

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

001. Bio - animals  
004. Bio - insects  
005. Bio - plants

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.21(b)(4)  
29 CFR 1910.132

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Procedures and information regarding environmental biological hazards are provided in Chapter 5071 of the Fermilab ES&H Manual. Training is also conducted on an as-needed basis for persons who routinely work out-of-doors. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

002. Bio - bacteria (water)  
151. Thermal - wet work environments

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

77 IAC 900  
29 CFR 1910.141  
29 CFR 1926.27  
29 CFR 1926.51

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Requirements for maintaining the main site water supplies are provided in Fermilab ES&H Manual Chapter 8050. Backflow prevention procedures for domestic water supplies is provided in Chapter 8051. Issue 151 (Thermal - wet work environment) was combined with 002 (Bio - bacteria) as a "best fit" since a specific standard could not be identified for the former. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

003. Bio - bloodborne pathogens

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.1030

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The statutory requirement in #3 is implemented through Chapter 5072 of the Fermilab ES&H Manual. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

006. Chem - acids, solvents, toxic agents and haz. liquids  
009. Chem - chemical exposures exceeding PEL.  
013. Chem - nuisance dusts  
016. Chem - use of toxic materials

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.1200  
29 CFR 1910.1000  
40 CFR 355  
40 CFR 370  
40 CFR 372

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The statutory requirements in #3 are implemented through a variety of ES&H Manual Chapters including 5051 (HazCom) and the 5052 Special Toxic Hazards series. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

007. Chem - carbon monoxide

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.1200  
29 CFR 1910.146  
29 CFR 1910.1000

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Carbon monoxide exposures occur in association with combustion; primarily engines and heaters. They are handled in accordance with good industrial hygiene practices including activity review, training, and monitoring. ES&H Manual Chapter 5051 (HazCom) and 5063 (Confined spaces) help to control exposures. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

008. Chem - carcinogens

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.1000-1200

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

In general, chemical carcinogens are a minor concern at Fermilab. The associated program is contained in Chapter 5052.1 of the ES&H Manual. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

010. Chem - chemical reactions

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.1200  
40 CFR 724.277

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

In general, chemical reactions are a minor concern at Fermilab. Chapter 5051 of the ES&H Manual (HazCom) includes this issue. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

011. Chem - cutting and burning  
015. Chem - toxicity in smoke or fumes  
017. Chem - welding fumes

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.1200  
29 CFR 1910.1000  
29 CFR 1910.146  
29 CFR 1910.252-257

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Cutting and burning are common activities at Fermilab. They are handled in accordance with good industrial hygiene practices including activity review, training, and monitoring. ES&H Manual Chapter 5051 (HazCom) and 5063 (Confined spaces) help to control exposures. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

012. Chem - heavy metals such as lead

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.1200  
29 CFR 1910.1000  
29 CFR 1910.1018 (inorganic arsenic)  
29 CFR 1910.1025 (lead)  
29 CFR 1926.62 (lead)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Lead exposures can occur in association with physics or maintenance activities. They are handled in accordance with good industrial hygiene practices including activity review, training, and monitoring. ES&H Manual Chapter 5051 (HazCom), 5052.3 (Lead in paints) and 5063 (Confined spaces) help to control exposures. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

014. Chem - pesticides  
055. Env - pesticide application and use

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

FIFRA (7 USC 136 et seq.)  
40 CFR Subchapter E  
Illinois Pesticide Act, IRS Ch. 5, para. 801 et seq.; 45 IL. CS 60-1  
Structural Pesticide Act, IRS Ch. 111 1/2, para. 2201 - 2225  
29 CFR 1910.1200  
29 CFR 1910.1000  
35 IAC 302.302  
35 IAC 602.110  
35 IAC 652  
77 IAC 830

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Implementation of these laws and regulations is accomplished through contractual arrangements with applicators and lessors of agricultural land, and by procedures followed by Roads and Grounds personnel pursuant to all applicable regulations.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

018. Construction - compressed gasses

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

29 CFR 1926.350-352

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

019. Construction - demolition

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.850  
29 CFR 1926.58 (asbestos)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

020. Construction - dewatering hazard

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926. 651(h)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

021. Construction - earth cave-in and collapse

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.651-652

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

022. Construction - earth moving equipment

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.600-602

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

024. Construction - earth clearing

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.604

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

025. Construction - fall hazards

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.500-503  
29 CFR 1926.104

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

027. Construction - hand tools

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.300-301  
29 CFR 1926.303  
29 CFR 1926.305  
29 CFR 1910.242

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

028. Construction - heavy equipment

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.550  
29 CFR 1926.600-602  
29 CFR 1926.250  
29 CFR 1926.251

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

030. Construction - ladder

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.105  
29 CFR 1926.1050-1053  
29 CFR 1926.1060  
29 CFR 1926.603  
29 CFR 1926.550  
29 CFR 1926.851  
29 CFR 1926.951  
29 CFR 1926.605  
29 CFR 1926.451  
29 CFR 1910.25-27  
29 CFR 1910.31  
29 CFR 1910.179  
29 CFR 1910.333

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

032. Construction - materials handling

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.250  
29 CFR 1926.602

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

033. Construction - possibility of hitting utilities

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.651(b)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

034. Construction - scaffolding

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.451

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

035. Construction - transportation  
128. Other personnel hazards - traffic hazards

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.600-601  
29 CFR 1926.200-202  
Illinois Compiled Statutes (ICS) Chapter 625 (State vehicle code)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

036. Electricity - battery

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.305(j)(7) (explosion prevention)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Battery installations generally involve limited numbers of batteries and are in areas having more than adequate ventilation so as to preclude any significant hazard. Hazards associated with battery installations are well known and associated risks have been handled effectively. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

037. Electricity - exposed conductors / >50 volts  
038. Electricity - high voltage

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.147 (LOTO)  
29 CFR 1910.332-333

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapters 5040-5042, and 5044.  
In general, OSHA electrical safety standards are not a good match for electrical hazards in a research environment. As such Fermilab has developed internal standards which appear as chapters in its ES&H Manual:  
5040 - Defines basic policies and responsibilities. TA provides practical guidance and interpretations of external standards.  
5041 - Requirements for working on equipment that goes beyond OSHA. Includes LOTO and work on energized equipment.  
5042 - Guidance for work on premises wiring including work permit for energized systems.  
5044 - Guidance for exposed conductors in accelerator enclosures.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Employment of safety related work practices and provision of appropriate training will achieve a level of risk commensurate with management performance goals. Past adherence to the statutory requirements in #3 combined with Fermilab's electrical safety programs in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Implementation is enhanced by appropriate application of National Electrical Code requirements, reasoned interpretations and guidance as provided by the Electrical Safety Subcommittee of the LSC, and by Fermilab ES&H Manual chapters related to electrical safety - Chapters 5040-5046, 5120 (LOTO). Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

039. Electricity - high power  
041. Electricity - high current conductors / <50 volts  
042. Electricity - stored energy / capacitors  
043. Electricity - stored energy / inductors

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.147 (LOTO)  
29 CFR 1910.332-333

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapters 5040-5042, 5044, and 5046.  
In general, OSHA electrical safety standards are not a good match for electrical hazards in a research environment. As such Fermilab has developed internal standards which appear as chapters in its ES&H Manual:  
5040 - Defines basic policies and responsibilities. TA provides practical guidance and interpretations of external standards.  
5041 - Requirements for working on equipment that goes beyond OSHA. Includes LOTO and work on energized equipment.  
5042 - Guidance for work on premises wiring including work permit for energized systems.  
5044 - Guidance for exposed conductors in accelerator enclosures.  
5046 - Guidance for low voltage high current power distribution systems.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Employment of safety related work practices and provision of appropriate training will achieve a level of risk commensurate with management performance goals. Past adherence to the statutory requirements in #3 combined with Fermilab's electrical safety programs in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Implementation is enhanced by appropriate application of National Electrical Code requirements, reasoned interpretations and guidance as provided by the Electrical Safety Subcommittee of the LSC, and by Fermilab ES&H Manual chapters related to electrical safety - Chapters 5040-5046, 5120 (LOTO). Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

040. Electricity - lightning

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
29 CFE 1910.307(b)(3) (Safe for hazardous [classified] location)  
29 CFR 1910.308(e)(3)(i){b} (Seperation between lead-in and lightning protection conductors)  
29 CFR 1910.106(e)(6)(i) (Ignition source for flammable vapors)  
29 CFR 1910.106(h)(7)(i){a} (Ignition source for flammable vapors)  
29 CFR 1926.152(i)(6) (Ignition source for flammable vapors)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
National Fire Protection Association National Fire Codes (NFPA Standards List)  
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because municipal and industrial standards have been selected for the standard residential/commercial/industrial electrical equipment. Insurers and municipalities have long found that statutory requirements were insufficient and that the building code and national fire code standards selected were necessary to achieve adequate protection.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The overall program exists and the internal standard has been implemented. Adoption of the BOCA National Building Code will require changes to construction and contract documents.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

044. Env - air emissions / nonrad

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

Clean Air Act Amendments 1990, 42 USC 7401 et seq.  
40 CFR 50  
40 CFR 52 Subpart O  
40 CFR 58  
40 CFR 60-61  
40 CFR 63  
40 CFR 80  
40 CFR 82  
40 CFR 88 Subpart C  
40 CFR 264-265  
35 IAC Subtitle B and permits pursuant

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Continue current program. Implementation of Illinois' Clean Air Act Permit program may require the preparation of a federally enforceable state operating permit by the end of 1995.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

