

<h1>PPPL</h1>	PRINCETON PLASMA PHYSICS LABORATORY ES&H DIRECTIVES	
	ES&HD 5008 SECTION 5, Chapter 6 FIRE DEPARTMENT OPERATIONS	
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CHAPTER 6 EMERGENCY SERVICES UNIT (FIRE DEPARTMENT OPERATIONS)

6.1 Operational Basis Document

6.1.1 The Princeton Plasma Physics Laboratory (PPPL), through the Site Protection Division (SPD) and the Emergency Services Unit (ESU), determines its site emergency response forces through a “Baseline Needs Assessment,” “Operational Basis Document,” or equivalent analysis.

6.1.2 The analysis is based on conformance with applicable industry standards, such as those promulgated by the Department of Energy (DOE) and the National Fire Protection Association (NFPA).

6.1.3 **Limitations** - Although the Site Protection Division (SPD), Emergency Services Unit (ESU) and its personnel are trained and certified to protect DOE interests from theft, sabotage, fire, medical emergencies, and other acts or events that may cause adverse impact on Laboratory personnel, the general public, equipment, assets, facilities, property, and the environment, this assessment is limited to duties related to fire, rescue, hazardous materials, and medical emergency operations.

6.1.4 This Operational Basis Document includes:

- Staffing, Response, and Deployment
- Fire Safety Inspections
- Pre-Fire Incident Planning
- Incident Safety
- Infectious Disease/Pandemic Situation
- Facilities, Apparatus, and Equipment
- Communications
- Mutual Aid
- Training



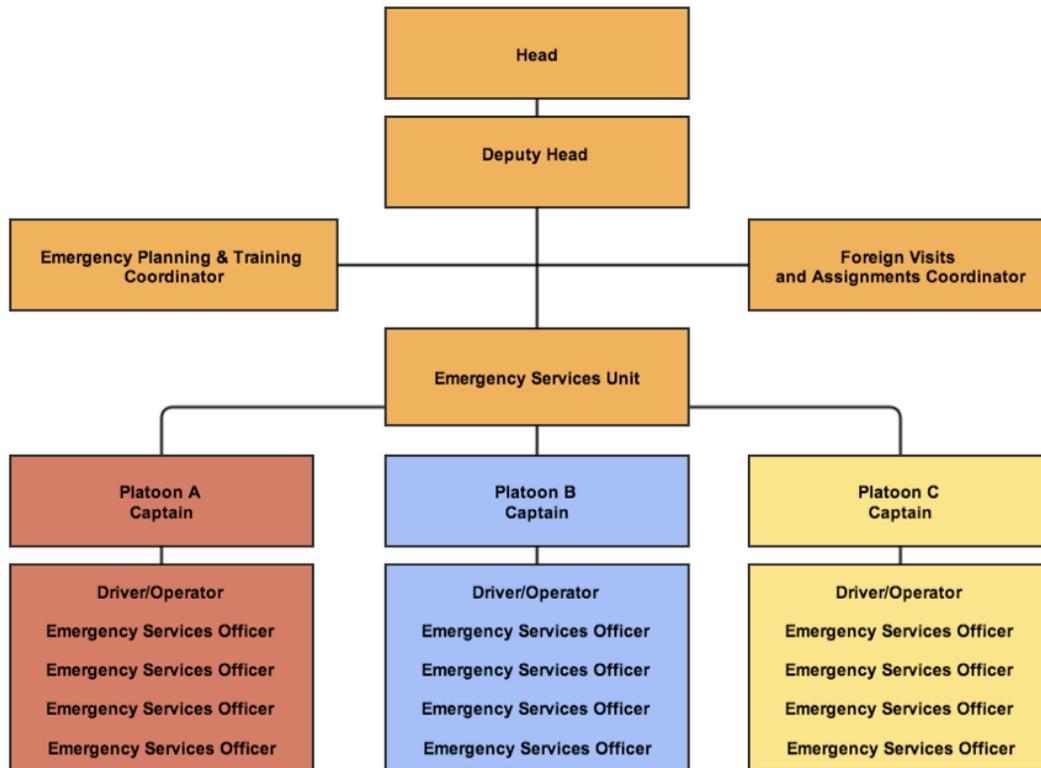
Staffing, Response, and Deployment

The Site Protection Division is managed by the Head, Deputy Head, and staff. The Emergency Services Unit (ESU) serves as the Fire Department for PPPL and is comprised of three six-person platoons with a Captain as platoon supervisor and a Driver/Operator (D/O) as the second in command.

