



U.S. Department of Justice

Bureau of Alcohol, Tobacco,
Firearms and Explosives

Washington, DC 20226

www.atf.gov

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Mr. Dave Richards
Director, Avalanche Office
Alta Ski Area
P.O. Box 8007
Alta, Utah 84092-8007

Federal Explosives License Numbers: 9-UT-035-33-00104; 9-UT-035-20-00574

Dear Mr. Richards:

This is in response to your letter dated December 22, 2020, to the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF). You requested a variance from the Federal explosives regulations at 27 CFR, Part 555. We are approving your request to store primed explosives in Wyssen Towers at your ski area, as described below.

Alta Ski Area (Alta) plans to install nine Wyssen Towers in the "Mount Baldy" area to protect the Main Street, Mambo, Ballroom and Baldy Shoulder ski runs, and the Collins Lift Angle Station from the threat of avalanches. Your letter included GPS coordinates for the specific location of each planned tower. Because the Wyssen Tower relies upon the storage of high explosives with detonators installed, and the deployment boxes are not explosives magazines, you require permission from ATF for its use.

You explained that Alta manages the avalanche risk in the area with a Howitzer, an Avalauncher, and with charges manually deployed by ski patrollers. In addition, Alta uses four O'Bellx[®] remote avalanche control systems (RACS), which mix oxygen with a flammable gas in a collector. When the mixture is ignited, it creates an explosion in the starting zone without the use of traditional high explosives. You stated that while these methods are useful for avalanche mitigation, the Wyssen Tower has advantages over all of them. Use of the Wyssen Tower will substantially decrease the time spent on avalanche mitigation and the time that Alta personnel spend in direct contact with explosives, compared to the Howitzer, Avalauncher and manual placement methods. Like the O'Bellx RACS, the Wyssen Tower is remotely controlled, minimizing the direct handling of explosives by ski patrollers in difficult terrain and sometimes adverse weather conditions. However, the Wyssen Tower has a much greater effective radius than other RACS, thus fewer units and concrete foundations are needed. In addition, because the

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Wyssen Tower uses high explosive charges, no gas lines are required. The result is less cost and less impact on the environment, and less risk to construction teams, who have to access and work in mountainous areas. Finally you noted that the U.S. Army has set a 2025 deadline for decommissioning all Howitzers on loan to the U.S. Forest Service and used by ski areas for avalanche control.

Each Wyssen Tower will be approximately 40 feet high, and installed on a concrete base (see Figure 1 below). At the top is a deployment box that holds twelve 11-pound high explosive cartridges with two detonators each, totaling approximately 132 pounds of explosives. Each primed explosive charge sits in a tube on a carousel. When a charge is to be deployed, the carousel rotates so a live charge is directly over a hole in the bottom of the deployment box. The charge drops through the hole and comes to rest at the end of a rope above the avalanche field and two pull fuze-style igniters are initiated, further initiating a time fuse. The explosive charges detonate after a short delay. The shock wave and vibration from the explosion triggers avalanches near the tower. The deployment box can be lifted from the tower by helicopter and brought to a station building for reloading or maintenance.



Figure 1 – Wyssen Tower with Deployment Box

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The shortest distance from a planned deployment box to a road would be 979 feet; however, this road is not open during the months when explosives will be stored in the deployment boxes. The distance from a public highway that is open during the ski season (Utah State Highway 210) to the nearest planned deployment box would be 7551 feet; the distance from an inhabited building (chair lift) to the nearest deployment box would be 1369 feet; and the distance from an explosives magazine to the nearest deployment box would be 1297 feet. The distances between any two deployment boxes will be greater than 200 feet. The nearest passenger railway is over 13 miles from the nearest planned deployment box. The unbaricaded distances required from a magazine holding 132 pounds of high explosives to these receptors are 318 feet (high volume highway or passenger railway); 430 feet (inhabited building); 38 feet (other magazine). The distances from deployment boxes at your planned locations meet the minimum distances in the table of distances at 27 CFR § 555.218. There are few backcountry hikers and skiers in the area of the proposed installations during the winter months when explosives will be stored in the deployment boxes. The deployment boxes will be taken down and any leftover charges will be properly stored from approximately May through October of each year.

