

1. Request maintenance chief provide-
  - a. Fire Suppression System (FSS) Owner's Manual
  - b. FSS Inspection report- within last 6 months
  - c. Have them explain how they do their inspections
  - d. Request training records for personnel doing inspections
  - e. Who is ANSUL representative that performs maintenance, request contact information (ANSUL states their representative should be immediately contacted if a problem is found)
  - f. During inspection, §56.4201(a)(5) and §77.404(a) are applicable
2. FSS Information (this information may be in the 6 month inspection report)
  - a. Manufacturer
  - b. Model
  - c. Manual or Automatic
  - d. Size and number of tanks
  - e. Maintenance tag (within last 6 months)- on actuator, on tank, or provided by mine operator
3. Inspect actuators (one accessible from ground and one in operators compartment)
  - a. Ring pin and tamper indicators are in place
  - b. Red actuator button is accessible for a full arc hit with the hand, may require up to 40 lb force (check for components added to cab after actuator was installed) and not damaged
  - c. Check if the actuator bottle is loose- not hand tight, but do not remove
  - d. Request mine personnel (with FSS maintenance training) remove the actuator bottles **Warning: If the actuator is mishandled and the seal is punctured, the 1200 psi pressurized bottle will become a projectile.**
  - e. Inspect the bottles for punctured seal, rust or other damage
  - f. Ensure the ring pin is in place before mine personnel reinstall the actuator
4. Inspect actuator hose from actuator to expellant bottle
  - a. 1/4" hose with SAE 100R1 or 100R5 markings
    - i. If markings are not legible request hose documentation from mine operator`
    - ii. As a quick check, verify the hose is stiff (wire reinforced) rather than just rubber hose
  - b. Routing of hose must position it away from heat generated by sources of fire, electrical wires, and moving parts
  - c. Hose should not be routed near heat sources, specifically it should be not routed through the engine compartment
    - i. If it is in the engine compartment, request documentation from the mine operator on the routing (TS requests to be notified in order to discuss with ANSUL)
    - ii. In areas where the temperature is over 200°F, the hose should be sleeved with a heat-resistant fire jacket clamped over hose's metal fitting at each end
    - iii. Additional information may be needed from the installer

- d. Hose should be clamped at least every 5 ft., no loose connections
  - e. Inspect hose for holes, abrasion, or other damage- especially where hose passes through bulkheads
  - f. Inspect check valves- one in each actuator line
    - i. Each actuator line will have a check valve
    - ii. Arrow points toward expellant tank
    - iii. Small wire brush and magnifying glass may be needed to see direction arrow
5. Inspect expellant bottle- should be hand tight, bottle may be clamped- see if top fitting is loose
6. Inspect hose from expellant bottle to chemical agent tank (expellant bottle may be mounted directly to the agent tank without a hose)
- a. 1/4" hose with SAE 100R1 or 100R5 markings
    - i. If markings are not legible request hose documentation from mine operator
    - ii. As a quick check, verify the hose is stiff (wire reinforced) rather than just rubber hose
  - b. Routing of hose must position it away from heat generated by sources of fire, electrical wires, and moving parts
  - c. Hose should not be routed near heat sources, specifically it should be not routed through the engine compartment
    - i. If it is in the engine compartment, request documentation from the mine operator on the routing (TS requests to be notified in order to discuss with ANSUL)
    - ii. In areas where the temperature is over 200°F, the hose should be sleeved with a heat-resistant fire jacket clamped over hose's metal fitting at each end
    - iii. Additional information may be needed from the installer
  - d. Hose should be clamped at least every 5 ft., no loose connections
  - e. Inspect hose for holes, abrasion, or other damage- especially where hose passes through bulkheads
7. Inspect Chemical agent tank
- a. Tank should be free from rust, dents, and other damage
  - b. Do not open the tank unless there are signs (powder on machine or in nozzles) the system has been activated.
  - c. If there are signs of activation-
    - i. Request trained mine personnel open the tank
    - ii. The following inspections can be performed
      - 1. Remove tank fill cap(s) and check that the agent tank is filled to the proper level with ANSUL FORAY dry chemical. The following table indicates the proper level for each size tank.  
**Note:** This table applies to

both A-101 and LT-A-101 tanks. All measurements should be taken from the TOP of the fill opening (top of threaded fill collar).

2. Maximum Depth of Dry Chemical

<u>Tank Size</u>	<u>in.</u>	<u>(mm)</u>
101-10	5 ¼	(133)
101-20	6 ¼	(159)
101-20 Low Profile	5	(127)
101-30	7 1/2	(191)

- d. Larger 125 lb. and 250 lb. dry chemical storage tanks are equipped with a red indicating stem on top of the tank lid. If the stem is raised and visible, this indicates the tank has been pressurized/activated. Smaller tanks are not equipped with this red indicating stem. These larger tanks will also have a larger expellant gas cartridges that are equipped with a pressure gage. Check that the gage's indicating needle is in the green range.

8. Inspect distribution hoses

- a. Various size hose with SAE 100R1 or 100R5 markings
  - i. If markings are not legible request hose documentation from mine operator
  - ii. As a quick check, verify the hose is stiff (wire reinforced) rather than just rubber hose
- b. Routing of hose must position it away from electrical wires, and moving parts
- c. Hose should not be routed near heat sources (exhaust manifold, pipe or turbocharger) but they will be routed through the engine compartment
- d. Hose should be clamped at least every 5 ft., no loose connections
- e. Inspect hose for holes, abrasion, or other damage- especially where hose passes through bulkheads

9. Inspect machine hydraulic hoses

- a. Clamped
- b. Not rubbing on machine frame
- c. Not contacting electrical wires
- d. No hydraulic oil, engine oil, or fuel leaks
- e. No exposed wire braid

10. Inspect nozzles

- a. Nozzles must not be blocked- look for non OEM installed components
- b. All nozzles must have caps

- i. Orange caps on dry chemical nozzles
    - ii. Blue caps on LVS nozzles
  - c. If chemical residue is found in nozzle:
    - i. Ask mine personnel when the system was activated and documentation that it was recharged
    - ii. Who performed the maintenance?
    - iii. If documentation is not available, consider having mine personnel open the chemical agent tank to check the level of chemical
  - d. Nozzles should cover (there will be more than one for each area)-
    - i. Top center of engine & turbochargers
    - ii. Right side of engine
    - iii. Rear of engine, hydraulic pumps, and transmission
    - iv. Left side of engine
    - v. Additionally, battery compartment, parking brake, belly pan, and hydraulic and fuel tanks may be covered
    - vi. While checking nozzles, inspect the automatic fire suppression system's detection system (if installed), typically a linear detection wire that melts and shorts the wires is used, check that the wire or other sensor is not covered with dirt
- 11. If automatic system:
  - a. Check for steady-on or blinking green "Power" light
  - b. Any other lights or sounds indicate service is required
- 12. Emergency escape
  - a. Discuss the training miners receive to understand and use the primary, secondary, and alternate (emergency) paths or means of egress.
  - b. Check that the alternate exit from the cab (second door, removable window and removal tool, etc.) is maintained
  - c. Check that the emergency path is clear- if removable chains are installed they must be easy to remove.
  - d. If additional fire shielding is installed, check that it is maintained and operators understand its use.
  - e. Discuss how flames from the engine compartment could block exit routes (especially flames around cab and from wheel wells).