SPOKANE COUNTY FIRE DISTRICT 8

Standard Operating Procedures

40.04.11 FIRE INVESTIGATOR SAFETY		Adopted: 12/20/16 Reviewed: 11/18/21 Revised: 11/18/21 Approved:

Purpose: To outline when fire investigation services are needed from an outside agency and the general requirements and safety standards for fire investigators.

References: WAC 296-305-04001
District Respiratory Protection Program
Policy 40.03.15

Procedure:

1. Dispatch Criteria.
   A fire investigator from an outside agency shall be dispatched for the following reasons:
   a) Loss of life or serious injury (civilian or fire personnel).
   b) Serial arson activity.
   c) Suspicious or negligent activity, odor of flammable liquids, multiple fire locations, evidence of forcible entry.
   d) All structure fires that appear to exceed the threshold of $10,000 as determined by the Incident Commander (IC) or Command Officer (CO).
   e) Fire where the Incident Commander has reasonable suspicion that a crime occurred.
   f) All commercial buildings or fires involving churches, schools, and government buildings.
   g) At the Incident Commander's discretion.

2. Dispatch Call-Out Procedure.
   a) The Incident Commander shall call for a District fire investigator (840) when any of the preceding Dispatch Criteria are met.
   b) The Incident Commander may also call Dispatch to request a fire investigator from an outside agency of his/her choice.

3. Fire Investigator Safety.
   a) Fire investigators shall adhere to the referenced safety standards for respiratory protection, and the selection of personal protective equipment.
   b) All investigators shall complete a medical evaluation to determine their ability to use a respirator before they are fit tested or required to use the respirator.
      i. Fit test procedures shall follow procedures outlined in the District's Respiratory Protection Program.

ii. Investigators shall be trained in the proper function, use, cleaning, and maintenance of any respiratory protection provided for their use. The required training shall cover:
   1. Recognizing hazards that may be encountered.
   2. Understanding the components of APR's and SCBA.
   3. Understanding the differences between the operations of the two types of respirators.
   4. Limitations of the respirator.
   5. Ensuring they have a tight fit when using an APR.
   6. Inspecting and cleaning the respirator.

c) General Requirements for all fires:
   i. CO shall be continuously monitored in the areas where the investigator is working.
   ii. A radio shall be on and functional.
   iii. The following personal protective equipment (PPE) and respiratory protection designated for the task shall be provided and used by any fire investigator entering designated hazardous areas:

      1. Firefighting boots with steel toe and shank.
      2. Gloves. *NOTE: Gloves may be removed if the nature of a task requires the investigator to do so.*
      3. High-risk latex or nitrile gloves may be worn under firefighting gloves.
      ~~1. Hard hat or firefighting helmets shall be worn in any hazard area e.g. where overhead debris or damaged structural no non-structural construction is unstable.~~
      4. Hard hat or firefighting helmets shall be worn in any hazard area e.g. where overhead debris or damaged structural members are unstable.

   iv. Upon arrival at the scene, the investigator shall enter the Passport Accountability System.
   v. At any structure fire investigation, the investigator shall work with a partner until the investigation is complete, or until the structural hazards have been mitigated. This is not required for a minor structure fire unless so directed by the IC or ISO. Investigators and their partners shall never enter a burning structure without complying with respiratory protection needed in a given situation.

d) Structure fires:

