Idling Reduction Training

Shutdown: Fast, Simple, Smart

Idling Locomotives
Air Brake & Train Handling Rule 32.20

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Process Summary

- Training required by Memorandum of Understanding (MOU) with the California Air Resources Board
- To be delivered at QSMs across California
- Ensure compliance with the MOU provisions
- Complete a 10 question test
- Log results into PINS so a permanent record is created to demonstrate compliance

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Purpose

- Understand fuel conservation and diesel exhaust emission – shutdown benefits, protocols, rules and appropriate incident management procedure
- Improve locomotive shutdown compliance
- Improve communications and awareness of problems related to idling locomotives

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Objectives

- At the conclusion of this training, the participant will successfully:
  - Identify the issues caused by idling locomotives
    - Excessive fuel consumption
    - Noise/public disturbance
    - Diesel emissions
  - Understand UP's locomotive shutdown requirements
  - Correct transportation and mechanical misunderstandings and myths concerning locomotive shutdown compliance
  - Understand ownership, responsibility and accountability for the shutdown process and enforcement

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Your Responsibilities

- **Be a good citizen**
  - Air pollution is a public health concern
  - Do your part to preserve clean air
- **Be a good neighbor**
  - Shutdown to reduce noise and emissions
- **Be a good employee**
  - Support UP's commitment to a clean environment
  - Protect UP from fines for failure to shutdown
  - Protect UP's public image & goal to be an environmentally friendly company
  - Conserve our natural resources

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Transportation & Mechanical Myths

- The batteries are weak and it won't restart
- It takes too much time to start
- The train will be late
- I don't know how to do it
- Someone else will do it
- Allowing SmartStart or AESS to function will result in lost air-brake pressure or frozen locomotives
- It doesn't burn that much fuel & the noise isn't loud
- We'll lose air and our air conditioning

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Automatic Idle Elimination Technology

- UP has retrofitted about 900 low-HP switchers with "SmartStart"™ from ZTR Controls
- UP is acquiring all new EMD and GE road units with Automatic Engine Stop-Start ("AESS") factory-installed
- Nearly 30% of entire UP fleet has some form of Automatic Idle Elimination technology to reduce unwanted engine idling, noise and emissions

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Rules and Procedures

- UP's Operating Department has procedures for managing idling equipment to reduce fuel consumption and diesel exhaust emissions.
  - Shutdown Requirement 32.20
  - Shutdown Procedures 32.20.2
  - Center reverser when stopped ABTH Rule 33.4
  - Fuel conservation Item 2E
  - FTX Policy
  - Mechanical Procedures & Auto Start/Stop
  - Charging Air Brake System ABTH Rule 30.7

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Shutdown Requirements 32.20

- Keep the lead engine idling to maintain air pressure if coupled to a train and not equipped with AESS.

  -- Shutdown trailing locomotives if the idle time is expected to exceed one hour. If you don't know, shut it down.
- Shutdown all light locomotives if outside air temperature is 40 degrees or more.
- Do not manually shutdown locomotives with AESS or SmartStart if the system is enabled.
- Tag any locomotives with weak batteries or other condition that prevents starting.
- Local managers do not have the authority to allow diesel engines to idle.
- Report any locomotive with disabled AESS or SmartStart to the Mechanical Desk and the Engine Defect (ED) reporting system.

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Shutdown Procedure 32.20.2

- Properly secure equipment
- Independent brake fully applied, 20# automatic brake application
- Generator field switch in OFF position
- Remove and stow the reverser
- Move the engine control switch to Start/Stop/Isolate position
- If engine has been at throttle 4 or lower during the past 10 minutes, push the Engine Stop button until the engine stops
- Wait 5 minutes after the engine stops and open the battery switch
- 5 minute wait is not required on low-horsepower engines

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Center Reverser – ABTH Rule 33.4

- Rule 33.4 review
- Part 4 as amended by General Order:

  -- 4. Verify that the reverser is centered to engage the low-idle feature when the locomotive is not moving. However, reverser may be left in forward position when train is stopped in ATC territory at locations where next signal is not visible.

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Fuel Conservation Item 2E

- Empty bulk trains are restricted to 24 EPA if grade is less than 2 percent, or 36 EPA if grade is 2 percent or more.
- If engine consist is two or less no reduction of EPA is required.
- All locomotives isolated or shutdown must be tagged.
- TCS consist shows maximum fuel conservation speed when applicable.

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Enforcement

FTX Policy

- FTX should be conducted for shutdown compliance.
- FTX may also include items for train handling (i.e., Air Brake 33.6.3).
- FTX events must be 16 or 8T.
- Willful violations of these rules may constitute a criminal offense.

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Automatic Shutdown

Green or yellow light -- Activated Red or no light -- Deactivated

Action Item

- Reverser centered
- Independent brake applied

Condition that enables shutdown

- Engine coolant temperature above 125 F
- Locomotive charging rate is LT 20 AMPS
- Battery voltage is above 65 volts
- Main reservoir pressure is GT 120psi
- GE oil temperature LT 160 and GT 120 F
- To keep the air conditioner operating, press the reset button on the lead locomotive after centering the reverser

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Automatic Restart

Green or yellow light -- Activated Red or no light -- Deactivated

Action Item

- Reverser handle is moved from center position

Condition that causes restart

- Engine coolant temperature is LT 120 F
- Battery voltage falls below 63 volts
- Brake cylinder pressure is LT 18.5 psi
- Main reservoir pressure is LT 110 psi

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Good Communication is CRITICAL

- Communications about who will shutdown the locomotives must be maintained during these situations:

  -- Between transportation and mechanical managers, paying particular attention during locomotive handoffs (arrival to servicing, and serving to ready-to-work).

  -- Between the HDC, San Bernardino and Spring command center dispatchers and train crews, to discuss duration of road units' staging.

  -- Between the RMCC, HDC corridor managers and field operating managers, to respond to public complaints about idling locomotives and to provide a close-out report on corrective action where necessary.

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It's Your Job

- Mechanical
- Supervisors
- Trainmen
- Dispatchers
- Maintenance of Way

DON'T ASSUME SOMEONE ELSE

WILL DO IT FOR YOU

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Incident Management Notifications

- RMCC receives call from neighbor.
- RMCC contacts the appropriate HDC or SB/Spring corridor manager for the area of incident and to determine how long the equipment has been at the location, how long it is expected to remain at the location, and the reason for it being in the area. The Corridor Manager also may help identify the on-duty transportation manager in the area.
- RMCC then notifies the on-duty manager of Operating Practices (MOP) to determine what can be done to address complaint.
- MOP investigates, takes appropriate action, and advises RMCC of resolution.
- If requested, UP then reports back to neighbor on how complaint will be addressed.

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Rules Review

- At the conclusion of this presentation, take a few minutes to review the shutdown requirements and procedures as directed by AB&TH rules.
- Develop service unit plan for education, communications and compliance.

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