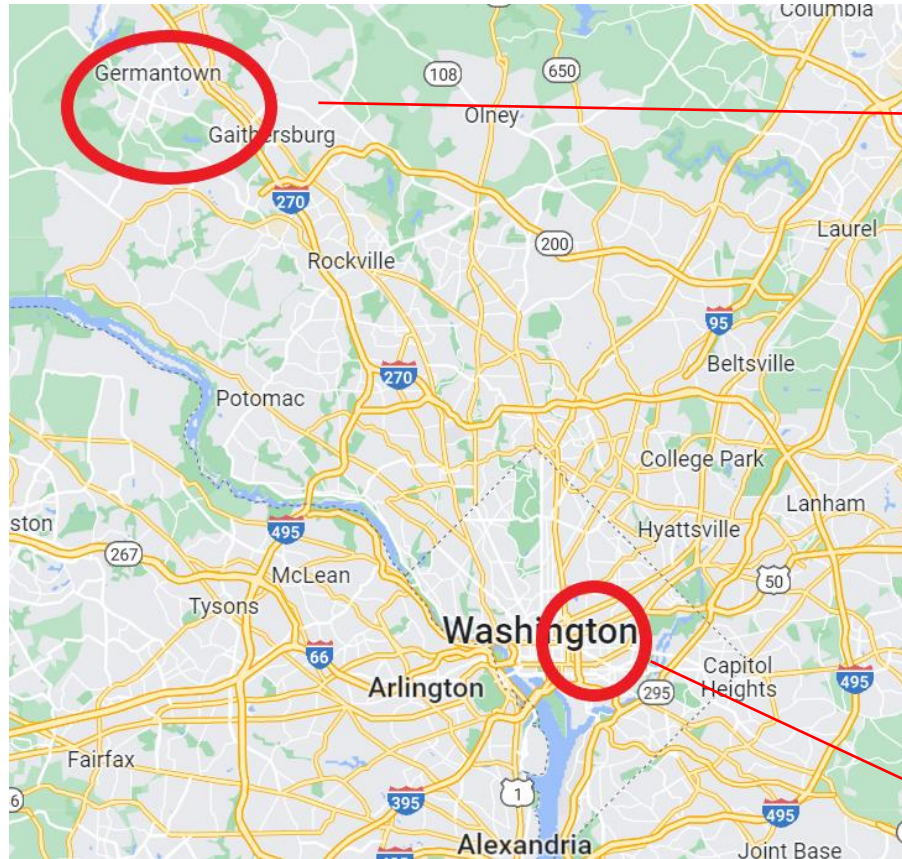
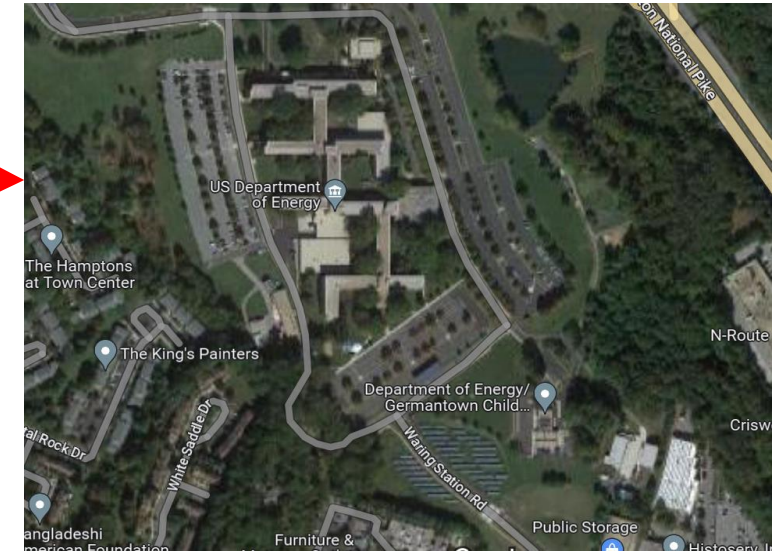