i. Fire investigators and/or designated partners shall not enter a hazardous area or atmosphere during tactical operations without full turnouts, SCBA, PASS device, and the permission of the IC. See Form 40.04.11.
ii. While in a non-hazardous area the SCBA may be in the standby mode.
iii. When in a hazardous atmosphere the SCBA shall be donned and used, including an activated PASS device.
iv. Fire investigators at a major structure fire shall obtain a partner before entering a hazardous area or atmosphere and shall maintain voice, visual, or touch communication with that partner at all times.
v. The investigator, and partner, or additional team members shall wear a SCBA until the atmosphere has been characterized by the ISO as safe for the fire investigator to utilize an APR with CO monitor activated as described in Form 40.04.11:
    1. The investigator, and partner, or additional team members shall wear a SCBA until the atmosphere has been characterized by the ISO as safe for the fire investigator to utilize an APR with CO monitor activated as described in Form 40.04.11:
    2. Once overhaul is completed (all fires are extinguished), a new hazard assessment shall be conducted to determine if SCBA is needed.
    3. The person/s conducting this new assessment must wear an SCBA since the atmosphere is still considered to be "unknown". This assessment will take into account the particulars of the site (ventilation level, potential for chemical residues, smoke, carbon monoxide, asbestos, or lead containing materials, etc.), which will indicate risk for exposure and need for certain respirators to be used.
    4. When a CO alarm activates indicating an unacceptable level of CO, the fire investigator shall immediately exit the contaminated environment; they can re-enter using a SCBA or after the level of CO has dropped to an acceptable level of 35 ppm or less.

e) Extended Investigations:
    i. Prior to initial entry into the structure, the fire investigator, in coordination with the IC or ISO, shall make a determination of any

unsafe areas of the structure and what actions need to be taken to insure the safety of personnel.

ii. The IC or ISO, prior to the departure of the fire crews, will confer with the on-scene lead investigator and relate any safety concerns during the continuing investigation.

iii. The lead investigator shall be responsible, after the IC or ISO departure, for assuring that the proper level of PPE is worn during the course of the investigation. Prior to this, it shall be the ISO's responsibility to communicate the proper level of PPE required to the lead investigator.

iv. As the scene stabilizes, and based on an evaluation of the conditions existing at the scene during the course of the investigation, the lead investigator may assess the situation and decrease the level of PPE.

v. The lead investigator shall not authorize non-fire district personnel on scene to enter the hazardous area within a structure without a minimum level of PPE or same level as being worn by the investigating team, and without identifying any significant structural hazards that may be present.

f) Minor Structure Fires:

i. Investigators shall establish and maintain communication with on-scene personnel when entering and within the structure.

ii. A CO monitor shall be on and functioning if atmosphere has not been otherwise deemed safe.

4. Definitions.

a) **APR—Air Purifying Respirator**: A respirator with an air-purifying cartridge(s) that remove air contaminants that may be present at the fire scene by passing ambient air through the air-purifying element. Multi-gas R95/100 filter cartridges should provide protection for organic vapors, acid gases, and particulates.

b) **Cartridge (air-purifying)**: A container with a filter, sorbet, or catalyst, or any combination of these materials, which removes specific contaminants from the air drawn through it.

c) **CO Monitor**: An electronic device that warns of the presence and concentration of a gas to include oxygen and carbon monoxide.

d) **Fire Investigator**: An individual, who has demonstrated the skills, and knowledge necessary to conduct, coordinate and complete an investigation who is assigned investigative duties at the fire scene.

e) **Hazardous Area**: The area where members might be exposed to a hazardous atmosphere. A particular substance, device, event, circumstance or condition that may present a danger to a member of a fire department.
f) **Hazardous Atmosphere**: Any atmosphere that is oxygen deficient or that contains a toxic or disease- producing contaminant at levels greater than the Permissible Exposure Limits. A hazardous atmosphere may or may not be immediately dangerous to life and health.
g) **Extended Investigation**: An investigation that will exceed two hours.
h) **Major Structure Fire**: A fire where damage has occurred or is likely to have occurred to structural members.
i) **Minor Structure Fire**: A fire where no damage has occurred to structural members.
j) **Multi-Gas Meter**: An electronic device that warns of the presence and concentration of a gas to include oxygen, carbon monoxide.
k) **PPE**: Personnel Protective Equipment.
l) **ISO**: Incident Safety Officer.
m) **Incident Commander (IC):** The person responsible for all decisions relating to the management of an incident. The Incident Commander is in charge at the incident.
Note: The Incident Commander may relinquish command of the scene to the lead investigator for the investigation of the scene or to personnel responsible for scene security pending completion of the investigation.
n) **SCBA**: Self Contained Breathing Apparatus.
o) **Structure Fire**: A fire involving buildings, enclosed structures, vehicles, vessels, and aircraft or like properties

