety	Not applicable at this time	

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

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8.	Occupational Medicine	<p>Fermilab is in compliance. Occupational Medical services are provided to all Fermilab employees, visiting scientists, and temporary contract employees. Subcontractors who are potentially exposed to hazards unique to Fermilab and also require medical surveillance (e.g. oxygen deficiency hazard) are also included in Fermilab's occupational medicine program. The OM program is under the direction of a licensed medical physician. The nurses are licensed as well. The OM staff has access to hazard information due to its integration into the operations at Fermilab. Supervisors provide information to the OM staff regarding essential job functions and potential for exposures. The OM staff has access to the various monitoring and surveillance databases at Fermilab. The OM staff is involved when an employee has been absent from employment longer than 5 days due to injury/illness. The OM staff participates in a variety of technical safety committees. From this information medical placement, health examinations frequencies, and surveillance program are determined. Medical records are maintained in the Medical Department. An Employee Assistance Program is present at Fermilab, as is an active employee wellness program.</p> <p>All work-related injuries/illnesses are ported to the medical department where the standard of care is determined and monitored to assure a safe return to work with minimal lost time and associated costs. Work restrictions are explained to the employee and supervisor. Memoranda of Understanding exist between Fermilab and emergency medical providers in the area.</p>	<p>FESHM 5300 Series: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=11662 Work Activity Analysis Form: http://www-esh.fnal.gov/pls/default/WAAF.html Personnel Policy Handbook: http://lss.fnal.gov/policies/policies.html IIP Subcommittee, Ergonomics Subcommittee: http://www-esh.fnal.gov/owa_user/lsc.html Fermilab Emergency Response Plan FESHM Chapter 3020: http://www-esh.fnal.gov/FESHM/3000/3020.pdf</p>

10 CFR 851 Implementation Plan Gap Analysis
 Fermilab
 05/15/2007

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9.	Motor Vehicle Safety (MVS)	Fermilab is in compliance. The MVS program addresses licensing requirements, use of seat belts, and training for specialty vehicles, inspection of vehicles, uniform traffic and pedestrian control, speed limits, and enforcement provisions. An awareness campaign is conducted as the need is identified.	FESHM 9010: http://www-esh.fnal.gov/FESHM/9000/9010.htm FESHM 5023: http://www-esh.fnal.gov/FESHM/5000/5023.htm State of Illinois Vehicle Code Illinois Rules of the Road FermiToday Tip of the Week (example): http://www.fnal.gov/pub/today/archive_2006/today06-03-13.html
10.	Electrical Safety	Fermilab is compliant. A comprehensive electrical safety program that meets the applicable electrical safety codes and standards referenced in 851.23 has been established. It is overseen by the Electrical Safety Subcommittee, a technical subcommittee of the Laboratory Safety Committee. The program consists of policies and procedures, work planning documents, training, incident investigation, and development of lessons learned. An awareness campaign is conducted as the need is identified.	FESHM 5400 series: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=5040 FermiToday Tip of the Week (example): http://www.fnal.gov/pub/today/archive_2006/today06-10-02.html
11.	Nanotechnology Safety-Reserved	Not applicable at this time	
12.	Workplace Violence Prevention-Reserved	Not applicable at this time	