# GERMANTOWN FIRE PUMP ROOM FIRE

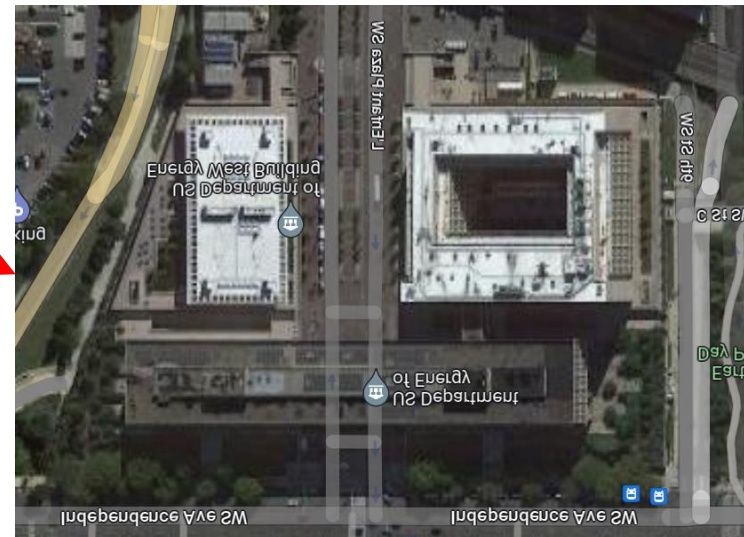
# US DOE HEADQUARTERS FACILITIES DC AREA



GERMANTOWN

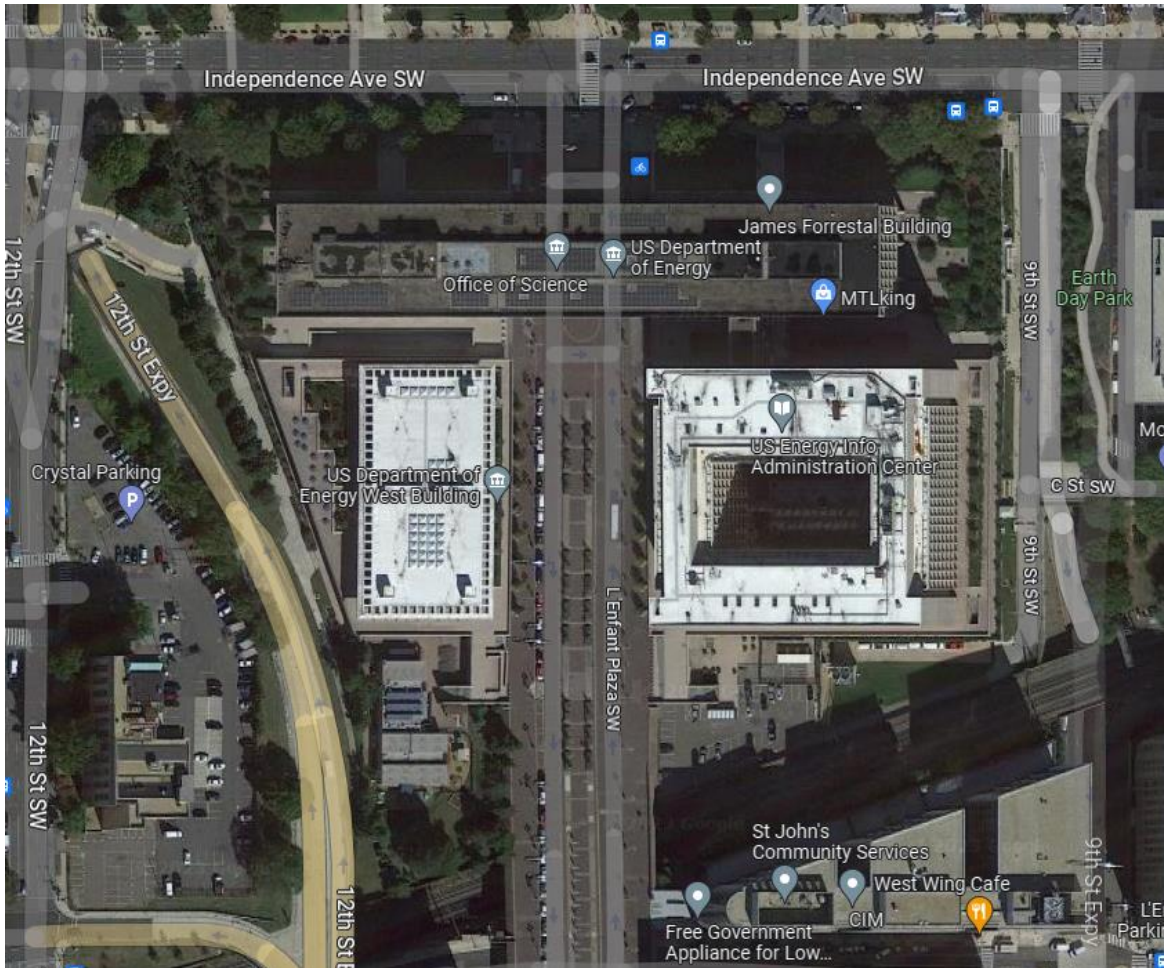


FORRESTAL





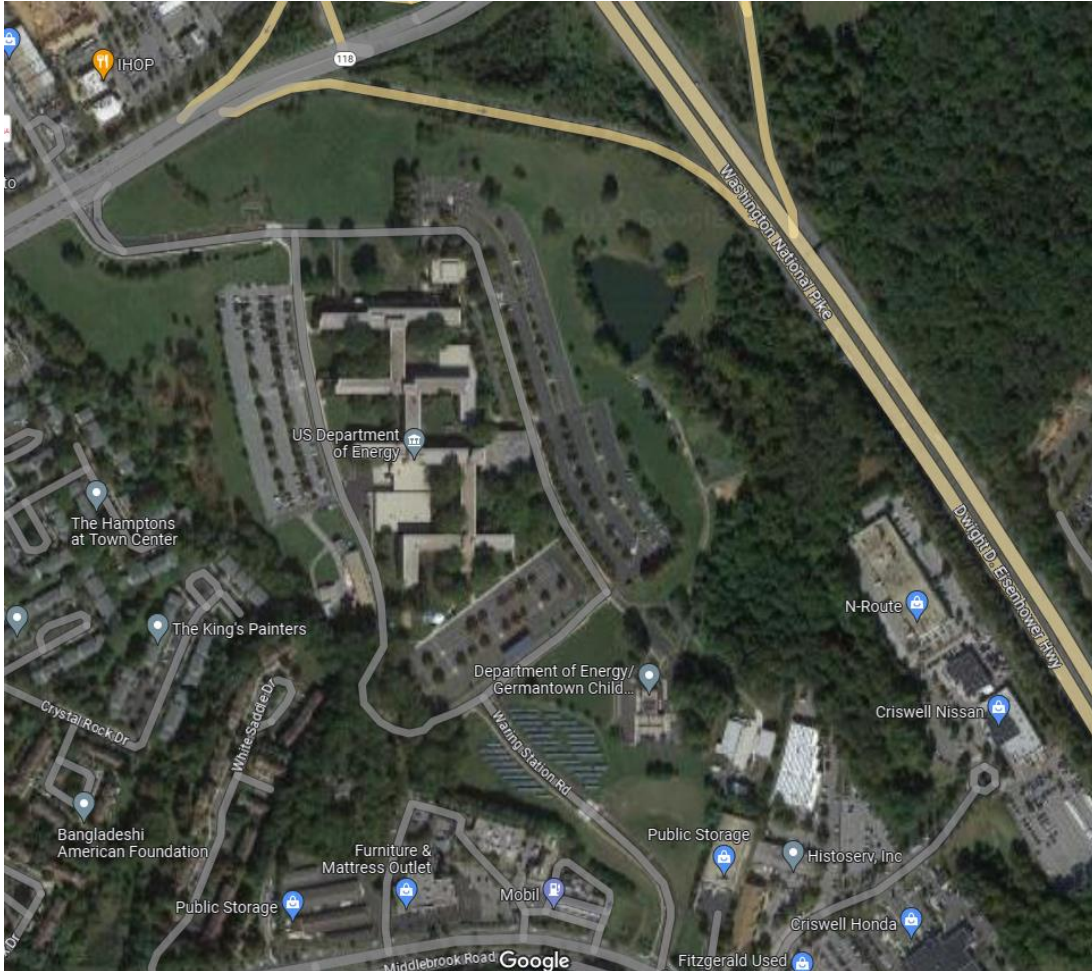
# HQ Forrestal Building



- Built from 1965 to 1969
- Three buildings
- 8, 7 and 3 stories with two underground levels.
- Total area: 1,808,147 square feet



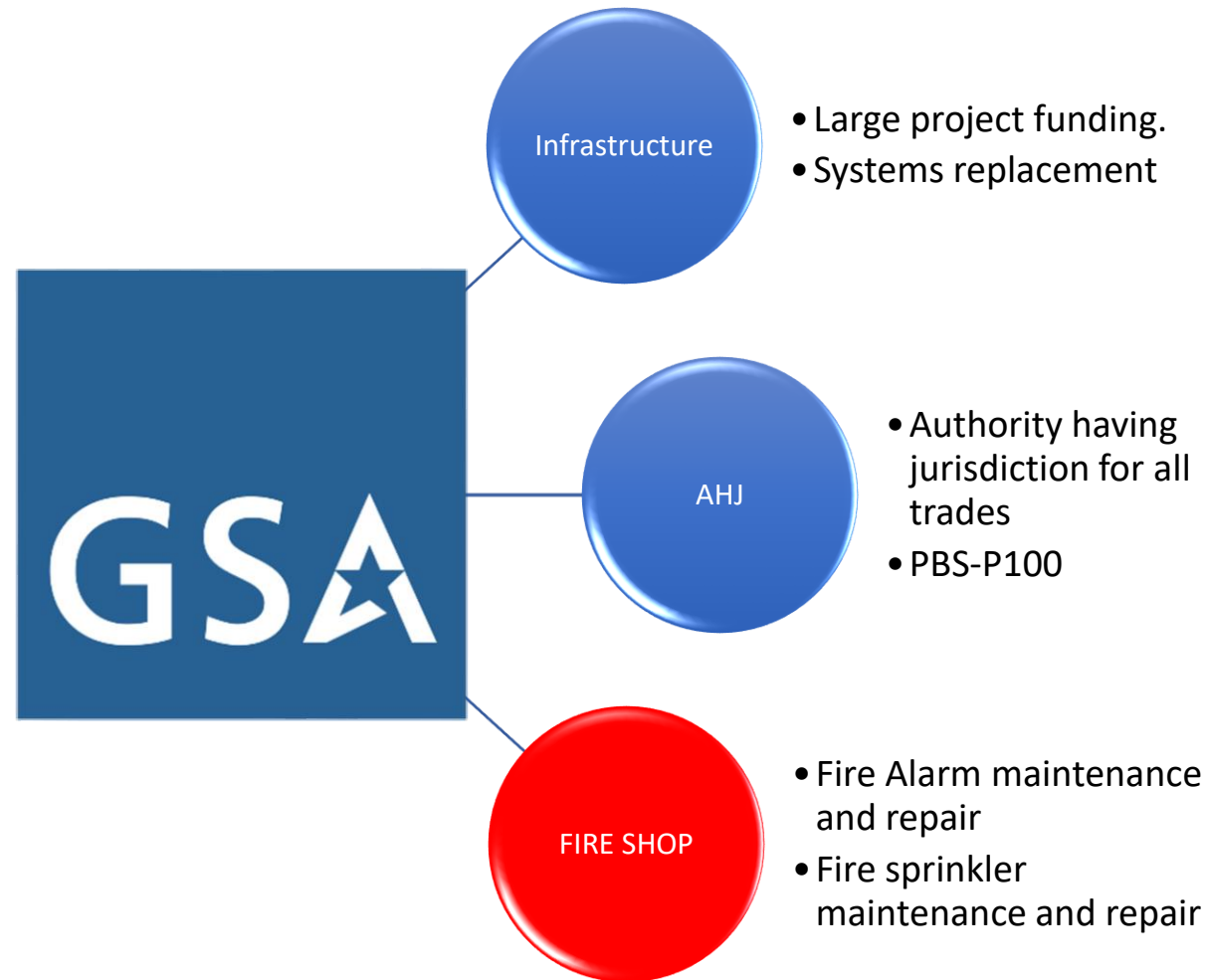
# HQ Germantown complex



- Main Building: Nine-wing building complex with computer and data center wing, cafeteria and warehouse.
- Built from 1957 (Wings A through E) to 1959 (Wings F through J, warehouse and cafeteria)
- Four stories above grade and one partially below-ground level.
- Total area: 637,814 square feet
- Whole complex also features outbuildings including a CDC, one boiler and chiller utility building, a large auditorium, two equipment shed for ground maintenance and a radio/communications building connected to main via tunnel.
- Fire pump addition at the end of J-wing was built around 2014.



