
Annual Summary of Fire and Other Related Property Damage Experience Report for Calendar Year 2002

Brookhaven National Laboratory

Emergency Services Division

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April 2003

This report summarizes the fire and other property damage experience of Brookhaven National Laboratory for the 2002 Calendar Year. The information in this report is in the format requested in "Environment, Safety and Health Reporting," Manual for DOE Order 231.1-1", Change 2, Appendix F, dated 1-28-2000.

1. Fire Related Deaths and Injuries.

None.

2. BNL Property Loss Experience for the Calendar Year.

Fire Loss¹ \$ 0

Summary Several small incidents occurred with minor and insignificant property loss.

Other Loss² \$ 3,000

Damage or loss sustained as a consequence of the following events shall be classified as another loss: explosions, natural cause events, electrical malfunctions, transportation (cargo) losses, mechanical malfunctions, radiation releases or other nuclear accidents, and miscellaneous (i.e., thermal) accidents.

¹ Summation of **fire** losses as detailed in section 3A and in Attachment A.

² Summation of **other** losses as detailed in Attachment A & B. Includes suppression activation in Section 4.

3. Summary of Fire and Other Property Loss Incidents.

A. Details of Losses of \$5,000 or More.

No losses over \$5,000 were incurred during CY02

B. Summary of Losses Less than \$5,000.

See Attachment A to this report for a list of minor fires and losses for CY02.

See Attachment B to this report for a list of miscellaneous electrical and other smoke related incidents for CY02.

4. Incidents Actuating Automatic Fire Suppression Systems.

Date: 08/09/02	Type of Loss: Sprinkler Head Damage
Incident Report Number: 020248	Government Loss Estimate: \$ 0
Description: A contractor moving furniture struck a sprinkler head resulting in water flow. BNL Fire Rescue promptly responded and the system was shut down. No permanent damage to government equipment was incurred.	

Date: 12/09/02	Type of Loss: Electrical
Incident Report Number: 020349	Government Loss Estimate: \$ 1,800
Description: An electrical short on a printed circuit card in Bldg 1008 (PHENIX) resulted in the production of smoke. The smoke activated the adjacent Inergen System (uses HSSD spot detection on cross zoning). Fire alarm systems turned off power and no further damage occurred. There was \$300 in damage to boards and it cost \$1,500 to recharge the Inergen system.	

5. Halon Reduction Activities.

A. Halon 1301:

- | | |
|---|--------------------------------------|
| 1. Number of Fixed Systems | 34 Systems |
| 2. Total Quantity of Halon 1301 at Site | |
| a. Active (including reserve) | 10,330 lbs. ¹ |
| b. Inventoried | 4,314 lbs. ¹ |
| 3. Fixed Systems Deactivated Within Past Year | |
| a. Total Number | 2 (BCF Bldg 515;
STEM 2 Bldg 463) |
| b. Total Quantity | 360 lbs. |
| 4. Fixed Systems Converted to Manual Operation Within the Past Year | |
| a. Total Number | None |
| b. Total Quantity | N/A |

¹*Note:* Due to a change in the tracking system from Dbase IV to a commercial barcode based system, present cylinder inventories do not include weights.

B. Halon 1211:

- | | |
|---|---|
| 1. Total Quantity of Halon 1211 at Site | |
| a. Active | 8050 Lbs. (456 General and
16 Amerex 17# units; 2 Amerex 13#
units) |
| b. Inventoried | 21 Lbs. (B599 2 recovery tanks) |
| | Note: 11# used to extinguish a fire |
| 2. Quantity Replaced by Other Agents Within the Past Year | None |

Note: Due to a change in the tracking system from Dbase IV to a Barcode system, present cylinder inventories do not include weights. Exact tracking of Halon 1301 is not precise.

6. Fire Protection Inspection, Testing, and Maintenance Activities.

BNL has an active fire protection inspection, testing, and maintenance program. The program includes the inspection and testing of over 220 fire alarm panels and the monitoring of over 6000 alarm points in 250 facilities. Inspection, testing and maintenance is done in general accordance with NFPA codes and standards. The annual report format requests information on failure rates of equipment included in the fire protection inspection, testing, and maintenance activities. While BNL has a vigorous inspection, testing, and maintenance program, the ability to accurately capture failure rates of equipment has not existed. With Plant Engineering's recent acquisition of new maintenance management software, the possibility to capture this information is possible. An implementation plan is being developed.

