WAC 296-52-69115 Table H-22—Separation distances of ammonium nitrate and blasting agents from explosives or blasting agents.

Table H-22

TABLE OF SEPARATION DISTANCES OF AMMONIUM NITRATE AND BLASTING AGENTS FROM EXPLOSIVES OR BLASTING AGENTS[1]

Donor weight		Minimum separation distance of receptor when barricaded[2] (ft.)		Minimum thickness of artificial barricades[5] (in.)
Pounds over	Pounds not over	Ammonium nitrate[3]	Blasting agent[4]	
	100	3	11	12
100	300	4	14	12
300	600	5	18	12
600	1,000	6	22	12
1,000	1,600	7	25	12
1,600	2,000	8	29	12
2,000	3,000	9	32	15
3,000	4,000	10	36	15
4,000	6,000	11	40	15
6,000	8,000	12	43	20
8,000	10,000	13	47	20
10,000	12,000	14	50	20
12,000	16,000	15	54	25
16,000	20,000	16	58	25
20,000	25,000	18	65	25
25,000	30,000	19	68	30
30,000	35,000	20	72	30
35,000	40,000	21	76	30
40,000	45,000	22	79	35
45,000	50,000	23	83	35
50,000	55,000	24	86	35
55,000	60,000	25	90	35
60,000	70,000	26	94	40
70,000	80,000	28	101	40
80,000	90,000	30	108	40
90,000	100,000	32	115	40
100,000	120,000	34	122	50
120,000	140,000	37	133	50
140,000	160,000	40	144	50
160,000	180,000	44	158	50
180,000	200,000	48	173	50
200,000	220,000	52	187	60
220,000	250,000	56	202	60
250,000	275,000	60	216	60
275,000	300,000	64	230	60

Note 1: These distances apply to the separation of storage. Table H-20 must be used in determining separation distances from inhabited buildings, passenger railways, and public highways.

Note 2: When the ammonium nitrate and/or blasting agent is not barricaded, the distances shown in the table must be multiplied by six. These distances allow for the possibility of high velocity metal fragments from mixers, hoppers, truck bodies, sheet metal structures, metal containers, and the like which may enclose the "donor." When ammonium nitrate is stored in a bullet resistant magazine it is recommended explosives or where the storage is protected by a bullet resistant wall, distances, and barricade thickness in excess of those prescribed in Table H-20 are not required.

Note 3: The distances in the table apply to ammonium nitrate that passes the insensitivity test prescribed in the definition of ammonium nitrate fertilizer promulgated by the Fertilizer Institute, and ammonium nitrate failing to pass a test must be stored at separation distances determined by competent persons. (Definition and Test Procedures for Ammonium Nitrate Fertilizer, the Fertilizer Institute, formerly the National Plant Food Institute, November 1964.)

Note 4: These distances apply to nitro-carbo-nitrates and blasting agents, which pass the insensitivity test prescribed in the U.S. DOT regulations.

Note 5: Acceptable barricades include either natural or artificial barricades as defined in WAC 296-52-60130, Definitions.

Note 6: When the ammonium nitrate must be counted in determining the distances to be maintained from inhabited buildings, passenger railways, and public highways, it may be counted at one-half its actual weight because its blast effect is lower.

Note 7: Guide to use of table of recommended separation distances of ammonium nitrate and blasting agents from explosives or blasting agents.
(a) Sketch the location of all potential donors and acceptor materials together with the maximum amount of material to be allowed in the area. (Potential donors are high explosives, blasting agents, and combination of masses of detonating materials. Potential acceptors are high explosives, blasting agents, and ammonium nitrate.)
(b) Consider each donor mass in combination with each acceptor mass. If the masses are closer than table allowance, distances measured between nearest edges, the combination of masses becomes a new potential donor of weight equal to the total mass. When individual masses are considered as donors, distances to potential acceptors must be measured between edges. When combined masses within propagating distance of each other are considered as a donor, the appropriate distance to the edge of potential acceptors must be computed as a weighted distance from the combined masses:
(i) Calculation of weighted distance from combined masses:

Let M_2, M_3... Mn be donor masses to be combined.
M_1 is a potential acceptor mass.
D_{12} is distance from M_1 to M_2 (edge to edge).
D_{13} is distance from M_1 to M_3 (edge to edge), etc.

To find weighted distance $D_{1(2,3...\,n)}$ from combined masses to M_1, add the products of the individual masses and distances and divide the total by the sum of the masses:

$$D_{1(2,3\ldots n)} = \frac{M_2 \times D_{12} + M_3 \times D_{13} + M_n \times D_{in}}{M_2 + M_3 + M_n}$$

Propagation is possible if either an individual donor mass is less than the tabulated distance from an acceptor or a combined mass is less than the weighted distance from an acceptor.
(c) When determining the distances separating highways, railroads, and inhabited buildings from potential explosions (as prescribed in Table H-20), the sum of all masses which may propagate (i.e., lie at distances less than prescribed in the table) from either individual or combined donor masses are included. However, the ammonium nitrate must be included, only 50 percent of its weight must be used because of its reduced blast effects. In applying Table H-21, distances from highways, railroads, and inhabited buildings, distances are measured from the nearest edge of potentially explodable material.
(d) When all or part of a potential acceptor comprises explosives Class A as defined in U.S. DOT regulations, storage in bullet resistant magazines is required. Safe distances to stores in bullet resistant magazines may be obtained from the intermagazine distances described in Table H-21.
(e) Barricades cannot have line of sight openings between potential donors and acceptors, which permit blast or missiles to move directly between masses.
(f) Good housekeeping practices must be maintained around any bin containing ammonium nitrate or blasting agent. This includes keeping weeds and other combustible materials cleared within twenty-five feet of the bin. Accumulation of spilled product on the ground must be prevented.

[Statutory Authority: RCW 49.17.010, [49.17].040, and [49.17].050. WSR 02-03-125, § 296-52-69115, filed 1/23/02, effective 3/1/02.]