The Platoon Captain acts as the Incident Commander and Safety Officer during an emergency and directs personnel under his/her command (until, and if, relieved by competent authority having jurisdiction). The D/O serves as assistant platoon leader with duties typically including the fire engine motor/pump operator. The D/O is trained and qualified to assume the duties of the Platoon Captain as an "Acting Captain" during the absence of a Platoon Captain. Each platoon has at least one Emergency Services Officer (ESO) trained and qualified as an Acting D/O who can perform the duties

in the absence of a D/O

SPD Organization Chart



ESU fire operations include emergency response (and investigation) to accidents, activated smoke and hazardous atmosphere alarms, hazardous material spills and incidents, calls for assistance, vehicle and confined space rescue, and active fire incidents. The department also provides Basic Life Support (BLS) and emergency first-aid services as needed. Additionally, ESU personnel staff two posts: Booth 6 (during normal PPPL business hours) and the Emergency Services Communications Center (ESCC). These two posts are integral functions during emergency response and may be supplemented by the PPPL Emergency Response Organization (ERO) during an emergency. Initial response staffing and deployment of ESU personnel depends upon minimum staffing requirements as determined by the NFPA.

While operating at the scene of an emergency, the ESU Captain fills the role of the Incident Commander over all emergency response operations, on-scene assessments, tactical priorities, and responder activities that involve fire, EMS, and related activities utilizing the Incident Command System (ICS).

Other PPPL resources, including the Building Evacuation Monitors (BEMs), may be activated, deployed, and directed by the Incident Commander.

SPD can provide a trained ESU Incident Safety Officer (ISO) for emergency events requiring the ISO. Additional ISOs are available through mutual aid with Plainsboro and can be requested through Mercer County Central Communications.

Fire Safety Program Elements

ESU personnel perform fire safety duties required by PPPL for its fire prevention program. These include conducting hot-work assessments and issuing hot work permits, impairing fire protection system, inspecting fire/safety equipment in buildings (including portable fire extinguishers). Personnel also inspect fire protection systems and related water supply systems, update and post evacuation maps, provide PPPL staff fire prevention and extinguisher training.

ESU personnel provide an integrated response during routine duties as well as emergencies at PPPL as each officer is trained to assess, investigate, and mitigate fire, medical, and security issues.

Fire Prevention Planning

ESU manages a Pre-Fire Incident Planning Program that incorporates a Program Manager who possesses the requisite knowledge and experience to conduct Pre-Fire Incident Planning and Safety Assessments in coordination with the PPPL Fire Protection Engineer (FPE). The primary responsibility for maintaining specific procedures to identify and control flammable, combustible, and and hazardous materials in each specific area of the laboratory belongs to the Responsible Line Managers (RLMs) for the areas, with oversight by the FPE, members of ESU, assigned area Facility Managers (see O-027), and members of the Management Safety Walkthrough (MSW) teams. Awareness and control also extends to issues such as maintaining egress pathways, access to emergency equipment (extinguishers), and operability of fire detection & suppression equipment (sprinkler head clearances, ceiling tile integrity).

Incident Safety

ESU utilizes PPPL Integrated Safety Management (ISM) policies and procedures, training, licensure skills and expertise, and incorporates and practices the prioritization of risks and safe operational strategies during emergencies. The on-scene Incident Commander prioritizes emergency response activities and resources to protect: ***(1) Life Safety, (2) Property, and (3) Environment.***

Infectious Disease/Pandemic Situation

ESU follows protocols established by the New Jersey Department of Health, Princeton Medical Center, on-site Occupational Medicine Office, and other best practices to ensure that persons who may have infectious diseases are properly quarantined during treatment, and medical authorities are advised and consulted to ensure that efforts to limit exposure to the extent possible given the emergency are fully utilized. These efforts shall include the use of personal protective equipment (PPE) including clothing and masks, containment of the patient and property, and limiting access to affected emergency response personnel and patients.