7. Fire Department Activities.

A. Number of Responses:	<u>CY02</u>	<u>CY01</u>	<u>CY00</u>	<u>CY99</u>
1. Fire	14	8	16	5
2. HAZMAT Response	47	49	58	63
3. Other Emergency	9	11	51	12
4. Other Non-Emergency ¹	207	110	154	311
5. Medical	<u>91</u>	<u>103</u>	<u>92</u>	<u>117</u>
Totals	368	281	371	508

¹ Includes false alarms, non-emergency responses, drills, and miscellaneous.

B. Major Equipment Purchases:

Emergency Services Division is proceeding with the purchase of one new Command Post vehicle. The unit is a 2002 Ford Excursion, set up as a mobile communication center, linked to on-site facility databases, chemical inventory data bases, chemical hazard resources, meteorological information, pre-incident plans, and plant utility resources (the vehicle was placed in service 1st quarter of 2003). The cost is approximately \$90K.

Emergency Services Division started the procurement process for replacing the

front-end workstations for the BNL Site Fire Alarm System. Estimated cost is \$1.2 Million (fully burdened).

C. Noteworthy Activity.

High Failure Rate for Fixed Temperature Heat Detectors: During routine testing of Edwards Model 281B Fixed Temperature/Rate of Rise heat detection, BNL discovered an 80% failure rate. The investigation determined that the eutectic metal was not properly blended, thereby increasing the activation temperature by 100 or more degrees. An ORPS report was filed.

A thorough survey of BNL facilities found that 9 buildings contained recalled Central Sprinkler Corporation Sprinkler heads. Claim packets were filed with the manufacturer. The facilities are low risk due to sprinkler head age and system pressure. A replacement schedule has not been determined.

A clean agent fire suppression system was installed in Bldg 515's RHIC Computing Facility (Cost \$250k).

Funding is currently allocated to replace the fire alarm panel in Bldg 930, LINAC (Cost \$120k).

Funding is currently allocated to install a new clean agent fire suppression system for the RIKEN II super-computing center in Bldg 515.

Dormitory Fire Safety Improvement II project is in progress. Single station smoke detectors are being installed in dormitory rooms (Bldgs. 153, 170, 180; Cost \$120k).

See Attachment C of this report for a list of mutual aid responses to surrounding communities for CY02.

8. Recurring Fire Protection Program Costs.

A. Fire Department Costs

	<u>FY02</u>	<u>FY01</u>	<u>FY00</u>	<u>FY99</u>
1. Staffing ^{1,2,3}	\$2,390k ^{9,11}	\$2,345k ⁹	\$2,306k ²	\$2,419k ⁶
2. Equipment (MST)	\$162k ⁸	\$117k ⁸	\$178k ⁸	\$133k
3. Inspection & Testing Program ⁴	N/A	N/A	N/A	N/A
4. Emergency Medical Response Program ⁴	N/A	N/A	N/A	N/A
5. Training Program ⁴	N/A	N/A	N/A	N/A

B. Inspection & Testing Program By Others³

	FY 02	FY 01	FY 00	FY 99
	\$570k ¹²	\$505k	\$1,280K	\$828K

C. Fire Protection Engineering (FPE)

	\$265K	\$235K ¹⁰	\$249K ⁷	\$292K
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¹ Costs reflect salary, wage, and fringe for uniformed firefighters.

² Reduction in cost reflects loss of Deputy Chief's position in 2000.

³ Costs include salary and benefits and other Plant Engineering fire system maintenance costs (fire alarm electricians, plumber, etc.). FY02 costs adds ½ FTE for a supervisor. Source documents is Activity Data Sheet A92D0133.

⁴ These programs are integral to Fire Department operations. Costs are included in 1 and 2, above.

⁶ Costs include a new organizational burden added to overhead operations at BNL.

⁷ Costs reflect a reduction of one Fire Protection Engineer in 2000

⁸ Does not include \$210k for FY00, \$247k for FY 01, and \$254k for FY02 for building space charges, heat, electric, and repair of the firehouse. Reflects stores, POs, sensitive equipment, credit card purchase orders, special procurements and low value equipment.

⁹ Costs reflect the occasional reduction of minimum response staffing to 5.

