



## **institute of makers of explosives**

### Security for Bulk Truck Access Points

#### **Background:**

Several different methods of securing materials on bulk trucks are currently employed in blasting operations. These include padlocks, mechanical components (tool removable or other), and combinations of these. The configurations used for securing bulk truck hatches, doors, and other points of access often may not meet the requirements specified in the Federal explosives regulations when these vehicles are used as Type 5 magazines. As a result, some operators incur violations and/or are required to retrofit their trucks to accept locks.

Specific locking/securing mechanisms are not clearly addressed in ATF regulations or industry guidance documents. ATF and industry members continue to encounter inconsistent regulatory interpretations and vehicle designs which makes compliance challenging. This problem is amplified by the confusion over the classification of products stored in the vehicle, whether they be blasting agents and regulated by ATF or they may be oxidizers and not regulated by ATF.

It is assumed that physical security measures like those recommended in IME SLP-27 and SLP-28 and those required by 29 CFR Part 555 and other ATF guidance for storage on bulk trucks are in place.

**Report Objective:** Develop locking standards for bulk trucks that specifically addresses the unique and diverse characteristics of these vehicles.

More specifically, develop detailed security standards for bulk trucks and bulk trailer security, covering potential points of access to bulk materials. Within Multipurpose Bulk Trucks (MBTs) such standards, in combination with other measures, should provide a level of security equivalent to or better than methods specified in the ATF regulations. This will enable industry members to achieve compliance and regulators to enforce the standards using clear and practical means.

The IME, International Society of Explosives Engineers (ISEE), and the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) can incorporate the resulting standards as an industry best practice. Best Practice Standards would allow the industry to validate the program as to viable solutions to the industry.

#### **Process Review:**

A task force comprised of representatives of IME and ISEE members and ATF used a risk-based process review to evaluate the various points of entry and the proper security feature for each. The task force started the review process by creating a list of all possible entry points of concern and grouping them into categories. Then the following factors were considered for each type of entry point; difficulty of entry, volume of product available through entry, type and classification of product.

A level of threat was determined by taking into consideration what could be done with the products that were removed from the vehicle. The amount of each product and the material's regulatory status were

also considered. Dry ammonium nitrate, ANFO and sensitized emulsions<sup>1</sup> (blasting agents or Division 1.5 materials) were evaluated individually. In the end, it was determined that the products are interchangeable. Although some products are less sensitive, if extracted, they could be combined with common materials to become more sensitive.

The following recommended security measures are assumed to be part of other best practices and regulations already in place in industry. These measures will make it extremely difficult to remove product from the vehicle in a conventional method of discharge. They include:

- vehicle locked and secured according to ATF Ruling 2007-3;
- vehicle engines keys are unavailable and secured;
- the engine driven PTO, which operates the body unloading in the normal operation is activated by air, electrical or hydraulic, cannot be powered on until the engine is running; and
- battery disconnects are in place as recommended in SLP-23.

Basically, two methods to secure entry points exist: locks and tools that close off an entry point. The level of effort required to remove material and the location of the entry point also have an effect on risk. Some entry points are accessible while others are not accessible due to vehicle design. Due to the large variation of these types of vehicles, applications and different manufactures of vehicles, it was important to have universal solutions, with performance criteria as opposed to design criteria.

The table below summarizes the risk assessment and associated recommended security measures for each type of entry point to bulk materials.

Type of Entry Point	Type of Material	Material Removal	Potential Quantity	Recommended Security
AN or ANFO Hatches	Blasting Agent or Oxidizer	Easy	>500 lbs	Padlock for each hatch opening.
Emulsion Lid, Fills and Tank Hatches:	Blasting Agent or Oxidizer	Easy	>500 lbs	Padlock for each hatch opening.
Surge Hoppers	Blasting Agent	Easy	5-250 lbs	Padlock or a tool removable cover for each hatch opening.
Hose Connections, Bolted Flanges, and Pump Attachments	Blasting Agent or Oxidizer	Hard	5-15 lbs	None, unless in very open location.
Auger Access Doors	Blasting Agent or Oxidizer	Easy	5-15 lbs	Padlock for each auger access door.

### **AN or ANFO Hatches:**

The hatch closures for AN or ANFO are usually on the top of the main bulk containers on the vehicle or trailer and are used to fill the container. They allow access to a relatively high quantity with a low entry

<sup>1</sup> In this document, “emulsions” include watergels, slurries, and suspensions.

difficulty level. It would be relatively easy to extract large volumes (greater than 500 pounds) of blasting agents or oxidizers with a bucket and the engine need not be running to do so. For these reasons the recommendation is for a padlock for each hatch opening.



Typical MBT Walkway with Multiple hatch openings

Hatch openings are secured with a padlock

**Emulsion Lid, Fills, and Tank Hatches:**

The hatch closures for emulsions are usually on the top of the main bulk containers on the vehicle or trailer and are used to fill the container. They allow access to a relatively high quantity with a low entry difficulty level. It would be easy to extract large volumes (greater than 500 pounds) of blasting agents or oxidizers with a bucket and the engine need not be running to do so. For these reasons the recommendation is for a padlock for each hatch opening.



Padlock shown Locking retaining

Padlock for fill port

Locking tabs on hatch

Padlock on fill port

**Surge Hoppers**

Surge hoppers for ANFO, emulsions and blends are usually found at the ground level on the sides or back of bulk mix delivery equipment. Surge hoppers contain two or more blended materials and provide for a steady flow when unloading into boreholes. They allow access to a relatively moderate quantity with a low entry difficulty level. It would be easy to extract small to moderate volumes (5 to 250 pounds) with a bucket, or by hand, and the engine need not be running to do so. The contents of the hopper will be a blasting agent due to the design and nature of the blending process. Surge hoppers should normally be “run empty” as part of the standard operating procedure at the end of the loading process. For these reasons the recommendation is for a padlock, or a tool-removable cover for each hopper opening and they should remained locked at all times.



Surge Hopper with Padlock



Surge hopper with tool-removable cover

## Hose connections, bolted flanges, and pump attachments

Hose connections, bolted flanges, and pump attachments for ANFO, emulsions and blends may be found virtually anywhere on a MBT or trailer. They allow access to a relatively small quantity with a high entry difficulty level. The contents of the pump attachments or mechanical connections would be an emulsion, ANFO or a blend. These connections, flanges, and attachments should be “run empty” as standard operating procedure at the end of the loading process. Products will normally be classified as blasting agents but could also be oxidizers, liquid fuels, corrosives, or even nonhazardous. Normally, these entry points are secure as manufactured. The equipment design will often put these connections in very hard to reach locations. However if the connection is in an open and easily accessible location and allows access to blasting agents or oxidizers, it should be a lockable connection, a tool removable connection, or a lockable valve at the connection and access should be limited.



Lockable valve  
Locking Hood



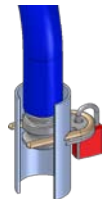
Lockable hose  
connection



Lockable hose end



Hose connection inside  
lockable hose termination



A lockable cover

## **Auger access doors:**

The auger access doors are the closure for the AN or ANFO auger system and are similar to surge hoppers in purpose. They allow access to a relatively small quantity with to low entry difficulty level. It would be easy to extract small volumes (5 to 15 pounds) of blasting agents or oxidizers with a hand-held digging device or by hand and the engine need not be running to do so. For these reasons the recommendation is for a padlock for each auger access door point.



Auger access door with padlock in place

Approved by the IME Board of Governors on June 7, 2012.