

**U.S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION  
ERDA MANUAL**

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ERDA 0552-01  
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**Chapter 0552 FIRE PROTECTION**

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**0552-01 POLICY**

It is the policy of the Energy Research and Development Administration to establish and maintain for all ERDA facilities a standard of fire protection equivalent to the standard for facilities enjoying an "improved risk" classification in the fire insurance industry. While program continuity and protection of the public are important responsibilities at all ERDA facilities, a higher standard of protection may be justified in certain instances for the purpose of National security, program continuity, or protection of the public.

**0552-02 OBJECTIVES**

**021** To obtain and maintain a level of fire protection adequate to assure that fires and related perils will not result in hazardous exposure of the public and employees, unacceptable impairment of ERDA programs, or excessive damage to or loss of government property.

**022** To establish an "improved risk" level of fire protection sufficient to assure that:

- a. there is no undue hazard to life from fire.
- b. significant offsite contamination or pollution shall not occur as the result of fire.
- c. automatic extinguishing systems are provided to limit the maximum credible loss from a single fire to less than \$1,000,000.
- d. areas and/or values subject to fire damage are limited to the extent that the maximum possible fire loss, assuming failure of the automatic systems, shall be limited to \$25,000,000.
- e. vital ERDA programs will not be curtailed as the result of fire or fire related incidents.

**0552-03 RESPONSIBILITIES AND AUTHORITIES**

**031** The Assistant Administrator for Environment and Safety approves exemptions from 02, above.

**032** The Director, Division of Facilities and Construction Management, issues general design criteria for fire protection to be used in the design of ERDA facilities, coordinating with the Division of

Operational Safety and other appropriate Headquarters divisions and offices to assure consistency and compliance with ERDA health, safety, fire protection, and environmental requirements, and with the provisions of this chapter.

**033** The Director, Division of Operational Safety:

- a. develops fire protection requirements for ERDA programs and facilities and coordinates the development of design criteria with the Director, Division of Facilities and Construction Management, and other appropriate Headquarters divisions and offices to assure the consistency of such criteria with the requirements of applicable codes and standards and the provisions of this chapter.
- b. evaluates the adequacy of field organizations' fire protection programs and provides assistance to all Headquarters divisions and offices and field organizations on all aspects of fire protection.
- c. coordinates requests for exemptions from 02, above, and forwards such requests with the concurrence of the appropriate program division and the Division of Facilities and Construction Management to the Assistant Administrator for Environment and Safety with recommendations for appropriate action.
- d. administers the insurance team survey program, issues survey reports to applicable field organizations and Headquarters divisions and offices, and reviews the field organization programs for handling recommendations resulting from the surveys.

**034** Directors of Program Divisions: As the following matters affect facilities under the director's programmatic responsibility, the director:

- a. reviews proposed fire protection programs for those facilities under his responsibility. The Director, Division of Operational Safety, will provide assistance to all Headquarters divisions and offices and field organizations on all aspects of fire protection.

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- b. reviews field requests for exemption from ERDA criteria with the Division of Operational Safety and the Division of Facilities and Construction Management in those exemptions requests requiring approval.
- c. reviews field organization implementation of the recommendations resulting from the insurance team survey program. The Director, Division of Operational Safety, will act as the primary point of contact for the survey program and distribute survey reports to field organizations and Headquarters divisions and offices, as applicable.