¹⁰ Partial costs defrayed by outside contract work to Spallation Neutron Source

¹¹ Reflects the addition of ½ FTE for Operations Manager

¹² Reflects the addition of ½ FTE for supervision of the maintenance group.

ATTACHMENT A

Summary of Fires and Losses of Less than \$5,000 For Calendar Year 2002

Date: 02/05/02

Type of Loss: Rubbish Fire

Incident Report Number: 0200030

Government Loss Estimate: \$ 0

Description: A discarded cigarette ignited materials on the ground around the ashtray. Occupants extinguished the fire prior to arrival of fire department.

Date: 02/26/02

Type of Loss: Equipment Fire

Incident Report Number: 02000044

Government Loss Estimate: \$ 0

Description: Cutting operations started a fire in the super insulation of a magnet being scrapped at RHIC. There was no value to the magnet. One Halon 1211 fire extinguisher used.

Date: 04/07/02

Type of Loss: Wildland Fire

Incident Report Number: 02000086

Government Loss Estimate: \$ 0

Description: A wildland fire burned on Z Path and North Street. Ridge and Manorville Fire Departments extinguished the fire on Lab property. The cause was suspected to be the results of human actions.

Date: 06/20/02

Type of Loss: Structural Fire

Incident Report Number: 020162

Government Loss Estimate: \$50

Description: A rubber hose to a Bunsen burner leaked gas and ignited under a laboratory hood. Minimal damage to the contents of the hood occurred in Bldg 490 Lab 5-530(Medical).

Date: 07/12/02

Type of Loss: Wildland Fire

Incident Report Number: 020197

Government Loss Estimate: \$0

Description: Human activities in the woods by the Sewage Treatment Plant probably started a small wildland fire that burned less than ½ acre of brush in the white pines area of the laboratory.

Date: 07/25/02

Type of Loss: Wildland Fire

Incident Report Number: 020221

Government Loss Estimate: \$ 0

Description: A small brush fire was found behind Bldg 1010. No cause determined. No damage.

Date: 08/06/02

Type of Loss: Electrical short

Incident Report Number: 020241

Government Loss Estimate: \$ 100

Description: An attic fan froze and overheated, spreading smoke throughout Bldg 258. The fire department arrived and disconnected power. No flames or facility damage.

Date: 08/15/02

Type of Loss: Oxygen Deficiency

Incident Report Number: 020252

Government Loss Estimate: \$ 0

Description: BNL summoned by RHIC personnel for an oxygen deficiency alarm in the RHIC accelerator. SCBA used to enter and survey the area. Deficiency confirmed but no damage found.

Date: 08/19/02

Type of Loss: Electrical short

Incident Report Number: 020256

Government Loss Estimate: \$ 100

Description: An electrical short occurred in a track heat lamp unit in Bldg 488 (Cafeteria). The electrical short showered sparks on the food serving table and then the short stopped when the circuit breaker tripped. No flames.

Date: 08/22/02

Type of Loss: Electrical

Incident Report Number: 020258

Government Loss Estimate: \$ 50

Description: Bldg 535's smoke detection system activated due to one overheated ballast. Fire department responded and isolated the circuit. The fixture was repaired.

Date: 09/12/02

Type of Loss: Rubbish Fire

Incident Report Number: 020268

Government Loss Estimate: \$ 0

Description: Occupants called Fire Rescue to Bldg 488 for an extinguished fire in a trashcan.

Date: 10/07/02

Type of Loss: Electrical

Incident Report Number: 020292

Government Loss Estimate: \$ 100

Description: Smoke detection activate from Bldg 930 from a failed capacitor in a power supply. Power was shut down, no flames, and no further damage occurred.

Date: 10/22/02

Type of Loss: Electrical

Incident Report Number: 020304

Government Loss Estimate: \$ 100

Description: Bldg 1006 smoke detectors activated in the tunnel due to an electrical overheat involving a bake out process for vacuum. Occupants disconnected the power, no flames, and no further damage occurred.

Date: 10/24/02

Type of Loss: Electrical

Incident Report Number: 020305

Government Loss Estimate: \$ 200

Description: Occupants summoned Fire Rescue to Bldg 464 for a computer monitor smoking. Unit was unplugged, no flames, and no further damage occurred.

Date: 10/31/02

Type of Loss: Electrical

Incident Report Number: 020315

Government Loss Estimate: \$ 100

Description: Occupants summoned Fire Rescue to an extinguished fire in Bldg 902. A capacitor exploded in a Kicker power supply. There were no flames and a fire extinguisher was used.