045. Env - air emissions / rad

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

Clean Air Act Amendments 1990, 42 USC 7401 et seq.  
40 CFR 61 Subpart H  
35 IAC Subtitle B and permits pursuant

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The requirements identified in #3 have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

046. Env - cultural resources

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

National Historic Preservation Act of 1966 [amended]  
Archaeological and Historic Preservation Act of 1974  
Archaeological Resources Protection Act of 1979 [amended]  
Native American Graves Protection and Repatriation Act of 1990  
36 CFR 65  
36 CFR 78-79  
36 CFR 800  
43 CFR 7

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The requirements identified in #3 have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

047. Env - asbestos

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.1001  
29 CFR 1926.58  
TSCA, 15 USC 2601 et seq.  
40 CFR 61 Subpart M  
40 CFR 763

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab's asbestos control program is contained in Chapter 5052.4 of the ES&H Manual. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

048. Env - drinking water quality

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

SDWA, 42 USC 300f et seq.  
40 CFR 141-142  
40 CFR 144  
40 CFR 146  
40 CFR 147 Subpart O  
Illinois Ground Water Protection Act, IRS 1989 Chapter 111 1/2  
35 IAC Subtitle F Chapter I  
77 IAC 890  
77 IAC 900  
77 IAC 920  
77 IAC 925  
DuPage County Health Department Private Water Supply Ordinance OH0002-90 Ch. 34  
Kane County Ordinance 91-101 Water Well Code

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

Recommended Standards for Water Works, Great Lakes Upper Mississippi R. Bd. of State Public Health & Environmental Managers (1992)  
Handbook for Sampling & Sample Preservation of Water and Wastewater, EPA-600/4-82-029

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. Some changes in the jurisdiction within which the Laboratory falls will be implemented in the near future. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution. The additional standards indicated in #8, above, is necessary as a reference for industry-wide practice in this area. It contains no "requirements" other than adherence to standard practices.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Essentially continue the current program, but with revision and upgrading. We assume jurisdiction by IDPH in the future, rather than IEPA. The effect is to remove some requirements, but add responsibility for analysis. Implementation of this program will include the utilization of adequate sampling and analytical methods as found in relevant documents.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

049. Env - endangered species

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

Endangered Species Act 16 USC 1531 et seq.  
50 CFR 17  
Illinois Endangered Species Protection Act, IRS 1991, Ch. 8, par. 331 et seq.  
17 IAC 525 and permit pursuant

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The requirements identified in #3 have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

050. Env - groundwater protection

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

Safe Drinking Water Act, 42 USC Section 300f et seq.  
40 CFR 141-142  
40 CFR 144  
40 CFR 146  
40 CFR 147 Subpart O  
Illinois Ground Water Protection Act, IRS 1989 Chapter 111 1/2  
35 IAC Subtitle F, Chapter I; 730 - 732  
77 IAC 920  
DuPage County Health Department Private Water Supply Ordinance (OH-0002-90, Ch.34, DuPage County Code)  
Kane County Health Department Ordinance 91-101 Water Well Code

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The current program provides an acceptable level of protection by adhering to the Class I groundwater standards mandated by the state of Illinois. The implementation of a wellhead protection program as described in the Illinois Groundwater Protection Act will significantly increase the level of performance and protection for the Laboratory. This program will be implemented through appropriate procedures, utilizing accepted published guidelines.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The current program provides an acceptable level of protection, and the addition of a wellhead program will improve protection at modest cost. An important part of the implementation of the groundwater protection program is the use of the concentration model to design shielding of targets. These design criteria are in the Fermilab RadCon Manual App.12B.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

051. Env - hazardous waste

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

RCRA, 42 USC 6901 et seq.  
40 CFR 260- 270  
RCRA Part B Permit (Illinois Log #131), including Emergency Contingency plan  
29 CFR 1910.120  
35 IAC Subtitle G  
Federal Facility Compliance Act

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is largely an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Compliance with above cited laws and regulations requires that the current program be continued. Applicable regulations are implemented by Fermilab ES&H Manual Chapter 8021 (Regulated Chemical Waste Disposal), and HWSF Procedures Manual. When the above standards are approved in the N&S process, internal implementation programs will be modified to be consistent with the standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

052. Env - offsite radiation protection / penetrating

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

DOE Order 5400.5 Derived Concentration Guide Table and dose limits to the public (Chapter 2, section 1; Chapter 3)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

When the above standard is approved in the N&S process, internal implementation programs will be modified to be consistent with the standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

053. Env - ozone depleting substances

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

Clean Air Act Amendments 1990, 42 USC 7401 et seq.  
40 CFR 82  
E.O. 12843

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

In the opinion of the involved subject-matter experts, this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

054. Env - PCBs

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

TSCA, 15 USC 2601 et seq.  
40 CFR 268  
40 CFR 302  
40 CFR 761  
29 CFR 1910.1000  
RCRA Part B permit  
35 IAC 728  
35 IAC 808-809

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. Strict adherence to the indicated statutes and regulations, supplemented by internal implementation procedures will ensure that the Laboratory is protected from legal vulnerability and dangers to personnel and the physics program. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Maintain current program, revise and update ES&H Manual chapters. Part of the ES&H Manual chapter 8021 or a Fermilab PCB policy should state that exempt quantities of PCBs (e.g. small ballasts, capacitors) will be managed as Illinois Special Waste. Lab policy should be to move toward eliminating all PCB's.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

056. Env - regulated chemical waste / non-hazardous

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

40 CFR 259  
35 IAC 807- 810  
35 IAC 700 Subpart F  
E.O. 12580  
E.O. 12856  
E.O. 12873

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Current program includes ES&H Manual chapter 8021, which will be revised and modified. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

058. Env - sanitary and sewer discharges

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

Clean Water Act, 33 USC 1251 et seq.  
40 CFR 116-117  
40 CFR 121-125 (exc. 123)  
35 IAC Subtitle C and pre-treatment permits pursuant  
Batavia Code of Regulations, City Ordinance, Section 8-3-10-3  
City Code of Warrenville, IL Title 7, Chapter 4

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

Standard Methods for the Examination of Water and Wastewater, 18th Ed., APHA (1992)  
DOE 5400.5 (Chapter 2, Section 3)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program of adherence to the indicated laws and regulations will be supplemented by a program of monitoring sewer effluent constituents and flow at the site boundaries. This combination will ensure that discharges from the site are within all appropriate limits. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution. The additional standard indicated in #8, above, is necessary as a reference for industry-wide practice in this area. It contains no "requirements" other than adherence to standard practices.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

059. Env - solid waste management units and inactive waste sites

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

RCRA, 42 USC 6901 et seq.  
RCRA Part B permit  
35 IAC 620  
35 IAC 724  
35 IAC 815  
CERCLA/SARA 42 USC 6901 et seq.  
40 CFR 300  
40 CFR 302  
40 CFR 355  
40 CFR 370  
40 CFR 372

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will ensure compliance with applicable RCRA and CERCLA regulations and requirements. The current program also ensures that existing and future SWMUs will be effectively identified, investigated and remediated if necessary through our program supervised by the Illinois EPA. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

All implementation will be completed in conjunction with Illinois EPA officials. In the opinion of the involved subject-matter experts, this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

060. Env - surface water

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

Clean Water Act, 33 USC 1251 et seq.  
40 CFR 110 -125 (exc. 123)  
40 CFR 131  
40 CFR 136  
40 CFR 230  
40 CFR 401 - 403  
33 CFR 320 - 323  
33 CFR 328 - 330.  
35 IAC Subtitle C  
92 IAC 700 and all permits pursuant  
92 IAC 704 and all permits pursuant  
92 IAC 708 and all permits pursuant  
E.O. 10988  
E.O. 10990  
10 CFR 1022

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

Standards and Specifications for Soil Erosion and Sediment Control, 10/87, IEPA 87-102  
DOE Order 5400.5 (Ch. 2, sec. 1;Ch. 3)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution. The additional standard indicated in #8, above, is necessary as a reference for industry-wide practice in this area. It contains no "requirements" other than adherence to standard practices.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective. When the above standard is approved in the N&S process, internal implementation programs will be modified to be consistent with the standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

061. Env - transformer oil / non-PCB

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

Clean Water Act, 33 USC 1251 et seq.  
40 CFR 110  
40 CFR 112  
40 CFR 300 - 302  
29 CFR 1910.106  
35 IAC 808 - 809

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continued application of the appropriate regulations and laws will ensure the protection of the environment from transformer oil spills. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Implementation of these standards would require that a consistent policy for secondary containment strategy be adopted for all existing and new transformers. An adequate set of procedures will utilize appropriate industry and/or other association standards as necessary (NFPA 30, Factory Mutual 5-4/14-8, ANSI/IEEE 446).

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

062. Fire - boiler, heating systems, and (commercial) appliances

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
120 IAC - Boiler and Pressure Vessels  
29 CFR 1910 Subpart E - Means of Egress  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1910 Subpart S - Electrical  
29 CFR 1926 Subpart F - Fire Protection and Prevention  
29 CFR 1926 Subpart K - Electrical

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
National Fire Protection Association National Fire Codes (NFPA Standards List)  
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

This is an industrial hazard, and the minimal statutory requirements have been found insufficient by municipalities and fire insurers. To be consistent with management performance goals, the level of risk must be further controlled by application of building code and national fire code standards as is the case in industry.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

There are a few known noncompliances regarding heating system clearances which would be mitigated as these existing older heating systems are replaced. (As noted in the title of this issue, these standards apply only to commercial appliances.)

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

063. Fire - cigarette smoking

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
29 CFR 1910 Subpart H - Hazardous Materials  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1926 Subpart F - Fire Protection and Prevention  
EPA Air Quality Stds.

