



Memorandum on Port Chicago Disaster

- Captain W. Parsons

MEMORANDUM

24 July 1944

For: Rear Admiral W. R. Purnell, USN

From: Captain W. S. Parsons, USN

Subject: Port Chicago Disaster, Preliminary Data

1. On 20 July I arrived in San Francisco, accompanied by Ensign Reynolds and Dr. Shapiro. I called on the Commandant (Rear Admiral C. H. Wright) and discussed the disaster briefly with him, emphasizing that my mission was to obtain data on effect rather than the cause of the detonation. Admiral Wright had been in command of the Naval Mine Depot, Yorktown, Virginia, as recently as 1940, and his executive there had been Captain A. G. Cook, now Captain of the Yard at Mare Island. Admiral Wright had, therefore, considered Cook well qualified and had appointed him President of the Court of Inquiry, with Captains J. S. Crenshaw and W. B. Holden as members.

The cooperative spirit and helpfulness shown by Admiral Wright and his office was later found to obtain throughout the organization, including the Navy Yard, N.A.D. Mare Island and at Port Chicago. There was not the slightest tendency to cover up or stand on dignity or to raise questions regarding cognizance or infringement on the duties of the Court.

2. My party arrived at Mare Island about noon 20 July and, with Captain Crenshaw, proceeded to Port Chicago. Enroute we looked at large windows broken in Stores in Vallejo at 20 to 22,000 yards from the detonation. As we drew nearer to Port Chicago, the number of broken windows increased slightly and the minimum size decreased. The hilly terrain shielded most structures effectively. The first blast damage beyond broken windows, was seen in the town of Port Chicago, where the movie theater suffered severe C or moderate B damage. The side of the frame building was crushed in 5 to 10 feet and the roof sagged. This was the heaviest damage seen beyond one mile.

3. At this point I will cease to be chronological and will present data obtained.

Time of detonation: 2218-44, 17 July, 1944, (as estimated from seismic records).

Amount of high explosive involved: 1500 to 1750 (2000 lb.) tons, of which about 200 tons were in cars on the dock. This is limited (by me) to TNT and torpex in bombs and depth charges, and does not take into account H.E. in projectiles and AP bombs, smokeless powder and incendiary material.

Disposition of H.E.: 1552 tons stowed in Nos. 2 (565 tons), 3 (525 tons) and 4 (462 tons) holds of Liberty Ship S.S. E. A. BRYAN. The mean draft of the ship was 21 feet and the depth of water was 30 feet.

Location of S.S. E. A. BRYAN: At a pier approximately parallel to and 400 feet from the shoreline of Suisun Bay. S.S. E. A. BRYAN was moored to the inland side of the pier. The other side of the pier was occupied by S.S. QUINALT VICTORY, waiting to load.

Blast damage:

S.S. E. A. BRYAN fragmented and widely distributed.

S.S. QUINALT VICTORY torn in large pieces and moved about a ship's length into the stream.

Pier - no evidence of pier or piling remaining within 400 feet of detonation. Beyond 400 feet, pier remains, but is torn from piling back to 700 feet.

Joiner shop (light frame structure) at 1,000 feet was demolished, but housed the nearest survivors (three civilian workmen, who were not badly injured.)

Sides of freight cars not in revetments and within 500 to 700 yards, were severely buckled if sides were steel, or splintered if sides were wood. The freight cars were the least rugged structures out to a radius of 1300 yards, so the outer limit of A damage was rather hard to estimate. Possibly A damage would have extended to 700 yards had there been ordinary buildings or factories in this area.

At 400 yards several freight cars in a revetment had their tops bent nearly double and their sides severely buckled.

One remarkable sight was a pile driver not badly damaged and still upright on new piling, at a distance of 270 to 300 yards.

The radius of B damage for the light frame structures in the administrative and barracks areas can be inferred from the fact that at least 80% of these buildings at 1300 to 1500 yards were back in use within two days. It appeared that with these light frame structures, at 1300 yards, the factor which made the difference between C and B damage was the amount of open door or window area for the blast wave to get in. Thus a firehouse garage or shop with large doors open toward the detonation was very likely to be wrecked, while a closed structure generally suffered only broken windows.

4. Discussion

If I were pressed for a figure for B damage now, before Ens. Reynolds and Dr. Shipiro have analyzed their records, I would guess that B damage would be 100% from 600 to say 800 yards, and would then taper off to 50% at 1,000 yards. At 1,500 yards only occasional structures would suffer B damage.

The relative position of the empty ship, S.S. QUINALT VICTORY, is such that she might have acted as a reflector to increase the blast in the direction of the barracks area, and to decrease air blast and wave effect toward the channel and lighthouse (about 1,000 yards). More evidence on these points will be available when the Court has the eyewitness testimony of the steersman of a tug which was said to be in the channel at about 500 yards from the detonation.

Ens. Reynolds and Dr. Shapiro were scheduled to inspect the lighthouse on 22 July, and on 24 July to discuss the seismic records with Professor Perry Byerly of the University of California. These data, together with analysis of fragment distribution, and discussion with the Court, of eyewitness testimony of an airliner pilot said to have seen the explosion from 7,000 feet altitude, should permit a fairly complete analysis of the more violent effect of the detonation.

Various eyewitnesses interviewed by ONI agreed that the column of fire rose vertically and then mushroomed. A second detonation is supposed to have followed the first one at an interval estimated from 1/5 second to many seconds.

Comparing loss of life to the Halifax disaster, it appears that all but some five of the victims at Port Chicago were right on top of the explosion, in a position corresponding to some 25 crew members and fire fighters at Halifax. Thus, the comparison for remote victims is Halifax about 1,475, Port Chicago less than 5. If the two explosions are considered to be of the same order of magnitude, the difference in loss of life can be attributed to the fact that Port Chicago was designed for large explosions.

5. It is emphasized that the data and discussion given in this memorandum are preliminary and necessarily rough. Several weeks will be required to assemble and analyze data for an adequate report.

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