5. Responsibility:
   a) The fire investigator shall inspect/evaluate the scene so as to determine the area/point of origin, source of ignition, materials, ignited, act or activity that brought ignition source and materials together, and assess the subsequent progression, extinguishments, and containment of a fire.
   b) The fire investigator shall maintain appropriate liaison with the IC, ISO and other interested and concerned professionals during an investigation.
   c) The Incident Commander is in overall responsible charge of the incident; his/her decisions will be based on the flow of information that is made available to him/her.

6. Decontamination Guidelines:

a) Fire investigation personnel exposed to fire product contamination at the fire scene during the course of investigation activities should have their PPE lightly sprayed with water, with their SCBA in place, in order to remove contaminants.
b) After protective clothing has been cleaned, clean helmets, boots, gloves, and all other equipment that was exposed to contaminants during the fire investigation in accordance to the District's decontamination procedures.
c) Personnel should consider secondary decontamination/cleaning upon return to quarters, following recommended procedures contained in the decontamination policy/procedure.
d) Personnel exposed to fire product contamination should take a shower upon return to quarters.
e) Security and support should be provided to investigators who may remain at the scene after fire crews have returned to quarters.
    i. Care must be exercised to beware of weak floors, holes burned in floors, and even the combustible portions of a floor completely destroyed.
    ii. Floors may have been weakened so that they will not support live loads.
    iii. Unprotected openings may exist in floors, some common to occupancies, some related to overhaul or fire damage.
    iv. If the investigation takes the investigator into area of the community where dangerous social situations may arise or exist, the Incident Commander should ensure that in these circumstances the fire investigators should not be left to work alone. Supplementary lighting and security should be provided.

7. Appendix.
   See attached checklists.

(Form 40.04.11)

FIRE INVESTIGATOR SAFETY CHECKLIST

Pre-Fire Training

☐ Hazardous Materials First Responder, Awareness Level Training (Minimum requirement for Fire Investigator).

☐ Hazardous Materials Technician Level Training. (Required for personnel operating at a scene involving hazardous materials).
- ☐ Respiratory Protection Program and Training
- ☐ Hazard Communication Plan
- ☐ Incident Command Training

The Incident Pre-Response

☐ Address _____

_____

Site Information

☐ Industrial
☐ Commercial
☐ Residential

Confined Space Present?

☐ No. Move on to next point.
☐ Yes. Confined Space Awareness Training.

Special Protective Clothing or Equipment Needed?

☐ No. Move on to next point.
☐ Yes. Training on the use of this clothing and equipment.

Hazardous Materials Present?

☐ No. Move on to next point.
☐ Yes. Identify hazardous chemicals Site Safety Plan.

Will the investigation expose Investigators to hazardous chemicals or waste?

☐ No. Move on to next point.
☐ Yes. Can the hazard be eliminated through the use of engineering controls?
- ☐ Ventilation.
- ☐ Removal of the chemical hazard.

☐ Yes. Conduct the hazard mitigation process, continue air monitoring and move on to next point.
☐ No. Identify the Hazard.
☐ M.S.D.S.
☐ Air Monitoring.

Assemble Proper Response
- ☐ Incident Commander
- ☐ Safety Officer
- ☐ Accountability Officer
- ☐ Decon Officer
- ☐ EMS Sector Officer
- ☐ Staging Officer
- ☐ Identify above listed personnel
- ☐ Buddy System
- ☐ Back-up Team
- ☐ EMS Standing-by
- ☐ Decon Area if needed
- ☐ Law Enforcement (Scene Security)
- ☐ Protective Equipment
- ☐ Safety meeting for all site personnel
- ☐ Identify types and locations of all hazards
- ☐ Specify the role of each responder
- ☐ Location of nearest medical facility and means of transport.