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The statutory requirements provide a level of risk that is consistent with management performance goals. The risk is the same as that encountered in commercial or industrial environments.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

064. Fire - electrical

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
29 CFR 1910 Subpart E - Means of Egress  
29 CFR 1910 Subpart H - Hazardous Materials;  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1910 Subpart S - Electrical  
29 CFR 1926 Subpart F - Fire Protection and Prevention  
29 CFR 1926 Subpart K - Electrical

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
National Fire Protection Association National Fire Codes (NFPA Standards List)  
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapters 5043, Management and use of cable tray systems, and 5046, Low-Voltage, High-Current Power Distribution Systems. These standards require proper installation of cable trays used for electrical conductors and overcurrent protection for all current carrying conductors in high-current, low-voltage power distribution systems. They have been fully implemented and integrated into management and oversight practices.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because municipal and industrial standards have been selected for the standard residential/commercial/industrial electrical equipment, and internal standards have been selected for the unique electrical equipment not found elsewhere. Insurers and municipalities have long found that statutory requirements were insufficient and that the building code and national fire code standards selected were necessary to achieve adequate protection.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective. Adoption of the BOCA National Building Code will require changes to construction and contract documents.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

065. Fire - flammable liquids and gases

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety;  
160 IAC - Storage, Transportation, Sale and Use of Gasoline and Volatile Oils: Rules Relating to General Storage  
170 IAC - Storage, Transportation, Sale and Use of Petroleum and Other Regulated Substances  
180 IAC - Storage Transportation, Sale and Use of Volatile Oils  
29 IAC - Emergency Services, Disasters, and Civil Defense, Chapter I: Emergency Services and Disaster Agency, Subchapter f: Chemical Safety  
IL Public Act 84-852, Illinois Chemical Safety Act  
29 CFR 1910 Subpart E - Means of Egress  
29 CFR 1910 Subpart H - Hazardous Materials  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1910 Subpart S - Electrical  
29 CFR 1926 Subpart F - Fire Protection and Prevention  
29 CFR 1926 Subpart K - Electrical

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
National Fire Protection Association National Fire Codes (NFPA Standards List)  
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual, Chapter 6020.3, Storage and Use of Flammable Gases at Physics Experiments  
This standard, which governs use of flammable gases in detectors, provides a graded approach based on the inventory of flammable gas involved. The measures and precautions called out are needed because particle detectors cannot be built to comply with the electrical guidelines from the National Electrical Code, NFPA70, Article 501 for NEC Class 1, Group D, Division 2 installations. This standard has been fully implemented and integrated into management and oversight practices.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because the standards selected are those used by industry, and an internal standard has been selected for those unique cases where the building code and national fire code standards cannot be applied. The internal standard was designed to provide an equivalent or superior level of hazard mitigation and comply with the intent of the codes.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective. Adoption of the BOCA National Building Code will require some changes to construction and contract documents.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

066. Fire - mobile structures

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

NOTE: There are no specific legal requirements identified as applicable solely to mobile structures. However, the entirety of OSHA and Illinois Law is applicable to the occupancy and specific use of the structure and contents.

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
National Fire Protection Association National Fire Codes (NFPA Standards List)  
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards chosen are industrial standards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

An implementation guide is needed to assure appropriate application of the cited standards. The existing DOE/EV 0043, covering Mobile Structures would serve as a model.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

067. Fire - special hazardous materials

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 IAC - Emergency Services, Disasters, and Civil Defense, Chapter I: Emergency Services and Disaster Agency, Subchapter f: Chemical Safety  
IL Public Act 84-852, Illinois Chemical Safety Act  
29 CFR 1910 Subpart E - Means of Egress;  
29 CFR 1910 Subpart H - Hazardous Materials  
29 CFR 1910 Subpart I - Personal Protective Equipment  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1910 Subpart S - Electrical  
29 CFR 1926 Subpart F - Fire Protection and Prevention  
29 CFR 1926 Subpart Z - Toxic and Hazardous Substances  
41 IAC - Fire Protection  
140 IAC - Policy and Procedures Manual for Fire Protection Personnel

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
National Fire Protection Association National Fire Codes (NFPA Standards List)  
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

There is always the possibility of introduction of unique one-of-a-kind materials by a physics experiment in order to achieve its research objectives. By making this entry, Fermilab acknowledges its responsibility to develop adequate internal standards for those cases where consensus external standards are not available or not applicable. Individual hazardous material usages may require specific implementation standards to provide for safe usage; this level of risk acknowledgement is to verify the commitment to do so.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards chosen are industrial standards.

13. Pick the basic implementing assumption from the list.  Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Implementation for identified hazards of this class has existed since the Laboratory began. The key element is recognition, identification and assessment of new instances. The present laboratory policies for screening and inspecting new initiatives or modifications to existing facilities are especially designed to capture special hazardous materials.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

067B. Fire - hydrogen targets

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 5032.2, Guidelines For the Design, Fabrication, Testing, Installation, and Operation of LH2 Targets  
Fermilab has developed these guidelines to address the hazards associated with these targets. The latest version of this document has been in existence and use for over 6 years.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The internal standards identified in #11 have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

068. Fire - special occupancies / accelerator and beam line enclosures

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
29 CFR 1910 Subpart E - Means of Egress  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1910 Subpart S - Electrical  
29 CFR 1926 Subpart F - Fire Protection and Prevention  
29 CFR 1926 Subpart K - Electrical

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
NFPA 101 & 101A current editions  
National Fire Protection Association National Fire Codes (NFPA Standards List)  
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 5043, Management and use of cable tray systems. This standard requires proper installation of cable trays used for electrical conductors. It has been fully implemented and integrated into management and oversight practices.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because the current version of the life safety code is selected instead of the outdated version referred to in the OSHA regulation. The standards selected specify an acceptable level of risk, and the current editions provide for the alternate methods of compliance needed for accelerator and beam line enclosures. The internal standard addresses cable tray applications which are not addressed in Article 318 of NFPA 70.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab is committed to implement the standards utilizing good engineering practices to provide a level of safety consistent with the intent, in full accordance with recognized practice throughout industry. Accelerator and beam line enclosures, like subways, highway tunnels and mines, necessitate means equivalent to the prescribed ones to achieve the ES&H goals and simultaneously perform their function.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

069. Fire - spontaneous combustion

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
29 CFR 1910 Subpart E - Means of Egress  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1926 Subpart F - Fire Protection and Prevention

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards selected are industrial standards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Existing fire prevention, housekeeping, and self assessment activities adequately address this and many similar issues. However, there is a need for coordination to improve both the physical effectiveness and the cost effectiveness of these efforts.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

070. Fire - stationary combustion engines

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

NFPA 37: Standards for the Installation and Use of Stationary Combustion Engines and Gas Turbines.

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards selected are industrial standards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

There are a few known noncompliances which would be mitigated programmatically as older units are replaced or upgraded. In addition, where concerns merit, a hazard analysis could dictate more rapid action for compliance. This item is to be considered in parallel with item 65 - Flammable Liquids and Gases. It is given that full compliance with the standards cited there is the case.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

071. Fire - storage of combustibles

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
29 IAC - Emergency Services, Disasters, and Civil Defense, Chapter I: Emergency Services and Disaster Agency, Subchapter f: Chemical Safety  
IL Public Act 84-852, Illinois Chemical Safety Act  
29 CFR 1910 Subpart E - Means of Egress  
29 CFR 1910 Subpart H - Hazardous Materials  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1910 Subpart S - Electrical  
29 CFR 1926 Subpart F - Fire Protection and Prevention  
29 CFR 1926 Subpart Z - Toxic and Hazardous Substances

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
National Fire Protection Association National Fire Codes (NFPA Standards List)  
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the standards selected are industrial standards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The overall program exists and has been implemented. Regular inspections which include housekeeping/combustibles are included in mandatory self assessment activities.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

072. Fire - transportation / rail, vehicle, and fueling  
077B. HazMat transport - fire/explosion / onsite

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
160 IAC - Storage, Transportation, Sale and Use of Gasoline and Volatile Oils: Rules Relating to General Storage  
170 IAC - Storage, Transportation, Sale and Use of Petroleum and Other Regulated Substances  
180 IAC - Storage Transportation, Sale and Use of Volatile Oils  
49 CFR 383.23 Commercial Drivers License  
49 CFR 393.95 Emergency Equipment on Vehicles  
49 CFR 397.11 Fires  
49 CFR 397.13 Smoking  
49 CFR 397.15 Fueling  
49 CFR 177.848 C (Segregation table for hazardous materials)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
National Fire Protection Association National Fire Codes (NFPA Standards List)  
UL Listing

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because the statutory requirements have been supplemented with building code and national fire code standards. This is the same solution that has been selected by industry and municipalities.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The standards have been implemented. Experience has demonstrated that this program is both successful and cost-effective. Regulation and inspection functions are performed by the State of Illinois authorities having jurisdiction.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

073. Fire - welding near combustibles  
074. Fire - spark producing tools near combustibles

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1910 Subpart Q - Welding, Cutting and Brazing  
29 CFR 1926 Subpart F - Fire Protection and Prevention

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA Fire Prevention Code  
NFPA 1: Fire Prevention Code  
NFPA 51: Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes  
NFPA 51B: Standard for Fire Protection in Use of Cutting and Welding Processes.