Date: 10/31/02

Type of Loss: Vehicle

Incident Report Number: 020316

Government Loss Estimate: \$ 100

Description: Vehicle occupants summoned Fire Rescue to a fire in a government vehicle's interior headliner. The fire was extinguished. Cause was paper stuffed into the light fixture.

Date: 11/13/02

Type of Loss: Structural Fire

Incident Report Number: 020327

Government Loss Estimate: \$300

Sparks from welding operations for a new stack platform at Bldg 610 (Steam Plant) found their way into the building through a hole in the exterior wall. Sparks settled in a crack between the inside floor and the outside roof. Tar used on the roof ignited and smoldered for several hours before being discovered.

Date: 11/25/02

Type of Loss: Vehicle Fire

Incident Report Number: 02339

Government Loss Estimate: \$ 0

Description: A private vehicle fire occurred at the Motor Pool (Bldg 326). Fire Rescue responded and extinguished the fire.

Date: 12/27/02

Type of Loss: Electrical

Incident Report Number: 020364

Government Loss Estimate: \$ 50

Description: Occupants noted smoke coming from an air vacuum system panel in Bldg. 555, Chemistry. Fire Rescue isolated the systems. No flames were noted. A motor coil was burning.

ATTACHMENT B

Summary of Miscellaneous Electrical and Other Smoke Related Incidents for Calendar Year 2002

Date: 07/01/02

Type of Loss: Hazardous Material

Incident Report Number: 020185

Government Loss Estimate: \$0

Description: One 4-liter bottle of Dichloromethane broke and spilled inside of a delivery truck outside Bldg 100. Driver taken to hospital complaining of numbness in hand. Brookhaven Town Hazardous Material Team called for assistance. Bottle placed in an over pack and area ventilated with out further incident.

Date: 12/10/02

Type of Loss: Electrical

Incident Report Number: 020351

Government Loss Estimate: \$ 50

Description: Occupants noted smoke coming from a wall heater in Bldg 355, (Property Procurement Management). Fire rescue responded and isolated the circuit. Fan motor was overheating.

ATTACHMENT C

Summary of Mutual Aid Responses to Surrounding Communities for Calendar Year 2002

Date: 01/15/02

Incident Report Number: 020015

Mutual Aid To: Ridge Fire Department for a motor vehicle accident at Longwood Road and the William Floyd Parkway. BNL transported one patient to a local hospital.

Date: 02/05/02

Incident Report Number: 020030

Mutual Aid To: Ridge for a two-car motor vehicle accident at the Main Gate to BNL's property. Heavy rescue support provided with transport of one patient to the hospital in BNL's ambulance.

Date: 03/06/02

Incident Report Number: 020051

Mutual Aid To: Ridge Fire Department for an ambulance to transport of patient as the result of a house fire.

Date: 03/13/02

Incident Report Number: 020062

Mutual Aid To: Ridge Fire Department for one ambulance and heavy rescue to a car accident on Route 25.

Date: 06/26/02

Incident Report Number: 020174

Mutual Aid To: Ridge Fire Department for heavy rescue and an ambulance to transport one patient from a motor vehicle accident on the William Floyd Parkway by the Long Island Expressway.

Date: 07/03/02

Incident Report Number: 020189

Mutual Aid To: Manorville Fire Department for a brush fire on North Street west of Weeks Road.

Date: 07/13/02

Incident Report Number: 020199

Mutual Aid To: Mutual Aid to Ridge Fire Department for an ambulance. Transported one patient from the car accident at William Floyd Parkway and Longwood Road to a local hospital.

Date: 07/18/02

Incident Report Number: 020209

Mutual Aid To: Ridge Fire Department for a brush fire at Longwood Road. Engine 3 responded.

Date: 07/23/02

Incident Report Number: 020216

Mutual Aid To: To Ridge Fire Department for an ambulance to transport one patient from a motor vehicle accident to a local hospital.

Date: 08/09/02

Incident Report Number: 020247

Mutual Aid To: To Ridge Fire Department for an ambulance to transport one patient to a local hospital.

Date: 08/14/02

Incident Report Number: 020251

Mutual Aid To: To Ridge Fire Department for an ambulance to transport one patient from a motor vehicle accident at the main gate to a local hospital.