# GSA SUPPORT UNTIL 2019



# DOE INCORPORATES “FIRE SHOP” INTO O&M CONTRACT

- Fire Alarm emergency response (after hours outages).
- Fire Alarm regular hours support tech (regular hours outages)
- Inspection and testing
- Fire Alarm and sprinkler repairs
- Alterations support
- Created in 3 groups:
  - Fire and Life Safety Support and Engineering services
  - Fire Alarm Technician Support services
  - FPS inspections, test and maintenance and support services

# PWS (performance work statement) created

SPEC Item	Title	Major Requirement	Related Information	Estimated Quantity	Performance Standard
3.C.16	Fire Protection Systems inspections, test and maintenance, and support Services Personnel	<p>The maintenance work required under this contract must be performed by a licensed contractor with a minimum of five (5) years' experience in:</p> <ul style="list-style-type: none"><li>• For Fire Alarm Systems: The performance of Comprehensive Fire Alarm Services including but not limited to: Repairs, Programming &amp; Confidence/Acceptance Testing, which should include preventive maintenance and repair of fire alarm and suppression systems of the type(s), complexity and other characteristics to be serviced under this contract.</li><li>• For kitchen hood fire suppression systems: The performance of Comprehensive Kitchen Hood Services including but not limited to: Repairs, maintenance, &amp; Confidence or Acceptance Testing, which should include preventive maintenance and repair of kitchen hood fire alarm and suppression systems of the type(s), complexity and other characteristics to be serviced under this contract, including cleaning/maintenance of kitchen hood ducts.</li><li>• The Contracting Officer (CO) shall reject any prospective vendor who cannot furnish evidence of such qualifications.</li></ul>	<p>Hours of Operation: Work for this team will be mostly performed after standard working hours. Contractor employees must meet and include Security and escorting requirements. Work that does not include outages of Fire Alarm, sprinkler system, or sounding alarms or producing excessive noise, may be authorized to be performed during regular business hours of 6:00 AM to not later than 6:00 PM, Monday through Friday.</p> <p>Contractor will be required to coordinate inspection times with the Building Manager or DOE Fire Protection Engineer.</p> <p>Contractor shall coordinate with tenants for access to equipment like fire extinguishers, local fire alarm panels, smoke detectors, etc.</p>	Estimated minimum of 12 inspections annually at each site but shall be as required for each type of system per the respective regulation.	All activities will meet Industry standards for fire protection system including but not limited to GSA PBS P100, National Fire Protection Association (NFPA) 25 for Fire Sprinklers, NFPA 72 for Fire Alarms and NFPA 96 for Kitchen Hoods

# GSA PM GUIDE

## FLSF-PMP-01- 01Y

### Fire Pump - Diesel Engine

#### Driven Annually

#### Application:

This standard applies to all fire pumps powered by a diesel engine. The fire pumps are required to start automatically to provide water pressure into mid-rise and high-rise buildings. These checks are in addition to the weekly and monthly checks required by this standard and NFPA.

#### Special Instructions:

1. In addition to the procedure(s) outlined in this standard, the equipment manufacturer's recommended maintenance procedure(s) and/or instruction(s) shall be strictly adhered to.
2. Review manufacturer's instructions.
3. Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work.
4. The work required by this procedure may cause the activation of an alarm and/or a supervisory signal. The field office manager and the control center, central station, or fire department that will receive the alarm and/or signal must be notified prior to start and at completion of work.
5. A yearly test shall be made at full pump capacity and over to make sure that neither pump nor suction pipe is obstructed. Guidance and assistance should be obtained from the Chief, Safety and Environmental Management Branch/Division.
6. Hearing protection is required whenever the diesel engine is running.
7. The inspection, testing, repairs, and maintenance of all fire protection equipment and systems shall be in accordance with the requirements in the applicable NFPA code or standard.

#### Check Points:

1. Refer to NFPA 25

#### Recommended Tools, Materials, and Equipment:

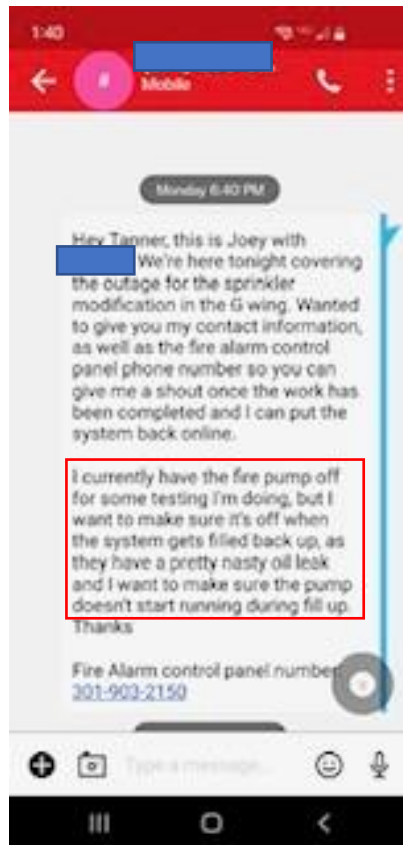
1. Coolant. Consult the Material Safety Data Sheets (MSDS) for hazardous ingredients.
2. Tune-up kit
3. Engine oil. Consult the Material Safety Data Sheet (MSDS) for hazardous ingredients.
4. Cleaning equipment and materials. Consult the Material Safety Data Sheet (MSDS) for hazardous ingredients and proper Personal Protective Equipment (PPE).
5. Oil, air, fuel filters.
6. Hearing protection.
7. Tool Group C