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 6020.3, Storage and Use of Flammable Gases at Physics Experiments. This standard calls for a minimum separation between welding, burning, brazing and grinding operations and physics experiment apparatus using flammable gases. If the minimum separation is not practical, the flammable gas inventory must first be removed from the apparatus before operations are permitted. This requirement has been integrated into the welding, burning and brazing permit control process.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because the standards selected are those used by industry, and an internal standard has been selected for those unique cases where the combustible is flammable gas in physics experiment apparatus. The internal standard was designed to provide an equivalent or superior level of hazard mitigation and comply with the intent of the codes.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Implementation has long been in place using the standard industrial practice of a formal permit process, also recognized as considerably more efficient than a fire watch approach. The permit process also unites need-to-know and ES&H protection concerns thus uniting two administratively separate concerns in a cost effective manner.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

075A. HazMat transport - bad road conditions / offsite

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

49 CFR 392.14 (Hazardous conditions; extreme caution)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

075B. HazMat transport - bad road conditions / onsite

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

49 CFR 392.14 (Hazardous conditions; extreme caution - not required onsite)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the external standard in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

For "onsite" transportation issues, it is assumed that access is restricted in a way which removes site roads from being considered "in commerce" per DOT. If not, the standards for the analogous "offsite" issue should be applied. Fermilab has its own Roads & Grounds Department. They perform road maintenance as needed, and will continue to do so. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

076A. HazMat transport - emergency response and spill clean up / offsite  
081A. HazMat transport - spills and chemical releases /offsite

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

49 CFR 172.600G (Emergency response information)  
49 CFR 171.15 (Immediate notice of certain hazardous material incidents)  
40 CFR 112 (Oil pollution prevention)  
40 CFR 761 (PCB spill cleanup policy)  
40 CFR 302 (Designation, reportable quantities & notification)  
40 CFR 355 (Emergency planning & notification)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

076B. HazMat transport - emergency response and spill cleanup / onsite  
081B. HazMat transport - spills and chemical Releases / onsite

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.120 (Hazardous waste operations & emergency response)  
40 CFR 112 (Oil pollution prevention)  
40CFR 761 (PCB spill cleanup policy)  
40 CFR 302 (Designation, reportable quantities & notification)  
40 CFR 355 (Emergency planning & notification)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the requirement in #3 above has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

For "onsite" transportation issues, it is assumed that access is restricted in a way which removes site roads from being considered "in commerce" per DOT requirements. If not, the standards for the analogous "offsite" issue should be applied. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

077A. HazMat transport - fire and explosion / offsite

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

49 CFR 171.15 (Immediate notification of certain hazardous materials incidents)  
49 CFR 172.600G (Emergency response information)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

078A. HazMat transport - loading and unloading / offsite

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

49 CFR 177.834B (Loading & unloading)  
29 CFR 1910.176 (Handling materials - general)  
29 CFR 1910.178 (Powered industrial trucks)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

078B. HazMat transport - loading and unloading / onsite  
095B. Material handling - transportation / onsite

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.176 (Handling materials - general)  
29 CFR 1910.178 (Powered industrial trucks)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

49 CFR 177.848C (Segregation table for hazardous materials - not required onsite)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The requirements cited in #3 above adequately address the mechanical aspects of handling materials. However, the portion of the standard cited in #8 above is necessary to control chemical incompatibilities. Past adherence to the requirements in #3 and the internal standard in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

For "onsite" transportation issues, it is assumed that access is restricted in a way which removes site roads from being considered "in commerce" per DOT requirements. If not, the standards for the analogous "offsite" issue should be applied. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

079A. HazMat transport - packaging hazardous materials / offsite

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

49 CFR 178.500L Subchapter C (Specifications for packagings)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

079B. HazMat transport - packaging hazardous materials / onsite

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

49 CFR 173.24(e)(1-2) (Chemical compatibility for single packagings - onsite)  
49 CFR 173.24(e)(4)(i-111) (Chemical compatibility for multiple packagings - onsite)  
49 CFR 173.24a (a)(1) (Positioning of inner receptacles - onsite)  
49 CFR 173.24a (a)(3-4) (Packing for inner receptacles - onsite)  
49 CFR 177.848C (Segregation table for hazardous materials - onsite)  
49 CFR 178.500L Subchapter C (Segregation table for hazardous materials - onsite)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the external standards in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

For "onsite" transportation issues, it is assumed that access is restricted in a way which removes site roads from being considered "in commerce" per DOT requirements. If not, the standards for the analogous "offsite" issue should be applied. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

079C. HazMat transport - transportation of radioactive materials

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

49 CFR 100-199 and references

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Due to the requirements of 49 CFR 100-199, Fermilab plans on having restricted access to the site in order to relieve the need to certify and document onsite shipment of radioactive materials and eliminate a major training commitment. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The Fermilab Low Level Waste Certification Plan already exists and serves as implementation of 49 CFR 100-199 concerning the specifics of the transport of radioactive materials. The program as implemented coupled with the restriction of site access will be cost-effective and meet management performance goals and regulatory requirements.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

080A. HazMat transport - prolonged periods of driving / offsite

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

49 CFR 395 (Maximum driving and on-duty time)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

080B. HazMat transport - prolonged periods of driving / onsite

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

49 CFR 395.3 (Maximum driving & on-duty time - not required onsite)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

For "onsite" transportation issues, it is assumed that access is restricted in a way which removes site roads from being considered "in commerce" per DOT requirements. If not, the standards for the analogous "offsite" issue should be applied.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

081C. Hazardous material transport - spills and chemical releases

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

CERCLA/SARA 42 USC 6901 et seq.  
40 CFR 116 - 117  
40 CFR 300  
40 CFR 302  
40 CFR 311  
40 CFR 355  
49 CFR 172 Subpart G  
35 IAC Subchapter H, Subpart D  
35 IAC 808- 809

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. Compliance with above laws and regulations through the current program will ensure high level of protection of the environment. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The requirements identified in #3 have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

082. Magnetic fields - bioelectric implants  
083. Magnetic fields - fringe fields  
084. Magnetic fields - high magnetic fields

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ACGIH TLV for static magnetic fields

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the standard in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues. The limit regarding cardiac pacemakers is appropriate. By coincidence, it appears that the whole body exposure limit is useful to control rotational forces on ferromagnetic tools. Although the limits for direct biological action are clearly overly-conservative, Fermilab has the potential for some of the highest personnel exposures of any industry and #8 represents the only generally-accepted consensus standard for static magnetic magnetic fields.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab currently complies with #8 above as implemented by ES&H Manual Chapter 5062.2. Given the lack of evidence regarding direct biological effects, it is assumed that the associated exposure limits can be used as guides rather than absolute limits. In fact, the cited standard indicates that the values should be used as guides and not regarded as a fine line between safe and dangerous levels. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

086. Material handling - chemical spills

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.120  
29 CFR 1910.1200  
29 CFR 1910.176

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

087. Material handling - cranes and hoists

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.179 (Overhead and gantry cranes)  
29 CFR 1910.180 (Crawler locomotive and truck cranes)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ANSI B30.20 - 1990 (Overhead and gantry cranes)  
ANSI B30.5 - 1989 (Mobile and locomotive cranes)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 and the external standards in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues. The external standards provide guidance which is more complete and current than the associated statutory requirements in 29 CFR 1910.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

088. Material handling - elevators used for hazardous material

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual chapter 5032.3, Transporting Gases in Building Elevators, has been written and in force for several years. It was written to specifically address the hazards associated with transporting cryogenic dewars and room temperature gas cylinders in Wilson Hall elevators and to minimize the potential risks.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The internal standards identified in #11 have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

089. Material handling - falling objects

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910 Subpart I (PPE)  
29 CFR 1910 Subpart N (Materials Handling and Storage)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

090. Material handling - forklift operation

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.178

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

091. Material handling - hazardous tools equipment and machinery

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.94  
29 CFR 1910.106  
29 CFR 1910.108  
29 CFR 1910.215  
29 CFR 1910.231  
29 CFR 1910.242-244

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Hazards associated with hazardous tools, equipment, and machinery are known and associated risk are being handled through an on-going inspection program. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

092. Material handling - lifting objects

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.184 (Slings)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ASME B30.20 - 1993 (Below the hook lifting devices)  
ANSI B30.9 - 1990 (Slings)  
ANSI B30.10 - 1993 (Hooks)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 and the standard in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues. The requirement in #3 makes no mention of "below the hook lifting devices" which are widely constructed and used at the Lab. ASME B30.20 in #8 is the generally-accepted industry standard for lifting fixtures and it adequately covers all types. The guidance provided in the other external standards is more complete and current than the associated statutory requirements in 29 CFR 1910.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

093. Material handling - moving objects

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910 Subpart N (Materials Handling and Storage)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

094. Material handling - storage and handling of toxic materials.

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.176  
29 CFR 1910.1200

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

095A. Material handling - transportation / offsite

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

49 CFR 177.834 Subpart B  
29 CFR 1910.176  
29 CFR 1910.178

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

096. NIR - intense light sources

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.133  
29 CFR 1926.102 (Eye and face protection)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

It is assumed that incoherent (i.e., non-laser) sources are to be considered here. The primary source of intense light at Fermilab is sunlight and the major associated concern is glare. This is well addressed by the two OSHA eye and face protection standards noted in #3 above. Fermilab has had a compliant and effective eye protection program in place for many years which includes provision of occupationally-required lens tinting. Incidents associated with intense light sources have been virtually non-existent except, perhaps, from glare associated with motor vehicle operation (and these have not been frequent or costly). Therefore, the ongoing level of risk associated with this issue is judged to fall within management performance goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

As noted above, Fermilab has a long-standing eye protection program which includes provision of occupationally-required lens tinting. This program is described in Fermilab ES&H Manual Chapter 5102. Eye protection competitively procured and is provided only when occupationally-indicated. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

097. NIR - lasers

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.54 (Nonionizing radiation)  
29 CFR 1910.269(w)(8) (Electric power...)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

29CFR1926.54 (Nonionizing radiation) was apparently written for visible wavelength lasers. As such, it limits exposures to harmless intensities at longer wavelengths. For example, direct staring is prohibited where intensities may exceed 1 microwatt per cm<sup>2</sup> and incidental viewing is prohibited above 1 milliwatt per cm<sup>2</sup>. This includes hazard class 1 lasers for wavelengths exceeding 0.55 micrometers for the former and 1.18 micrometers for the latter. Hazard class 1 lasers are not capable of causing eye injury within 3E4 seconds (8 hours) of CONTINUOUS EXPOSURE. Although OSHA standard interpretations acknowledge this shortcoming, the Agency has noted they will continue to cite the standard, but as a de minimis violation. 29CFR1910.269(w)(8) invokes the use of 29CFR1926.54.

