Global Material Security

Technologies for Enhanced Security

National Nuclear Security Administration

U.S. DEPARTMENT OF ENERGY

Objectives

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Recognize the Enhanced Security Level parameters and measures recommended by NSS 9-G (Rev. 1).

Methods Used to Enhance Security Systems

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- Guards, guns, and gates
- Defense-in-Depth
- Graded Approach
- Measures to address the security functions:
  - Deter
  - Detect
  - Delay
  - Respond

Technologies for Enhanced Security *(1 of 3)*

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Overpacks

- Overpack loaded/unloaded without removal from transport vehicle
- Overpack mounted in a variety of vehicles
- Ability to modify size
- Various electronic configurations
- Multi-layer wall structure
- Visual “decoys” (non-operational bolts and keys)

Technologies for Enhanced Security *(2 of 3)*

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Chains and Locks

- High security, robust locks of boron steel or similar:
- In a closed conveyance
- On an open conveyance

Technologies for Enhanced Security *(3 of 3)*

Tactical Radio Communications

- Effective communication requires interoperability
- Strategic personnel can communicate by radio with staff from other agencies (on demand and in real time)
- Technological solutions vary
- Some agencies utilize more than one type of technology

Example Application of Enhanced Security Level Technologies

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CARGO VEHICLE

ESCORT VEHICLE

ENHANCED RESPONSE FORCE CAPABILITIES

ENHANCED GUARD, COMMUNICATIONSAND TRACKING CAPABILITIES

Review of Technologies for the Four Security Functions

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Deterrence

- Enhanced packages, locks, and tie-downs
- Communications and escorts

Detection

- Package tracking
- Seals and TIDs
- Sensors
- Alarms

Delay

- Access impediments
- Material movement, removal, and dispersal impediments

Response

- Communications
- Command and control

Technologies for Enhanced Security *(1 of 5)*

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Deterrence

- Enhanced packaging
- Enhanced tie-downs
- Communications
- Escorts

Technologies for Enhanced Security *(2 of 5)*

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Detection

- Intrusion Detection
  - Door sensor (balanced magnetic switch)
  - Closed circuit camera
  - Tamper Indicating Devices (TIDs)
- Alarms
  - Visual/audible alarm from cargo vehicle
  - Remote alarm notification
- Communications

Technologies for Enhanced Security *(3 of 5)*

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Delay

- Locks
- Secure tie-downs
- Secure packages
- Visual obscurant (smoke)
- Armor

Technologies for Enhanced Security *(4 of 5)*

Delay

- Remote disablement
  - Provides the ability to immediately disable the cargo vehicle from one or more alternate locations
  - Increases the available time for protective force response

Technologies for Enhanced Security *(5 of 5)*

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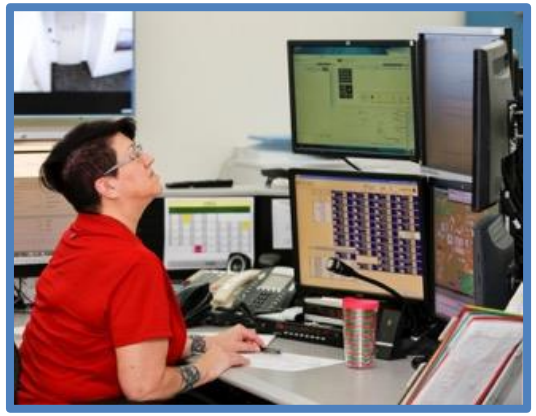
Response

