



FESHM 1070: FERMILAB WORK SMART SET

Revision History

Author	Description of Change	Revision No. & Date
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1.0 INTRODUCTION

Fermilab has adopted the Necessary and Sufficient (N&S) Process for determining the Work Smart Set of Standards (WSS) to determine the appropriate ES&H standards to ensure the safe and environmentally responsible operations of the laboratory. Fermilab, in conjunction with participation from, the DOE FSO, the Chicago Operations Office (CH) and the Office of Science (SC), conducted the first site-wide application of the Departmental N&S Closure Process. The result was a set of significant hazard aspects and impacts that were used to establish a Work Smart Set of Standards (WSS). The WSS were incorporated into the prime contract with DOE. These standards, if properly implemented, provide adequate assurance that the public, workers, and environment are protected from adverse consequences. Fermilab's work activities, the hazards associated with the work, and the standards are reviewed on an annual basis, and revised as needed. Additionally, new standards promulgated by DOE or national standards-making bodies (e.g. National Fire Protection Association) are evaluated and incorporated into the WSS as appropriate.

2.0 RESPONSIBILITIES

2.1 Chief Operating Officer

The Chief Operating Officer is responsible for assuring that suggested changes to Fermilab's WSS are incorporated into the FRA contract with DOE.

2.2 ES&H Director

The ESH Director is responsible for:

- Conducting annual review of WSS and recommending to Fermilab management changes to the set.
- Distributing copies of the revised WSS to the Legal Office for inclusion in Appendix I of the contract.

2.3 Legal Office

The Legal Office is responsible for keeping the official copy of the Work Smart Set. The Legal Office will update Appendix I of the contract as needed to reflect changes to the WSS.

3.0 PROGRAM DESCRIPTION

The WSS shall be reviewed on an annual basis. The ESH Section Head will transmit to the Chief Operating Officer recommendations of changes to the WSS. Once the set has been accepted by DOE-FSO it will be incorporated into the contract with FRA.

