



Module 7:

General Health and Safety Considerations

Objective



Upon the completion of this module, participants should be able to determine the potential spill control methods, proper personal protective equipment (PPE), & detection & monitoring devices for responding to ethanol-blended fuel incidents.





Understanding the properties & characteristics

- E10 retains hydrocarbon/ gasoline characteristics
 - Absorbents/ booms that are designed to pick up oil-type substances are effective
- Blends with greater than 10% ethanol start to take on polar solvent characteristics
 - Absorbents/ booms designed for polar solvents should be used
- When water is introduced, phase separation of the water/ ethanol solution may take place

Fuel Spill Control



- Land spills
 - Pads, absorbents, adsorbents
 - Dams, dikes, retention basins
- Water spills
 - Damming
 - Diversions
 - Boom (specialized for petroleum)
 - Oil-type boom/ absorbent will pick up gasoline leaving water/ ethanol solution
 - Consult with Environmental Agency for further direction



Special Considerations



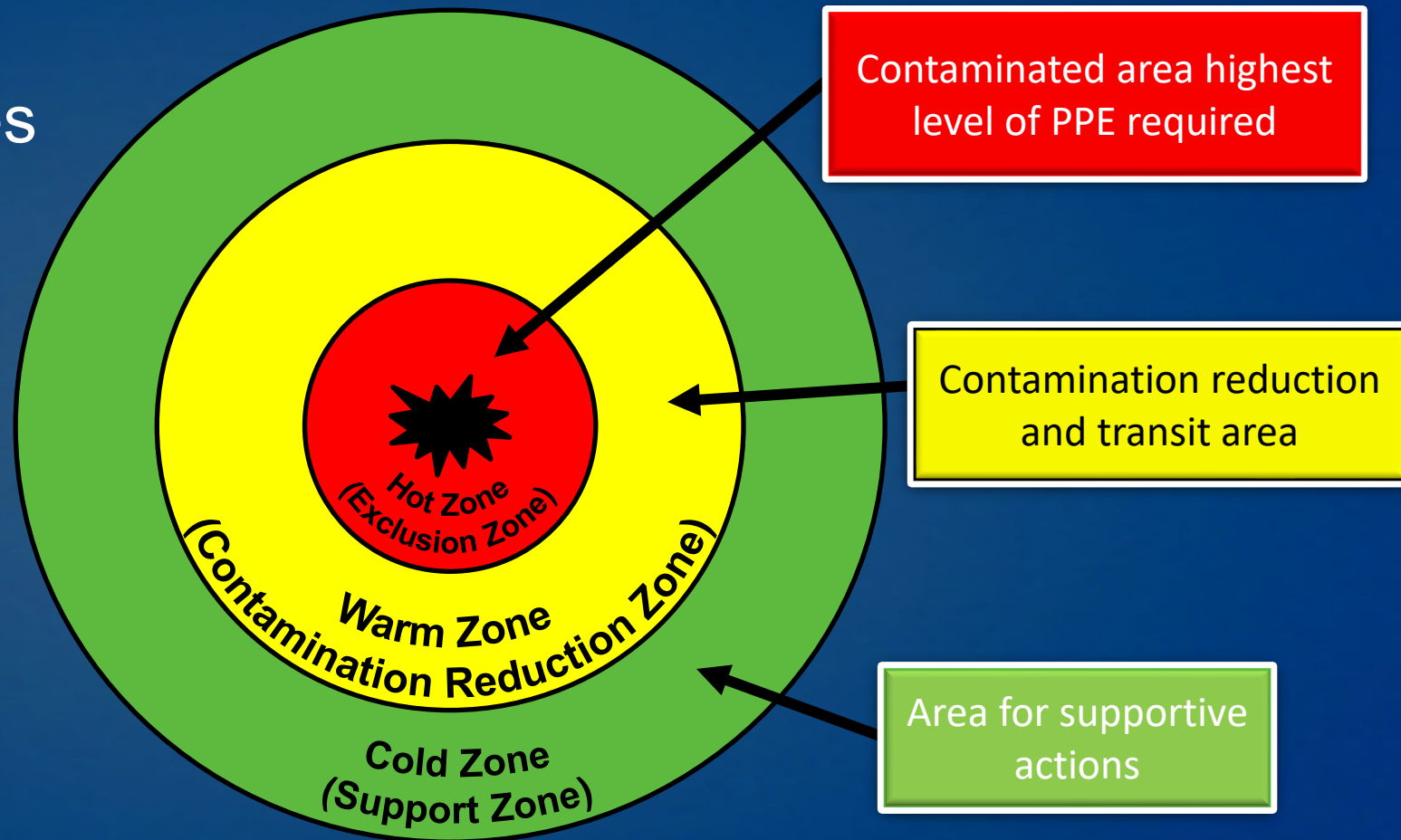
- Keep in mind that if water absorbing booms and/ or absorbents are used to pick up ethanol/ water solutions, the absorbents may be flammable
- If an AR foam blanket is used to control the vapors from ethanol-blended fuel, remember a portion of the foam solution will absorb into ethanol-blended fuel

Control Zones



There are 3 control zones

- Hot zone
- Warm zone
- Cold zone



Detection & Monitoring



- Should be performed at all ethanol-blended fuel incidents
- Monitoring equipment is a crucial resource for responders during assessment & mitigation
 - Utilize a multi gas meter
 - LEL, CO, H₂S, O₂
- Remember to consider conversion factors depending on calibration gas used for detector!
- Consider two (2) multi gas detectors as part of your monitoring group



Personal Protective Equipment



- Response to ethanol & ethanol-blended fuel incidents require PPE
- Components of PPE include:
 - Helmet with face shield/ eye protection
 - Protective hood
 - Turnout coat
 - Turnout pants
 - Gloves
 - Boots
 - Respiratory protection



Decontamination Recommendations



- Post response decontamination is required to prevent contamination outside the incident zones (secondary contamination)
- Decontamination should include surfactant & water based cleaner
- All decontamination runoff should be contained, properly tested & disposed of



Summary



- Procedures to ensure safe incident management for fire/ spill
- Know type of fuel spilled/ burning essential to success of operation
- Take steps to contain incident & appropriately distribute proper foam
- Critical that all responders wear appropriate PPE



Activity 7.1: Incident Procedures



Purpose:

- To become familiar with the correct order of steps in the following procedures & the rationales behind them