**035 Heads of Field Organizations and the Director, Division of Administrative Services, for Headquarters:**

- a. provide and maintain an improved risk level of fire protection, adequate to meet the objectives under 02, above, for all physical property or material which represents a monetary investment by the ERDA.
- b. provide and maintain, when justified, a higher standard of fire protection than that required to meet the improved risk requirements in instances when justified for purposes of national security, ERDA program continuity, or protection of the public.
- c. submit requests for exemption to the Assistant Administrator for Environment and Safety, through the Director, Division of Operational Safety, for those facilities where, in the judgment of the head of the field organization, compliance with the objectives of 02, above, is not feasible.
- d. establish and maintain a system to assure that the intent of all ERDA fire protection standards and guides is incorporated in the plans and specifications for all new facilities and for major modifications of existing facilities.
- e. assist the Division of Operational Safety in coordinating the insurance team surveys at those facilities included in the survey program, establish action plans for compliance with recommendations resulting from the surveys, and forward compliance plans, exemption requests, and other requested data to the Director, Division of Operational Safety.
- f. establish and maintain lists of facilities for which they have fire protection survey responsibility and designate for each the

minimum frequency at which ERDA fire protection surveys will be made (see also part II of appendix 0502). This list shall include:

- (1) facilities at which ERDA-owned property is valued at \$250,000 or more.
  - (2) facilities at which property valued at less than \$250,000 is located but where a fire protection survey is deemed to be justified.
  - (3) facilities at which a credible loss could delay a vital ERDA program in excess of 3 months or a significant component of a program in excess of 6 months.
- g. conduct fire protection surveys of facilities for which they have responsibility, at a frequency not less than that specified in appendix 0552, part III.
  - h. provide loss prevention advice and assistance to contractors in need of assistance or who do not have their own professional staff assistance.
  - i. submit to the Director, Division of Operational Safety, an annual summary as set forth in 054, below, covering the fire protection program and loss experience of the previous year.

**0552-04 DEFINITIONS** (For purposes of this chapter and its appendix)

**041 Improved Risk.** This term has the same meaning and intent as is commonly understood when this term is used in the insurance industry. The term involves the use and application of judgmental factors and thus does not lend itself to a precise, fixed definition applicable in all locations and all situations. In general, "improved risk" protection necessitates full compliance with the fire protection and loss prevention standards detailed in Appendix 0550, "Operational Safety Standards." This term also implies that professional fire protection engineering judgment (with full benefit of past fire experience) has been used to obtain the highest economically justifiable level of industrial loss prevention. Generally, an improved risk property is one that would qualify for complete insurance coverage by the Factory Mutual System, the Factory Insurance Association, and other industrial insurance companies that limit their insurance underwriting to the best protected class of industrial risk. Essential elements of a program complying with the improved risk concept are included in appendix 0552, part I. The most evident characteristic of an improved risk property is the existence of reliable, automatic fire extinguishing systems throughout all buildings of

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combustible construction or contents where the building is vital to operational continuity or may experience a large property loss from fire in the absence of an automatic extinguishing system.

**042 National Security.** Those aspects of national security as referred to in the Atomic Energy Act of 1954 which could be affected adversely by fire, explosion, or other catastrophe.

**043 Protection of the Public.** Control of fire, explosion, or effects of hazards to minimize potential injury to the public and damage to non-ERDA property, or to avoid needless public concern.

**044 Property.** All government-owned or -leased property, for which ERDA has responsibility, except:

- a. property furnished under an ERDA contract requiring contractor assumption of the risk of loss or damage to government-furnished property.
- b. property covered by a private insurance policy specifying ERDA as the beneficiary.

**045 An ERDA Facility.** Any facility in which a fire or related peril may cause in excess of \$250,000 loss to the ERDA, occasion a serious delay in an ERDA program, result in death or serious injury to an ERDA or ERDA contractor employee, or result in significant offsite contamination. A facility may consist of a group of buildings operated by a single contractor, a multi-contractor group of buildings at a single site, a single building with large loss potential or programmatic importance, or a portable equipment system (diagnostic trailer, assembly tower, portable building, etc.) in which the loss potential may exist intermittently.

**046 Fire Protection.** Protection from a broad range of fire risks normally included in the analyses conducted by fire protection engineers. These include some aspects of related perils such as explosion, windstorm, earthquake, lightning, and water damage.