DATE	EVENT	O&M Contractor	O&M FA sub	RR Renovation Cont.
1/22/2023	Request for outage RR work			FA/FS outage requested
1/22/2023	Request for PM FA systems	FA outage requested		
1/23/2023	Fire Alarm outage by O&M FA sub		FA support	
1/23/2023	Fire pump stopped by FA tech. Oil leak identified		Inspection performed. Pump stopped	
1/23/2023	Texted RR contractor to avoid starting pump		Text to RR cont. stated "nasty leak"	
1/23/2023	Fire alarm inspections proceeded	Tested pump and quarterly visual for FS		
1/24/2023	Fire Alarm outage by O&M FA sub. All signals from this point on were not reported to Megacenter. Fire Department not dispatched or notified		FA support	
1/24/2023	Fire alarm inspections continued		Smoke detectors tested at Penthouse	
1/24/2023	Pump run even after warning not to.		6:53 Received supervisor signal/ fire pump running. Acknowledge by tech at panel	
1/24/2023	Main flow switch activated. G wing in alarm		6:54 Main flow switch and G-wing flow switch activations received at panel.	It appears contractor opened the main drain of system before closing valve
1/24/2023	Valve closed on g wing		6:56 Signal received	Closed control valve for RR sprinkler work
1/24/2023	Valve closed on G wing west corridor		6:57 Tamper signal received	Closed another control valve to stop flow
1/24/2023	Smoke detector in pump room on		6:54 received alarm from pump room. No action from tech	
1/24/2023	Fire pump fault reported		6:55 received fire pump fault. No action from tech	Not reporting work completion yet
1/24/2023	G wing ground floor south tamper		7:34 received tamper switch signal	Contractor is likely shutting down more valves to stop flow.
1/24/2023	Smoke is identified in J-wing stairwell area		7:48 Smoke is identified by techs	
1/24/2023	CO detector activated		7:53 pm CO detector signal received	
1/24/2023	Various other faults and troubles reported		From 7:55 to 8:10 pm multiple other troubles were identified.	

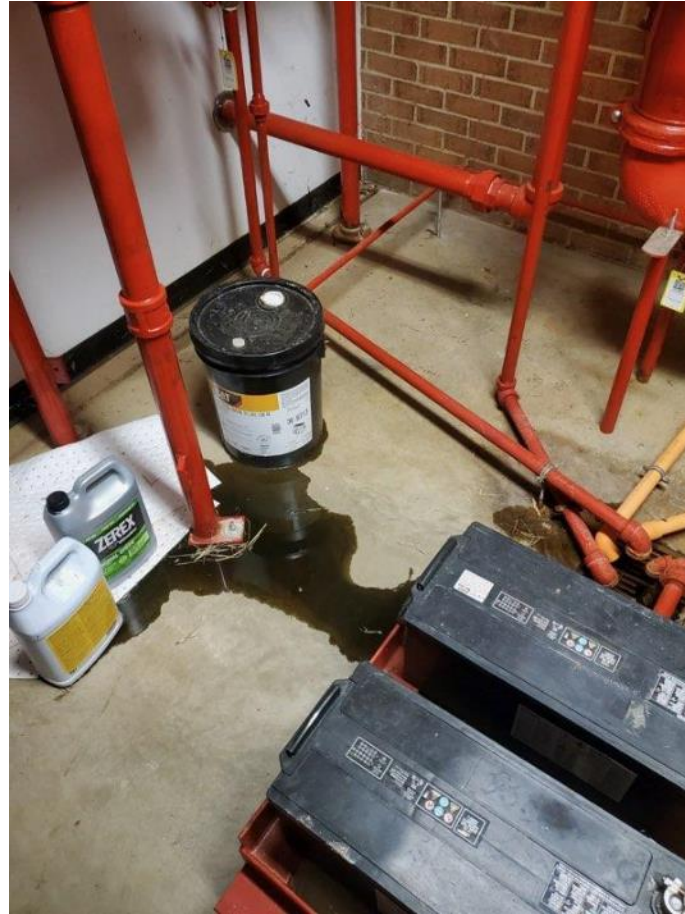
# FA PANEL LOG

# January 23: Pump leak “reporting” during fire alarm testing



- Text from O&M contractor's sub to restroom renovation sub.
- No actual report was produced on time or communicated to DOE.
- O&M contractor's sub was supposed to report this leak to the Fire Protection coordinator.
- No action was taking by either contractor besides warning not to run the pump.
- “..I currently have the fire pump off for some testing I’m doing but I want to make sure it’s off when the system gest filled back up, as they have a pretty nasty oil leak....”