ENTERING THE SCENE

Account for all personnel entering the scene
- ☐ Identify each individual's specific job and the location that their assigned task will be conducted.
- ☐ Instruct all individuals to contact the Accountability Officer when their job is completed.

EXTERIOR SURVEY

360 Degree Exterior Survey

Identify Site Hazards
- ☐ Water Hazards (moving and standing)
- ☐ Terrain Changes
- ☐ Terrain Conditions
- ☐ Exposure Hazards
- ☐ Electrical Supply Entrance (location and condition)
- ☐ Identify Alternate Power Sources (if present)
- ☐ Gas Supply Entrance (location and condition)
- ☐ Building Construction Hazards of the Building Construction
- ☐ Exterior Evidence of Building Damage
- ☐ Compromised Building Supports Freestanding Walls Overhanging Structural Members
- ☐ General Condition of the Structure

After completing the exterior survey, assess the general hazards present at the scene. This information should be used when making the decision to continue the investigation.

If the structure is not safe, what equipment will be required to make the building safe prior to the investigation beginning?

- ☐ Construction/Demolition Equipment
- ☐ Shoring Material

INTERIOR SURVEY

The following should be conducted for each room or area of the investigation.

Air Monitoring

- ☐ Oxygen Levels
- ☐ Flammable Gases (percentage of lower explosive limits)
- ☐ Toxic Gases (toxicity levels of known gases)

Structural Stability

- ☐ Floors
- ☐ Walls
- ☐ Ceiling
- ☐ If partial collapse has occurred, identify the new building supports.

Electricity:

Has power to the fire scene been shut off or disconnected?

- ☐ No.
  - ☐ De-energize appropriate circuits (if necessary entire structure).
  - ☐ Utilize appropriate lockout/tagout equipment to prevent the accidental re-energizing of the circuits.

- ☐ Yes.
  - ☐ Check for alternate power sources (energy diversion).
  - ☐ Independently check circuits and wiring utilizing a no-contact AC voltage sensor.
  - ☐ De-energize appropriate circuits (if necessary, the entire structure).
  - ☐ Utilize appropriate lockout/tagout equipment to prevent the accidental re-energizing of the circuits.

Lighting

- ☐ Properly light the work area.

NOTE: The use of internal combustion engines in an enclosed area creates a hazard and should be avoided.

Work Area Atmosphere
- ☐ Assure safe breathing air within the work area through hazard mitigation or proper engineering controls.

Alternate Means of Egress
- ☐ Identify a minimum of two means of egress from the work area when working in hazardous conditions.
- ☐ Identify other work operations in progress at the incident scene.
- ☐ Assess the effect on the investigation and the investigator's safety.
- ☐ Assure that all personnel are informed of the investigator's presence and the scope of the investigation.

Evidence Collection
- ☐ Proper protective clothing to protect the investigator and guard against cross-contamination of samples.
- ☐ Gloves of a material that is compatible and will provide adequate protection from the material being collected.

Respiratory Protection (if required)

Proper packaging, storage, and transportation of collected samples.

POST INVESTIGATION

Structure and Site Safety
- ☐ Conduct any additional demolition which is necessary to prevent injury to any future trespassers or by-standers.
- ☐ Secure the structure.
- ☐ Secure the site.
- ☐ Properly remove any hazardous materials still on site.
- ☐ Identify the responsible party for the hazardous waste or materials.
- ☐ Ensure the proper disposal of the hazardous waste or material.

Account for all personnel present at the scene
- ☐ Assure that all personnel are safe and are not unknowingly left behind.

POST INCIDENT CRITIQUE

- ☐ Required by WISHA for all Hazwoper Sites.