In the event of a pandemic situation, PPPL leadership may activate the PPPL Continuity of Operations Plan (COOP). Activation of the COOP may require partial or full closure of the lab, and would require ESOs to ensure the security of the lab, its facilities, assets, and personnel.

Facilities, Apparatus, and Equipment

The SPD administrative staff is headquartered in Module 6 and the Emergency Services Unit is located in the Emergency Services Building (ESB), which includes a three-door vehicle and equipment bay, offices, a kitchen, a training room, and sleeping quarters. PPPL maintains primary and secondary Emergency Operations Centers (EOCs) equipped with materials, resources, and technology necessary for directing emergency response.

Apparatus includes:

One - 2000 Ferrara Fire Engine with 1000-gallon water storage and 2000 GPM (gallons per minute) capacity

One - 2009 Ford F 350 Super Duty, Wheeled Coach Ambulance

One - 2004 Car-Mate, 7000 lb., Dual Axle Trailer Emergency Rescue Trailer and Gear

Three - Motorized Security Vehicles (two SUVs, one Pickup truck)

Four - Non-motorized patrol bicycles

Equipment includes emergency response turnout gear with integrated safety harness/bailout system, uniforms, self-contained breathing apparatus, radios, thermal-imaging camera, portable GPS tracking devices, video surveillance equipment, binoculars, night vision goggles, generators, and other related emergency responder equipment.

Communications

Communications utilize a 400-MHz radio system including a redundant base station in the communications center, mobile radios for all vehicles, and portable radios for all personnel. The ESCC possesses radio consoles for communicating with Mercer County Central Communications Center, Plainsboro, Princeton University, and Princeton Township first responders, as well as the Emergency Voice Evacuation System (EVES) system for on-site notifications and email.

The ESCC Communications officers monitor CCTV, card readers, various alarms, email notifications, and news and weather. Officers monitor and respond to the site-wide emergency call system x3333. The dispatchers are trained to assess the situation, provide the caller with additional instructions as needed, and enable emergency response.



Platoon Captains are also trained and authorized to utilize the PTENS emergency notification system to notify PPPL employees about emergencies and Laboratory closures.

The Night Owl system is utilized to enhance situational awareness for officers and supervisors by denoting daily activities including weather, visitors, tours, meetings, construction, experiments, etc. Campus-wide Wi-Fi allows ESOs to utilize email, access the network, and complete reports anywhere on campus.

Mutual Aid

PPPL has formal mutual aid agreements with Plainsboro Township and Plainsboro Fire District who have committed to provide PPPL emergency support (police, fire, emergency medical) when requested by the Laboratory. In return, PPPL provides support to the Township and its residents as operationally feasible. Joint training activities occur as feasible. PPPL also provides support to Princeton University.



Training

Training to ensure that staff can perform effectively, efficiently, and safely is an ongoing process. Officers must possess and maintain New Jersey Firefighter I, Emergency Medical Technician – Basic, ICS 100, CBRNE/WMD Awareness, Hazmat Awareness & Operations, and Confined Space Awareness certifications to be hired and to maintain employment.

General training and development of SPD personnel is accomplished through:

1. Human Resources General Employment Training (GET)
2. On-the-Job Training and Skill Building [including Radiation and Electrical Safety]
3. Environment, Health, and Safety Training
4. Career Development, Mentoring, and Job Development
5. Professional Counseling
6. DOE National Training Center
7. Workshops
8. Conferences
9. Forums

Specific Firefighting and Emergency Medical Technician training includes necessary continuing education courses required to maintain either New Jersey or PPPL certification:

1. Forty-Eight (48) Emergency Medical Technician continuing education credits every five (5) years;
2. Annual live burn training;
3. Basic electrical safety training every three (3) years;
4. Radiation safety and hazardous communications training every two (2) years; and
5. Cyber-security awareness, confined space rescue training, physical agility, blood-borne pathogens, hazardous materials refresher and transportation emergencies procedure training.

Unit-specific training includes unit-specific training and drills conducted in the field, firehouse, classroom, and online. Training may also be conducted during platoon rollover meetings as well as through SPD "Readiness Awareness Communications" (RACs).