**047 Maximum Credible Loss.** The maximum loss that could occur from a reasonable combination of events resulting from a single fire. Considerable judgment is required to evaluate the full range of loss potentials, but in general, readily conceivable fires in sensitive areas are considered. Examples are power wiring failures in cable trays, flammable liquid spills, and high value parts storage areas or combustible exposures to sensitive machines. Any installed protection systems are assumed to function as designed. Due to the uncertainties of predicting human action, the effect of fire brigade response is

generally omitted except for post fire actions such as salvage work, shutting down water systems, and restoring production.

**048 Maximum Possible Fire Loss.** The maximum foreseeable loss which could occur in a single fire area in the assumed absence of both automatic and manual fire extinguishing actions. In determining loss, the estimated damage to the building and its contents shall include replacement cost less salvage value plus the cost of decontamination and cleanup. Effects upon program continuity, auxiliary costs of fire extinguishment, and consequent effects on related areas should be included if the effects can be cost determined.

**049 Insurance Team Survey Program.** The program under which fire protection surveys of principal ERDA facilities are conducted at intervals by selected fire protection engineers of the Factory Insurance Association and Factory Mutual Engineering Association.

#### 0552-05 BASIC REQUIREMENTS

**051 Applicability.** This chapter and its appendix apply to ERDA Headquarters, field organizations, and those contractor facilities where contracts contain the property clause of ERDA-PR 9-7.5006-26 or 9-7.5006-27.

**052 Coverage.** This chapter and appendix cover the minimum prescribed fire protection requirement for ERDA and ERDA contractors. Where an ERDA contractor is also a Nuclear Regulatory Commission (NRC) licensee, the contract relationship will not exempt him from compliance with NRC regulations and the terms of his license. ERDA facilities covered by this chapter include those owned or leased by the ERDA or ERDA contractors for use in ERDA work, and include those of either a permanent or temporary (e.g., trailers) nature.

#### 053 Appendix 0552

- a. Guidance on meeting the objectives of 02, above, is contained in appendix 0552, part I.
- b. Programmatic requirements relating to sites meeting the "improved risk" level of protection are set forth in appendix 0552. Surveys to determine the degree to which ERDA facilities comply with the "improved risk" criteria shall be made at the frequency detailed in the appendix.
- c. Format and content of requests for exemptions are described in the appendix.

**054 Reports.** An annual Summary of Fire and Other Property Damage Experience Report shall be prepared by heads of field organizations and the Director, Division of Administrative Services, and submitted to the Director, Division of Operational Safety, on or before March 15 of each year. See part VI of appendix 0552 for requirements and suggested report format.

**055 Fire Protection Survey.** Fire protection surveys of each ERDA facility (see 036f. above) shall be made by fire protection engineering personnel as soon as practicable after listing of the facility by ERDA and thereafter at intervals specified in appendix 0552, part II. The objectives shall be to:

- a. assure that the hazard to life from fire, explosion, or related risk in ERDA facilities has been evaluated and reduced to acceptable levels.
- b. assure that the hazard to ERDA property from fire, explosion, and related risk has been evaluated and is reduced to acceptable levels.
- c. evaluate the adequacy of the local fire protection and prevention programs to minimize injury and protect ERDA property.
- d. provide written reports to responsible management which will include recommendations for appropriate action.

**056 Procedures for Granting Exemptions.**

- a. Exceptions from the requirements of manual chapters referenced in this chapter shall be processed in accordance with the instructions contained in chapter 0201-054.
- b. Heads of field organizations and the Director, Division of Administrative Services, are permitted to grant exceptions from the standards of this manual chapter for a period of 6 months. They are required to notify the Director, Division of Operational Safety, of all exceptions granted, and if such exceptions are for periods greater than 6 months, they must be approved by the Director, Division of Operational Safety.