# January 23: Pump leak



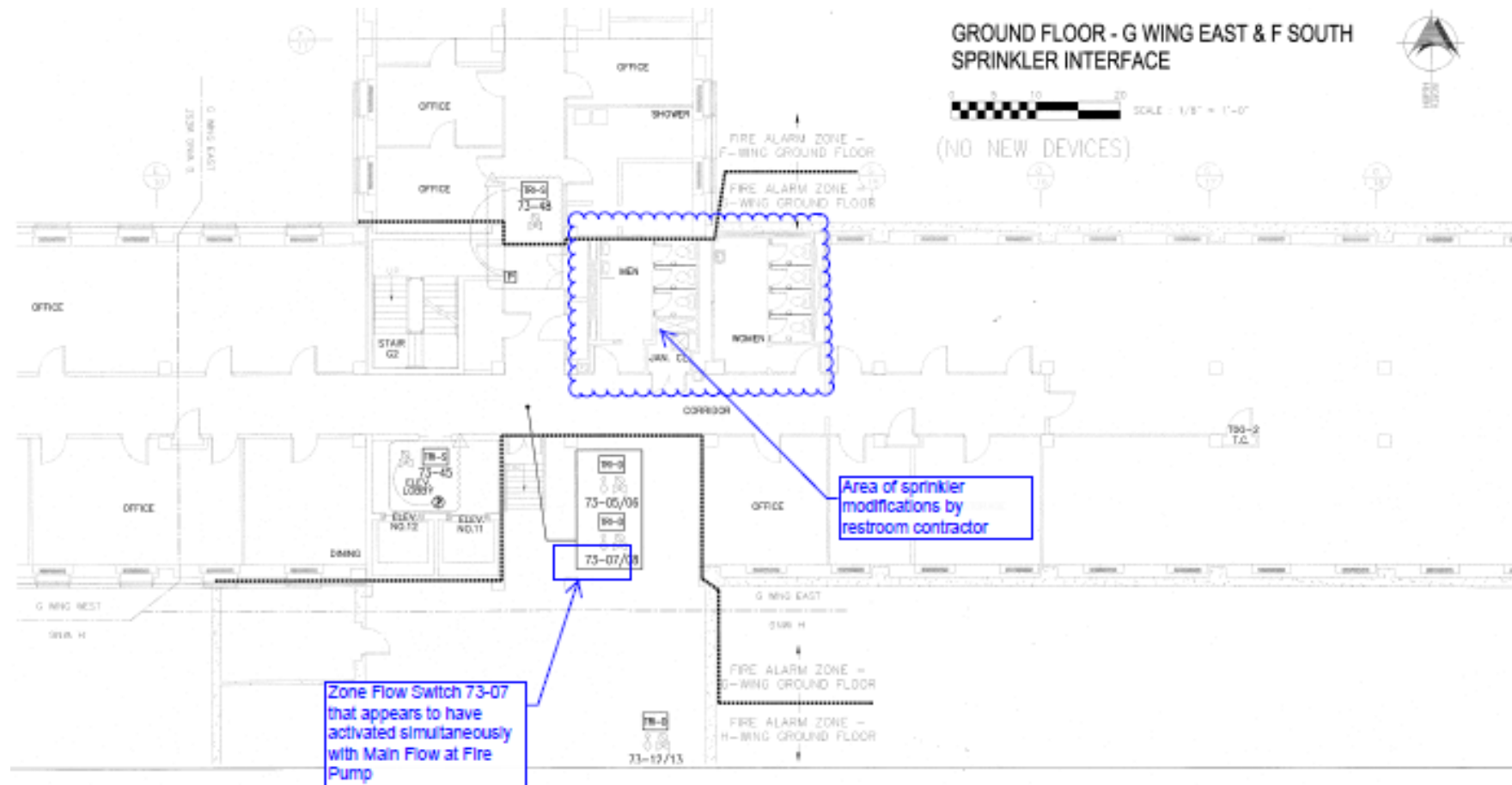
DOE Germantown- Fire Pump Weekly Test		
Refer to GSA F-5 PM Guide (Weekly Test)		Date: 1/23/23
No.	Description	Expected Value Results
1	GSA Fire S/Jop Inspector Name	TJ
2	Confirm FA System Is In Test Mode	OK
3	Safety PPE Hearing Protection	OK
4	Hours Start	256.2
5	Hours Stop	256.7
6	Suction Pressure	50 PSI OK
7	Run Discharge Pressure	150 PSI to 160 PSI OK
8	Air Cleaner	OK
9	Battery Visual	OK
10	Coolant Hoses	OK
11	Coolant Leaks	OK
12	Coolant levels	OK
13	Coolant Level and Condition	OK
14	Cooling Loop Valves Position	OK
15	Cooling Water Solenoid Valve	OK
16	Cooling Water Discharge Pressure	20 PSI OK
17	Exhaust system	OK
18	Fuel Tank Level- call for delivery when	<3/4 full OK
19	General Inspection	OK
20	Governor Run-Stop Control	OK
21	Jacket Water / Block Heater	150 °F OK
22	Lubrication Oil Level	OK
23	Operating Guages	OK
24	Oil Pressure PSI	50 PSI to 60 PSI OK
25	Battery	14 Volt OK
26	Battery	14 Volt OK
27	Temperature	190 °F OK
28	RPM	1750 RPM OK
29	Remove Water from Fuel Filter	Drain Water OK
30	Run Engine	OK
31	Warning Light	Auto Shutdown OK
32	Clean Cooling Water Strainers	Blow Down OK
33	Next Scheduled Monthly (F-5A GSA PM Guide)	
34	Next Scheduled Quarterly (F-5B GSA PM Guide)	
35	Next Scheduled Annual (F-5C GSA PM Guyide)	16-Oct
36	Exhaust Fan & damper	
37	Jockey Pump	

# FIRE PUMP WEEKLY INSPECTION REPORT SHEET.

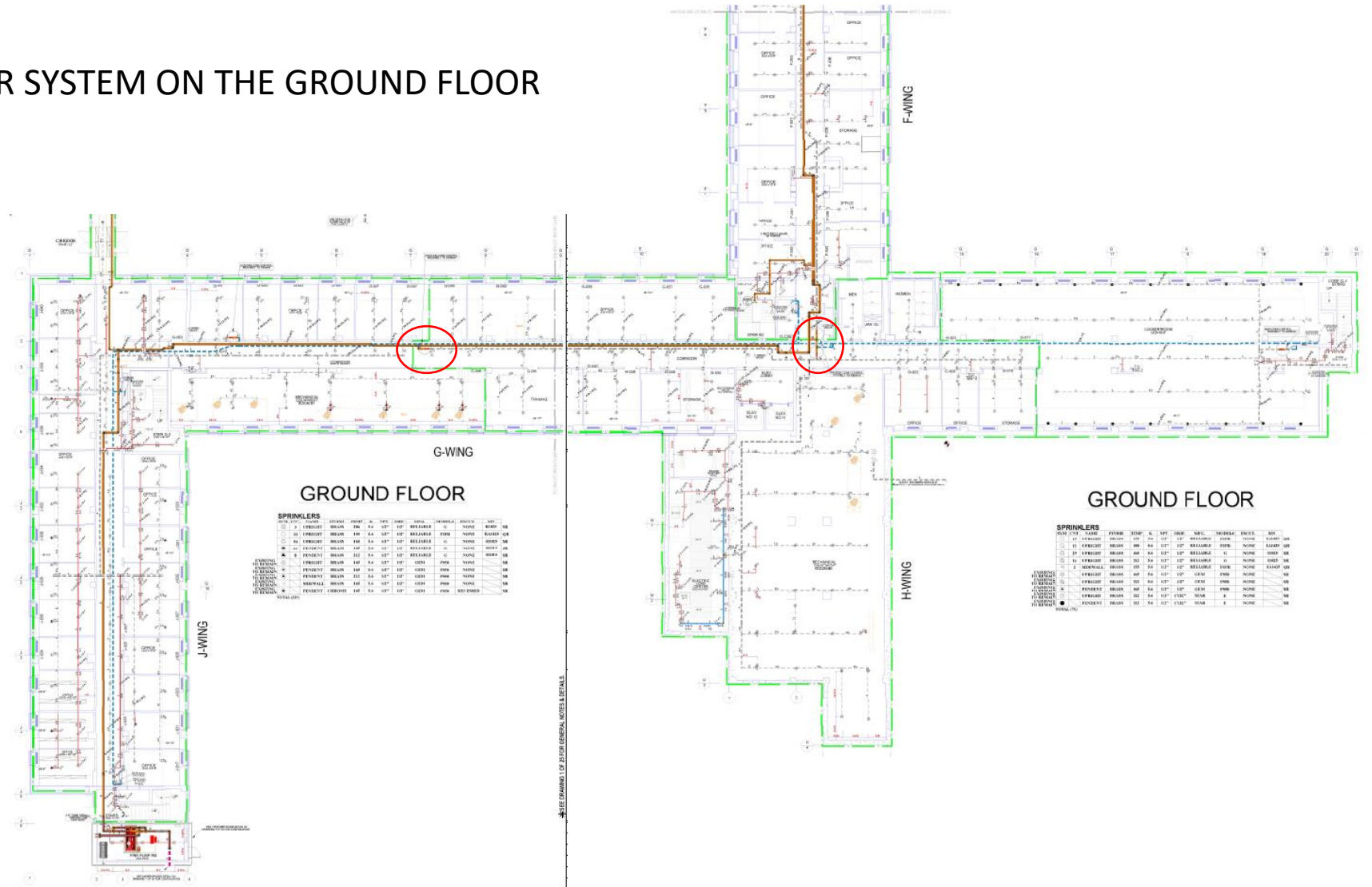
Note: Fire pump should have been called out and all activities should have been stopped the day before. Leak was not reported here.