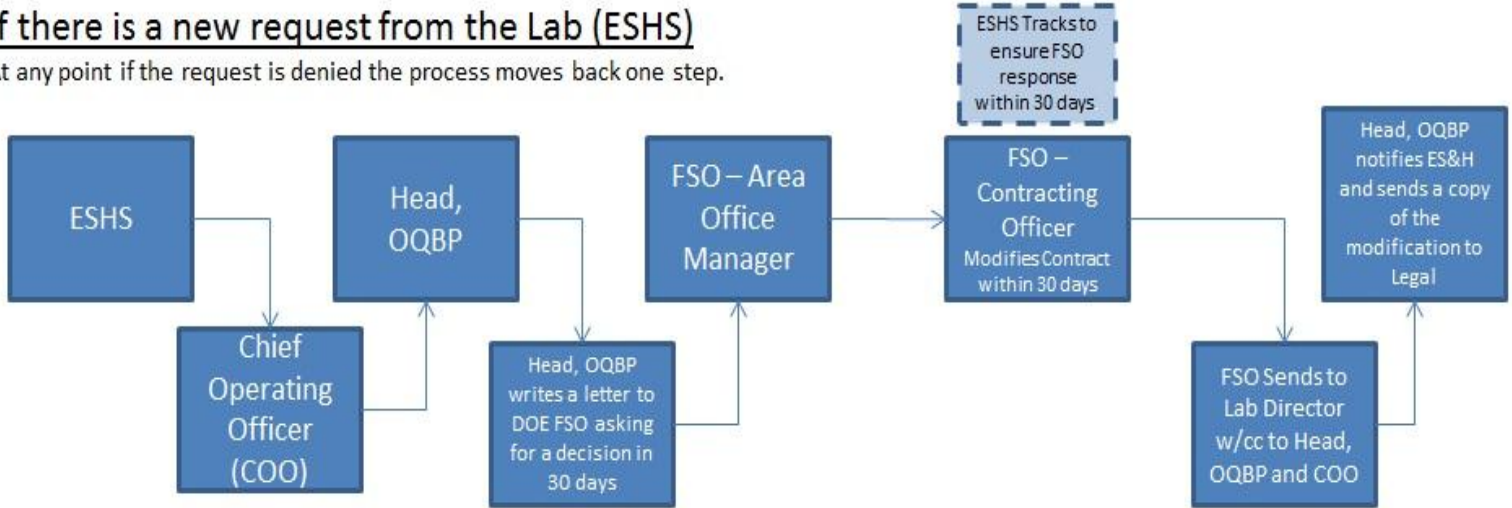


Work Smart Set Process Flow

WSS is appendix I of the contract

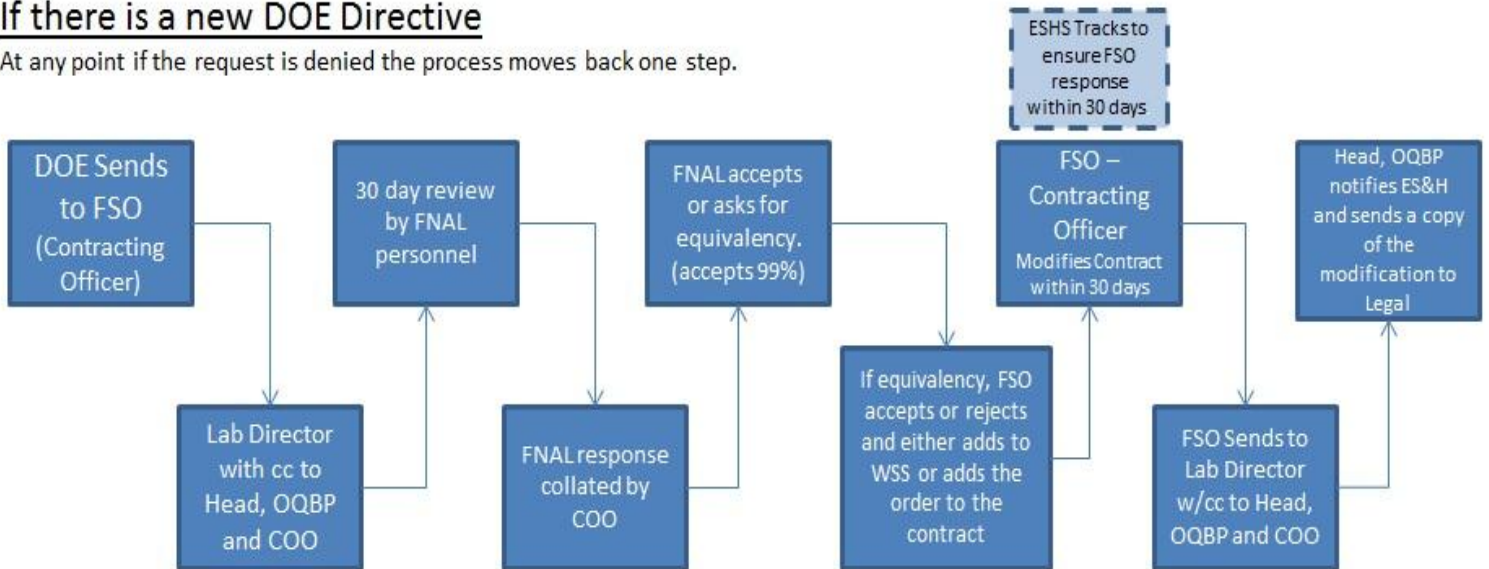
If there is a new request from the Lab (ESHS)

At any point if the request is denied the process moves back one step.



If there is a new DOE Directive

At any point if the request is denied the process moves back one step.