- c. Requests for exemptions from the objectives of 02, above, are to be submitted to the Director, Division of Operational Safety, for processing.
- d. Heads of field organizations and the Director, Division of Administrative Services, are permitted to grant exemptions from the recommendations of the insurance team survey program for those facilities where the probable loss would not exceed the objectives of 02, above. Exempted recommendations will be so noted on the Fire Insurance Reporting and Evaluation System (FIRES) program data sheets.
- e. When the conceptual design stage of new facilities indicates that the loss potential may exceed \$25,000,000 and reduction of this potential by separating facilities or providing standard firewalls is impracticable, the field organization shall submit the following information to the Division of Operational Safety, the Division of Facilities and Construction Management, and the applicable program division:
  - (1) an assessment of the loss potential (for each design concept if alternates are under consideration),
  - (2) the fire protection measures to be taken to reduce the potential and magnitude of such a loss.
  - (3) estimated cost/benefits of measures necessary to reduce the loss potential below \$25,000,000.

When the Division of Operational Safety, the Division of Facilities and Construction Management, and the applicable program division agree that additional protection is not reasonably or economically attainable, a formal exemption request will not be required. The Assistant Administrator for Environment and Safety will be so advised.

**0552-06 NATIONAL EMERGENCY APPLICATION**

During a national emergency, as defined in chapter 0601-042, the provisions of this chapter and its appendix remain in effect.

## PART I

## COMPLIANCE WITH IMPROVED RISK OBJECTIVES

**A. HAZARD TO LIFE**

The objective of no undue hazard to life can be considered to have been attained when:

1. ERDA facilities comply with the intent of the "Life Safety Code" (NFPA 101) and with the specific requirement of the Occupational Safety and Health Act applicable to exits and fire protection features.
2. The potential for fast spreading fires is controlled by severe restrictions on flame spread and smoke development ratings of interior finish materials and by compartmentation of hazardous materials.
  - a. Common materials used in interior finishes, such as wall coverings, ceiling tiles, and carpeting are generally satisfactory if flame spread ratings are 25 or under and smoke development ratings are 50 or less as determined by the ASTM E-84 test. Materials of unusual fire characteristics such as exposed urethane foams, and materials developing toxic products of combustion should be prohibited for interior finish.
  - b. Materials with inherent high combustion rates, such as flammable liquids and explosives should be severely restricted in quantity and handled in conformance with all applicable codes. Special protection features suitable to the hazard should be installed and limits imposed on the number of people who must be exposed to the hazard.
  - c. Where noncompliance with some Life Safety Code (NFPA 101) provisions may be necessitated by the need for public safety, as in some containment structures, additional protective systems and personnel limits should be maintained. Exemptions from provisions of the NFPA code must conform to the requirements of Chapter 0550, "Operational Safety Standards."

**B. OFFSITE CONTAMINATION OR POLLUTION**

The objective of limiting fire-caused pollution or contamination effects to within acceptable limits may be considered to have been attained when:

1. The facility containment systems are designed to preclude an offsite release under maximum possible fire conditions.
2. Exhaust and ventilation systems, including filters, are protected or isolated from the effects of a credible fire to the extent that hazardous amounts of toxic materials or combustion products will not escape.
3. Natural or artificial means of controlling liquid runoffs are provided so that contaminated or polluting liquids will not escape the site, including potentially contaminated water resulting from firefighting operations.

**C. \$1,000,000 LOSS POTENTIAL**

The objective of limiting fire loss potential to \$1,000,000 may be considered to have been attained when:

1. an automatic fire extinguishing system is installed in any ERDA facility where a single credible fire could cause a loss in excess of \$1,000,000 in the event that such a system is not installed and manual firefighting efforts are assumed to be ineffective.
2. the values, nature of the contents, or subdivision by firewalls is such that a \$1,000,000 loss from a single fire is not credible.