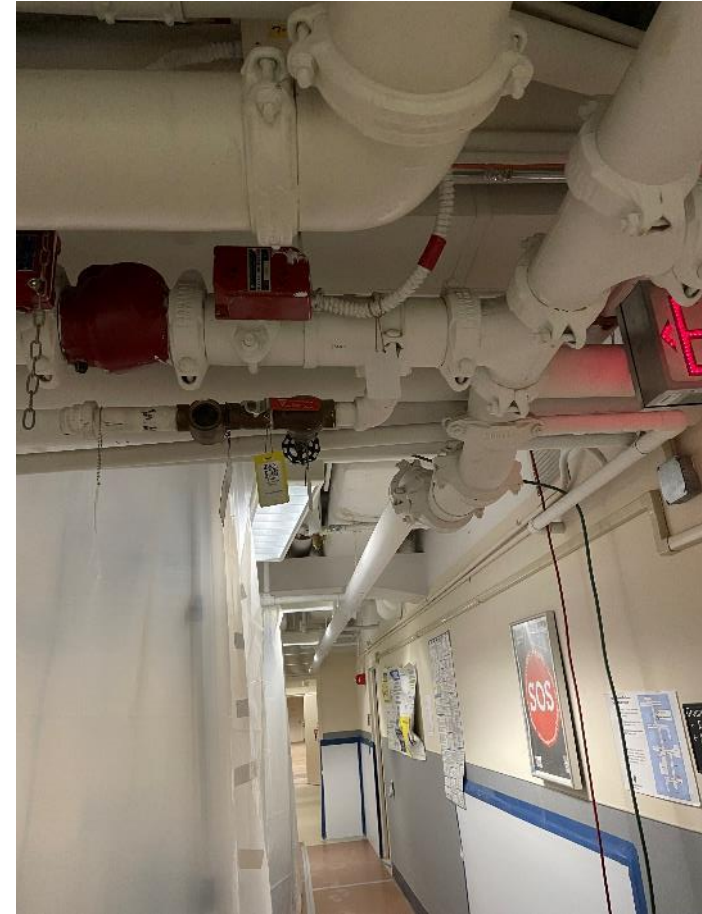
# RESTROOM RENOVATION LOCATION



## DUAL FEED FIRE SPRINKLER SYSTEM ON THE GROUND FLOOR

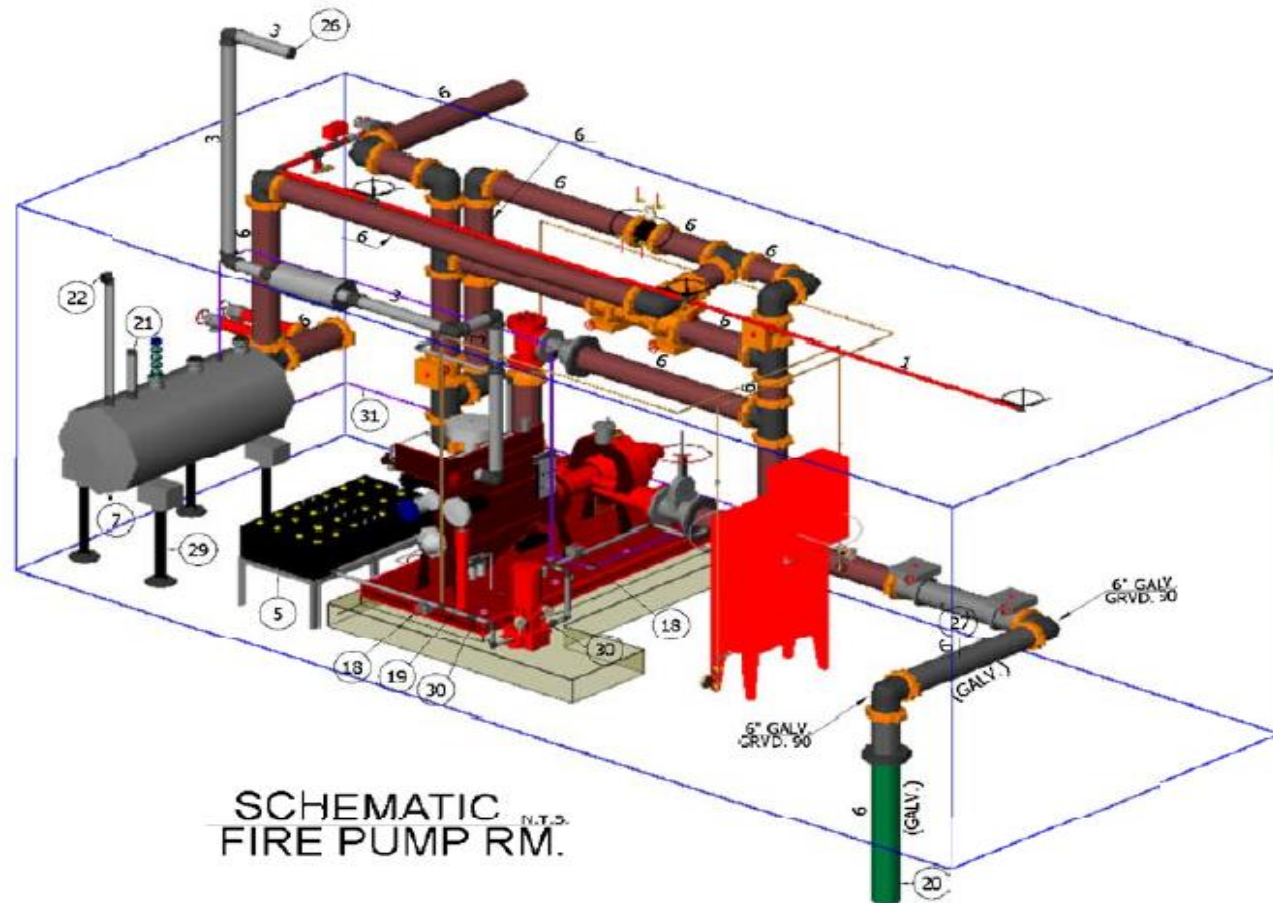


Two valves for FS isolation that were not properly identified prior to Restroom renovation work started





# GERMANTOWN FIRE PUMP INSTALLED IN 2014



## PARTS LIST:

1	FIRE PUMP (SEE PUMP INFO)
2	JOCKEY PUMP (SEE PUMP INFO)
3	FIRE PUMP CONTROLLER
4	JOCKEY PUMP CONTROLLER
5	BATTERY & RACK
6	MUFFLER & EXHAUST
7	DOUBLE WALL FUEL TANK (20 GALLON)
8	PRESSURE RELIEF VALVE
9	ENCLOSED WASTE CONE 6x3
10	GROOVED INCREASER 6x5
11	6x3 GROOVED REDUCER
12	6" VENTURI FIRE PUMP TEST METER
13	6" BUTTERFLY VALVE GxG w/TAMPER SW (NORMALLY OPEN)
14	6" CHECK VALVE GxG
15	6" OS&Y VALVE FLGxFLG
16	1/2" BRASS SENSING LINE FOR FIRE PUMP CONTROLLER
17	1/2" BRASS SENSING LINE FOR JOCKEY PUMP CONTROLLER
18	1" BUTTERBALL VALVE TxT w/TAMPER SW
19	1" CHECK VALVE TxT
20	6" INCOMING WATER SUPPLY
21	2" BLACK STEEL PIPING FOR FUEL TANK FILL
22	FUEL TANK VENTILATION
23	6" CONCRETE FIRE PUMP PAD
24	FLOOR DRAIN
25	1" BLACK STEEL JOCKEY PUMP SUPPLY OR DISCHARGE
26	3" EXHAUST PIPING
27	NEW 6" BACKFLOW PREVENTER MOD. COLT C200
28	2" MAIN DRAIN (DISCHARGE INTO FLOOR DRAIN)
29	PIPE STAND (FLOOR MOUNTED)
30	1" THREADED UNION
31	1/2" FUEL LINE BLACK SCH. 40
32	1/2" BRASS UNION FOR SENSING LINES
33	1/2" CHECK VALVE FOR FUEL RETURN
34	6" BUTTERFLY VALVE GxG w/TAMPER SW (NORMALLY CLOSED)



# Fire pump fire pictures





# Fire pump fire pictures





# Fire pump room damage

Filter damaged, fell off. Lots of plastic burned. Ceiling charred.