Detonators Stored with Other Explosives

You requested permission to store high explosive charges primed with detonators in the deployment boxes from approximately November through April, when there is avalanche risk, and when snow cover and resort operations limit the backcountry use of the avalanche area. The rest of the year, the deployment boxes will be emptied of explosives and stored disassembled at another location. The Federal explosives regulation at 27 CFR § 555.213 generally prohibits the storage of detonators with other explosive materials.

Pursuant to 27 CFR §555.22, ATF may approve the use of an alternate method or procedure in lieu of a method or procedure specifically prescribed in Part 555 when: (1) Good cause is shown for the use of the alternate method or procedure; (2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and that the alternate method or procedure is substantially equivalent to that specifically prescribed method or procedure; and (3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of Part 555.

The storage of high explosives with detonators increases the risk of accidental detonation. However, the reduction in the use of hand-deployed charges, Howitzers, and Avalaunchers in proximity to the public, and the various other stated advantages over the other avalanche mitigation methods provide good cause for ATF to consider your request to use the Wyssen Tower. Your planned locations exceed the minimum distance requirements to the nearest inhabited building, highway, railway, and explosives storage magazine under 27 CFR § 555.218. You also noted that there are few backcountry hikers and skiers in the proposed area during the time when explosive materials will be stored. Based upon these considerations, we are approving your request to store up to 132 pounds of high explosives with detonators attached in each Wyssen Tower at the proposed locations.

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Bullet-Resistance

The Federal explosives regulations at 27 CFR § 555.208 require that magazines containing high explosives be bullet-resistant. Specifically, the exterior of a type 2 magazine is to be constructed of ¼-inch steel lined with at least 2 inches of hardwood. Alternate construction methods for bullet-resistance appear in ATF Ruling 76-18.

The Wyssen Tower deployment box sides are 5 mm (.187 inches) thick steel, and the bottom is 8 mm (.314 inches) thick steel. The top (lid) is 8 mm (.314 inches) thick aluminum. As noted above, the bottom has a hole through which a charge departs the deployment box prior to initiation. This construction does not meet the bullet-resistance standards noted above. However, the likelihood of bullet penetration is very low because the area in which the towers would be located is remote and seldom visited by backcountry hikers during the time when explosive materials will be stored. Further, rifle hunting is not allowed at any time in Salt Lake County.

We agree that these factors render the likelihood of bullet penetration of the Wyssen Tower deployment boxes at your proposed locations very low. Therefore, we are approving your use of the Wyssen Tower deployment boxes constructed as described above, each containing approximately 132 pounds of high explosives with detonators inserted, provided you place them as described in your letter and attachments, and you adhere to the storage time frames noted above.

Security

The regulations at 27 CFR § 555.208 require that a type 2 explosives magazine be theft-resistant. Among the options for locking are two hooded padlocks per door. The padlocks must have case-hardened steel shackles and five tumblers. You proposed to equip each of your Wyssen Tower deployment boxes with 3 unhooded padlocks meeting these shackle and tumbler requirements.

Your proposed locking method does not meet the locking standard above, in that you will not cover the locks with hoods. However, you suggested that the overall level of security of the deployment boxes is equivalent to the standards in the regulations. Each padlock must be defeated for the top door to open. In addition, the ladder to each deployment box will be equipped with a barrier and one unhooded padlock of the same description. Further, the deployment boxes will contain explosives only during the winter, high on a mountain. The inhospitable conditions under these circumstances greatly reduce human presence and the likelihood of a theft attempt.

We are approving your request to use three unhooded padlocks on the lid of your Wyssen Tower deployment boxes, provided the locks meet the shackle and tumbler requirements for padlocks under 27 CFR, Part 555, and the access ladders are locked with a padlock meeting these requirements.

ATF may modify or rescind these variances should we determine that they pose a threat to public safety, cause the Government to incur additional costs to administer, or do not provide levels of safety and security equivalent to those of the regulations prescribed under 27 CFR, Part 555.

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These approvals do not convey any rights or privileges contrary to any other Federal, State, and/or local laws. You should make a copy of this letter part of your permanent records and have it available for inspection by any ATF officer.

We trust the foregoing has been responsive to your request. If you have additional questions, please feel free to contact the Explosives Industry Programs Branch at (202) 648-7120.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Annette Butler', with a stylized flourish at the end.

Annette Butler
Chief, Explosives Industry
Programs Branch

cc: Deputy Assistant Director, Industry Operations
Director, Industry Operations, Denver Field Division
Area Supervisor, Salt Lake City Area Office
Chief, Federal Explosives Licensing Center
daver@alta.com