**D. \$25,000,000 LOSS POTENTIAL**

The objective of limiting the maximum single fire loss to \$25,000,000, assuming a single failure of the installed protection system and ineffective manual firefighting, can be considered to have been obtained when:

1. the values, nature of the contents, or subdivision by firewalls is such that it would not be credible for an uncontrolled fire to result in a loss of this magnitude.
2. redundancy of protective systems is provided to the extent that, even with a single failure of a system, the resultant loss will not exceed \$25,000,000.

**E. INTERRUPTION OF OPERATIONS**

The objective of no unacceptable impairment of a vital ERDA program can be considered to have been attained when:

1. a single credible fire will not result in the loss of use of a vital ERDA facility for a period longer than that specified as acceptable to the applicable program division.
2. in the absence of a defined acceptable shutdown period, a single fire will not result in the interruption of a program (weapons production, uranium enrichment, etc.) for a period in excess of 3 months, or of a significant part of a program (major accelerator, single diffusion plant, etc.) for a period in excess of 6 months.

#### F. EXCESSIVE DAMAGE TO GOVERNMENT PROPERTY

The improved risk level of property protection specified as an objective under chapter 0552-021 usually requires automatic protection systems to be installed when the loss potential may be well under the \$1,000,000 objective of chapter 0552-021. The specific level at which an automatic protection system should be installed requires fire protection engineering judgment. In general, any fire loss in excess of \$100,000 would be considered to indicate a deficiency in protection. The following points should be considered in evaluating the need for automatic fire extinguishing systems.

1. **Importance.** A critical facility may require protection without regard to the dollar loss potential. For example, it may be desirable to protect a low value or temporary storage shed when it may contain critical or long procurement time construction items. A trailer may have a temporary protection system when it is used as a control center for a vital, one time event.

2. **Effect on Production.** Protection costs may be high in relation to the value protected, but still warranted, as in the case of cooling towers and switch gear, where loss of the unit could result in the shutdown of other facilities.
3. **Cost/Benefit Ratios.** A building such as a lumber or paint shed may be of low value and importance but may be easily protected by extending sprinklers from an adjoining protected building at a low incremental cost.
4. **Exposure.** Construction sheds or trailers may warrant protection when they must be installed in or adjacent to more important facilities.
5. **Future Conditions.** Even where the above conditions are not applicable, protection may still be warranted when conditions are extrapolated to the future. For example, a storage building may be of low value when designed, but normal escalation of contents values may indicate it would need protection in a few years, in which case it would be more cost effective to install the protection as part of the original construction. Similarly, evaluation of office or low hazard laboratory occupancies may indicate that the hazard or combustible loading of similar facilities increases consistently with time, justifying protection at an early phase. Provision of automatic protection in the initial construction also allows more flexibility for future modifications. For example, conversion to a higher hazard occupancy may be prohibited due to a lack of appropriate built-in protection.