# Jensen Hughes conclusions

## *Summary and Conclusions*

On Monday, 1/30/2023, Jensen Hughes (JH) was retained by Alphatec to investigate a fire incident that occurred in the fire pump room (J-Wing) of the main building at the United States Department of Energy (DOE) complex located in Germantown, Maryland on the evening of 1/24/2023. The fire occurred in the fire pump room and involved the fire pump itself.

On the day prior to the incident, an oil leak was observed in the fire pump room from the fire pump diesel engine and was noted as a deficient condition. The fire pump was not removed from service or disconnected.

On the day of the incident, scheduled project work was being conducted in the G-Wing of the building, requiring portions of the sprinkler system to be isolated via control valves. Based on the fire alarm history log and anecdotal accounts from personnel on site, the sprinkler system was not appropriately isolated prior to a drain valve being opened, causing the fire pump to begin running.

Sometime after the fire pump began running, leaking engine oil found an ignition source on the fire pump diesel engine.

The cause of the fire can ultimately be attributed to the inadvertent operation of the fire pump when it was in a known deficient condition, as it is most likely that the initiation of the fire pump was a contributing event.





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# ACTIONS TAKEN/LESSONS LEARNED

- Fire alarm or sprinkler outage cannot be done with other activities simultaneously
- Reviewed and adjusted O&M contract to incorporate strict engine maintenance.
- O&M contractor is required to provide all written and accurate reports from the subcontractors.
- Subcontractors should not directly contact other subcontractors during work. All communications should be through prime contractors and then coordinate with DOE.