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ANSI Z136.1-1993 (Lasers)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The requirement cited in #3 above applies only to construction industries and apparently does not address non-visible wavelengths or repetitively-pulsed exposures. The standard cited in #8 provides exposure limits to which it is believed that nearly all workers can be repeatedly exposed without adverse effect. This standard also addresses non-visible wavelengths and repetitively-pulsed exposures. Past adherence to this standard has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The current Fermilab laser safety policy is contained in ES&H Manual Chapter 5062.1 which is based on the external standard in #8. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

098. NIR - radiofrequency radiation

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.97 (Nonionizing radiation)  
29 CFR 1926.54 (Nonionizing radiation)  
29 CFR 1910.268(p) (Telecommunications)  
29 CFR 1910.269(s) (Electric power...)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ACGIH TLV for radiofrequency/microwave radiation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The requirements cited in #3 above are based on ANSI C95.1-1966. Dependencies on wavelength, orientation, modulation, presence of ground planes, and electrical shock potential were poorly understood and not accounted for. Fermilab has been following the standard in #8 and this has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues. They are sufficient to prevent electrical shocks and provide a safety factor of at least ten for reasonably well understood minor transient EM radiation (behaviorial) effects.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

We believe we are currently in compliance with the standard cited in #8 above. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

099. NIR - ultraviolet light  
149. Thermal - ultraviolet radiation / sun exposure

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.133(a)(5) (Eye and face protection)  
29 CFR 1910 Subpart I Appendix B (PPE)  
29 CFR 1910.252(b) (Welding, cutting, brazing)  
29 CFR 1926.102(b)(1) (Eye and face protection)  
29 CFR 1926.353(d) (Ventilation and protection in welding, cutting, brazing)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ACGIH TLV for ultraviolet radiation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The requirements cited in #3 above provide adequate protection against ultraviolet radiation encountered in electric metal joining and cutting operations. Compliant welding safety practices have been in place at Fermilab and, except when not obeyed, have acceptably prevented the occurrence of harmful ultraviolet exposure effects. Since exposure to incoherent ultraviolet radiation also infrequently occurs in association with other types of operations (UV lamps for sterilization or electronic applications), the requirements are not sufficient to preclude possible adverse effects. These remaining activities are addressed by the standard cited in #8 above. Past adherence to the these standard has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Given that even moderate exposures to sunlight exceed the standard cited in #8 above (~30 minutes at mid-day in summer) and the hazards are well-known and generally-accepted by most people, it is assumed that the exposure limits can be considered as guides, rather than absolute limits for typical sunlight exposures. In fact, the cited standard indicates that the values should be used as guides and not regarded as a fine line between safe and dangerous levels. With this single caveat, Fermilab is currently in compliance with the standards cited in #3 and #8. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

101. ODH - cryogenic gas or liquid leaks  
102. ODH - cryogenic spills  
103. ODH - gaseous argon or other detector gas  
104. ODH - leak of supplied gas  
085. Magnetic fields - quench effects

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual chapter 5064, Oxygen Deficiency Hazard, has been in force for over 15 years. It was developed to specifically address the ODH hazards at Fermilab and to minimize the potential risks.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals. There have been very few, if any, injuries or illnesses stemming from activities falling under the scope of Fermilab's ODH program since its initiation.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

This program is fully implemented, works well, and is a cost effective program. It is assumed that ODH is the only significant ES&H issue associated with "magnetic fields - quench effects." Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

105B. ODH - mechanical refrigeration systems

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ASHRAE - 15 - 1989 or later version

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 5035, Mechanical Refrigeration Systems, incorporates the above mentioned standard. This chapter effectively references the ASHRAE standard.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 (based on the external standard in #8) has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Adoption of the national standard in #11 (based on the external standard in #8) has made it easier to design and evaluate mechanical refrigeration rooms. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

106. Other mechanical hazards - general environmental control

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.94  
29 CFR 1910.95  
29 CFR 1910.96  
29 CFR 1910.97  
29 CFR 1926.50  
29 CFR 1926.51  
29 CFR 1910.52  
29 CFR 1910.55  
29 CFR 1926.56  
29 CFR 1926.57  
29 CFR 1926.59  
29 CFR 1910 Subpart J

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

107. Other mechanical hazards - machine guarding

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

29 CFR 1910 Subpart O

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ANSI B15.1 (Power transmission apparatus)  
ANSI O1.1 (Woodworking machinery)  
ANSI B11 series (Metalworking - applicable sections)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 and the external standards in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues. The associated program includes annual inventories of machines and an on-going inspection program to verify compliance.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Adherence to machine guarding requirements has been well addressed at the Laboratory. Through an on-going process for verification all machines have been inspected, and inventoried. Machines built and purchased prior to the current legal requirements had guards designed and affixed. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

108. Other mechanical hazards - machinery and rotating parts

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910 Subpart F  
29 CFR 1910 Subpart N  
29 CFR 1910 Subpart O  
29 CFR 1910 Subpart P

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ANSI B11 series (Metalworking - applicable portions)  
ANSI B15.1 (Power transmission apparatus)  
ANSI O1.1 (Woodworking machinery)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 and the external standards in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues. The associated program includes an on-going inspection program to verify compliance.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Machinery and rotating parts have been well addressed on an continuous basis where deficiencies arise. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

109A. Other mechanical hazards - medical and first aid  
blood borne pathogens, lead, noise, asbestos, and respiratory protection

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.151 (medical services and first aid)  
29 CFR 1910.1030 (Blood borne pathogens)  
29 CFR 1910.1025(j) (Lead)  
29 CFR 1910.95(g) and (h) (Noise)  
29 CFR 1910.1001 (Asbestos)  
29 CFR 1910.134 (b)(10) (Respiratory protection)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial standards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Implementation is on-going and effective. Personnel are Illinois licensed professionals with experience in occupational health. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

109B. Surveillance - tuberculosis

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

II. Department of Public Health, DuPage County Dept. Public Health. CDC December 7,1990

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the standard in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial standards. Medical surveillance (administering the T. B. Mantoux skin tests) is available to our teachers at the Childrens' Center. These individuals are at a slightly higher risk of TB exposure due to international nature of children with whom they work.

13. Pick the basic implementing assumption from the list.  Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

LSS/Medical Department Work Processes include medical surveillance for tuberculosis according to DuPage County Public Health Department. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

110. Other mechanical hazards - powered platforms

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910 Subpart F (Powered Platforms, Manlifts, and Vehicle Mounted Work Platforms)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

111A. Other mechanical hazards - pressurized tanks and containers

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR1910.169 (Air receivers)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ASME Pressure Vessel Code - Section VIII

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 5031, Pressure Vessels, has been written and in use for over 15 years. It has effectively minimized personnel exposure and equipment downtime from vessel failures.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals. There is a provision in 5031 that allows an exemption by the Director if certain portions of the Code requirements are not able to be met. This provision is important in our research environment and must be maintained in order for our mission to be met. The statutory requirement in #3 is limited to air compressors and is based on the 1968 edition of the standard in #8. Since Fermilab has a wider variety of vessels and gases to contend with, the standard in #8 is a much better and up to date "fit."

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The internal standards identified in #11 (based on the external standard in #8) have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

111B. Other mechanical hazards - pressurized lines and piping systems

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR1910.169 (Air receivers)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ASME/ANSI B31.1  
ASME/ANSI B31.3  
ASME/ANSI B31.5  
ASME/ANSI B31.8

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 5031.1, Pressure Piping Systems, has been written and in use for over 15 years. It has effectively minimized personnel exposure and equipment downtime from piping failures.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals. There is a provision in 5031.1 that allows an exemption by the Director if certain portions of the Code requirements are not able to be met. This provision is important in our research environment and must be maintained in order for our mission to be met. The statutory requirement in #3 is limited to piping for fuel gases. Since Fermilab has a wider variety of piping applications, the standards in #8 are a much better and up to date "fit."