Communications



Command

Control

Cargo Truck with Enhanced and Additional Security Features *(1 of 5)*

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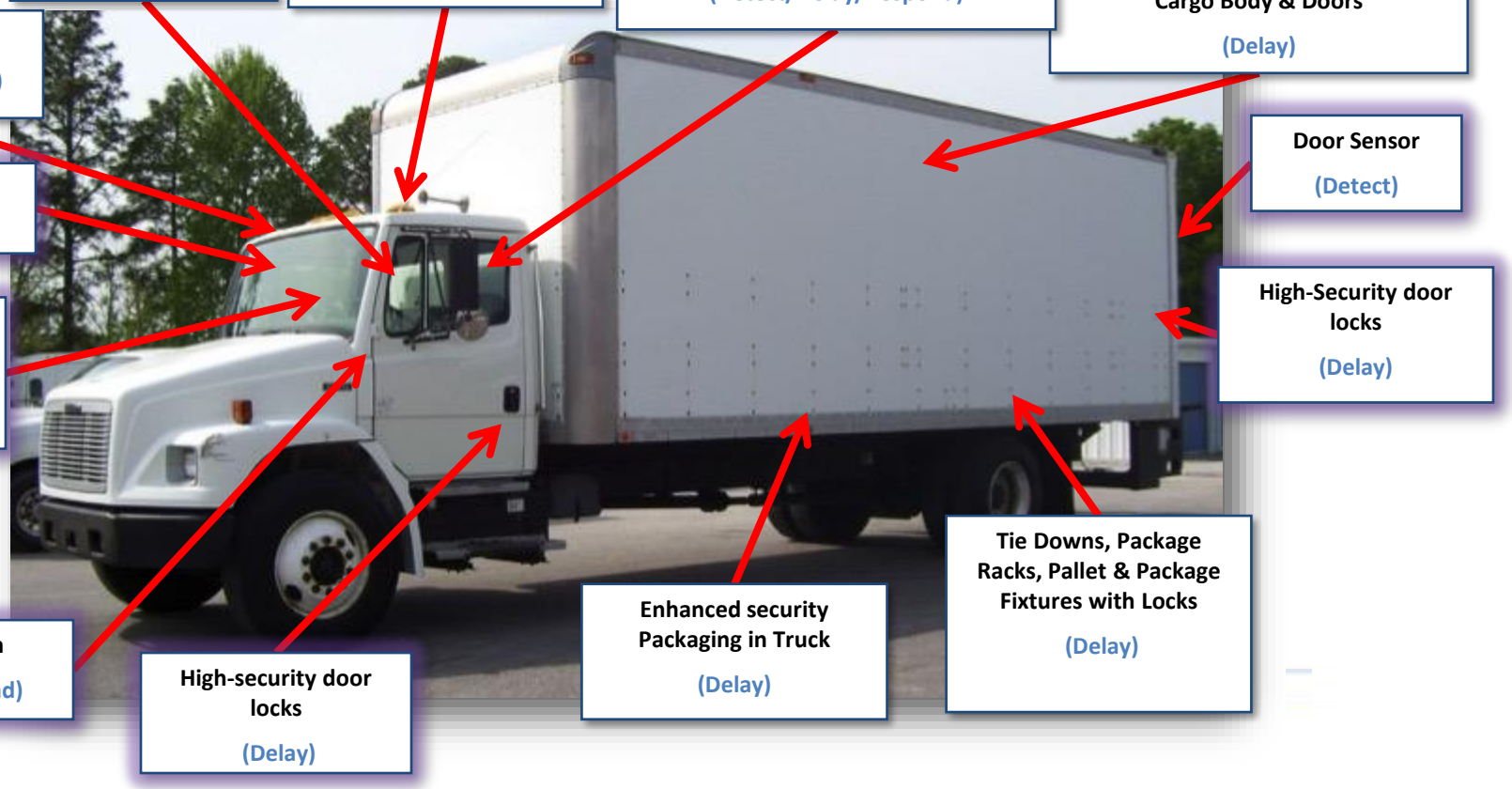