4.0 REFERENCES

Appendix A

Fermilab Work Smart Set of Standards (updates in bold)

<http://fra-hq.org/pdfs/Mod%20M050.pdf>

10 CFR 1021 (DOE NEPA rules)
10 CFR 1022 (Compliance with Floodplain/Wetlands environmental review requirements)
10 CFR 1046 Subpart B, App. A, Chapter X, par. H through I inclusive. (Physical protection of security interests, protective force personnel)
10 CFR 835 (Occupational radiation protection - applicable and enforceable portions)
10 CFR 850 (Chronic Beryllium Disease Prevention Program)
10 CFR 851 (Worker Safety and Health Program)
10 CFR 860 (Trespass to land owned & leased by the U.S. Government)
17 IAC 525 and permit pursuant (Nuisance animal trapping permits)
17 IAC 3702 (Construction and Maintenance of Dams)
18 U.S. Code Sections 841-848 (Use, or threat of use, of explosives; includes civil disorders)
28 CFR 36 (Section 302(b)(2) of the Americans with Disabilities Act and Section 4.1.3(9) of the ADAAG -- accommodations and accessibility)
29 CFR 1903.13 (Imminent danger)
29 CFR 1903.2 (Posting of notice...)
29 CFR 1904 (Recordkeeping and reporting occupational injuries and illnesses)
29 CFR 1910 (OSHA general industry standards - applicable and enforceable portions)
29 CFR 1926 (OSHA construction industry standards - applicable and enforceable portions)
29 CFR 1928 Subpart C (Roll-over protective structures - applicable and enforceable portions)
29 CFR 1928 Subpart D (Safety for agricultural equipment - applicable and enforceable portions)
29 CFR 1977.12 (Exercise of any right afforded by the Act)
29 CFR 1977.4 (Persons prohibited from discriminating)
29 IAC Chapter 1, Subchapter f (Emergency services, disasters, and civil defense /ESDA/ chemical safety)
33 CFR 320-323, 328-330 (Army Corp of Engineers wetlands regs)
35 IAC (State of IL environmental regs - applicable and enforceable portions)
36 CFR 60, 63, 65 (National historic landmark program)
36 CFR 78-79 (NHPA waiver and collection curation regs)
36 CFR 800 (Protection of historic and cultural properties)
40 CFR (Federal environmental regs - applicable and federally-enforceable portions)
41 IAC 100 (Fire prevention and safety)
41 IAC 120 (Boiler and pressure vessels)
41 IAC 140 (Policy and procedures manual for fire protection personnel)
41 IAC 160 (Storage, transportation, sale and use of gasoline and volatile oils: rules relating to general storage)
41 IAC 170 (Storage, transportation, sale and use of petroleum and other regulated substances)



41 IAC 180 (Storage, transportation, sale and use of volatile oils)
43 CFR 7 (Archaeological collections)
49 CFR (Offsite) Parts 100-177 (Applicable Parts) Parts 178-199 (Applicable Parts) Parts 382-399 (Applicable Parts)
49 CFR (Onsite) Parts 382-399 (Applicable Parts) 177.848 (Segregation Table for Hazardous Materials)
50 CFR 17 (Endangered species rules)
71 IAC 400 (Illinois accessibility code, Subparts C-F)
77 IAC 830 (Structural pest control code)
77 IAC 855 (Rules for Asbestos Abatement for Public & Private Schools and Commercial & Public Buildings in Illinois)
77 IAC 890 (Plumbing code)
77 IAC 900 (Drinking water systems requirements)
77 IAC 905 (Private Sewage Disposal Code)
77 IAC 920 (Water well construction code)
77 IAC 925 (Well pump installation)
92 IAC 700 and all permits pursuant (Construction in water course permit application)
92 IAC 704 and all permits pursuant (Regulation of public waters)
92 IAC 708 and all permits pursuant (Floodway construction permit application)
105 ILCS 105 (Asbestos Abatement Act)
225 ILCS 207 (Commercial and Public Building Asbestos Abatement Act)
ACGIH Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, 2005
ANSI A 17.1 (Elevator Construction)
ANSI A 17.3 (Elevator Maintenance)
ANSI A 39 (Window Washing)
ANSI B11 series (Metalworking - applicable portions)
ANSI B15.1 (Power transmission apparatus)
ANSI O1.1 (Woodworking machinery)
ANSI Z88.2 (Respiratory Protection) 1992
ANSI Z136.1 (Lasers), 2000
AWS (American Welding Standard) Z 49.1 (Cutting, Welding and Hot Work Activities) 1999 version
ANSI/ASHRAE 15 (Mechanical refrigeration)
ANSI/ASME B30.10 (Hooks) 2005
ANSI/ASME B30.11 (Monorails and Underhung Cranes) 2004
ANSI/ASME B30.16 (Overhead Hoists (Underhung)) 2003