## PART II

## ESSENTIAL ELEMENTS OF AN IMPROVED RISK FACILITY

- A. An improved risk facility is characterized by a sufficiently high level of fire protection to fulfill requirements for insurability by the Factory Mutual System, Factory Insurance Association, or other private industrial fire insurance companies which limit their underwriting to the best protected class of industrial risks. A basic requirement is the provision of automatic fire extinguishing systems in all areas subject to serious property damage or business interruption losses as a result of fire. Above all other requirements, to qualify for an improved risk rating it is necessary that strong, tangible evidence be available attesting to existence of continuing sincere interest by management and employees in minimizing losses from fire and related perils.
- B. ERDA facilities qualifying as improved risks will incorporate the following internal programs and maintain records for field office audit of the programs.
1. Review of plans prior to contemplated construction to assure adequacy of fire risk appraisal and protection.
  2. Self-inspections, tests, and appraisals to identify the nature, location, and severity of fire risks as well as to determine adequacy of fire loss control devices and activities.
  3. Periodic audits by outside fire protection authorities (e.g., contractor facility appraisals by field office fire protection engineers).
  4. Plans, procedures, devices and trained personnel adequate to permit controlling any credible fire emergency that may arise on the facility.
  5. Limitation by physical means (e.g., geographic isolation, firewalls, firedoors, draft barriers) of maximum areas that can be directly damaged in the event of a single fire.
  6. Good construction—in most cases fire resistive or non-combustible type buildings with segregation or isolation of particularly hazardous operations.
  7. Enclosures of adequate fire resistant construction for stairways, elevators, ducts, and other openings coupled with fixed and/or manual devices (e.g., self-closing doors or dampers, draft stops or curtains) to physically control or limit both vertical and horizontal fire spread potentials.
  8. Protection of special hazards by isolation, segregation and/or use of special fire control systems (e.g., automatic sprinklers, inert gas flooding, explosion suppression) together with devices (e.g., relief valves, filters, roof hatches, scuppers, blast walls) for limiting or controlling damage potentials of fire, hazardous smoke, gasses, water runoff, etc., that may reasonably be anticipated during a fire emergency. (NOTE: The maximum permissible size of individual fire areas will be strongly influenced by the nature and extent of "built-in" fire protection and the maximum credible consequences from a single fire that ERDA management is willing to accept in the assumed absence of any manual fire control actions.)
  9. Adequate, reliable fire protection water supplies and distribution system coupled with adequate hydrants, inside standpipes, and other devices to facilitate utilization of such water during fire emergencies.
  10. Adequate automatic and manual means for detecting and reporting incipient fires (including, but not limited to, watchmen service).
- C. Improved risk facilities will have independent surveys, conducted by the appropriate ERDA field organization as required by chapter 0552-055 and in sufficient depth to establish that:
1. the programs described in B., above, are being conducted at the facility.
  2. loss potentials, including programmatic effects, have been determined and appropriate protection systems have been provided to reduce the effects to the levels acceptable under chapter 0552-02 or an exemption from these requirements has been obtained.
  3. effective action has been taken to comply with previous recommendations, initiate corrective actions on previously identified deficiencies, and reduce the adverse effects of noncompliance in areas where compliance has not yet been achieved or where exemptions have been allowed.
  4. losses, impairments, and unusual incidents are investigated and analyzed in sufficient depth to identify causes, economical and effective corrective methods, and areas

where similar problems may exist or where additional studies may be required.

D. In addition to internal and field organization surveys, improved risks are generally characterized as those also surveyed by independent third party interests, such as the insurance engineering programs. For major ERDA facilities, this service is provided by contracts with the two major industrial improved risk insurance organizations.

E. In addition to periodic surveys, the field office will maintain a continuous surveillance of improved risk facilities by:

1. assuring that plans, proposals, loss reports,

investigation reports, and other applicable materials are reviewed by knowledgeable field office personnel in sufficient depth to determine that the facility is maintaining the review and protection programs described under B., above.

2. providing technical assistance and advice as requested and as deemed necessary by the field office.

3. assuring that the facility is kept advised of requirements, programs, and applicable information generated by ERDA Headquarters or other agencies and that information developed by the facility or by other facilities with mutual interests is disseminated among the interested parties.