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The internal standards identified in #11 (based on the external standards in #8) have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

112. Other mechanical hazards - material grinding, cutting, and drilling

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.94  
29 CFR 1910.212-213  
29 CFR 1910.215  
29 CFR 1910.243

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ANSI O1.1 (Woodworking machinery)  
ANSI B11.8 (Drilling, milling, and boring machines)  
ANSI B11.9 (Grinding machines)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 and the external standards in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards. The associated program includes provision of training and personal protective equipment.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Grinding, cutting, and drilling is performed frequently, through supervision, through the use of personal protective equipment made available to all employees, and training by supervision safe work practices have been addressed. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

113. Other mechanical hazards (also fire) - means of egress

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

41 IAC - Fire Protection  
100 IAC - Fire Prevention and Safety  
71 IAC - Illinois Accessibility Code Subparts C-F  
29 CFR 1910 Subpart E - Means of Egress  
29 CFR 1910 Subpart L - Fire Protection  
29 CFR 1926 Subpart F - Fire Protection and Prevention  
Uniform Federal Accessibility Standards, Chapter 4, Accessible Elements and Spaces: Scope and Technical Requirements

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

Neither 29 CFR 1910 nor Title 41 of the IL Administrative Code incorporate the current versions of NFPA Standards 101 and 101A which regulate egress provisions. These inflexible, prescriptive versions do not allow alternative, equivalent or superior measures to achieve the ES&H goals in addressing the deficiencies which are especially relevant to structures like accelerator tunnels where the prescription is not applicable.

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

BOCA National Building Code  
BOCA Fire Prevention Code  
NFPA 101 & 101A current editions: Code for Safety to Life from Fire in Buildings and Structures

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because the standards selected are those applicable to all public and commercial structures.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Compliance with the statutory prescription of providing a full exit every n-hundred feet throughout the beam line and accelerator enclosures would incur a very large cost for no discernible ES&H benefit. Since the enclosures are not designed for human occupancy and do not contain significant fire hazards, the full intent of the standards can be met using measures which provide levels of safety equivalent or superior to those prescribed by the dated requirement citations.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

114. Other mechanical hazards - moving vehicles, carts, and forklifts

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910 Subpart N  
29 CFR 1910 Subpart F

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

115. Other mechanical hazards - special hand tools and power driven nail guns, etc.

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.243  
29 CFR 1926.302

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards. The associated program includes provision of training, and eye, head, and face protection.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The use of power driven nail guns does not occur on a frequent basis. This type of equipment is usually kept in secure locations under the control of supervisors and or competent subcontractors. Implementation of safe work practices is enforced through internal oversight for Laboratory employees, and contractual agreements with subcontractors. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

116. Other mechanical hazards - work with roads and grounds equipment

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.132-133  
29 CFR 1910.136  
29 CFR 1910.212  
29 CFR 1910.215  
29 CFR 1910.241  
29 CFR 1910.243-244  
29 CFR 1928 Subpart C (Roll-over protective structures)  
29 CFR 1928 Subpart D (Safety for agricultural equipment)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards. These requirements provide an equivalent level of safety as analogous requirements in 29 CFR 1928.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

It is assumed that compliance with the requirements given in #3 above are equivalent to those given in 29CFR1928. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

117. Other personal hazards - confined space

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.146-147

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

119. Other personal hazards - hazards requiring PPE  
126. Other personal hazards - sharp edges

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910 Subpart I  
29 CFR 1926 Subpart E  
Other PPE requirements picked up in specific OSHA standards

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

120. Other personal hazards - high noise levels

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

29 CFR 1910.95

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirement in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

121. Other personnel hazards - housekeeping

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.25  
29 CFR 1910.22  
29 CFR 1910.106  
29 CFR 1910.176  
29 CFR 1910.141

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

122. Other personnel hazards - ice/walking surfaces  
127. Other personnel hazards - slips, trips & falls  
131. Other personnel hazards - work on wet surface

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.22  
29 CFR 1926.25  
29 CFR 1910.21  
29 CFR 1910.23-30

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

123. Other personal hazards - lifting and carrying heavy objects

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 5084, Ergonomic Protection, was prepared as a consequence of the N&S standards process. It formalizes the ongoing program of medical reviews, training, and work practice evaluations associated with this issue.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The internal standards identified in #11 have proven to be both successful and cost-effective. When it is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

124. Other mechanical hazards - pinch points

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910 Subpart O  
29 CFR 1910 Subpart P

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards. The associated program includes proper guarding and clearances.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Adherence to machine guarding requirements has been well addressed at the Laboratory. Through an on-going process for verification all machines have been inspected, and guarded. Machines built and purchased prior to the current legal requirements had guards designed and affixed. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

125. Other personal hazards - repetitive motion

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ANSI Z365 (draft)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 5084, Ergonomic Protection, was prepared as a consequence of the N&S standards process. This standard is based on successful and cost-effective internal past practices (rather than the draft ANSI standard cited in #8).

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the practices in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective. When the standard in #11 is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

129. Other personnel hazards - vacuum tanks

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual chapter 5033, Vacuum Vessel Safety, and a number of Fermilab Technical Memos have been written and in force for several years. These were written to specifically address the vacuum hazards at Fermilab and to minimize the potential risks.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The internal standards identified in #11 have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

130. Other personal hazards - vibration

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ACGIH TLV for hand-arm segmental vibration

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Although there have been no recognized cases of vibration-related illness at Fermilab, exposures to vibrating equipment are fairly commonplace. The ACGIH TLV was selected because it serves as the generally-recognized consensus standard for industrial hygiene hazards which do not have a statutory requirement. This meets the management performance goal to use industrial standards for industrial hazards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

In the opinion of the Fermilab subject-matter experts, compliance with the ACGIH TLV for vibration will prove to be both successful and cost-effective. The limits will be applied as guides in accordance with the cited standard. When this standard is approved in the N&S process, appropriate internal programs will be developed and implemented.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

132. Other personnel hazards - working at heights

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1926.104  
29 CFR 1926.500-503  
29 CFR 1910 Subpart D  
29 CFR 1910.252(b)(1)(i)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

133. Radiation - radioactive contamination  
138. Radiation - radioactivated soil  
141A. Radiation - residual contamination

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

10 CFR 835.603  
10 CFR 835.404  
10 CFR 835.1101  
10 CFR 835 Appendix D

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

The documentation requirements of 10 CFR 835.1101.(d) do not add value because they require excessive documentation of individual items released from Contamination Areas with commensurate requirements for training and recordkeeping. In addition they result in the collection of the documentation in an unusable format. Other measures, implemented with site-specific flexibility, can achieve a sufficient level of control in a more cost-effective manner. A request for an exemption from Subpart 10 CFR 835.1101(d) should be submitted to allow for a more reasonable, cost-effective documentation procedure.

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

With the exemption as discussed above, implementation of the regulatory requirements provides a necessary and sufficient level of control of radioactive contamination in a manner consistent with general industry practice. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Program implementation is in progress by means of the policies of the Fermilab Radiological Control Manual. The cost-effectiveness would be improved if the exemption request described concerning 10 CFR 835.1101 is approved. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

134 /142. Radiation - special nuclear materials (SNM) and nuclear materials

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

Atomic Energy Act

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Section Specific Quality Implementation Plan (SQIP) RPS.8 constitutes an internal standard on nuclear material and special nuclear material based on DOE Orders 5633.3B, 5634.1B, 5632.1C, and 5660.1B.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

SQIP RPS.8 provides requirements mostly equivalent to those required by the NRC as applied to general industry. Thus the level of risk is consistent with management performance goals because manangement expects to use industrial solutions for industrial issues and the level of cost and risk in this internal standard is consistent with that of industries under the NRC.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab has implemented successful and cost-effective programs to assure acceptable performance in the area of nuclear and special nuclear materials.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

135. Radiation - mixed waste  
140. Radiation - radioactive waste

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

WHC-EP-0063 Rev (or equivalent that might receive FNAL wastes)  
40 CFR 260-270  
35 IAC 700-730 (also see hazardous waste regs.)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

The State of Washington categorizes many forms of waste as mixed waste inconsistent with the Resource Conservation and Recovery Act (RCRA). This increases the cost significantly. Correction of this, however, would require revision of the State of Washington Administrative Code (WAC).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with performance goals except for the comment noted regarding the problems posed by provisions of the WAC. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The program is implemented by means of the Fermilab ES&H Manual Chapter 8020 and 8021, the Fermilab Radiological Control Manual, and the Fermilab Low Level Waste Certification Plan.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

136. Radiation - prompt radiation

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

10 CFR 835.501-502  
10 CFR 835.601-603

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

10 CFR 835.603(c) specifies the lower threshold of a "Very High Radiation Area" to be 500 rads/hr. This threshold adds no value in controlling worker dose equivalent. It is too high, well above lethal or near-lethal levels. A request for an exemption lowering this threshold to some more workable operational value, perhaps 50 rads/hr, should be submitted. The requirement in 835.601(c) to use only DOE-approved signs adds no value when compared with commercially standard signs produced for, e.g., NRC licensees. Furthermore, because such signs have to be special-ordered, the costs are increased.

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

With the approval of the exemptions discussed above, the level of risk remaining upon implementation of the regulatory requirement is consistent with and sufficient to meet management goals. (Also see issue "Safety Analysis Documentation" as it is related to prompt radiation issues.) The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue in that the regulations cited are essentially equivalent to the requirements imposed on general industry.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

This program is already implemented through Laboratory policies in the Fermilab Radiological Control Manual that also reflect various guidance documents developed by the accelerator radiation protection community including SLAC-327 "Health Physics Manual of Good Practices for Accelerator Facilities" and DOE Order 5480.25 and its guidance.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

137. Radiation - radioactive sources

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab Radiological Control Manual Articles (FRCM) 365 and FRCM Chapter 4 Part 3 constitute an internal standard. These Fermilab policies are based on and are consistent with DOE N5400.9.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The internal standard adequately protects against loss, damage, or unauthorized exposure due to radioactive sources. Such a standard is needed to assure proper usage and control of radioactive sources in a research environment where large numbers of such sources are used in a variety of ways as part of the physics research program.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The program has already been implemented by means of the cited portions of the Fermilab Radiological Control Manual. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

139. Radiation - radioactive liquids and gases

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

10 CFR 835.209  
10 CFR 835.603  
10 CFR 835.1101  
10 CFR 835 Appendices A- C

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

See comment cited with respect to # 133.