ANSI/ASME B30.17 (Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)) 2003
ANSI/ASME B30.2 (Overhead and gantry cranes) 2005
ANSI/ASME B30.20 (Below the hook lifting devices) 2006
ANSI/ASME B30.21 (Manually Lever Operated Hoists) 2005
ANSI/ASME B30.22 (Articulating Boom Cranes) 2002
ANSI/ASME B30.5 (Mobile and locomotive truck cranes) 2004
ANSI/ASME B30.9 (Slings) 2003
ANSI/ASME B31.1 (Power piping) 2001, B31.1a 2002, Addenda to b 31.1 2001
ANSI/ASME B31.3 (Process Piping) 2004
ANSI/ASME B31.5 (Refrigeration piping) 2001
ANSI/ASME B31.8 (Gas transmission and piping systems) 2003
ANSI/ASME B31.9 (Building Services Piping) 1996
Archaeological and Historic Preservation Act of 1974 (P.L. 93-291)
Archaeological Resources Protection Act of 1979 [amended], 16 USC 470aa et seq.
ASME Pressure Vessel Code - Section VIII
ASME B20.1-1996 (Safety Standard for Conveyors & Related Equipment)
Atomic Energy Act of 1954 [amended], 42 USC 2011 et seq.
ANSI N323A-1997 (Radiation Protection Instrumentation Test and Calibration, Portable Survey Instruments)
ANSI N323D-2002 (American National Standard for Installed Radiation Protection Instrumentation)
ANSI/ISA – 84.00.01 – 2004 Application of Safety Instrumented Systems for the Process Industries
Batavia Code of Regulations, City Ordinance, Section 8-3-10-3
International Building Code Fire Prevention Code (latest edition)
International Building Code (latest edition)
Boiler & Pressure Vessels of the Illinois Office of the State Fire Marshall - applies to CUB Boilers Only
CERCLA/SARA, 42 USC 9601 et seq.
City Code of Warrenville, IL Title 7, Chapter 4, sewer/sewerage ordinance
Clean Air Act Amendments 1990, 42 USC 7401 et seq., and Illinois State Implementation Plan, 40 CFR 52 Subpart O
Clean Water Act, 33 USC 1251 et seq.
DOE Order 420.1A Fire Protection (Section 4.2)
DOE Order 420.2B Safety of Accelerator Facilities
DOE Order 5400.5 Derived Concentration Guide Table and dose limits to the public (Chapter 2, Section 1; Chapter 3)
DOE Manual 231.1A (Environment, Safety and Health Reporting Manual), as it applies to injury recordkeeping only, September 9, 2004
DuPage County Health Department Private Water Supply Ordinance (Chapter 18, Article 18-4, DuPage County Code)