## PART III

## ERDA FIRE PROTECTION SURVEYS

- A. Surveys shall be made of ERDA facilities at least semiannually of the type listed below:**
1. ERDA facilities at which \$25,000,000 or more is invested in a single installation.
  2. ERDA facilities at which uninterrupted operation is vital to the mission of the ERDA, as determined by the appropriate program division.
  3. ERDA facilities at which, in the opinion of the head of the field organization, need exists for the exercise of particular care to prevent or minimize exposure of the public or private property to hazards from radioactive, or other potentially hazardous ERDA materials that might be dispersed by fire or related perils.
- B. Surveys shall be made at least annually of ERDA facilities at which the ERDA has:**
1. \$1,000,000 or more investment in property, exclusive of those covered in A., above, and exclusive of those owned or operated by agencies of the Department of Defense.
  2. \$250,000 to \$1,000,000 investment in property or at up to 5-year intervals at the discretion of the head of the field organization provided that:
    - a. the requirements for initial fire protection surveys have been met.
    - b. reasonable assurance exists that the site will be surveyed regularly by competent non-ERDA personnel.
    - c. loss by fire of the ERDA property would not seriously affect continuity of the related ERDA program.
    - d. the ERDA property at the site would impose no unusual hazard to the public if involved in fire.
- e. an annual review is made to verify compliance with the above provisions.**
- C. Optional surveys may be made at the discretion of the head of the field organization of non-ERDA facilities (where the ERDA has less than \$250,000 investment in property) if, in his opinion, such surveys are in the best interest of the ERDA.**
- D. ERDA facilities in which the loss potential may exist on an intermittent basis, such as trailers, assembly buildings, experimental facilities, or temporary structures should receive an initial survey at a time when the loss potential is present. The need for further surveys will depend on the severity of the loss potential and the frequency of occurrence. The head of the field organization will determine if repetitive surveys are required and establish the frequency.**
- E. Insurance team surveys will be conducted periodically (at approximately 3-year intervals) at ERDA facilities determined to be of major importance to the ERDA mission. For each survey, the field organization:**
1. shall designate a coordinator to assist the team in obtaining logistical support, facility access, and technical information as determined necessary by the Division of Operational Safety.
  2. shall review the contractor's compliance efforts and forward the compliance data sheets (FIRES program) to the Division of Operational Safety.
  3. may omit any ERDA field organization survey that would coincide with the period in which the insurance team survey is being conducted.

## PART IV

## EXEMPTION REQUESTS

Requests for exemptions, submitted in accordance with chapter 0552-056, shall contain the following information:

- A. **Requirement.** The specific requirement or recommendation from which an exemption is requested shall be quoted and the source identified.
- B. **Hazards Analysis.** The request shall include an analysis of the hazards involved, including the nature, magnitude, and consequences of foreseeable accidents.
- C. **Reason for Noncompliance.** The request shall identify the reasoning by which neither the specific requirement nor an acceptable alternative are considered feasible, and shall include any cost/benefit analysis.
- D. **Effect of Noncompliance.** The request shall identify the specific effects on the magnitude of an incident that can be attributed to noncompliance.
- E. **Alleviating Factors.** The request shall identify any factors alleviating the effects of noncompliance.
- F. **Term.** The term for which the exemption is required (temporary, permanent) shall be noted.

## PART V

## INSURANCE TEAM SURVEY PROGRAM

- A. As part of the surveillance program of fire protection at ERDA facilities, the ERDA has contracted with the two major improved risk insurance groups, the Factory Insurance Association (FIA) and the Factory Mutual Engineering Association (FMEA) to conduct surveys of the improved risk status of each major ERDA facility.
1. A survey is conducted at each ERDA facility containing more than \$25,000,000 in replacement value of government property.
  2. Following the initial survey, a resurvey is made at each facility at approximately 3-year intervals.
  3. Reports of the surveys are submitted to Division of Operational Safety for review and distribution to the appropriate contractors, field organizations, and program divisions.
- B. Following each survey, the appropriate field organization is requested to submit an action plan to be entered in the Fire Insurance Reporting and Evaluation System (FIRES).
1. Action plans are submitted on Form ERDA-797 and ERDA-797A, direct to Division of Operational Safety.
  2. Initial action plans are requested in the transmittal letter accompanying the final report of the survey and will be due approximately 90 days after the report is transmitted.
  3. Action plans will be updated at 6-month intervals. Updates are due in Headquarters on May 15 and December 15 of each year.
- C. The FIRES system is described in detail in the User's Manual, Document 18-04-008, dated February 1974.
- D. Output data from the FIRES computer program is furnished to appropriate field organization and Headquarters divisions and offices twice yearly to assist in budgeting and planning purposes. A copy of each output report described in the User's Manual is furnished automatically. Special reports or summaries are furnished on request to the Division of Operational Safety.