Cargo Truck with Enhanced and Additional Security Features *(2 of 5)*

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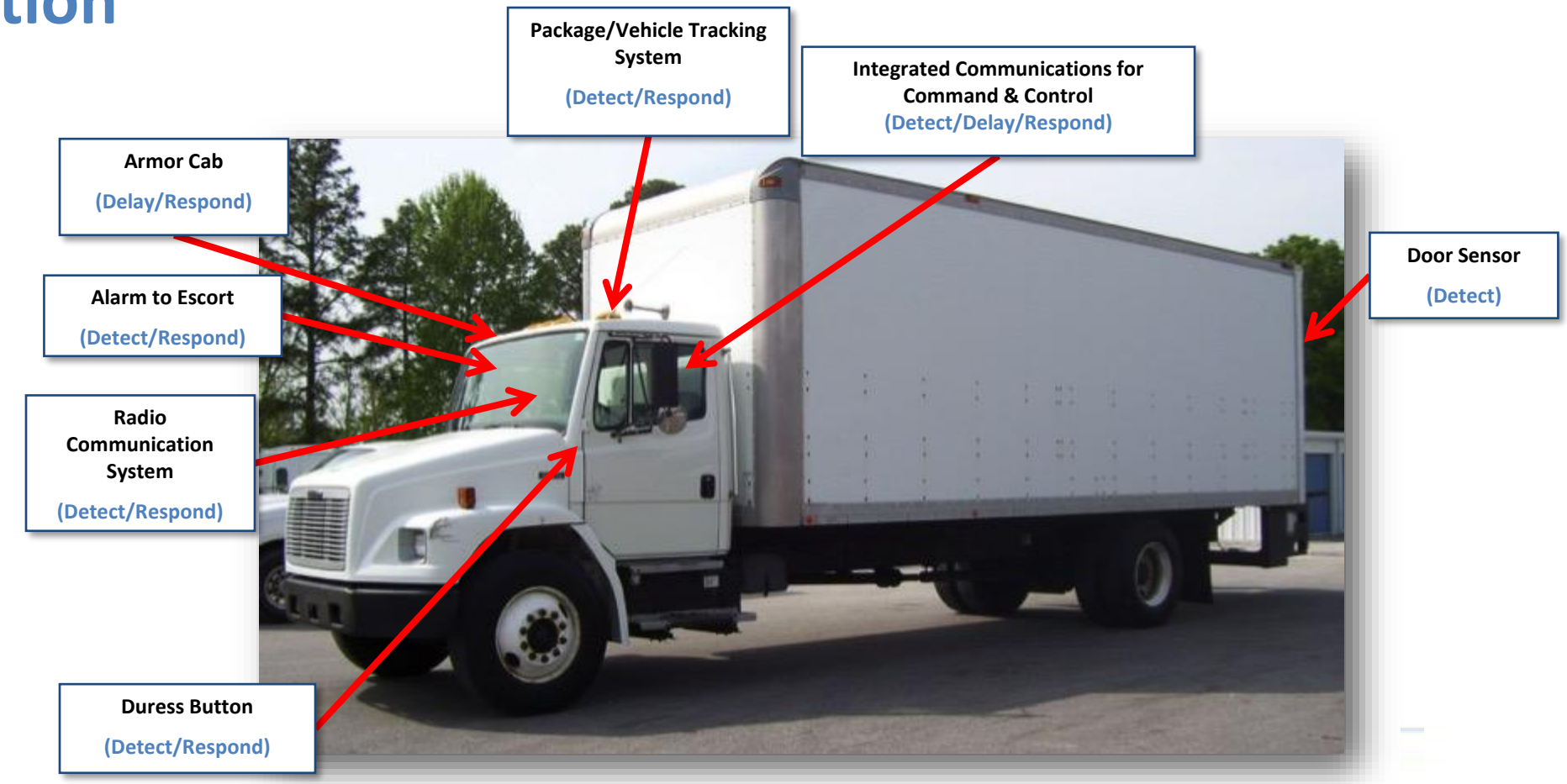
Detection



Cargo Truck with Enhanced and Additional Security Features *(3 of 5)*

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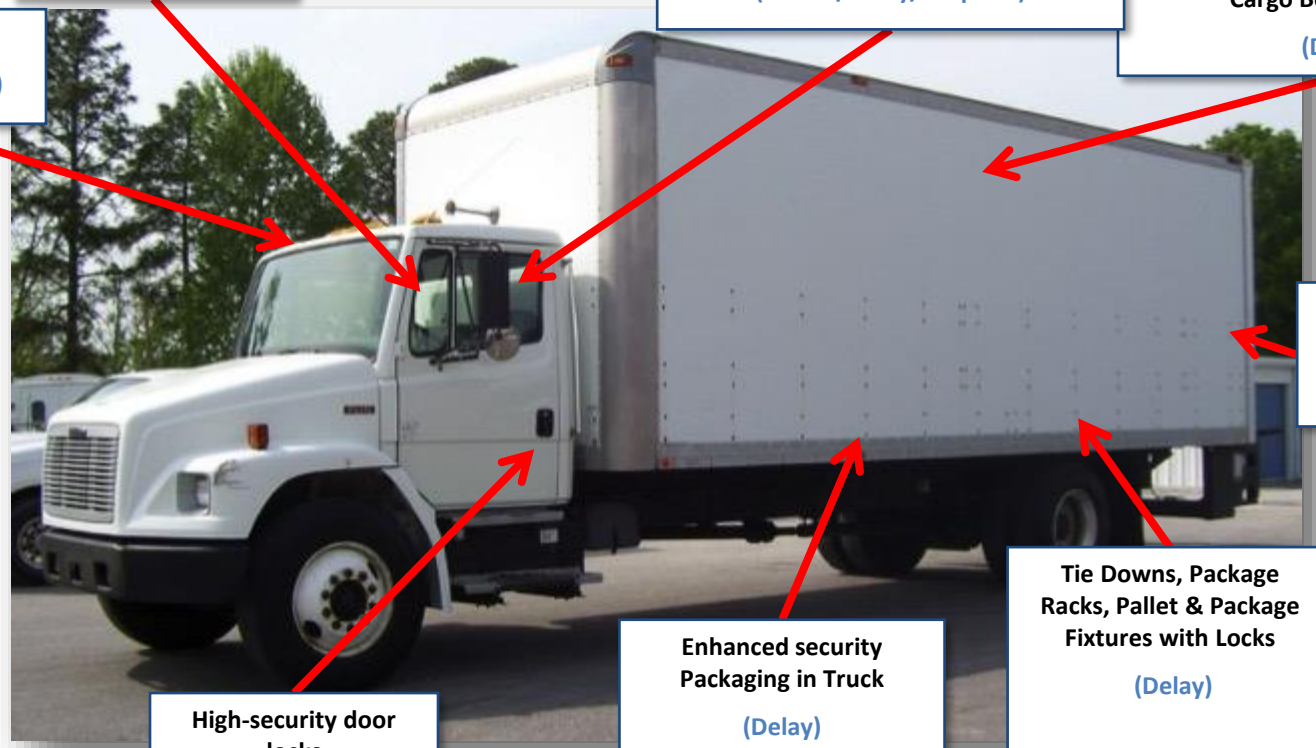
Delay