E.O. 11988 (Floodplain Management)
E.O. 11990 (Protection of Wetlands)
E.O. 12580 (Implementation of superfund)
E.O. 13058 (Protecting Federal Employees and the Public from Exposure to Tobacco Smoke in the Federal Work Place)
E.O. 13423 (Strengthening Federal Environmental, Energy, and Transportation Management)
E.O. 13514 (Federal Leadership in Environmental, Energy, and Economic Performance)
Endangered Species Act, 16 USC 1531 et seq.
Federal Facility Compliance Act, 42 USC 6961
Fermilab Nuclear Materials Control and Accountability Implementation Plan
FESHM 2010 (Planning and review of accelerator facilities and their operations)
FESHM 3010 (Significant and Reportable Occurrences) (formerly, Occurrence reporting)
FESHM 5031 (Pressure vessels)
FESHM 5031.1 (Pressure piping systems)
FESHM 5032 (Cryogenic system review)
FESHM 5032.1 (Liquid nitrogen dewar installation rules)
FESHM 5032.2 (Guidelines For the Design, Fabrication, Testing, Installation, and Operation of LH2 Targets)
FESHM 5032.3 (Transporting gases in building elevators)
FESHM 5033 (Vacuum vessel safety)
FESHM 5033.1 (Vacuum window safety)
FESHM 5035 (Mechanical refrigeration systems)
FESHM 5040 (Fermilab electrical safety program)
FESHM 5041 (Electrical utilization equipment safety)
FESHM 5042 (AC electrical power distribution safety)
FESHM 5043 (Management and use of cable tray systems)
FESHM 5044 (Protection against exposed electrical bus)
FESHM 5046 (Low voltage, high current power distribution systems)
FESHM 5064 (Oxygen deficiency hazards)
FESHM 5084 (Ergonomics Program)
FESHM 6020.3 (Installation of flammable gas lines in or near cable trays)
FESHM 9030 (Aviation safety)
FIFRA, 7 USC 136 et seq.
FRCM Article 362 (X-Ray Generating Devices & Radiography Sources)
FRCM Article 411 (Radioactive Material Identification, Storage and Control - Definitions)
Handbook for Sampling & Sample Preservation of Water and Wastewater, EPA-600/4-82-029
IEC 61511, Functional Safety, Safety Instrumented Systems for the Process Industry Sector
Illinois Chemical Safety Act, 430 ILCS 45/1 et seq.
Illinois Compiled Statutes (ILCS) Chapter 625 (State vehicle code -- Applicable Portions)
Illinois Department of Public Health, DuPage County Dept. Public Health. CDC December 7,1990



Illinois Endangered Species Protection Act, 520 ILCS 10/1 et seq.
Illinois Ground Water Protection Act, 415 ILCS 55/1 et seq.
Illinois Health and Safety Act, 820 ILCS 225/1 et seq.
Illinois Pesticide Act, 415 ILCS 60/1 et seq.
Illinois Structural Pesticide Act, 225 ILCS 235/1 et seq.
Kane County Health Department Ordinance 04-199/05-141 Water Well Code
National Fire Protection Association Codes and Standards (NFPA Standards - applicable portions)
NFPA (National Electric Code), 2005
NFPA-520 Standard on Subterranean Spaces, version 2005
NFPA 70E (Standard for Electrical Safety in the Workplace), 2004
National Historic Preservation Act of 1966 [amended], 16 USC 470 et seq.
Native American Graves Protection and Repatriation Act of 1990, 25 USC 3001 et seq.
NEPA, 42 USC 4321 et seq.
OSH Act, 29 USC 654(a)(1) -- General duty clause.
Pressure Equipment Directive (PED) 97/23
Privacy Act of 1974, 5 USC 552a
RCRA Part B Permit (Illinois Log #131), including Emergency Contingency plan
RCRA, 42 USC 6901 et seq.
Recommended standards for Water Works, Great Lakes Upper Mississippi R. Bd. of State Public Health & Environmental Managers (1992)
Safe Drinking Water Act, 42 USC 300f et seq.
Standard Methods for the Examination of Water and Wastewater, 18th Ed., APHA (1992)
Standards and Specifications for Soil Erosion and Sediment Control, 10/87, IEPA 87-102
TSCA, 15 USC 2601 et seq.
UL Listing
Uniform Federal Accessibility Standards, Chapter 4, Accessible Elements and Spaces: Scope and Technical Requirements
Energy Solutions LLC Bulk Waste Disposal and Treatment Facilities Waste Acceptance Criteria
Rather than attempt a precise analysis of all necessary standard citations to exclude non-applicable parts, inclusive citations were made qualified by the phrase "applicable and enforceable parts thereof." To the extent these standards apply to DOE and not the contractor, the contractor will assist DOE in complying with them. This Set does not change any existing Federal, State or local enforcement authority. For standards not applicable as a matter of law (other than FESHM provisions), the applicable version shall be the revision in effect on July 14, 1995, unless otherwise indicated. For FESHM provisions, the applicable version shall be the most recent version established through the procedures set forth in Appendix I.