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab Radiological Control Manual Article 349 contains procedures needed to control radioactive liquids and gases in accelerator components. This constitutes an internal standard.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The regulation and the internal standard will adequately address the identified issue. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The program is presently implemented as set forth in the Fermilab Radiological Control Manual. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

141B. Radiation - residual activity  
143. Radiation - storage and handling of radioactive materials

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

10 CFR 835.601-603  
10 CFR 835.501-502  
10 CFR 835 Appendix B  
10 CFR 835 Appendix C

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab Radiological Control Manual Article 411.  
DOE has approved Fermilab criteria for the release of material which is determined to be nonradioactive. These criteria are needed to augment the cited regulatory requirements which do not embody such release criteria. It is presently incorporated into Article 411 of the Fermilab Radiological Control Manual and thus exists as an internal standard.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The standards cited above, including the internal standard, provide a necessary and sufficient level of control of radioactive materials. Specifically, a net gain in cost-effectiveness is gained if the concept of the Radioactive Materials Management Area (RMMA), nowhere defined in regulations, is eliminated. At Fermilab RMMAs are redundant with other types of radiological areas defined by 10 CFR 835. The corresponding Fermilab policies on RMMAs add no value and their elimination will improve cost-effectiveness and simplify the radiological control program.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The program to implement these standards is presently in place as expressed in the Fermilab Radiological Control Manual. A major improvement in cost-effectiveness can be realized by implementing the actions specified in 12. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

144. Thermal - battery bank and UPS equipment

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.178(g)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial hazards. The associated program includes proper segregation, clearances, and training.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Segregated work areas for battery storage have been addressed at the Laboratory. Battery changing hazards is infrequent but through supervisory training well addressed. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

145. Thermal - cold work environments

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ACGIH TLV for cold stress

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the standard in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues. Although there have been few recognized cases of cold injury at Fermilab, winter exposures to are fairly commonplace. The ACGIH TLV was selected because it serves as the generally-recognized consensus standard for industrial hygiene hazards which do not have a statutory requirement.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Past application of the ACGIH TLV for cold stress has proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

146. Thermal - cryogenics

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual chapters 5032 and 5032.1, Cryogenic System Review and Liquid Nitrogen Dewar Installation, respectively, are written and have been in force for several years. It was developed to specifically address the cryogenic hazards at Fermilab and to minimize the potential risks.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the internal standard in #11 has resulted in levels of ES&H and cost performance that are consistent with management goals. There have been very few, if any, injuries or illnesses stemming from activities falling under the scope of Fermilab's cryogenic system review program since its initiation.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

The internal standards identified in #11 have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

147. Thermal - high temperature equipment

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.107(c)(3)  
29 CFR 1910.303(b)(1)(iv)  
29 CFR 1910.305(j)(4)(iii)  
29 CFR 1910.307  
29 CFR 1910.335(a)(2)(ii)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues. The associated program includes proper covering, clearances, and training.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

High temperature equipment exists periodically and well address through segregation, clearance and equipping appropriate personnel with the proper personal protective equipment and training. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

148. Thermal - hot work environments

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

ACGIH TLV for heat stress

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the standard in #8 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Past application of the ACGIH TLV for heat stress has proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

152. Emergency preparedness - severe weather  
029. Construction - high winds

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab Emergency Plan Sections 35A, 35B, and 41.

- 1.) Personnel Warning - Severe weather -- Fermilab Emergency Plan, 9/92, Section 35A
- 2.) Shelters - Severe weather -- Fermilab Emergency Plan, 9/92, Section 35B
- 3.) Warning Signals - Severe weather -- Fermilab Emergency Plan, 9/92, Section 41

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

Fermilab's policy to ensure a safe environment for workers includes risk reduction of the hazards associated with severe weather. For Fermilab's geographic location the primary severe weather hazards are tornados, high winds, lightning, hail, and winter storms. Although the chances for tornado - the most severe hazard - occurring on site are real, the actual pobability is low; there has never been a tornado on site, though there were 10 tornados reported in the Fermilab area of Illinois in the 10 year period 1976 and 1985.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impa  
 Minor positive impact  Major negative impa  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

It is a common best business practice fo prepare for weather related emergencies that may affect peronnel. Fermilab has provided outside tornado warning devices (sirens) which are being enhanced by a sitewide emergency warning system (SEWS) which functions inside facilities throughout the site where personnel are assembled when a tornado is imminent. The present program will continue to be implemented, upon approval of the proposed N&S internal standard. It is documented in the Fermilab Emergency Plan.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

153. Emergency preparedness - safeguards and security

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

10 CFR 860 (Trespass to land owned & leased by the U.S. government.)  
18 U.S. Code Sections 841-848 (Use, or threat of use, of explosives; includes civil disorders.)  
10 CFR 1046 Subpt. B, App A, Chpt X, Paragraphs H through I inclusive.  
Illinois Compiled Statutes (ICS) Chapter 625 (State vehicle code)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Adherence to the cited legal requirements is sufficient in achieving a low level of risk that is consistent with management performance goals. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

No changes are anticipated in the emergency preparedness/response aspects of the safeguards and security program as presently implemented at Fermilab; this includes the following elements: the Site Security Plan; the (annual) Risk Assessments; the Fermilab Security Procedures; and employee identification badging. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

154. Emergency preparedness - generic

Focus group  Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.38 Employee emergency plans and fire prevention plans.  
40 CFR 300.150 (EPA)  
40 CFR 311.1 Worker Protection  
E.O. 12356 of Aug. 1, 1982.  
Title 5 U.S.Code 4103.  
28 CFR 36 Sections 4.1.3 (9) and 302(b)(2).

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

NFPA 1561, Standard of Fire Dept. Incident Management System

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Adherence to the cited legal requirements and external standards is sufficient in achieving a low level of risk that is consistent with management performance goals. Adoption of NFPA 1561 is triggered by the Fermilab management's choice to utilize an in-house Fire Dept. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab's present extensive emergency management system includes hazard assessment, planning, preparedness, and response; an Incident Command System. It is documented in the Fermilab Emergency Plan. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

155. Env - underground storage tanks

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

RCRA, 42 USC 6901 et seq.  
40 CFR 280  
35 IAC 731 - 732  
35 IAC 170  
35 IAC 170 Subpart A

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The statutory requirements identified in #3 have proven to be both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

156. Other mechanical hazards - aviation

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

14 CFR 91 (General operating and flight rules)  
SFAR 62 (Suspension of certain aircraft operations from the transponder...)  
14 CFR 830 (Notification and reporting...accidents and incidents...)  
14 CFR 135 (Air taxi operators and commercial operators)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Past adherence to the statutory requirements in #3 has resulted in levels of ES&H and cost performance that are consistent with management goals including the use of industrial standards for industrial issues. Given the low frequency of rental aircraft service usage (~few days per year) and small number of employees involved (~one per flight), it is reasonable for Fermilab to accept the cumulative level of risk associated with "industrial standards" (i.e., FAA compliance).

(SFAR = Special Federal Aviation Regulations)

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Reliance on FAA requirements would greatly simplify the process for securing aircraft services. This would result in a non-negligible time savings for all personnel involved in the procurement and approval process. Experience has demonstrated that this program is both successful and cost-effective.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

159. Emergency preparedness - hazardous materials

Focus group  Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.120 (q)(2) Elements of an Emergency Response Plan  
Illinois Chemical Safety Act (as ammended by P.A. 85-1325, effective August 31, 1988)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Adherence to the cited legal requirements is sufficient in achieving a low level of risk that is consistent with management performance goals. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab's present extensive emergency management system includes hazard assessment, planning, preparedness, and response; an Incident Command System. It is documented in the Fermilab Emergency Plan. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

160. Emergency preparedness - toxicity in smoke or fumes

Focus group  Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.38 (evacuation, accountability during emergency)  
29 CFR 1910.120 (emergency response)  
29 CFR 1910.134 (respirators)  
29 CFR 1910.1000 Subpart Z (Protective Exposure Limits)  
41 IAC

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Adherence to the cited legal requirements is sufficient in achieving a low level of risk that is consistent with management performance goals. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab's present extensive emergency management system includes hazard assessment, planning, preparedness, and response; an Incident Command System. It is documented in the Fermilab Emergency Plan. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

161. Env - general environmental protection planning

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

NEPA 42 USC 4321 et seq.  
40 CFR 1500 - 1508  
10 CFR 1021

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Continuation of the current program will provide an appropriate level of protection at an acceptable cost. The indicated statute and regulations are adequate to provide a planning program that assures the appropriate level of consideration for environmental impacts early in the project planning cycle.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

When the above standard is approved in the N&S process, internal implementation programs will be modified to be consistent with the standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

163. Occupational safety administrative requirements

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

5(a)(1) of the OSH Act (General duty clause)  
29 CFR 1903.2 (Posting of notice...)  
29 CFR 1903.13 (Imminent danger)  
29 CFR 1904 (Recordkeeping and reporting occupational injuries and illnesses)  
29 CFR 1910.20 (Access to employee exposure and medical records)  
29 CFR 1977.4 (Persons prohibited from discriminating)  
29 CFR 1977.12 (Exercise of any right afforded by the Act)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

At least some of the requirements cited in #3 primarily support external oversight of Fermilab ES&H performance. Therefore, they are not directly useful to Fermilab management in limiting risks to employees. However, they are included here because they are viewed as essential, required components in the overall management of ES&H.