Cargo Truck with Enhanced and Additional Security Features *(4 of 5)*

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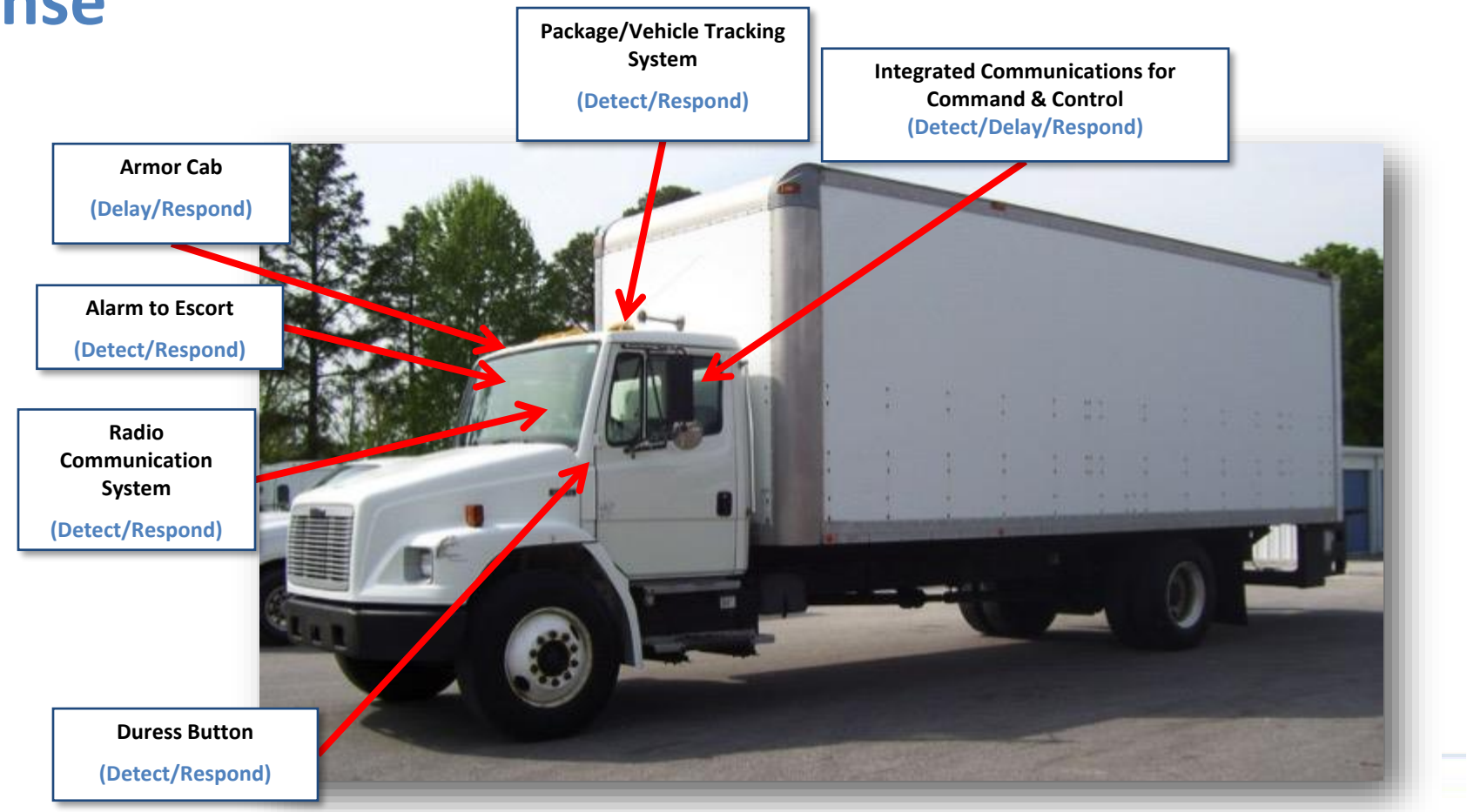
Response