PART VI

**ANNUAL INDUSTRIAL SUMMARY OF FIRE AND OTHER PROPERTY DAMAGE EXPERIENCE**

**A. SUGGESTED FORMAT**

The report summarizes the 19 CY experience and activities of this office relative to the control of ERDA property damage and loss from fire and other accident causes. An aggregate loss of \$\_\_\_\_\_ was suffered during 19 CY as a consequence of property damage accidents on ERDA-owned property for which this office has responsibility. About \_\_\_\_\_ percent of this loss resulted from the accidents listed below. A description of each accident involving a loss of \$5,000 or more is attached.

**Major 19 CY ERDA Property Damage Accidents**

<u>Loss</u>	<u>Date</u>	<u>Location</u>	<u>Type of Accident</u>
\$15,000	7/24	Power Plant, Fernald	Spontaneous ignition of coal in boiler feed bin.

1. **Loss Experience Analysis.** The monetary damage or loss suffered from various types of accidents is shown in exhibit 1.
2. **Recurring Loss Prevention Costs.** The major available recurring costs of control of property damage or loss from the subject causes are primarily incurred as a consequence of paid fire department, volunteer brigade, and fire protection engineering expenses. A comparison of such costs with that of previous years is set forth in the charts (or tables) shown below:

(Note: Data should be given for 19 CY and at least 2 previous years.)

If too voluminous, data should be given in an attached exhibit or reduced to chart form. Minimum data should include:

- a. dollar cost in 19 CY and 1 previous year for contractor and field organization fire department, fire brigade, and fire protection engineering expenses.
- b. as above, but expressed in terms of dollar cost per \$1,000,000 of ERDA-owned property.
- c. ERDA fire protection engineering expense during 19 CY expressed in \$/\$1,000 of ERDA-owned property.

The (higher) (lower) recurring costs of 19 CY, as compared with 19 PY, are attributed to: (give reasons).

3. **Property Damage Vulnerability of ERDA Projects.** While property damage risks have been reduced to proportions warranting little concern by management at most locations, it should be noted that, under existent conditions, high property damage loss and/or serious interruption of ERDA operations are considered as being reasonably possible at the locations given below:

**Locations**

(Note: Limit to locations where losses of \$1,000,000 or serious interruption of important operations may reasonably be anticipated. If lengthy, summarize in this section and furnish details in an exhibit.

**Remarks**

(Be brief.)

4. **ERDA Fire Engineering Risk Appraisal.** The responsibilities of this office for ERDA appraisal of fire risks detailed in chapter 0552 were discharged by conduct of ERDA fire protection engineering surveys of the installations detailed in exhibit \_\_\_\_\_. This exhibit also includes for each facility brief comments as to the overall status of fire protection, the ERDA property investment, the number of inspections made during 19 CY, and notations as to their relative importance to the ERDA program.
5. **Major Fire Protection Accomplishments During 19 CY.** Summarize in not over two paragraphs the categories of fire protection in which major improvements have been made. For example, mention may be made of special hazards studies (e.g., ventilating systems, roof, etc.), increased inspectional activities, organizational improvement, cost reductions, and promotional activities (e.g., National Fire Prevention Week, etc.)

6. **Major Fire Protection Objectives for Next Year.** Briefly summarize in this section areas in which major expenditures of effort and/or funds are anticipated.
7. **Observations, Conclusions, and Recommendations.** While no suggested format is given for the content of this section, in individual cases it may be appropriate to suggest basic changes in ERDA regulations or to point out especially important risks (e.g., arson, sabotage,

explosion, risk to the public, radiation hazards from fires, etc.). In general, material in this section should very briefly summarize conclusions resulting from 19 CY experience.

8. **Cover Memorandum.** The covering memorandum should call particular attention to any section of the report considered to be of outstanding importance or interest. Brief comments on the highlights of the report are also appropriate.