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. These are industrial issues and the solutions chosen are industrial solutions. 5(a)(1) of the OSH Act (General duty clause) permits enforcement against "otherwise unregulated" hazards. 29CFR1903.2 (Posting of notice...) provides employees with info regarding their OSH rights and responsibilities. 29CFR1903.13 (Imminent danger) permits enforcement against imminent hazards. 29CFR1904 (Recordkeeping and reporting occupational injuries and illnesses) defines occupational injury/illness recording and reporting requirements. 29CFR1910.20 (Access to employee exposure and medical records) defines employee access and retention requirements for exposure and medical records. 29CFR1977.4 (Persons prohibited from discriminating) prohibits discrimination against employees presenting safety concerns. 29CFR1977.12 (Exercise of any right afforded by the Act) allows employees to refuse truly dangerous work assignments.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab has been subject to the requirements in #3 since DOE's adoption of OSHA standards and has implemented successful and cost-effective programs to assure acceptable performance.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 1. Issue(s)

Issue origin  Hazard analysis  Identification Team

164. Occurrence Investigation and Reporting

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

### 2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

### 4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

### 6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

### 7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 3050 constitutes an internal standard on occurrence investigation and reporting based upon DOE 5000.3B. This standard defines the areas for which occurrence reporting is done including: 1) when laws or regulations require reporting of incidents and occurrences outside the scope of normal operations, 2) when there is adverse public interest in an occurrence, 3) when a serious degradation in facility condition or personnel safety occurs, and 4) when the information is deemed to be, in the judgement of the Laboratory or the Contracting Officer, of significant value to other facilities in the DOE complex. Of necessity, occurrence reporting involves investigation of significant accidents, development, and tracking of related corrective actions.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

It is recognized that certain occurrences, as a management practice, should be reported to URA corporate headquarters and to DOE and that in some cases this information is potentially useful to similar facilities. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab has implemented successful and cost-effective programs to assure acceptable performance in the area of occurrence reporting.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

165. Radiation - radiological emergency response (see 154.)

### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

10 CFR 835.1301  
10 CFR 835.1302 (covers records and dose limits for), for more see Emerg. Prep. 154

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

10 CFR 835.1301 and .1302 directly address radiation emergencies. These requirements along with those for general emergency response standards (see emergency preparedness recommended standards) and general exposure control techniques covered elsewhere in 10 CFR 835 adequately address radiation emergencies. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The program is implemented in the Fermilab Radiological control Manual.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

166. Radiation - radiological training

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

10 CFR 835.901-903

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

The present requirements of 10 CFR 835 exclude from validity at DOE facilities all radiological worker training received at non- DOE-regulated facilities. Also, the requirements for the validation of radiological training only by written examination is excessive and adds limited value not matched to risk or cost. The management performance objectives could be met more effectively with an exception to these provisions of 10 CFR 835.

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

With the exemption requested above, the training program in this area is sufficient to meet performance goals. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution. These training requirements are largely consistent with those imposed on NRC licensees.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The program is implemented in the Fermilab Radiological Control Manual. A major positive impact in cost-effectiveness would be achieved if the above proposed exemption request were approved. This major positive impact is also a result of basing training on worker hazards at an accelerator rather than DOE training material. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

167. Radiation - monitoring and measurement of radiation

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

10 CFR 835.401-404  
10 CFR 835.1101

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

Some technical and administrative provisions of the requirement to meet the Department of Energy Laboratory Accreditation Program [835.402(b)] do not add value. The management performance objectives could be met more effectively with an exemption to this provision of 10 CFR 835. The requirements of the National Voluntary Laboratory Accreditation Program (NVLAP) would provide adequate dosimetry and documentation for Fermilab operations. This would reduce cost by allowing the use of radiation dosimetry services provided by commercial vendors who meet the NVLAP standards and encourage more competitive bidding.

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The performance requirements are adequately covered by compliance with the cited regulation. ANSI N323, N42.17, N322, N13.5, N319, N543, and N13.15 are already presently used as guidance documents in Fermilab's implementation of the regulation. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Adopting the NVLAP standard on personnel dosimetry will result in minor cost savings. The present requirements are implemented by Fermilab ES&H Section through Specific Quality Implementation Plan RPS.1. If the above exemption is approved, internal implementation programs may be modified to be compatible with revised requirements.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

168. Radiation - record keeping in occupational radiation protection

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

10 CFR 835.4  
10 CFR 835.204  
10 CFR 835.701-704  
10 CFR 835.801  
10 CFR 835.1101  
10 CFR 835.1301  
Privacy Act of 1974

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

1) The requirement in 10 CFR 835.702(c) to record cumulative dose equivalents since January 1989 adds no value but increases costs due to the need to collect such data. General industry practice is to collect this data for the worker's lifetime and dose not use the arbitrary date of January 1989 in this manner. An exemption request should be submitted to record only total cumulative lifetime dose equivalent.

2)The regulation of 10 CFR 835.1101. To create detailed records of removal of items from Contamination Areas adds no value because such records become irrelevant in a very short period of time but take extensive resources to collect. An exemption request should be submitted and approved to allow for a more reasonable and cost-effective protocol (see issue 133).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The recordkeeping requirements as specified above achieve management performance goals. The content of DOE Orders 1324.1A, .2A, and .5A have been used as guidance to develop Fermilab's present records management programs. With the exception of the particular requirements stated in box 5, these recordkeeping requirements are quite similar to those employed by general industry in the recording of radiation protection information. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

This program is presently implemented by the Fermilab Radiological Control Manual. The present program would be more cost effective if the proposed exemptions to requirements to 10 CFR 835 were made as above. This is particularly true if most of the content of DOE Orders 5000.3B and DOE 5484.1 are not adopted as Necessary and Sufficient Standards. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

169. Radiation - exposure control

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

10 CFR 835.101(c)  
10 CFR 835.202-203  
10 CFR 835.206-208  
10 CFR 835.1001-1003  
10 CFR 835.1302

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

### 5. Description of non-value added aspects of necessary standard(s).

The requirement in 10 CFR 835.101(c) to develop ALARA plans does not add value but adds significant cost. The "shalls" in 10 CFR 835.1001, and .1002 should be replaced with "shoulds" to be more consistent with the nature and goals of the ALARA process as promulgated by such bodies as ICRP and NCRP. An exemption request should be submitted along these lines.

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Meeting the requirements of the regulation adequately addresses this issue. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

The program is implemented in the Fermilab Radiological Control Manual. When the above standard is approved in the N&S process, internal implementation programs may be modified to be compatible with this standard.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

170. Radiation - QA in occupational radiation protection

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

10 CFR 835.102

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

The cited regulation along with the Fermilab Self-Assessment Program Plan adequately address this issue. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

This program is implemented by means of the Fermilab Radiological Control Manual.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

171. safety analysis and documentation

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

3. Necessary standard(s)

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

### 11. Describe nature and status of internal sufficient standard.

Fermilab ES&H Manual Chapter 2010 constitutes an internal standard on safety analysis.

### 12. Describe how the levels of risk and cost are consistent with management performance goals.

The internal standard requires safety analysis and documentation at a level consistent with the goal that the hazards of laboratory activities will be assessed to the level necessary to assure achievement of management performance goals, one of which is to be in the upper quartile of accident/incident experience for comparable industrial situations.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

### 14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab has implemented successful and cost-effective programs to assure acceptable performance in the area of safety analysis. The scope and level of detail for safety analyses are determined on a case by case basis using a graded approach by the Director or designee. The specific approval mechanisms for all such documents are also determined by the Laboratory Director on a case by case basis.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

Issue origin  Hazard analysis  Identification Team

### 1. Issue(s)

172. Fire - emergency responder safety

#### Focus group

Emergency Management  Fire Protection  Occupational Safety  
 Environmental Protection  Management & Oversight  Radiation Protection

2. Is there a necessary standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 6.

### 3. Necessary standard(s)

29 CFR 1910.120 (emergency response)  
29 CFR 1910.135 (occupational head protection)  
29 CFR 1910.136 (occupational foot protection)  
29 CFR 1910.156 (fire brigades)  
41 IAC  
Illinois Health and Safety Act

4. Are there any aspects of these necessary standard(s) which do not add value?

YES  NO

If yes, continue; otherwise skip to 6.

5. Description of non-value added aspects of necessary standard(s).

6. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with applicable necessary standards?

YES  NO

If no continue; otherwise skip to 12.

7. Is there a non-required external standard which applies to this issue?

YES  NO

If yes, continue; otherwise skip to 10.

## FERMILAB IDENTIFICATION TEAM DOCUMENTATION

### 8. External sufficient standard citation

NFPA National Fire Codes (NFPA standards list)

9. Is the level of risk associated with the issue(s) consistent with management performance goals assuming compliance with the above (non-statutory) external standard?

YES  NO

If no continue; otherwise skip to 12.

10. Is an internal standard required to attain a level of risk consistent with management performance goals?

YES  NO

11. Describe nature and status of internal sufficient standard.

12. Describe how the levels of risk and cost are consistent with management performance goals.

Adherence to the cited legal requirements is sufficient in achieving a low level of risk that is consistent with management performance goals. The level of risk is consistent with management performance goals because management expects to use industrial solutions for industrial issues. This is an industrial issue and the solution chosen is an industrial solution.

13. Pick the basic implementing assumption from the list.

Major positive impact  Minor negative impact  
 Minor positive impact  Major negative impact  
 No net impact

14. Describe the nature and status of implementation including cost-effectiveness.

Fermilab's present emergency response force (Fire Department) is currently implementing the above standards.