Cargo Truck with Enhanced and Additional Security Features *(5 of 5)*

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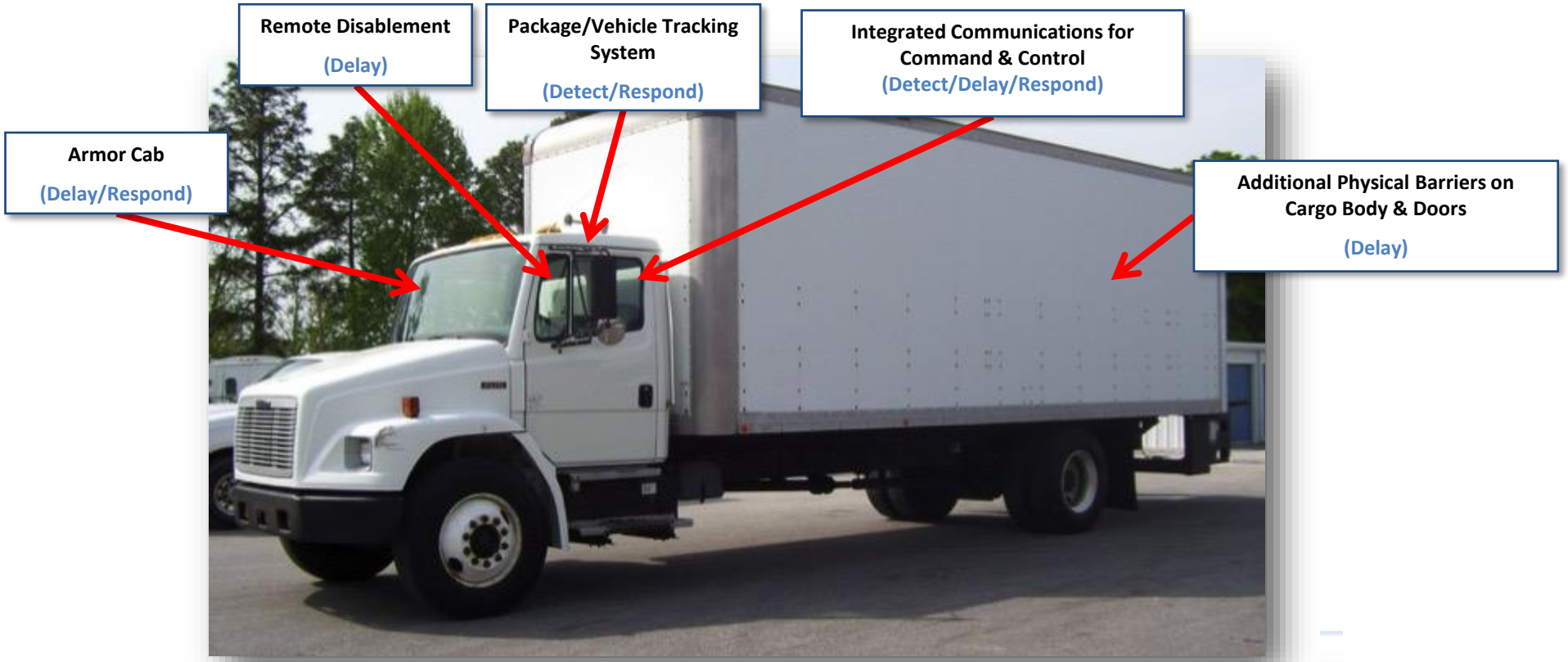
Additional/Enhanced



Summary

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- The Enhanced Security Level is applied to shipments with activities that exceed the Enhanced threshold