Other training provided: College University Public Safety Association (CUPSA) basic and general knowledge of security effectiveness including patrol procedures, tactics, investigations, etc.). Selected officers have also attended a number of workshops and seminars by outside agencies including Homeland Security and FEMA.

SPD has also planned, designed, participated in, and/or supported other training courses, exercises, and drills to assist officers in performance including mutual aid training exercises and drills, Laboratory drills and exercises, and security "situational awareness" training.

On a case-by-case basis, real-life events are also assessed and utilized for training and education.

Attachment 1 – ESU Staffing for Emergency Response

Site Protection Division
Emergency Services Staffing for Response to Fire Emergencies Involving Immediate Danger to Life and Health (IDLH) Atmospheres

Staffing Scenario #1: Six Personnel On Duty									
		Week Day 0645-1700			Week Day 1700-0645			Weekends/Holiday	
Position/Post Assignments	Captain	R	1			1		1	
	Driver/Operator	R	1			1		1	
	Communications Officer	N	1		1		1		
	Booth & Officer	N	1		N/A		2		
	ESO	R	1		1		1		
Responding/Non-Responding Post (R, N)		Staffing	NFPA Minimum Staffing = 4 (NFPA 1710, Section 5.2.3, Operating Units)	OSHA 1910.134 (G) (4) Procedure for Interior structural firefighting "Two In/Two Out"	Staffing	NFPA Minimum Staffing = 4 (NFPA 1710, Section 5.2.3, Operating Units)	OSHA 1910.134 (G) (4) Procedure for Interior structural firefighting "Two In/Two Out"	Staffing	NFPA Minimum Staffing = 4 (NFPA 1710, Section 5.2.3, Operating Units)
			Standard Met	Rule Met		Standard Met	Rule Met		Standard Met
Staffing Scenario #2: Five Personnel On Duty									
		Week Day 0645-1700			Week Day 1700-0645			Weekends/Holiday	
Position/Post Assignments	Captain	R	1			1		1	
	Driver/Operator	R	1			1		1	
	Communications Officer	N	1		1		1		
	Booth & Officer	N	1		N/A		1		
	ESO	R	1		1		1		
Responding/Non-Responding Post (R, N)		Staffing	NFPA Minimum Staffing = 4 (NFPA 1710, Section 5.2.3, Operating Units)	OSHA 1910.134 (G) (4) Procedure for Interior structural firefighting "Two In/Two Out"	Staffing	NFPA Minimum Staffing = 4 (NFPA 1710, Section 5.2.3, Operating Units)	OSHA 1910.134 (G) (4) Procedure for Interior structural firefighting "Two In/Two Out"	Staffing	NFPA Minimum Staffing = 4 (NFPA 1710, Section 5.2.3, Operating Units)
			Standard Met	Rule Met		Standard Met	Rule Met		Standard Met
Staffing Scenario #3: Four Personnel On Duty									
		Week Day 0645-1700			Week Day 1700-0645			Weekends/Holiday	
Position/Post Assignments	Captain	R	1			1		1	
	Driver/Operator	R	1			1		1	
	Communications Officer	N	1		1		1		
	Booth & Officer	N	1		N/A		1		
	ESO	R	1		1		1		
Responding/Non-Responding Post (R, N)		Staffing	NFPA Minimum Staffing = 4 (NFPA 1710, Section 5.2.3, Operating Units)	OSHA 1910.134 (G) (4) Procedure for Interior structural firefighting "Two In/Two Out"	Staffing	NFPA Minimum Staffing = 4 (NFPA 1710, Section 5.2.3, Operating Units)	OSHA 1910.134 (G) (4) Procedure for Interior structural firefighting "Two In/Two Out"	Staffing	NFPA Minimum Staffing = 4 (NFPA 1710, Section 5.2.3, Operating Units)
			Standard not Met, Mutual Aid is Required	Rule not Met, Mutual Aid is Required (Note Life Safety Exception)		Standard not Met, Mutual Aid is Required	Rule not Met, Mutual Aid is Required (Note Life Safety Exception)		Standard not Met, Mutual Aid is Required